Challenging Two Mental Illness Stigmas: Personal Responsibility and Dangerousness

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Abstract

Two stigmatizing attitudes related to dangerousness and personal responsibility may undermine the opportunities of persons with serious mental illness. This study set out to examine path models that explain how these attitudes lead to discriminatory behavior and to assess the impact of antistigma programs on components of personal responsibility and dangerousness models. Two hundred thirteen persons were randomly assigned to one of five antistigma conditions: education on personal responsibility, education on dangerousness, contact with a person with serious mental illness where personal responsibility is discussed, contact where dangerousness is discussed, or no change. Persons completed an attribution questionnaire (AQ) representing personal responsibility and dangerousness path models at pretest, posttest, and 1-week followup. They also completed tasks that represented helping behavior. Goodness of fit indexes from linear structural modeling were mixed for both models but suggested that fear of dangerousness was a key attitude leading to discriminatory behavior. Results also showed that subjects who had contact with persons with serious mental illness experienced greater changes than subjects in the education or control groups did on measures of attribution and helping behavior.

Keywords: Stigma, responsibility, dangerousness, discrimination, stigma change.

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The opportunities provided to people with serious mental illnesses like schizophrenia are significantly diminished by public stigma.* Members of the general public are less likely to hire people who are labeled mentally ill (Olshansky et al. 1960; Farina and Felner 1973; Bordieri and Drehmer 1986; Link 1987), less likely to lease them apartments (Page 1977, 1983, 1995), and less likely to freely interact with them (Martin et al. 1999). Public stigma is a fairly common phenomenon. Studies show that many citizens in the United States (Rabkin 1974; Roman and Floyd 1981; Link 1987; Phelan et al. 1999) and most Western nations (Greenley 1984; Madianos et al. 1987; Bhugra 1989; Brockington et al. 1993; Hamre et al. 1994) endorse stigmatizing attitudes about mental illness. One might think that negative attitudes have improved with greater public awareness about mental illness. Unfortunately, research suggests the contrary—namely, that stigmatizing attitudes have actually worsened over the past 30 years (Pescosolido et al. 1999).

Given the negative impact of stigma on persons with serious mental illness, we have two goals in this article. First, in study 1, we will develop and evaluate two models—personal responsibility and dangerousness—that describe the relationship between stigmatizing attitudes and discriminatory behavior (such as refusing to hire or rent to people with serious mental illness). This kind of research is essential for the development of antistigma programs. The second part of this article, study 2, examines the effects of several stigma-challenging strategies that have been developed, in part, based on the two models developed in study 1.

Two Models of Mental Illness Stigma

Bernard Weiner (1995) developed a model of causal attribution that at least partly explains the relationship between stigmatizing attitudes and discriminatory behavior. As outlined in figure 1, Weiner believed that attribut-

* We have distinguished between *public stigma* (ways in which members of the general public show prejudice and discrimination against people with serious mental illness) and *self-stigma* (ways individuals with serious mental illness turn against themselves as a result of living in a culture where mental illness stereotypes prevail [Corrigan & Watson, in press]).

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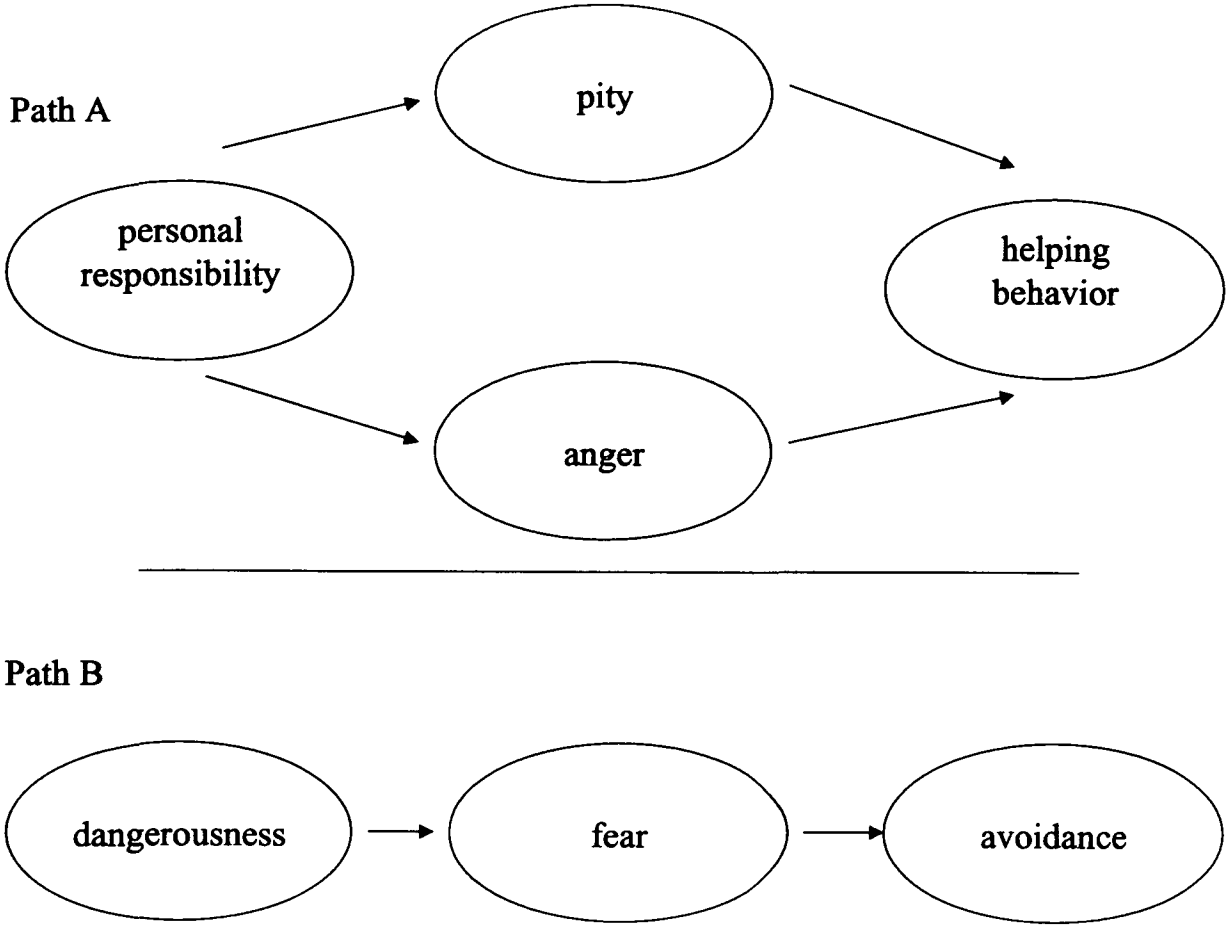
Figure 1. Hypothetical paths accounting for stigmatizing reactions. Path A represents relationships between attributions of personal responsibility for mental illness, subsequent pity or anger, and the effects of this pity or anger on helping behavior. Path B represents attributions of dangerousness, subsequent fear, and avoidant behavior.



ing personal responsibility for a negative event (e.g., "That person causes his crazy behavior") leads to anger ("I'm sick and tired of that kind of irresponsibility!") and diminished helping behavior ("I'm not going to give him a ride"). Conversely, attributing no blame for a harmful event ("He can't help himself; he's mentally ill") leads to pity ("That poor man is ravaged by mental illness") and the desire to help ("I'll rent him a room until he's back on his feet"). What makes these behaviors discriminating? One definition of discrimination is either withholding opportunities from or reacting punitively to someone solely because he or she is a member of a stigmatized outgroup (Crocker et al. 1998). These outgroups have included ethnic minorities, women, and people with disabilities (including people with serious mental illness). Withholding opportunities parallels the refusal of helping behavior in Weiner's model.

Are attitudes in general, and attributions in particular, correlated with behavior? After a comprehensive review of the literature, Petty and Cacioppo (1996) noted that the answer to this question is "yes" when attitudes and behaviors are measured appropriately (Azjen and Fishbein 1977), when attitudes are based on direct experience (Fazio and Zanna 1981), and when behaviors require a preceding deliberative process to initiate (Triandis 1977). The specific association between causal attribution, mediating anger or pity, and subsequent behavior has been validated in several samples (Weiner et al. 1982; Reisenzein 1986; Schmidt and Weiner 1988; Weiner et al. 1988; Zucker and Weiner 1993; Dooley 1995; Graham et al. 1997; Menec and Perry 1998; Rush 1998; Steins and Weiner 1999). Notable among these studies were investigations by Reisenzein (1986) and Steins and Weiner (1999) that examined the causal relationships in Weiner's

model using latent-variable structural modeling techniques. We have adopted this methodological strategy and statistical approach to evaluate whether Weiner's attribution model explains the relationship among judgments about a person's responsibility for his or her mental illness, subsequent pity or anger, and discriminatory behavior.

Responsibility attributions seem to make sense for explaining the relationship between stigma and discriminatory behavior. However, these kinds of attributions markedly differ from the typical attitudes about mental illness that emerge in factor analyses of public stigma—namely, that people with serious mental illness need to be segregated from society because they are *dangerous* (Cohen and Struening 1962; Taylor and Dear 1981; Brockington et al. 1993; Link et al. 1999; Pescosolido et al. 1999). We have outlined one speculative model elsewhere (Corrigan 2000) and repeat it at the bottom of figure 1. According to this model, attributing a person's behavior as dangerous leads to fear; most people respond to violent threats of any kind with apprehension (Johnson-Dalzine et al. 1996). Several studies have found a specific relationship between perceiving persons with serious mental illness as dangerous and fearing them (Link and Cullen 1986; Levey and Howells 1995; Angermeyer and Matschinger 1996; Wolff et al. 1996). Fear about a person's dangerousness, in turn, yields avoidant behaviors. For example, one study has shown that a fearful reaction to two political assassination attempts attributed to persons with schizophrenia led to greater social distance between the public and the community of individuals with serious mental illness (Angermeyer and Matschinger 1996). This historical finding has been supported by other research—namely, perceptions of dangerousness led to avoidance of persons with serious mental illness (Madianos et al. 1987; Levey and Howells 1995). Hence, employers failed to hire persons with serious mental illness and landlords did not permit people with psychiatric disabilities to move into the landlords' properties.

This model is a variation of what Weiner (1995) called primary appraisal: An emotional response like fear yields a behavioral outcome (avoidance) without a mediating attribution. In fact, another study looked at similar variables (Boisvert and Faust 1999): A significant relationship was found between violence in mental illness and attributions about the locus of causality (internal vs. external locus of control). Using latent-variable structural modeling techniques, we expect to find the causal relationships outlined at the bottom of figure 1.

Changing Attitudes About Dangerousness and Personal Responsibility

Three strategies relevant to changing mental illness stigma have been gleaned from the social psychology literature: protest, education, and contact (Corrigan and Penn 1999). Protest seeks to suppress stigmatizing attitudes about mental illness and behaviors that promote these attitudes through appeals to moral indignation: "Shame on you for thinking about mental illness in a disrespectful way." Education replaces stigma with more accurate conceptions about the disorders through didactic programs. Contact challenges public attitudes about mental illness through direct interactions with people who have these disorders.

The relative impact of these stigma change strategies was examined in an earlier randomized controlled study (Corrigan et al. 2001*c*). Results found that protest yielded no significant change in stigmatizing attitudes. This is consistent with a suppression rebound effect found in other social psychological research—that is, trying to suppress negative attitudes about a group fails to diminish stereotypes but instead, ironically, leads to greater recollection of those attitudes (Macrae et al. 1994, 1996). Participation in the education condition led to significant improvement in stigmatizing attitudes. Assignment to the contact condition, however, yielded even greater changes than education.

In the study discussed in this article, we repeated the education and contact conditions to determine their effects on the elements in figure 1. We blended these processes with content areas that address attitudes that people with serious mental illness are dangerous or responsible for their disabilities. Consistent with other research on education, our didactic program included direct challenges to expectations that persons with serious mental illness are dangerous (Holmes et al. 1999; Penn et al. 1999). The contact condition also reviewed misconceptions about dangerousness. We expected these programs to have a marked impact on attributions of dangerousness, consequent fear, and avoidance behavior. In addition, we examined the effects of education and contact programs that discuss personal responsibility for mental illness.

Study 1

Method. In study 1, we examined the path models that represent the impact of judgments of responsibility and dangerousness on behavior. Research participants were drawn from the at-large student body of a local community college. We have used community college students in past research because they tend to be more demographically representative of the population as a whole than are college sophomores from 4-year universities (Corrigan et al. 1999, 2001*c*). Two hundred sixteen students were informed of the study and asked to participate; 213 agreed and completed all measures. Demographics for this sample are summarized in table 1. The sample was almost

three-quarters female and more than 80 percent unmarried. Ethnic representation was fairly mixed—about 40 percent European-American and 40 percent African-American; this diversity is important because other investigations have found that ethnicity predicts prejudice against mental illness (Corrigan et al. 2001*a*). The sample also showed a wide range of income and education levels.

Research participants were administered the AQ modeled after Reisenzein (1986) and shown in the appendix. Two to three items each sampled the seven constructs in figure 1 (e.g., "How frightened of a person with mental illness would you feel?"). Research participants responded to the items using a nine-point Likert scale. Eleven items were taken from Reisenzein—to assess personal responsibility, pity, anger, and helping behavior—with two minor changes. Instead of rating reactions to a person described in test scenarios, research participants were asked to report their attributions about persons with serious mental illness in general. One question from Reisenzein specifically asked the type of helping behavior that research participants might provide: "help in any way that might be necessary, including if necessary first aid" (Reisenzein 1986, p. 1126). We replaced this question with an item relevant to mental illness: "How likely is it that you would help a person with a mental illness?"

In a similar manner, three AQ items were generated for each of the constructs in the bottom half of figure 1: dangerousness ("I would feel unsafe around persons with serious mental illness"), fear ("Persons with serious mental illness terrify me"), and avoidance ("I would try to avoid a person with mental illness"). These items were also answered using nine-point Likert scales. Research participants were administered AQ items in one of two random orders.

Table 1. Demographic characteristics of participants in this study, *n* = 213

Characteristic	
Age, mean (SD, range)	26.3 (12.2, 18–80)
Gender, % female	70.4
Marital status, %	
Single	81.5
Married	10.6
Separated, divorced, or widowed	7.9
Ethnicity, %	
European-American	43.9
African-American	41.5
Latino	8.5
Other	6.1
Household income, %	
< 20,000	31.0
20,000–39,999	21.1
40,000–59,999	23.9
60,000–80,000	16.9
> 80,000	7.0
Education, %	
High school	14.0
Some college	67.8
Associate's degree	10.3
Bachelor's degree	2.8
Some graduate school	4.3

Note.—SD = standard deviation. Household income percentages do not add up 100% due to rounding.

Results. Path analysis with latent variables was used to test the theoretical model outlined in figure 1 because it is one of the more robust measures of both the size and direction of associations among a set of variables. An explicit distinction is made between latent variables or constructs and manifest variables or the indicator of these constructs; typically, multiple indicators (in this study, individual items of the AQ) are used for each latent variable. Results of these analyses are summarized in the top half (for personal responsibility) and the bottom half (for dangerousness) of figure 2. In accord with conventional practices in the causal modeling literature (Bentler 1988), circles were used in figure 2 for latent factors and squares designated manifest indicators (individual AQ items). Unidirectional arrows between circles represent causal paths.

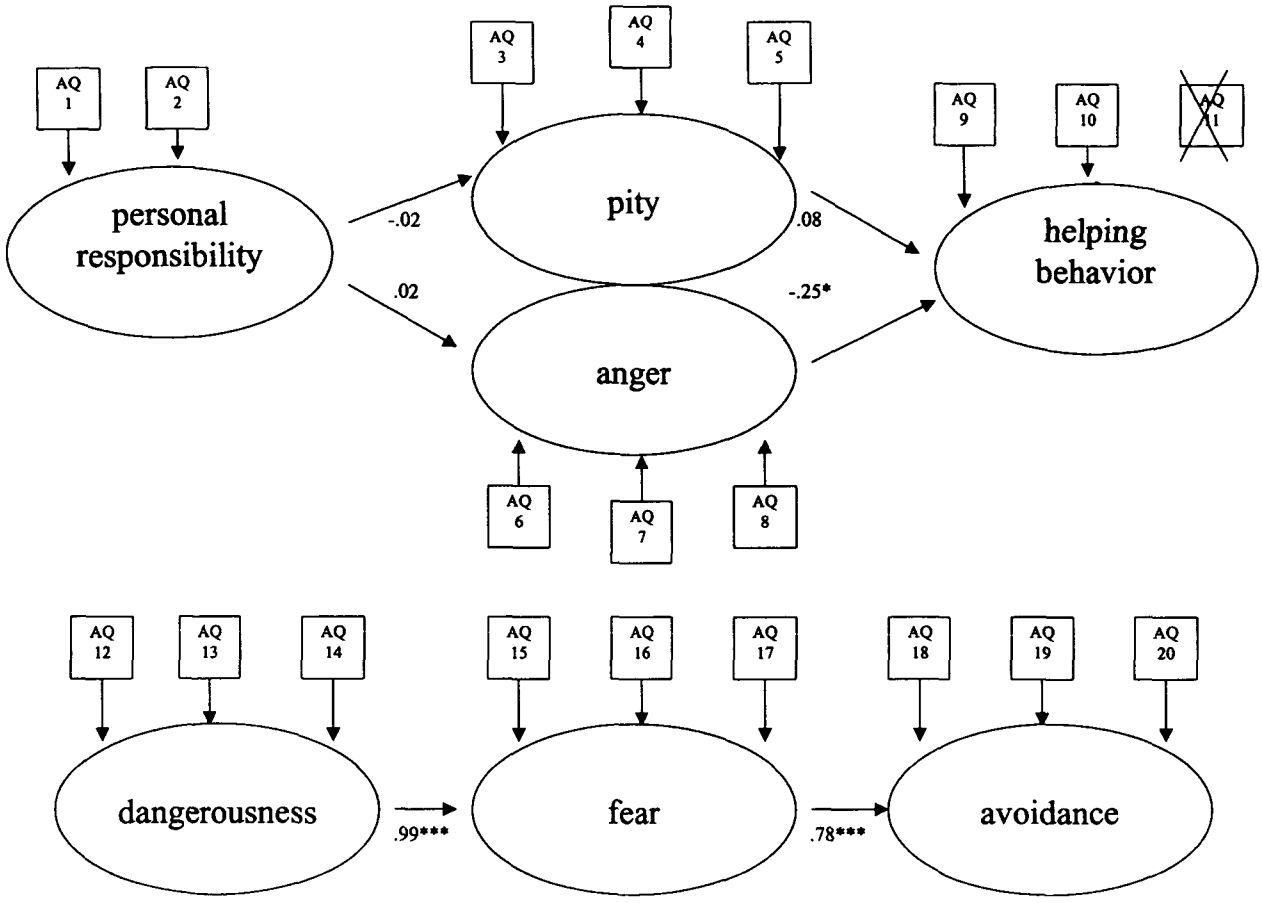
All analyses were conducted using the SAS System's CALIS procedure (SAS Institute 1990), and the tested models were covariance structure models with multiple indicators for all latent constructs. Standard deviations and intercorrelations for the study's manifest variables are summarized in tables 2 and 3. This correlation matrix served as input to the CALIS procedure.

The present analysis followed a two-step procedure based in part on an approach recommended by Anderson and Gerbing (1991). In the first step, confirmatory factor analysis (CFA) was used to develop a measurement model that demonstrated an acceptable fit to the data—that is, the AQ items fit into the hypothetical constructs outlined in figure 1. Note that results of the CFA provide psychometric support for the AQ. In the second step, the measurement model was modified so that it came to represent the theoretical (or path) model of interest. We review the measurement and theoretical models for personal responsibility and dangerousness separately.

Personal Responsibility Model

Measurement model. In path analysis with latent variables, a measurement model describes the nature of the relationship between a number of latent variables (or factors) and the manifest indicator variables that hypo-

Figure 2. Standardized path coefficients for the personal responsibility and dangerousness models. These coefficients appear on single-headed straight arrows. *t* values corresponding with starred (*) coefficients were greater than 1.96 ($p < 0.05$); ***$p < 0.0001$.



thetically comprise the latent factors. The first model from our data comprised four latent constructs: personal responsibility, pity, anger, and helping behavior. Measurement models were estimated using the maximum likelihood method.

The chi-square value representing goodness of fit for the model was statistically significant, $\chi^2(38) = 131.2$, $p < 0.0001$; statistically significant findings do not support a measurement model. Typically, the chi-square statistic is used to test the null hypothesis so that the model fits the data when proper assumptions are met. In practice, however, the statistic is very sensitive to sample size and departures from multivariate normality and may often result in the rejection of a well-fitting model. A number of other results, however, indicated further problems with this model's fit. Specifically, the pattern of large normalized residuals, parameter significance tests, and Lagrange multiplier tests showed that one manifest indicator, AQ11 (concern), was apparently affected by both an alternative construct (pity) and the construct that it was expected to influence (helping behavior). As a result, the model resulting from this CFA did not fit significantly with our data. Because AQ11 was apparently a multidimensional variable, it was eliminated and the measurement model was reestimated.

Goodness of fit indexes for the respecified measurement model are listed on line 6 of table 4. The revised measurement model displayed values greater than 0.9 on the normed fit index (NFI), non-normed-fit index (NNFI), and comparative fit index (CFI), all indicative of an acceptable fit (Bentler and Bonnett 1980; Bentler 1989). Another way to appreciate the size of the fit is to compare these indexes with the values provided by the uncorrelated factors model (line 4 of table 4). In all cases, the measurement model provided greater values. Hence, this model was accepted as the study's final measurement model for personal responsibility.

Theoretical model. A path analysis of the theoretical model was completed next, omitting AQ11 from the

Table 2. Standard deviations and intercorrelations for manifest variables: personal responsibility model

	SD	AQ1	AQ2	AQ3	AQ4	AQ5	AQ6	AQ7	AQ8	AQ9	AQ10	AQ11
AQ1 (controllable)	1.95	1.00										
AQ2 (responsibility)	2.08	0.35	1.00									
AQ3 (sympathy)	2.76	0.00	–0.02	1.00								
AQ4 (pity)	2.20	0.08	–0.05	0.45	1.00							
AQ5 (sorry for)	2.60	–0.03	–0.06	0.64	0.58	1.00						
AQ6 (angry)	1.59	0.10	0.11	0.26	–0.02	0.16	1.00					
AQ7 (irritated)	1.41	0.05	0.10	0.29	0.01	0.20	0.47	1.00				
AQ8 (aggravated)	1.57	0.02	0.08	0.30	0.05	0.24	0.72	0.58	1.00			
AQ9 (certainty)	1.95	0.07	0.01	0.03	0.33	0.05	–0.19	–0.06	–0.14	1.00		
AQ10 (amount)	1.96	0.07	–0.01	–0.03	0.30	0.01	–0.22	–0.14	–0.21	0.89	1.00	
AQ11 (concern)	1.97	0.07	–0.04	0.22	0.47	0.40	–0.11	–0.05	–0.07	0.34	0.30	1.00

Note.—AQ = attribution questionnaire; SD = standard deviation.

Table 3. Standard deviations and intercorrelations for manifest variables: dangerousness model

	SD	AQ12	AQ13	AQ14	AQ15	AQ16	AQ17	AQ18	AQ19	AQ20
AQ12 (unsafe)	2.03	1.00								
AQ13 (dangerous)	2.02	0.52	1.00							
AQ14 (threatened)	1.87	0.67	0.66	1.00						
AQ15 (terrify)	1.65	0.69	0.48	0.72	1.00					
AQ16 (scared)	1.85	0.67	0.60	0.85	0.71	1.00				
AQ17 (frightened)	1.86	0.68	0.62	0.85	0.73	0.86	1.00			
AQ18 (hospitalize)	1.92	0.55	0.50	0.50	0.44	0.47	0.45	1.00		
AQ19 (avoid)	2.42	–0.36	–0.29	–0.42	–0.37	–0.39	–0.38	–0.34	1.00	
AQ20 (don't rent to)	2.22	0.33	0.20	0.17	0.21	0.22	0.20	0.27	–0.28	1.00

Note.—AQ = attribution questionnaire; SD = standard deviation.

analyses in the process. Goodness of fit indexes for the personal responsibility theoretical model are provided on line 5 of table 4 and yield mixed support for the model. Values on the NNFI, NFI, and CFI all exceeded 0.9, thereby supporting the data's fit to the model. Another way to determine fit is to compare CFI and NNFI indexes from our data to findings from the path analyses on personal responsibility conducted in earlier studies (lines 1 and 2 of table 4). A comparison shows that the CFI from our model was greater than that reported by Steins and Weiner (1999) but the NNFI was less than results from Reisenzein (1986). Moreover, the chi-square to *df* ratio was greater than 2 (not supporting goodness of fit).

Figure 2 summarizes standardized path coefficients for the theoretical model. Only the relationship between anger and helping behavior yielded a significant coefficient in the appropriate direction. The other three were nonsignificant.

Dangerousness Model. Indexes for the theoretical and measurement models for the dangerousness model are also summarized in table 4 and figure 2. Overall, results suggest data fit this model far better than the personal responsibility model. We review the measurement and theoretical models in turn.

Measurement model. We assumed that the first model for dangerousness comprised three latent constructs: dangerousness, fear, and avoidance behavior. The chi-square value for the model was statistically significant, $\chi^2(24) = 64.5$, $p < 0.05$, thereby not supporting goodness of fit. However, the NFI, NNFI, and CFI were all above 0.9 (see line 10 of table 4). Moreover, these indexes were well above the NFI, NNFI, and CFI generated by the uncorrelated factors model (line 8, table 4). In addition, the pattern of large normalized residuals and Lagrange multiplier tests failed to identify a manifest indicator that did not fit with its corresponding latent factor. Hence, this model was accepted as the study's final measurement model for dangerousness.

Theoretical model. A path analysis of the theoretical model was completed next. Goodness of fit indexes for the dangerousness theoretical model (line 9, table 4) provided mixed support for the model. Values on the NNFI, NFI, and CFI all exceeded 0.9, supporting goodness of fit. These values also mostly exceeded the corresponding indexes from the studies by Reisenzein (1986) and Steins

Table 4. Goodness of fit indexes for the personal responsibility and dangerousness model studies, *n* = 213

Model	Chi-square	*df*	NFI	NNFI	CFI
Reisenzein (1986) model					
1. Theoretical model	82.2	60	—	0.944	—
Steins and Weiner (1999) model					
2. Theoretical model	21.1	3	—	—	0.880
Path A. Personal responsibility					
3. Null model	934.9	45	0.000	—	—
4. Uncorrelated factors	104.5	35	0.887	0.898	0.921
5. Theoretical model	86.7	31	0.907	0.909	0.937
6. Measurement mode	71.7	29	0.923	0.926	0.952
Path B. Dangerousness					
7. Null model	1292.5	36	0.000	—	—
8. Uncorrelated factors	517.9	27	0.599	0.479	0.609
9. Theoretical model	74.6	22	0.942	0.931	0.958
10. Measurement model	64.5	24	0.950	0.951	0.968

Note.—CFI = comparative fit index; NFI = normed fit index; NNFI = non-normed-fit index.
Goodness of fit indexes for structural and combined models are listed independently for the two paths.

and Weiner (1999) as well as the values from the theoretical model for personal responsibility. However, the chi-square to *df* ratio exceeded 2, thereby not supporting a good fit. All the standardized path coefficients for the theoretical model (in figure 2) yielded significant coefficients ($p < 0.001$) in the appropriate direction.

Summary. Results were mixed in terms of the path model for personal responsibility. The final measurement model supported the factor structure for the four latent constructs—personal responsibility, pity, anger, and helping behavior—and goodness of fit indexes mostly supported the model. However, only one of the four standardized path coefficients was significant; persons who were high in anger were less likely to provide help. None of the other relationships were supported. These findings were somewhat sobering given earlier research by Reisenzein (1986) that provided clear support for this model. Does this suggest the model does not fit for mental illness stigma, or might some methodological differences between the studies account for this discrepancy? In part, this difference may be due to statistical limitations. The final measurement model for our study did not yield a result with three manifest indicators per latent variable; this shortfall frequently undermines goodness of fit (Hatcher 1994). Moreover, the task in this study differed from the procedure in the investigation by Reisenzein. Participants in the earlier study were instructed to rate their attributions, anger, pity, and help in response to a vignette about a specific person. In our study, research participants provided ratings based on their overall impressions of persons with serious mental illness. Perhaps this task, which is more abstract, diminished the relationships that result from attributions about real people with whom the person interacts.

Results for the dangerousness model seemed far more consistent. The CFA yielded a factor structure that fit the data well and failed to identify indicator items needing to be dropped from the model. Like the earlier model, indexes representing goodness of fit were mostly supportive. More important, the three standardized path coefficients were highly significant in the predicted direction. These results seem to support our contention that dangerousness evokes fear, which in turn promotes avoidance of the person perceived to be dangerous: the person with serious mental illness.

Study 2

Method. In the second study, we designed a 2 (processes: contact vs. education) × 2 (contents: dangerousness vs. personal responsibility) study to test the effects of various stigma change strategies on stigmatizing attributions and subsequent behaviors. The same sample described in study 1 participated in study 2. Participants were randomly assigned to one of five groups: education on personal responsibility, education on dangerousness, contact with a person with serious mental illness where personal responsibility is discussed, contact where dangerousness is discussed, or no change (the control group). A single leader conducted each condition with four to eight participants in a quiet room with no distractions. Each program

included two parts: a 10-minute presentation immediately followed by a 5-minute discussion. Earlier research has shown that short stigma change programs lead to significant improvement in attitudes (Penn et al. 1994, 1999; Corrigan et al. 2001*c*). The no-change control presentation concerned hobbies and technology in the 1990s and discussed no issues related to mental illness or physical disability.

The key ingredient to education programs is contrasting myths about mental illness with information that challenges these myths (Corrigan and Penn 1997). Hence, the education presentation reviewed seven myths drawn from the literature (Harding and Zahniser 1994; Penn et al. 1999) and facts that challenge these myths. The education/dangerousness condition included discussions about the relationship between psychoses and violence (Monahan 1992). The education/personal responsibility condition replaced discussion of dangerousness with consideration of the controllability of serious mental illness adapted from Weiner (1995). Leaders specifically paired myth (e.g., "Persons with serious mental illnesses like schizophrenia are violent and should be avoided") with research findings (e.g., "Most persons with serious mental illness are no more violent than the average citizen").

Four group leaders were trained to provide the two education conditions and the one control condition for the study. The scripts for these presentations were written out and read verbatim by the leader. The presentation for the two education and control conditions included slides to illustrate key points. The leaders were also provided a set of standardized open-ended questions about the corresponding presentation to facilitate discussion. These four leaders rotated through all conditions and were assigned using a Latin square. Post hoc analyses failed to find a leader effect.

Research participants were also randomly assigned to one of two contact conditions with content that focused on dangerousness or personal responsibility. Research participants in these conditions listened to a 10-minute presentation by one of two persons who discussed their serious mental illness. Both persons were selected because they had at least a 10-year history of psychotic symptoms, suicide attempts, hospitalization for bipolar disorder, and long recovery periods. Both persons have made a satisfactory recovery, live independently, work, and report a satisfactory quality of life. These two persons rotated across contact conditions for different cohorts.

Research completed on other stigmatized groups has identified several factors that augment the impact of contact on public attitudes (Stephan 1987); they were incorporated into the contact condition. Contact effects are enhanced when members of the public meet persons who mildly disconfirm the stereotype (Weber and Crocker 1983; Johnston and Hewstone 1992). Mild disconfirmation was communicated to research participants in terms of current status for both contact persons—that is, despite successful outcomes, the two contact group leaders still struggled with recurring symptoms and discussed this struggle in their presentation. Members of the public tend to disbelieve contacts who grossly disconfirm a stereotype: "That guy was not really mentally ill." Finally, the effects of contact are facilitated when participants are able to positively interact with contacts (Johnson et al. 1984; Worchel 1986); hence, contact group leaders facilitated a 5-minute discussion in which participants questioned the people with mental illness about their experiences.

Dependent measures. Completion of the AQ for study 1 was part of the pretest battery for study 2. In addition, research participants were administered the Social Distance Scale (SDS) at pretest. The AQ and SDS were readministered immediately following the stigma condition. In addition, research participants were invited to return 1 week later to complete the measures at followup. Research participants were debriefed about the study after the third test administration.

The SDS is considered a proxy measure of behavior related to attitudes about mental illness—that is, it represents verbal reports about how research participants might interact with person with serious mental illness (Corrigan et al. 2001*c*). The SDS comprises seven questions about interactions with people with serious mental illness (e.g., "How would you feel about renting a room in your home to a person with severe mental illness?"). Persons respond to each item using a 0 to 3 willingness scale (3 = definitely unwilling). Internal consistency for the SDS total score derived from this sample was satisfactory (α = 0.76).

In addition to verbal statements about behavior, we wanted to assess direct behavior related to helping persons with serious mental illness. Individuals participating in the study were reimbursed $20 at posttest for their effort. After completing all posttests, research participants were instructed in a brief note that they could donate any or all of this money to the National Alliance for the Mentally Ill of the South Suburbs (NAMI–SS); participants were provided a brief description of the advocacy and education efforts of NAMI–SS. Research participants were given a receipt on which they could specify the number of dollars they wished to donate. Total donated dollars is an index of helping behavior.

Results. To determine the effects of randomizing research participants to condition, the frequency of demographic variables summarized in table 1 was examined across the five antistigma conditions; no significant differences were found across groups ($p > 0.05$). Moreover, no

significant differences were found in dependent measure pretest scores across groups ($p > 0.40$).

The number and kind of analyses that were possible to determine the effects of the antistigma strategies were fairly complex, as evidenced by tables 5 and 6. The analyses are organized into three stages. First, we examined the effects of the five conditions on AQ factors and SDS score from pre- to posttest. This section includes a posttest-only examination of the effect of experimental conditions on NAMI–SS donations. Second, we examined the specific effects of two processes by two content areas. Finally, we completed followup analyses examining the impact of the five conditions on AQ and SDS variables 1 week later.

1. Pretest and posttest analyses. Pre-post differences in dependent variables across conditions were assessed using 2 × 5 (trial by condition) analyses of variance (ANOVAs); results of these analyses are summarized in table 5. Significant interactions were found for all AQ factors except pity. Post hoc tests were mixed but generally found that the two contact conditions plus education/personal responsibility led to more significant improvement in AQ scores. A significant interaction was also found for the SDS. Participants in the control condition showed less change than those in the other four antistigma conditions. Finally, results of a one-way ANOVA for the amount of money donated to NAMI–SS were significant; both contact conditions and education/personal responsibility yielded greater helping behavior.

2. Content by process interactions. The research question of specific interest in this article was the interaction of two different antistigma intervention processes (education vs. contact) with two different intervention contents (dangerousness vs. responsibility). A series of 2 × 2 × 2 (trial by process by content) ANOVAs were completed to evaluate this question and are summarized in table 6. Significant interactions were found for two of the four AQ factors that correspond with the personal responsibility model. Attributions related to the responsibility factor improved significantly for antistigma interventions that included responsibility as content; this serves as a manipulation check. Contact also significantly improved the AQ anger scale over education from pre- to posttest.

All three AQ factors comprising the dangerousness model showed significant trial by interventions interactions. Dangerousness, fear, and avoidance factors all significantly improved after contact (compared to education). Moreover, a significant interaction was found for the SDS, with better results caused by contact. Finally, a 2 × 2 ANOVA (process by content) was completed, with NAMI–SS donations as the dependent variable. A significant interaction was found with contact, which led to greater donations than education.

Followup analyses. About half the participants (n = 97) returned 1 week later to complete the followup measures. Differences were examined between the followup group and those research participants who did not return to determine whether the followup group was distinct from the entire sample participating in the study. None of the demographic measures differed significantly across groups ($p > 0.15$). All but one of the pretest measures failed to differ significantly across groups; the followup group was higher only on AQ responsibility ratings at pretest ($F[1,202] = 6.78$, $p < 0.01$). Moreover, results of 2 × 2 ANOVAs (followup status [yes or no] by trial [pre- vs. post-]) for all the dependent measures in the study were nonsignificant, showing that the two followup groups did not differ in the size of change scores between pre- and posttesting. Hence, the followup group members appeared to be similar to those who did not return 1 week later to retake the test battery.

Table 5 lists the results of 2 × 5 (trial by condition) ANOVAs examining effects at followup. The middle column of table 5 represents change from pretest to followup. Significant interactions were found for two of four AQ factors in the personal responsibility model: pity and anger. Post hoc tests showed that only contact conditions accounted for this significant change. Two of three AQ factors that composed the dangerousness model showed significant change from pretest to followup: fear and avoidance. Post hoc tests showed that this change was only due to one or both of the contact conditions. A significant interaction was also found for the SDS from pretest to followup; change was due to only the contact condition with personal responsibility content.

Table 5 also includes the results of 2 × 5 ANOVAs representing changes from posttest to 1 week followup. In all but one dependent variable, no significant interactions were found, suggesting that improvement in attributions did not return to baseline during this time.

As in the analysis of the pre-post data, 2 × 2 × 2 (process by content by trial) analyses were conducted to determine respective effects from pretest to followup for stigma change processes and content. These results are summarized in table 6. In most cases, significant interactions were found between antistigma processes and trial, with better improvement because of contact compared to education. Three of four AQ factors in the personal responsibility model yielded significant results. Pity changed significantly from pretest to followup as a result of content; the content conditions that included personal responsibility yielded better results. Significant interactions were found for anger and help, with contact yielding greater change. Moreover, significant interactions were found for all three AQ factors of the dangerousness model, with each factor yielding greater change because of con-

Table 5. Summary of inferential statistics representing change in attributions and social distance, and NAMI–SS donation behaviors as a result of five stigma change strategies

Variables	Pre vs. post	Pre vs. followup	Post vs. followup
Responsibility			
Group effect	$F(4,206) = 3.40$, $p < 0.05$	$F(4,93) = 3.44$, $p < 0.05$	$F(4,96) = 4.50$, $p < 0.005$
Trial effect	$F(1,206) = 2.59$, *ns*	$F(1,93) = 6.57$, $p < 0.05$	$F(1,96) = 0.39$, *ns*
Interaction	$F(4,206) = 7.28$, $p < 0.0001$	$F(4,93) = 1.64$, *ns*	$F(4,96) = 0.49$, *ns*
Post hoc tests	CTL = EDUd = CONd < EDUr = CONr	NA	NA
Pity			
Group effect	$F(4,206) = 0.76$, *ns*	$F(4,93) = 2.08$, $p = 0.08$	$F(4,96) = 2.56$, $p < 0.05$
Trial effect	$F(1,206) = 1.60$, *ns*	$F(1,93) = 6.33$, $p < 0.05$	$F(1,96) = 1.96$, *ns*
Interaction	$F(4,206) = 0.88$, *ns*	$F(4,93) = 2.35$, $p = 0.06$	$F(4,96) = 0.88$, *ns*
Post hoc tests	NA	CTL = EDUd = EDUr = CONr < CONd	NA
Anger			
Group effect	$F(4,206) = 1.63$, *ns*	$F(4,93) = 1.42$, *ns*	$F(4,96) = 1.84$, *ns*
Trial effect	$F(1,206) = 35.95$, $p < 0.0001$	$F(1,93) = 0.46$, *ns*	$F(1,96) = 10.31$, $p < 0.005$
Interaction	$F(4,206) = 4.45$, $p < 0.005$	$F(4,93) = 2.62$, $p < 0.05$	$F(4,96) = 0.89$, *ns*
Post hoc tests	CTL = EDUd < EDUr = CONd = CONr	CTL = EDUd = EDUr = CONd < CONr	NA
Help			
Group effect	$F(4,206) = 1.56$, *ns*	$F(4,93) = 1.40$, *ns*	$F(4,96) = 2.23$, $p = 0.07$
Trial effect	$F(1,206) = 27.51$, $p < 0.0001$	$F(1,93) = 5.31$, $p < 0.05$	$F(1,96) = 3.67$, $p = 0.06$
Interaction	$F(4,206) = 3.98$, $p < 0.005$	$F(4,93) = 1.59$, *ns*	$F(4,96) = 2.38$, $p = 0.06$
Post hoc tests	CTL < EDUd = EDUr = CONd = CONr	NA	NA
Dangerousness			
Group effect	$F(4,206) = 1.27$, *ns*	$F(4,93) = 3.29$, $p < 0.05$	$F(4,96) = 3.88$, $p < 0.01$
Trial effect	$F(1,206) = 85.97$, $p < 0.0001$	$F(1,93) = 8.21$, $p < 0.005$	$F(1,96) = 4.73$, $p < 0.05$
Interaction	$F(4,206) = 4.98$, $p < 0.001$	$F(4,93) = 1.59$, *ns*	$F(4,96) = 0.17$, *ns*
Post hoc tests	CTL = EDUr < EDUd = CONd = CONr	NA	NA
Fear			
Group effect	$F(4,206) = 0.93$, *ns*	$F(4,93) = 3.40$, $p < 0.05$	$F(4,96) = 3.52$, $p < 0.05$
Trial effect	$F(1,206) = 32.34$, $p < 0.0001$	$F(1,93) = 2.53$, *ns*	$F(1,96) = 1.37$, *ns*
Interaction	$F(4,206) = 4.43$, $p < 0.005$	$F(4,93) = 2.09$, $p = 0.09$	$F(4,96) = 0.38$, *ns*
Post hoc tests	CTL = EDUr < EDUd = CONd = CONr	CTL = EDUr = EDUd < CONd = CONr	NA
Avoidance			
Group effect	$F(4,206) = 1.49$, *ns*	$F(4,93) = 1.37$, *ns*	$F(4,96) = 3.74$, $p < 0.01$
Trial effect	$F(1,206) = 25.15$, $p < 0.0001$	$F(1,93) = 0.57$, *ns*	$F(1,96) = 0.85$, *ns*
Interaction	$F(4,206) = 4.16$, $p < 0.005$	$F(4,93) = 3.56$, $p < 0.01$	$F(4,96) = 1.04$, *ns*
Post hoc tests	CTL = EDUr < EDUd = CONd = CONr	CTL = EDUd = EDUr < CONd < CONr	NA

Table 5. Summary of inferential statistics representing change in attributions and social distance, and NAMI–SS donation behaviors as a result of five stigma change strategies—*Continued*

Variables	Pre vs. post	Pre vs. followup	Post vs. followup
Social Distance Scale			
Group effect	$F(4,205) = 2.94$, $p < 0.05$	$F(4,93) = 1.43$, *ns*	$F(4,96) = 3.44$, $p < 0.05$
Trial effect	$F(1,205) = 44.89$, $p < 0.0001$	$F(1,93) = 18.58$, $p < 0.0001$	$F(1,96) = 0.58$, *ns*
Interaction	$F(4,205) = 5.90$, $p < 0.0005$	$F(4,93) = 5.46$, $p < 0.0005$	$F(4,96) = 1.57$, *ns*
Post hoc tests	CTL < EDUd = EDUr = CONd = CONr	CTL = EDUd = EDUr = CONd < CONr	NA

Note.—ANOVA = analysis of variance; CONd = contact group with dangerousness content; CONr = contact group with personal responsibility content; CTL = control group; EDUd = education group with dangerousness content; EDUr = education group with personal responsibility content; NA = post hoc tests were not applicable because the interaction between group and trial effects was nonsignificant; NAMI–SS = National Alliance for the Mentally Ill of the South Suburbs; *ns* = nonsignificant. *F* test represents 2 (trial) × 5 (group) ANOVAs for each of the dependent variables grouped as pretest vs. posttest, pretest vs. followup, and posttest vs. followup. Post hoc analyses represent pairwise 2 × 2 analyses between group pretest and either posttest or followup scores. Hence, CTL < EDUd means the improvement in scores for the control group was less than the improvement in scores for the education group with dangerousness content. NAMI donation: one-way ANOVA across five antistigma groups: $F(4,211) = 3.89$, $p < 0.005$; post hoc tests: CTL = EDUd < EDUr = CONd = CONr.

tact. Finally, two significant interaction effects were found when the SDS was used as the dependent variable. Contact produced greater change in SDS scores than education did. Contact combined with content on responsibility yielded the greatest improvement in SDS scores at followup.

Summary. Results show that although education yields some positive benefits, contact with persons with serious mental illness produces the greatest consistent results. Contact yielded highly significant changes in most elements of both the personal responsibility and dangerousness models at posttest. Moreover, most of these improvements were maintained at followup, while many of the benefits that resulted from education returned to baseline 1 week later. Contact also generated significant changes in the SDS, a proxy measure of behavior. Finally, contact had a much greater impact on a real-world helping behavior—donating money to NAMI–SS.

Discussion

We examined two stigmatizing attitudes that impact persons with serious mental illness: Persons with serious mental illness are personally responsible for their disabilities, and persons with serious mental illness are dangerous. Results clearly supported the path between dangerousness, fear, and social avoidance. These findings parallel conclusions drawn from research from the past four decades (Starr 1955; Link et al. 1999; Penn et al. 1999; Pescosolido et al. 1999); the belief that persons with serious mental illness are dangerous is perhaps the most pernicious of stigmatizing attitudes about mental illness. More important, results from our study suggest one mechanism for how dangerousness impacts persons with serious mental illness: The public attitude that most persons with serious mental illness are dangerous leads to fear. Like most sources of fear, people with serious mental illness are avoided. Citizens are less likely to rent apartments to persons with serious mental illness and are more likely to hospitalize them to protect the public.

One especially noticeable finding in this study was the almost perfect correlation between dangerousness and fear. Research by Blascovich and colleagues (2000, 2001) found that stigmatizing labels are highly correlated with perceptions of threat. Moreover, these perceptions of threat are associated with psychophysiological markers of reactivity and arousal (indicators of fear). This kind of reaction occurs even when conscious awareness of being fearful is minimal. Hence, fear seems to be an automatic (not cognitively mediated) response to dangerousness.

Unfortunately, findings reported in this article are based on what participants *say* they would think and how

Table 6. Summary of analyses that examined interactions between process (education vs. contact) and content (dangerousness vs. personal responsibility) factors

Variables	Pre vs. post	Pre vs. followup
Responsibility		
EDUCON × trial	F(1,158) = 1.33, *ns*	F(1,68) = 0.84, *ns*
DANRES × trial	F(1,158) = 19.10, $p < 0.0001$; RES < NotRES	F(1,68) = 0.72, *ns*
EDUCON × DANRES × trial	F(1,158) = 1.98, *ns*	F(1,68) = 0.64, *ns*
Pity		
EDUCON × trial	F(1,158) = 0.16, *ns*	F(1,68) = 0.67, *ns*
DANRES × trial	F(1,158) = 0.61, *ns*	F(1,68) = 4.11, $p < 0.05$; NotRES < RES
EDUCON × DANRES × trial	F(1,158) = 0.53, *ns*	F(1,68) = 0.00, *ns*
Anger		
EDUCON × trial	F(1,158) = 9.34, $p < 0.005$; EDU < CON	F(1,68) = 7.98, $p < 0.01$; EDU < CONd
DANRES × trial	F(1,158) = 0.55, *ns*	F(1,68) = 2.01, *ns*
EDUCON × DANRES × trial	F(1,158) = 0.15, *ns*	F(1,68) = 0.06, *ns*
Help		
EDUCON × trial	F(1,158) = 0.05, *ns*	F(1,68) = 3.06, $p = 0.08$; EDU < CON
DANRES × trial	F(1,158) = 0.36, *ns*	F(1,68) = 0.15, *ns*
EDUCON × DANRES × trial	F(1,158) = 2.16, *ns*	F(1,68) = 0.89, *ns*
Dangerousness		
EDUCON × trial	F(1,158) = 7.12, $p < 0.01$; EDU < CON	F(1,68) = 4.75, $p < 0.05$; EDU < CON
DANRES × trial	F(1,158) = 0.10, *ns*	F(1,68) = 0.81, *ns*
EDUCON × DANRES × trial	F(1,158) = 2.25, *ns*	F(1,68) = 0.56, *ns*
Fear		
EDUCON × trial	F(1,158) = 6.85, $p < 0.01$; EDU < CON	F(1,68) = 5.56, $p < 0.05$; EDU < CON
DANRES × trial	F(1,158) = 0.50, *ns*	F(1,68) = 1.46, *ns*
EDUCON × DANRES × trial	F(1,158) = 0.39, *ns*	F(1,68) = 0.02, *ns*
Avoidance		
EDUCON × trial	F(1,158) = 6.19, $p < 0.05$; EDU < CON	F(1,68) = 10.56, $p < 0.005$; EDU < CON
DANRES × trial	F(1,158) = 0.36, *ns*	F(1,68) = 0.21, *ns*
EDUCON × DANRES × trial	F(1,158) = 0.33, *ns*	F(1,68) = 0.01, *ns*
Social Distance Scale		
EDUCON × trial	F(1,158) = 8.88, $p < 0.005$; EDU < CON	F(1,68) = 9.12, $p < 0.005$; EDU < CON
DANRES × trial	F(1,158) = 0.29, *ns*	F(1,68) = 0.64, *ns*
EDUCON × DANRES × trial	F(1,158) = 1.00, *ns*	F(1,68) = 7.15, $p < 0.01$; CON-NotRES > other 3

Note.—ANOVA = analysis of variance; DANRES = content factor: dangerousness vs. personal responsibility; EDUCON = process factor: education vs. contact; NAMI–SS = National Alliance for the Mentally Ill of the South Suburbs; notRES = person NOT viewed as responsible for illness; *ns* = nonsignificant; RES = person viewed as responsible for illness. F test represents 2 (trial) × 2 (process) × 2 (content) ANOVAs for each of the dependent variables grouped as pretest vs. posttest, pretest vs. followup, and posttest vs. followup. Post hoc analyses represent pairwise 2 × 2 analyses between group pretest and either posttest or followup scores. NAMI–SS donation (posttest): EDUCON, F(1,168) = 4.11, $p < 0.05$, EDU < CONd; DANRES, F(1,168) = 0.97, *ns*; EDUCON × DANRES F(1,168) = 0.17, *ns*.

participants *say* they would behave. Future research needs to include manifest indicators that represent actual behavior. Moreover, future research needs to examine other ways in which avoidance is shown (e.g., being unwilling to hire, befriend, or live close to a person with serious mental illness). For example, a study that our group is beginning is examining whether employers and landlords will interview people who are identified as mentally ill for a job or an apartment. Finally, future research needs to determine whether attitudes and emotional reactions lead to what an individual might perceive as *aversive* behaviors. For example, preliminary analyses of a recently completed study suggest that viewing people with serious mental illness as dangerous is associated with beliefs that they should be forced into treatment and should be segregated from the public in institutions (Corrigan et al. 2001*b*).

The second question of this study examined how two interacting sets of antistigma interventions affect attributes about mental illness and helping behavior. We divided these interventions by crossing antistigma program processes (education vs. contact) with antistigma program content (personal responsibility vs. dangerousness). Results show that although education yields some positive benefits, contact with persons with serious mental illness produces the greatest consistent results. Content did not seem to enhance the impact of contact programs. This finding parallels our earlier research in which contact was shown to be far superior to education programs in improving stigmatizing attitudes (Corrigan et al. 2001*c*). Especially of interest in this study was the finding that contact led to significant changes in helping behavior in the form of donating money to NAMI–SS. Although these are promising findings, we should not dismiss the demand characteristics of soliciting donations within the context of a study. Future research needs to determine how these findings correspond with helping behavior in the real world.

Given the positive findings about contact, future studies need to identify specific mediators that yield the greatest benefits from contact. Social psychologists have examined several variables relevant to ethnic prejudice that could be adapted for research on contact and mental illness stigma. One important variable that affects contact is opportunity; members of the majority must have the opportunity to interact with minority group members in order for stigma to change (Sigelman and Welch 1993). Hence, persons with severe mental illness must have formal opportunities to contact and interact with the general public. Other factors that augment the effects of interpersonal contact include equal status among participants (Riordan 1978; Cook 1985), cooperative interaction (Johnson et al. 1984; Worchel 1986), institutional support for contact (Williams 1977; Adlerfer 1982), frequent contact with individuals who mildly disconfirm the stereotype (Weber and Crocker 1983; Johnston and Hewstone 1992), high level of intimacy (Amir 1969; Brown and Turner 1981; Ellison and Powers 1994), and real opportunities to interact with minority group members (Sigelman and Welch 1993). Each of these suggests specific hypotheses for facilitating contact between members of the general public and persons with severe mental illness.

Findings from this study also have interesting policy implications for stigma change programs. Findings from this research suggest the prime agent for stigma change, as many advocacy groups have been recommending (Corrigan and Lundin 2001), is the person with serious mental illness. Hence, groups that are endorsing education programs for changing stigma should partner with consumers who are willing and able to tell their story. This approach is also consistent with the approach of services that foster personal empowerment in people with serious mental illness. In this way, people with serious mental illness assume a central role in challenging the stigma that robs many of them of life opportunities.

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Appendix. Attribution Questionnaire

Please circle the number of the best answer to each of the following:

1. I would feel aggravated by persons with mental illness.
1 2 3 4 5 6 7 8 9
not at all very much

2. I would feel unsafe around persons with mental illness.
1 2 3 4 5 6 7 8 9
no, not at all yes, very much

3. Persons with mental illness terrify me.
1 2 3 4 5 6 7 8 9
not at all very much

4. How angry do persons with mental illness make you feel?
1 2 3 4 5 6 7 8 9
not at all very much

5. I think persons with mental illness pose a risk to other people unless they are hospitalized.
1 2 3 4 5 6 7 8 9
not at all very much

6. I feel pity for persons with mental illness.
1 2 3 4 5 6 7 8 9
none at all very much

7. How controllable do you think mental illnesses are?
1 2 3 4 5 6 7 8 9
not at all under personal control completely under personal control

8. How irritated would you feel by a person with mental illness?
1 2 3 4 5 6 7 8 9
not at all very much

9. How dangerous do you feel a person with mental illness is?
1 2 3 4 5 6 7 8 9
not at all very much

10. I would feel threatened by a person with mental illness.
1 2 3 4 5 6 7 8 9
no, not at all yes, absolutely

11. How scared of a person with a mental illness would you feel?
1 2 3 4 5 6 7 8 9
none at all very much

12. How likely is it that you would help a person with a mental illness?
1 2 3 4 5 6 7 8 9
definitely would not help definitely would help

13. How certain do you feel that you would help a person with a mental illness?
1 2 3 4 5 6 7 8 9
not at all certain absolutely certain

14. How much sympathy would you feel for a person with a mental illness?
1 2 3 4 5 6 7 8 9
none at all very much

15. How responsible do you think a person with a mental illness is for their present condition?
1 2 3 4 5 6 7 8 9
not at all responsible very much responsible

16. How frightened of a person with a mental illness would you feel?
1 2 3 4 5 6 7 8 9
none at all very much

17. How sorry do you feel for persons with mental illness?
1 2 3 4 5 6 7 8 9
none at all very much

18. I would try to avoid a person with a mental illness.
1 2 3 4 5 6 7 8 9
definitely definitely not

19. How much concern do you feel for persons with mental illness?
1 2 3 4 5 6 7 8 9
none at all very much

20. If I were a landlord, I probably would rent an apartment to a person with mental illness.
1 2 3 4 5 6 7 8 9
definitely definitely not