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An Attribution Model of Public Discrimination towards Persons with Mental Illness*

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In this study, we build on previous work by developing and estimating a model of the relationships between causal attributions (e.g., controllability, responsibility), familiarity with mental illness, dangerousness, emotional responses (e.g., pity, anger, fear), and helping and rejecting responses. Using survey data containing responses to hypothetical vignettes, we examine these relationships in a sample of 518 community college students. Consistent with attribution theory, causal attributions affect beliefs about persons' responsibility for causing their condition, beliefs which in turn lead to affective reactions, resulting in rejecting responses such as avoidance, coercion, segregation, and withholding help. However, consistent with a danger appraisal hypothesis, the effects of perceptions of dangerousness on helping and rejecting responses are unmediated by responsibility beliefs. Much of the dangerousness effects operate by increasing fear, a particularly strong predictor of support for coercive treatment. The results from this study also suggest that familiarity with mental illness reduces discriminatory responses.

In the Surgeon General's report on mental illness, stigma is highlighted as a major barrier to receiving treatment and to obtaining quality housing and employment among those with mental illness (U.S. Department of Health and Human Services 1999). This theme was echoed in the report of the Presidential Task Force on Employment of Adults with Disabilities (2000), the 1999 White House meeting on mental health and illness hosted by Tipper Gore, and the 2001 meeting on mental illness stigma, organized by the Substance Abuse and Mental Health Services Administration. All of these efforts called for further research that provides a more complete understanding of stigma and its impact on persons with mental illness.

Two currents of sociological research into the stigma associated with mental illness have evolved over the past several decades that correspond with these concerns. One area of study focuses on the experience of persons with mental illness. This research shows how internalized stigma and experience of social rejection lead to social withdrawal and low-

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ered social and economic well-being that in turn increase the symptoms of illness (Link 1987; Link et al. 1987, 1997; Link, Mirotznik, and Cullen 1991; Markowitz 1998, 2001; Rosenfield 1997; Wright, Grofein, and Owens 2000). Another area of research focuses on the attitudes of the general population towards persons with mental illness (Link et al. 1999; Martin, Pescosolido, and Tuch 2000; Pescosolido et al. 1999; Phelan et al. 2000; Rosenfield 1982; Schnittker 2000). These studies show that although public understanding of the nature of mental illness has improved since the 1950s, there is still a strong tendency towards avoidance. Recent research has begun to explore how social rejection of those with mental illness is influenced by attributions about the causes and controllability of illness and by perceptions of dangerousness. In this study, we build on this work by developing and estimating models of the ways in which causal attributions (e.g., controllability, responsibility), familiarity with mental illness, perceived dangerousness, and emotional responses (e.g., pity, anger, fear) affect the likelihood of helping and rejecting responses.

STIGMA, STEREOTYPES, PREJUDICE, AND DISCRIMINATION

Sociological research on stigma and mental illness is rooted in the classic theories of Goffman (1963a) and Scheff (1966). Scheff's labeling theory states that when persons' behaviors are labeled as "mental illness" this triggers negative stereotypes (such as dangerousness), leading to social rejection and changes in identity, ultimately fostering "careers" in "residual deviance." Goffman (1963a) argues that conditions such as mental illness are highly stigmatizing—that is, they are "deeply discrediting" (p. 3). Much of his theory focuses on how individuals with such conditions negotiate social life. Goffman contends that "normals" believe the stigmatized to be "not quite human" and thus act in discriminatory ways that reduce their "life chances" (p. 5). Moreover, he states that the non-stigmatized "... construct a stigma-theory, an ideology to explain his inferiority and account for the danger he represents..." (p. 5). While this work laid the foundation for understanding the effects of the stigma, subsequent research has helped to elaborate on the cognitive components and processes involved in how conceptions of mental illness lead to discrimination and social rejection.

Social psychologists have developed a fruitful research paradigm for studying the stigma associated with gender, ethnic group membership, and mental illness. They distinguish between *public stigma* (the ways in which the general public stigmatize people with mental illness) and *self-stigma* (the loss of self-esteem and self-efficacy experienced by some people with mental illness, resulting in part from the internalization of public stigma) (Corrigan and Watson 2002; Corrigan 2000; Corrigan and Penn 1999; Crocker, Major and Steele 1998; Fiske 1998). The focus of this study is on public stigma; in particular, those attitudes and behaviors towards persons with mental illness that impact the course of the illness.

There are three components to public stigma: *stereotypes, prejudice, and discrimination. Stereotypes* are collectively held beliefs about the members of social groups. These beliefs are efficient means of categorizing information, allowing people to quickly generate impressions and expectations of individuals who belong to a particular social group (Augoustinos, Ahrens, and Innes 1994; Esses, Haddock, and Zanna 1994; Hamilton and Sherman 1994; Hilton and von Hippel 1996; Judd and Park 1993; Krueger 1996; Mullen, Rozell, and Johnson 1996). Common stereotypes about persons with mental illness include beliefs that they are dangerous and are responsible for causing their illness, and therefore are blameworthy (Brockington et al. 1993; Farina 1998; Link et al. 1999; Pescosolido et al. 1999; Taylor and Dear 1980).

Although most people have knowledge of a set of stereotypes, they may not agree with them (Jussim et al. 1995). For example, many persons can recall stereotypes about different racial groups but do not agree that they are valid. People who are *prejudiced*, on the other hand, endorse these negative stereotypes (e.g., "That's right; all persons with mental illness are violent!") and generate negative emotional reactions as a result (e.g., "They all scare me!") (Devine 1988, 1989, 1995; Hilton and von Hippel 1996; Krueger 1996). Prejudicial attitudes generally involve a negative evaluative component (Allport 1954; Eagley and Chaiken 1993).

Discrimination is a behavioral response based on prejudice towards a minority group

(e.g., persons with mental illness) that may result in harm towards the members of that group (Crocker, Major, and Steele 1998). The discrimination related to mental illness may take several forms, including coercion, segregation, hostile behaviors (e.g., physical harm or threats of harm), withholding help, or avoidance. Although many persons with mental illness experience hostile behaviors, social desirability biases make it less likely that the public will explicitly endorse them (Schwarz 1998). Thus, some research focuses on more subtle forms of behavioral discrimination that may regularly undermine the opportunities of those with mental illness. *Coercion*, in terms of mandatory inpatient and outpatient treatment, is one key behavior (Geller, Nicholson, and Traverso 1997; Stafford and Karpawich 1997). The general public and treatment providers may support coercive treatment for those with mental illness who are believed to be dangerous (Pescosolido et al. 1999; Torrey and Zdanowicz 2001). Consumers frequently report that these kinds of services are unsatisfactory, interfere with recovery, and undermine participation in future treatment (Corrigan forthcoming). Moreover, recent clinical studies suggest that mandatory treatment involving coercion does not necessarily yield better clinical outcomes (Steadman et al. 2001; Swartz et al. 2001). Despite these findings, results from the nationally representative General Social Survey showed that more than 40 percent of the respondents agreed that people with schizophrenia should be forced to enter the hospital, take medication, and visit outpatient clinics (Pescosolido et al. 1999). While perceived dangerousness was the primary predictor of support for legal coercion, attributions of bad character and beliefs about whether the condition would improve on its own or with treatment were also significant predictors (Watson 2001).

Segregation, or treating persons with mental illness away from their community, in institutions, is a closely related type of discriminatory behavior. The number of persons with serious mental illness treated in state hospitals has diminished greatly over the past several decades (Mechanic and Rochefort 1990). However, most members of the public still believe that institutionalization is common and is the best service for those with serious psychiatric disorders (Brockington et al. 1993; Farina, Fisher, and Fischer 1992). In part, these beliefs are due to the images and messages conveyed by mass media. For example, movies frequently represent people with mental illness as dangerous and living out their lives in psychiatric institutions (Wahl 1995). Moreover, the news media repeatedly calls for state hospitals as the primary mechanism for controlling mental illness (Corrigan and Lundin 2001).

Discrimination also appears as unwillingness to help or as active avoidance, affecting the extent to which persons are willing to engage in behaviors that lead to the provision of interpersonal and economic resources central to recovery from mental illness (Markowitz 2001). For example, research has shown that persons are less willing to hire, offer jobs, or rent apartments to those with a mental illness (Aviram and Segal 1973; Bordieri and Drehmer 1986; Farina and Felner 1973; Farina et al. 1974; Link 1982, 1987; Olshansky, Grob, and Ekdahl 1960; Wahl 1999; Hogan 1985a, 1985b; Page 1977, 1983, 1995; Segal, Baumohl, and Moyles 1980; Wahl 1999; Webber and Orcutt 1984). More generally, there is a tendency towards *social avoidance* (or, *social distance*)—the desire to not interact with people with mental illness. Factors influencing social distance have been assessed using hypothetical vignettes that vary whether a person is labeled as mentally ill (by formal treatment), their level of symptomatic behavior, and whether they are dangerous. These vignettes are followed by scales measuring, for example, willingness to, for example, make friends with, spend an evening socializing with, live next door to, or work closely with persons labeled as mentally ill (Link et al. 1987; Martin et al. 2000; Penn et al. 1994; Phillips 1963, 1964). This research generally finds that social distance increases as forms of help seeking and treatment become more formal (e.g., hospitalization) and as levels of symptomatic behavior increase.

CONTROLLABILITY OF CAUSE, RESPONSIBILITY, AFFECTIVE, AND DISCRIMINATORY RESPONSES

Attribution theory has become an important framework for explaining the relationship between stigmatizing attitudes and discriminatory behavior (Weiner 1995). The theory holds that behavior is determined by a cognitive-

emotional process: persons make attributions about the *cause* and *controllability* of a person's illness that lead to inferences about *responsibility*. These inferences lead to *emotional reactions* such as anger or pity that affect the likelihood of *helping* or *punishing behaviors*. According to Weiner (1995), when presented with an event or situation such as "a person with mental illness," people try to determine who is responsible. In doing so, they make attributions about the cause and controllability of the event. If the cause of the event or situation can be attributed to forces within the individual's control, the person is likely to be judged responsible. For example, if an individual's mental illness is attributed to illegal drug use, they will likely be considered responsible for their illness. Alternatively, if the illness is attributed to genetic factors or a head injury suffered in an accident, they are less likely to be judged responsible. Controllability relates to characteristics of the causes, whereas assignment of responsibility is a judgement about the person. Accordingly, "thoughts progress from causal attribution to an inference about the person" (Weiner, 1995:5). Ultimately, attributing personal responsibility for a negative event (e.g., "That person causes his crazy behavior") may lead to anger because of the belief that the person should have avoided his or her situation (e.g., "I'm sick and tired of that kind of irresponsibility") and punishing behavior such as segregation (e.g., "I'd lock him up in an institution"). Conversely, believing that persons are not responsible for their condition (e.g., "He can't help himself; he's mentally ill") may lead to pity (e.g., "That poor man is ravaged by mental illness") and the desire to help (e.g., "I think I'll rent him a room until he's back on his feet").

Substantial support exists for the attributional model applied to various helping behaviors (Corrigan et al. 2001a, 2001b; Dooley 1995; Graham, Weiner, and Zucker 1997; Menec and Perry 1998; Reisenzein 1986; Rush 1998; Schmidt and Weiner 1988; Steins and Weiner 1999; Weiner, Graham, and Chandler 1982; Weiner, Perry, and Magnusson 1988; Zucker and Weiner 1993). For example, one key study (Reisenzein 1986) that used a sample of college students found that willingness to help a person (either "collapsed on a subway" or "in need of class notes") was related to perceived controllability. Subjects who were told that the target person was "drunk" or "skipped class to go to the beach" were less likely to help compared to subjects who were told the persons was "ill" or "had difficulty seeing." Moreover, the relationship between controllability and helping was mediated by feelings of sympathy and anger.

Similarly, attribution research on attitudes towards stigmatized groups, such as racial minorities, shows that members of the general public who attribute economic disadvantage to internal causes (e.g., lack of effort or motivation) rather than to external causes (e.g., lack of opportunity) hold more prejudiced attitudes (Kluegel 1990; Kluegel and Smith 1986; Schuman et al. 1997). In research on other groups, Weiner, Perry, and Magnusson (1988) found that physical disabilities (e.g., Alzheimer's disease, blindness, cancer, heart disease, and paraplegia) were perceived as not controllable and therefore elicited little anger, greater pity, and more willingness to help. On the other hand, mental-behavioral conditions (e.g., AIDS, drug abuse, and obesity) were perceived as controllable and elicited anger, little pity, and less willingness to help. Although Weiner et al. examined associations between controllability, positive affect, and likelihood of helping, they did not examine whether the relationship between controllability and helping was mediated by affect.

The attribution model has only recently been applied to the study of social rejection of those with serious mental illness. Studies show that Americans are better able to identify certain symptoms as indicative of "mental illness" and have expanded conceptions of the scope of mental disorder (beyond psychosis) compared to the 1950s (Phelan et al. 2000). Also, they are more likely to attribute the causes of disorders such as schizophrenia and depression to chemical imbalances, genetic factors, and stressful life circumstances than they are to "bad character," "the way the person was raised," or "God's will" (Martin et al. 2000). Consistent with attribution theory, Martin et al. (2000) find that internal attributions for mental illness (e.g., "bad character") lead to increased social distance, while external attributions (e.g., stress) reduce social distance. However, research has not yet examined the full causal structure implied by attribution theory in mental illness stigma—the relationships between controllability, responsibility beliefs, affective responses, and discriminatory and helping behaviors. As part of a study evaluating an

anti-stigma education program, Corrigan et al. (2001a, 2001b) found a negative relationship between feelings of anger and likelihood of providing help, but did not find any relationships between responsibility and help or between responsibility and affect. However, in that study, attitudes and affect towards "persons with mental illness," in general, were assessed, rather than towards a specific target individual whose behavior and its causes are described.

DANGEROUSNESS AND DISCRIMINATORY RESPONSES

A key component of attitudinal and behavioral responses towards persons with mental illness involves perceptions of dangerousness. Although public understanding of mental illness has improved, recent studies show that there has been an increase in the proportion of persons who associate mental illness with perceptions of dangerousness, violence, and unpredictability. For example, general population studies show that, in 1950, when asked what "mental illness" means to them, about 7 percent of respondents mentioned violent manifestations and symptoms compared to 12 percent in 1996 (Phelan et al. 2000). Moreover, those who think of mental illness in terms of psychosis are more likely to associate mental illness with dangerousness. Dangerousness is associated with a desired increase in social distance from those with mental illness and the belief that these persons need to be segregated from society (Brockington et al. 1993; Cohen and Struening 1962; Link et al. 1987; Martin et al. 2000; Pescosolido et al. 1999). One key study found that the label of "former patient" increased the desire for social distance, especially when former patients are believed to be dangerous (Link et al. 1987).

Researchers have only begun to examine the detailed relationships between causal attributions, perceptions of dangerousness, and their emotional and behavioral consequences. On one hand, attribution theory and research suggest that dangerousness may be related to attributions for mental illness (internal versus external locus of control). For instance, Martin et al. (2000) found that perceptions of dangerousness were related to attributing mental illness to "bad character." This is consistent with a general tendency to attribute negative and unexpected behaviors (such as violence) to internal causes (Jones and McGillis 1976). Also, Boisvert and Faust (1999), in a study using vignettes describing a person with schizophrenia acting violently, found that increased levels of environmental stress described in the vignette led to less severe ratings of the violent behavior and to more situational, rather than personal, attributions of causality. Together, these findings suggest that when persons are thought to be dangerous they are likely to be believed to be more responsible for their behavior, which in turn leads to social rejection.

Alternatively, perceptions of danger may lead to social rejection because they impact fear. Termed *danger appraisal*, information regarding dangerousness leads to an emotional response such as fear, affecting behavioral outcomes (e.g., avoidance or punishment) without a mediating attribution (Edwards and Endler 1989; Paterson and Neufeld 1987). Goffman (1963b, 1971) elaborated on this point in his analyses of behavior in public places; namely, humans regularly survey the social scene for cues of behaviors which the individual might avoid. Danger, in particular, is a key perception that leads to fear and avoidance. Several studies have found a relationship between believing persons with mental illness are dangerous and fearing them (Angermeyer and Matschinger 1996; Levey and Howells 1995; Link and Cullen 1986; Madianos et al. 1987; Wolff et al. 1996). In the present study, we explicitly test whether the effect of dangerousness on discriminatory behavior is consistent with an attributional or danger appraisal process.

FAMILIARITY

Attitudinal and emotional responses towards persons with mental illness, including beliefs about controllability and responsibility, are likely to be influenced by familiarity with serious mental illness. Familiarity has been defined as knowledge of and experience with mental illness (Holmes et al. 1999). It varies in intensity from viewing television portrayals of mental illness, to having a friend or co-worker with mental illness, to having a family member with mental illness, to having a mental illness oneself. Previous research has found familiarity to be inversely associated with prejudicial

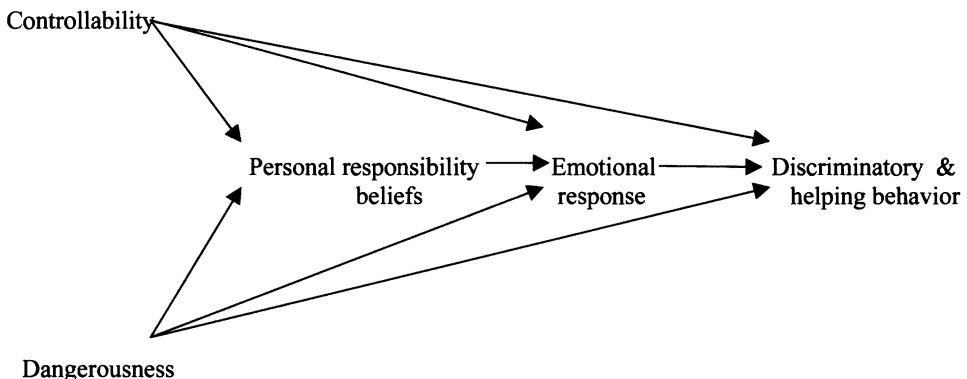
attitudes about mental illness (Corrigan et al. 2001a, 2001b; Holmes et al. 1999; Penn et al.1994). Other research finds that contact with persons with mental illness reduces fear of them (Link and Cullen 1986). In the present study, we consider the role of familiarity in the attribution process in several ways. First, following the above research, we examine the direct effect of familiarity on attitudes. Those who are more familiar with mental illness may be less likely to view persons with psychiatric disability as responsible for their disorder; they may also express more favorable affective responses (e.g., less fear and anger, and greater pity) and a greater willingness to interact with and help them. We also examine the possibility that familiarity moderates the effects of attributions on emotional and behavioral responses.

PRESENT STUDY

Using survey data containing responses to hypothetical vignettes, we examine the relationships among causal attributions for mental illness (e.g., controllability and personal responsibility beliefs), dangerousness, emotional responses (e.g., pity, anger, and fear), and the likelihood of helping and rejecting behavior. Our research builds on previous studies in several ways. First, while most prior research using hypothetical vignettes leaves attributions for the cause of mental illness unspecified, we compare the effects of not providing information regarding the cause of mental illness with providing two potent types of information regarding its cause: illegal drug use and injury suffered in an accident. Second, consistent with the full attribution model, we examine the role of emotional responses in mediating the effects of attributions on helping and rejecting responses. Third, we examine whether the effects of providing information about dangerousness on helping and rejecting responses operate through beliefs about responsibility (attribution hypothesis) or fear (danger appraisal hypothesis). Fourth, we include the role of familiarity with mental illness in the attribution process, examining its main effects and whether it moderates both the effects of attributions on emotional responses and helping or rejecting persons with mental illness and the effects of emotional responses on helping or rejecting. A particular strength of our study is that it combines an experimental vignette approach that manipulates key independent variables with a statistical elaboration method in order to assess intervening mechanisms.

A conceptual model of the attribution and danger appraisal processes applied to mental illness stigma is presented in Figure 1. The model implies that, when the causes for mental illness are believed to be under a persons' control, discrimination (e.g., increased coercion, segregation, and decreased helping), negative emotional responses (e.g., anger, fear, and lack of pity), and judgements regarding personal responsibility are predicted to increase. The model also implies that at least part of the effects of controllability on emotional responses are mediated by personal responsibility beliefs, part of the effects of controllability on discriminatory responses are mediated by responsibility beliefs, and that part of the

FIGURE 1. Attribution and Danger Appraisal Processes in Mental Illness Stigma and Discrimination



Note: Familiarity and social-demographic variables are not shown.

effects of responsibility beliefs on behavior are mediated by emotional responses. It also indicates that discriminatory responses are predicted to be higher when information is presented that a person with mental illness is dangerous. The model specifies two competing hypotheses regarding this effect. If the relationship between dangerousness and discriminatory responses are mediated by personal responsibility beliefs, an attribution hypothesis is supported. However, if the dangerousness effect is unmediated by responsibility beliefs and operates through fear, a danger appraisal hypothesis is supported. Although not shown in the figure, familiarity with mental illness is predicted to reduce discriminatory responses and responsibility beliefs and increase positive emotional responses. We also explore the possibility that the effects of causal attributions, dangerousness, and emotional responses specified above may be moderated by familiarity. Throughout the analysis, we control for the influence of social demographic variables.

DATA AND METHODS

Sample

Participants for this study were drawn from the student body of a midwestern, urban community college. Five-hundred-forty-two students from 13 classes in psychology, nursing, public safety, history, and political science were asked to participate in the study. Participation was voluntary, all who were asked to participate agreed. Those who completed the first set of measures were paid ten dollars. Participants were paid an additional ten dollars if they completed follow-up measures. As evident in the demographic characteristics shown in Table 1, an advantage to using community college students is they tend to be more diverse in terms of age, race, and marital status than students from four-year colleges and universities (Corrigan et al. 1999, 2001b). For instance, the sample contains a high portion of racial minorities (48%) that closely reflects the demographic composition of the urban area in which it is located. Although this is not a general population sample, it does provide a useful sample for examining theoretically derived processes that are expected to hold across social groups. There were missing data for 24 cases and the effective listwise sample size was 518. Analyses of all 542 cases using pairwise deletion of missing data yielded substantively identical results to those we present.

Measures

Study participants first completed a series of seven yes/no items regarding *familiarity with mental illness* from the Level of Contact Report (Holmes et al. 1999; see Appendix for item wording). The items (coded yes = 1; no = 0), were summed to form an index that could range from 0 to 7 (alpha reliability = .62). Participants then provided information regarding their age (coded in years), gender (1 = male; 0 = female), marital status (married = 1; non-married = 0), and race (white = 1; nonwhite = 0). Preliminary analyses indicated no differences in any of the dependent variables between single, divorced, separated, or widowed persons. Therefore, we collapsed marital status into married/non-married. Nonwhites included 202 African Americans, 23 "Latino," and 18 "other." Preliminary analyses also indicated no differences in any of the dependent variables between African Americans, Latinos, and "other." Therefore, we collapsed the racial categories into white/nonwhite. *Education* was coded on a six point scale (high school/GED = 1; some college = 2; associate's degree = 3; bachelor's degree = 4; master's degree = 5; Ph.D./Medical/Professional degree = 6). Since *income* was unrelated to any of our dependent variables, we present results omitting it.

Next, study participants were randomly assigned to read vignettes involving "Harry, a 30 year old single man with schizophrenia." The vignettes varied information regarding the *controllability of cause* (three conditions coded as three dummy variables, with one omitted in regression models). Following earlier attribution research (Reisenzein 1986; Weiner 1995), half of the subjects were given information regarding the cause of Harry's condition by including one of two descriptions: (1) "Harry's mental illness was originally caused by a severe head injury suffered during a car accident when he was 22" (cause not under his control); or (2) "Harry's mental illness was originally caused by eight years of abusing illegal drugs" (cause under his control). The other half of subjects received no information regarding the cause of Harry's illness. The

TABLE 1. Descriptive Statistics (n = 518)

Variable	Mean	Standard Deviation
Age	25.33	8.77
Gender (Male = 1)	.40	.49
Race (White = 1)	.54	.50
Education	2.17	.71
Married	.23	.42
Familiarity	2.17	1.63
No Information about Control (omitted)	.50	.43
Control[a]	.26	.44
No Control[a]	.24	.43
Danger[b]	.75	.43
No Information about Danger (omitted)	.25	.44
Personal Responsibility	4.32	2.14
Pity	5.55	1.94
Anger	3.77	2.19
Fear	5.07	2.49

[a] No information is reference category.
[b] No danger is reference category.

vignettes also varied on level of *dangerousness,* where subjects were presented with one of two additional pieces of information: (1) "Although he sometimes hears voices and becomes upset, Harry has never been violent; like most people with schizophrenia, Harry is no more dangerous than the average person" (no danger); or (2) "... he attacked an orderly in the emergency room" (dangerous). Dangerousness is coded as a single dummy in regression models (1 = exposure to the "danger" vignette text). The complete wording of each of the vignettes is given in Appendix B.

After reading the vignettes, participants were administered questionnaire items representing the following constructs: *personal responsibility beliefs, pity, anger, fear* of "Harry," the likelihood of *withholding help, avoidance*, and support for *coercion* and *segregation*. Each item was coded on a nine-point semantic-differential type scale (1 = "not at all" to 9 = "very much"). For the sake of comparability, the items representing each construct were summed and divided by the number of items, so that effects can be interpreted on a scale from 1 to 9. The results of preliminary confirmatory factor analyses suggested that the indicators of help and avoidance and the indicators of coercion and segregation were very highly correlated (r = .68 and r = .74, respectively). Therefore, we combined help-avoidance and coercion-segregation. Initially, we estimated the models presented below using latent variable modeling techniques (LISREL), with the items representing observed indicators of latent variables, thereby correcting for bias due to random measurement error (Bollen 1989). However, each of the scales had very high reliability (alpha coefficients: personal responsibility = .70; pity = .74; anger = .89; fear = .96; helping = .88; and coercion/segregation = .89), and the results are very similar to those we present treating the items as additive scales (see Appendix A for exact item wording). Descriptive statistics for the variables in the analysis are presented in Table 1.

Analysis Strategy

We estimate a series of ordinary least squares regression equations for the relationships between controllability, familiarity, dangerousness, personal responsibility beliefs, emotional responses (e.g., pity, anger, fear), and the likelihood of discriminatory and helping behavior. In the first equation, in order to examine demographic differences in familiarity, we regress familiarity on the demographic variables (*i.e.,* age, gender, race, education, income, and marital status). Next, we estimate the effects of providing information regarding controllability and dangerousness on personal responsibility beliefs, controlling for familiarity and demographic factors. We then estimate a series of equations for the effects of information regarding controllability and dangerousness on pity, anger, and fear, controlling for familiarity and the demographic variables. To each of these equations, we then add personal responsibility beliefs to examine whether they mediate the impact of controllability and dangerousness. This is followed by a series of

equations for the effects of controllability and dangerousness on helping and coercion-segregation, controlling for familiarity and demographic variables. In each set of equations, we add responsibility beliefs, followed by affective response to examine whether responsibility beliefs mediate the impact of controllability and dangerousness on behavior, and whether the effect of responsibility beliefs on behavior is mediated by emotional responses. Last, we form product terms between familiarity and key components of the attribution model and enter them into the series of equations to assess its moderating influence.

RESULTS

The results of the attribution models are presented in Table 2. First, we regress familiarity with mental illness on the social-demographic variables (equation 1). The results from this equation show married respondents report higher levels of familiarity ($p < .05$). Two nonsignificant trends were noted. Males report lower levels of familiarity with mental illness than females ($p < .10$), while those with higher levels of education report higher levels of familiarity ($p < .10$). No age or race effects are observed.

Next, we examine the effects of the demographic variables and the experimental conditions on personal responsibility beliefs (equation 2). Males and those with higher levels of education are more likely to believe that "Harry" is responsible for his illness. As expected, compared to those not provided information about the cause of his illness, when told that it was under his control (resulting from drug use), subjects indicate a stronger belief that he is responsible for his illness (beta = 2.56). When told that the cause of his illness was not under his control (resulted from a head injury), subjects are more likely to believe that

TABLE 2. Unstandardized OLS Regression Coefficients for Attribution Model of Mental Illness

	Familiarity	Personal Responsibility	Pity		Anger		Fear	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Age	–.001	–.018	.016	.008	–.031**	–.022*	–.022*	–.014
	(.009)	(.010)	(.011)	(.010)	(.011)	(.010)	(.011)	(.010)
Gender (male = 1)	–.243	.324*	–.468**	–.339*	.539***	.386**	.208	.067
	(.129)	(.141)	(.159)	(.150)	(.157)	(.143)	(.159)	(.148)
Race (white = 1)	.077	–.250	.184	.085	–.105	.014	–.136	–.028
	(.126)	(.138)	(.156)	(.146)	(.154)	(.140)	(.156)	(.144)
Education	.173	.223*	–.134	–.039	.143	.038	.185	.088
	(.093)	(.102)	(.115)	(.108)	(.113)	(.103)	(.115)	(.107)
Married	.355*	.113	–.553*	–.508*	.161	.093	.008	–.057
	(.181)	(.199)	(.224)	(.210)	(.221)	(.200)	(.224)	(.207)
Familiarity	—	–.008	.148**	.145**	–.133*	–.129**	–.083	–.079
		(.048)	(.055)	(.051)	(.054)	(.049)	(.055)	(.051)
Control[a]	—	2.556***	–1.375***	–.357	1.466***	.253	.112	–1.000***
		(.191)	(.216)	(.235)	(.213)	(.224)	(.216)	(.232)
No Control[a]	—	–1.443***	.768***	.193	–1.116***	–.431*	–1.643***	–1.016***
		(.197)	(.223)	(.220)	(.220)	(.209)	(.223)	(.216)
Danger[b]	—	.331	.744***	.876***	2.033***	1.876***	4.282***	4.138***
		(.195)	(.220)	(.207)	(.217)	(.197)	(.220)	(.204)
Personal Responsibility	—	—	—	–.398***	—	.475***	—	.435***
				(.047)		(.045)		(.046)
Pity	—	—	—	—	—	—	—	—
Anger	—	—	—	—	—	—	—	—
Fear	—	—	—	—	—	—	—	—
R^2	.032	.490	.206	.304	.397	.507	.520	.591

* $p < .05$ ** $p < .01$ *** $p < .001$ (two–tailed tests)

Note: Standard errors are in parentheses.

[a] No information is reference category.

[b] No danger is reference category.

he is not responsible for his illness (beta = –1.44).

We then estimate the effects of the demographic variables and experimental conditions on feelings of pity, anger, and fear towards "Harry" (equations 3, 5, and 7). The results of these models reveal that older persons express less anger and fear, while males express less pity and more anger. Married persons are found to have lower levels of pity for "Harry." Race and education are unrelated to these emotional responses. As anticipated, those who are more familiar with mental illness respond with greater pity and less anger and fear. In terms of the experimental manipulations regarding controllability of cause and dangerousness, it appears that when subjects are provided with information that "Harry's" illness was under his control, compared to those not provided any information regarding controllability, they show less pity (equation 3) and more anger (equation 5). When the illness was described as not under his control, they show greater pity and less anger and fear compared to those not given information regarding control. Consistent with our expectations, dangerousness increases both anger (equation 5) and fear (equation 7). However, providing information about dangerousness is found to increase pity (equation 3).

To these equations we then added personal responsibility beliefs to examine whether they mediate the effects of controllability of cause and dangerousness on pity, anger, and fear (equations 4, 6, and 8). First, as expected, responsibility beliefs decrease pity and increase anger and fear. Importantly, consistent with attribution theory, when responsibility beliefs are added, the effects of controllability on pity and anger are reduced substantially. The effects of controllability information on pity are no longer significant. Adding personal responsibility to the fear equation results in the coefficient for the effect of control reversing in

Discrimination

Helping–Avoidance				Coercion–Segregation			
(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
.012	.009	.001	.000	–.036***	–.030**	–.022*	–.020*
(.009)	(.009)	(.008)	(.008)	(.010)	(.010)	(.009)	(.008)
–.468***	–.409**	–.233	–.256*	.715***	.603***	.505***	.543***
(.136)	(.134)	(.125)	(.119)	(.154)	(.147)	(.136)	(.120)
.104	.059	.044	.026	–.545***	–.459**	–.478***	–.450***
(.133)	(.131)	(.121)	(.115)	(.151)	(.143)	(.131)	(.116)
.038	.079	.097	.122	.034	–.043	–.052	–.091
(.098)	(.097)	(.090)	(.085)	(.111)	(.106)	(.097)	(.086)
–.010	–.011	.144	.147	–.186	–.235	–.187	–.192
(.191)	(.188)	(.175)	(.166)	(.217)	(.206)	(.189)	(.168)
.245***	.243***	.178***	.165***	–.115*	–.112*	–.085	–.054
(.047)	(.046)	(.043)	(.041)	(.053)	(.050)	(.046)	(.041)
–.349	.120	.264	–.076	.604**	–.285	–.326	.219
(.184)	(.210)	(.195)	(.191)	(.209)	(.230)	(.211)	(.193)
.609**	.345	.188	–.074	–.990***	–.488**	–.348	.071
(.190)	(.196)	(.182)	(.177)	(.215)	(.215)	(.197)	(.179)
–3.224***	–3.163***	–2.845***	–1.926***	3.812***	3.697***	2.802***	1.339***
(.187)	(.185)	(.189)	(.219)	(.212)	(.202)	(.205)	(.221)
—	–.183***	.029	.112*	—	.348***	.224***	.091*
	(.042)	(.045)	(.044)		(.046)	(.049)	(.045)
—	—	.212***	.288***	—	—	.166***	.045
		(.037)	(.036)			(.040)	(.037)
—	—	–.269***	–.086	—	—	.399***	.106*
		(.039)	(.044)			(.042)	(.045)
—	—	—	–.321***	—	—	—	.515***
			(.044)				(.044)
.503	.521	.593	.632	.541	.588	.657	.731

sign (equation 8). However, in contrast to the attributional hypothesis, adding responsibility beliefs to the emotional response equations results in only slight changes to the coefficients representing the effects of dangerousness on emotional response. This unmediated effect of dangerousness is consistent with the danger appraisal hypothesis.

The results of the models of helping and rejecting responses are shown in equations 9 through 16. First, the effects of demographic factors and the experimental manipulations regarding controllability of cause and dangerousness are presented in equations 9 and 13. Here we find that males are less inclined to help and more likely to endorse coercion and segregation than females. Also, older persons and whites are more likely to endorse coercion and segregation than are younger persons and non-whites. As expected, those with greater familiarity with mental illness are more willing to help and less likely to endorse coercion and segregation. Consistent with attribution theory, when the cause of the target person's illness is believed to be under his or her control, rejecting responses are more likely. Likewise, when the cause of the target person's illness is believed not to be under his or her control, helping responses are more likely, and rejecting responses are less likely. Also as expected, when presented with information indicating dangerousness, helping responses are less likely, and responses supporting coercion and segregation are more likely.

To these equations, personal responsibility beliefs are added in order to examine whether they mediate the effects of controllability of cause and dangerousness on helping and coercion-segregation (equations 10 and 14). First, as expected, the more "Harry" is believed to be responsible for his illness, subjects are less likely to want to help him and are more supportive of coercive and segregated treatment. When responsibility beliefs are added, the effect of providing information that the cause of "Harry's" illness was not under his control on helping is reduced substantially and is no longer significant (equation 10). Likewise, the effects of providing information regarding the controllability of the cause of "Harry's" illness on coercion-segregation are reduced substantially (equation 14). The effect of telling subjects that the illness was under his control is no longer significant. However, in contrast to the attributional hypothesis and consistent with the danger appraisal hypothesis, the addition of personal responsibility beliefs to these equations results in only a slight reduction (2–3%) in the effects of dangerousness.

Next, we add emotional responses (*i.e.,* pity, anger, and fear) to the helping and coercion-segregation equations to examine whether they mediate the effects of personal responsibility beliefs. Because anger and fear are highly correlated ($r = .73$), we first add pity and anger in equations 11 and 15, followed by fear (equations 12 and 16). Interestingly, pity increases the likelihood of both helping and of supporting coercion-segregation. As expected, anger reduces the likelihood of helping and increases support for coercion and segregation. With the addition of pity and anger to the helping equation, the effect of responsibility beliefs is reduced and is no longer significant. The effect of responsibility beliefs on coercion-segregation is only reduced slightly. In equations 12 and 16, fear is added. As expected, increased fear is associated with a lower likelihood of helping (beta = –.32) and increased support for coercive and segregated treatment of "Harry" (beta = .52). When fear is added, the effect of personal responsibility beliefs on helping reverses in sign (equation 12), and its effect on coercion-segregation is reduced further (equation 16). In the helping-avoidance equation, the addition of fear reduces the effect of dangerousness by about 32 percent. In the coercion-segregation equation, the dangerousness effect is reduced by about 52 percent when fear is added. In both equations, personal responsibility effects are still significant. Together, this suggests that the effects of dangerousness on behavior operates both directly and indirectly through fear—consistent with the danger appraisal, rather than attributional, hypothesis.

DISCUSSION

In this study, we examined the relationships among components of public stigma towards persons with mental illness: perceived controllability, responsibility attributions, emotional reactions, and discriminatory responses. There were several key findings. First, consistent with our hypotheses, discriminatory responses such as the unwillingness to help or hire those with mental illness, as well as support for mandatory treatment in institutional settings removed from the community, were predicted

by attributions about the cause of mental illness and by perceptions of dangerousness. When the onset of mental illness is viewed as being under one's control, persons are more likely to avoid, withhold help, and endorse coercive treatment of someone with mental illness. They are also likely to withhold help from, avoid encounters with, and endorse coercive treatment for persons with mental illness when they are perceived to be dangerous.

Second, our findings show the mechanisms by which information about the controllability of cause affects discriminatory responses. Such information affects beliefs about persons' responsibility for causing their condition. These beliefs in turn lead to decreased feelings of pity and increased feelings of anger and fear. Anger and fear in turn lead to rejecting responses, such as social avoidance and support for coercion, while pity leads to more supportive responses. Responsibility beliefs and emotional responses mediate the effects of controllability on the outcomes considered.

Third, our findings show the mechanisms by which information about dangerousness affects the likelihood of discriminatory responses. While some portion of the dangerousness effects on helping and discriminatory responses are accounted for by personal responsibility beliefs, some direct effects still remain. Fear emerges as a particularly strong predictor of support for social avoidance and coercive treatment. Also, direct effects of responsibility beliefs on the likelihood of discriminatory and helping behavior remain after controlling for emotional responses. Together, the findings regarding dangerousness are more consistent with a danger appraisal hypothesis than attribution theory.

Findings from this study also suggest that familiarity with mental illness impacts discriminatory and emotional responses. Those who are more familiar with mental illness are more likely to offer interpersonal help and less likely to avoid people with psychiatric disorders. The effect of familiarity on support for coercion-segregation was somewhat less than its effect on social help-avoidance. Familiarity with mental illness was positively associated with pity and negatively associated with anger and fear. However, familiarity was not found to be associated with personal responsibility attributions.

The predictive impact of familiarity, personal responsibility attributions, dangerousness, and emotional reactions on discriminatory behavior is not trivial. Consider, for example, that the final models for help-avoidance and coercion-segregation accounted for 63 percent and 73 percent of their variance, respectively. This is in contrast to an earlier study (Corrigan et al. 2001b) where the relationships among responsibility attributions, emotional mediators, and help/avoidance were muted or absent altogether. A major difference in study designs may have accounted for the discrepant findings. In that study, subjects responded to *people with mental illness* in general. In this study, participants were instructed to respond to a *specific person* with a story that made the target more real to them.

There are, of course, some limitations to this study that need to be considered. Perhaps principal among these is the representativeness of the sample (*i.e.*, participants in the study were not selected to be representative of the general population). As a result, while we have been able to provide a more detailed look at attribution processes in stigmatizing those with mental illness than in previous studies, we cannot be certain that our findings are generalizable to the population as a whole. Nevertheless, given the findings of our multiple-group analysis, we do not have reason to believe that the attribution processes revealed in a community college sample would differ in a general population sample.

A second limitation of this study was that discriminatory behavior was determined by self-report rather than observation of actual behavior. It may be very difficult, however, to obtain a sufficient sample of persons who have interacted in helping or rejecting ways with persons they know to have been diagnosed with a mental illness. Future studies may need to consider proxies that more directly represent discriminatory behavior, as well as strategies by which helping and avoiding persons with mental illness can be directly observed (e.g., an experimental situation with the opportunity to work with or assist someone who is believed to be mentally ill). Finally, we limited the focus of our study to a man with schizophrenia because it is one of the most debilitating mental disorders and is most commonly associated with dangerousness (Phelan et al. 2000). A future study examining reactions to persons with other disorders, such as depression, will help to provide evidence of the generality of attribution processes in stigma and discrimina-

tion towards those with mental illness. In addition, given the trend towards thinking about major mental disorders as biologically-based, future studies of public reactions to persons with mental illness should incorporate the effects of providing information regarding biogenetic causes.

Despite these limitations, the findings from this study have important implications for stigma reduction. The results suggest that the content of anti-stigma programs that enhance understanding and seek to change public attitudes and behavior need to focus on educating the public on the causes of mental illness, focusing especially on how persons may not be responsible for the onset of certain conditions. Moreover, sustained emphasis needs to be placed on clarifying the risk of dangerous behavior among those with mental disorders (see Link et al. 1992, 1999; Monahan et al. 2001). In fact, a recent study showed that educational programs with content areas related to personal responsibility and dangerousness interacted with contact strategies for improving attitudes and helping behavior among community college students (Corrigan et al. 2001a, 2001b). We anticipate that further research, guided by general theories such as the attribution approach, will continue to inform strategies for ameliorating the stigma and discrimination that impact recovery from mental illness.

APPENDIX A. Item Wording for Familiarity with Mental Illness, Personal Responsibility Beliefs, Emotional Responses, and Helping and Rejecting Responses

Familiarity with Mental Illness
1. My job involves providing services/treatment for persons with mental illness.
2. I have observed, in passing, a person I believe may have had a severe mental illness.
3. I have observed persons with a severe mental illness on a frequent basis.
4. I have worked with a person who had a severe mental illness at my place of employment.
5. A friend of the family has a severe mental illness.
6. I have a relative who has a severe mental illness.
7. I live with a person who has a severe mental illness.

Personal Responsibility Beliefs
1. I would think that it were Harry's own fault that he is in the present condition. (1 = no, not at all; 9 = yes, absolutely so)
2. How controllable, do you think, is the cause of Harry's present condition? (1 = not at all under personal control; 9 = completely under personal control)
3. How responsible, do you think, is Harry for his present condition? (1 = not at all responsible; 9 = very much responsible)

Pity
1. I would feel pity for Harry. (1 = none at all; 9 = very much)
2. How much sympathy would you feel for Harry? (1 = none at all; 9 = very much)
3. How much concern would you feel for Harry? (1 = none at all; 9 = very much)

Anger
1. I would feel aggravated by Harry. (1 = not at all; 9 = very much)
2. How angry would you feel at Harry? (1 = not at all; 9 = very much)
3. How irritated would you feel by Harry? (1 = not at all; 9 = very much)

Fear
1. How dangerous would you feel Harry is? (1 = not at all; 9 = very much)
2. I would feel threatened by Harry? (1= no, not at all; 9 = yes, very much)
3. How scared of Harry would you feel? (1 = not at all; 9 = very much)
4. How frightened of Harry would you feel? (1 = not at all; 9 = very much)

Helping
1. If I were an employer, I would interview Harry for a job. (1 = not likely; 9 = very likely)
2. I would share a car pool with Harry each day. (1 = not likely; 9 = very likely)
3. How certain would you feel that you would help Harry? (1 = not at all certain; 9 = absolutely certain)
4. If I were a landlord, I probably would rent an apartment to Harry. (1 = not likely; 9 = very likely)

Coercion-Segregation
1. I think Harry poses a risk to his neighbors unless he is hospitalized. (1 = not at all; 9 = very much)
2. I think it would be best for Harry's community if he were put away in a psychiatric hospital. (1 = not at all; 9 = very much)
3. How much do you think an asylum, where Harry can be kept away from his neighbors, is best? (1 = not at all; 9 = very much)
4. If I were in charge of Harry's treatment, I would force him to live in a group home. (1 = not at all; 9 = very much)

APPENDIX B. Attribution Questionnaire Vignettes

Condition #1—no danger. Harry is a 30 year old single man with schizophrenia. Although he sometimes hears voices and becomes upset, Harry has never been violent. Like most people with schizophrenia, Harry is no more dangerous than the average person. He lives in an apartment and works as a clerk in a large law firm. His symptoms are usually well managed with the appropriate medication.

Condition #2—danger. Harry is a 30 year old single man with schizophrenia. The last time his symptoms got worse, he heard voices and believed his neighbors were planning to hurt him. He attacked his landlady in the belief that she was in on a plot. When the police escorted him to the hospital, he tried to grab for the officer's gun. He attacked an orderly in the emergency room and had to be put into restraints. He only quieted down after he was given large doses of medication.

Condition #3—danger without controllability of cause. Harry is a 30 year old single man with schizophrenia. The last time his symptoms got worse, he heard voices and believed his neighbors were planning to hurt him. He attacked his landlady in the belief that she was in on a plot. When the police escorted him to the hospital, he tried to grab for the officer's gun. He attacked an orderly in the emergency room and had to be put into restraints. Harry's mental illness was originally caused by a severe head injury suffered during a car accident when he was 22. The mental illness leads to violence whenever he suffers from migraines also caused by the accident.

Condition #4—danger with controllability of cause Harry is a 30 year old single man with schizophrenia. The last time his symptoms got worse, he heard voices and believed his neighbors were planning to hurt him He attacked his landlady in the belief that she was in on a plot. When the police escorted him to the hospital, he tried to grab for the officer's gun. He attacked an orderly in the emergency room and had to be put into restraints. Harry's mental illness was originally caused by eight years of abusing illegal drugs. The mental illness leads to violence whenever he snorts cocaine.

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