

IMPLICIT AND EXPLICIT STIGMATIZING ATTITUDES AND STEREOTYPES ABOUT DEPRESSION

LINDSEY L. MONTEITH
University of Houston

JEREMY W. PETTIT
Florida International University

Prior research examining stigma toward depression has relied exclusively upon explicit measures, to the exclusion of implicit measures. Focusing exclusively on explicit stigma may provide an incomplete perspective, be subject to social desirability biases, and underestimate the extent of stigma towards depression. Including implicit measures in depression stigma research may provide valuable information on automatic attitudes and stereotypes, which may be more accurate predictors of automatic behaviors toward depressed persons. The present study examined implicit and explicit attitudes and stereotypes regarding the stability, controllability, and etiology of depression in an undergraduate sample, using physical illness as a comparison condition. Depression was hypothesized to be rated as more negative, temporary, controllable, and psychologically-caused than physical illness on both implicit and explicit measures. Differences were expected to be especially pronounced when measured implicitly. Participants ($n = 135$) completed a series of implicit association tasks (IATs) and explicit semantic differential scales. Results demonstrated more negative attitudes about depression,

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Address correspondence to Jeremy W. Pettit, Department of Psychology, Florida International University, 11200 S.W. 8th Street, Miami, FL 33199. E-mail: jpettit@fiu.edu.

compared to physical illness on implicit, but not explicit, measures. Explicit and implicit views of the etiology of depression were more supportive of psychological causes than biological causes, and this was more pronounced when measured implicitly. Depression was explicitly viewed as more controllable than physical illness; however, this difference was not observed implicitly. Whereas explicit ratings of stability were similar for depression and physical illness, participants implicitly rated depression as less stable than physical illness. The current study highlights the importance of including implicit measures in stigma research.

Depression is a leading cause of disease burden worldwide (Ustun & Kessler, 2002). Efficacious treatments for depression are available; however, perceived stigma associated with depression poses a significant challenge to seeking treatment for depression and may prevent disclosure of depressive symptoms to general practitioners and mental health providers (Barney, Griffiths, Jorm, & Christensen, 2006; Bushnell et al., 2005; Priest, Vize, Roberts, Roberts, & Tylee, 1996). Stigmatizing views also relate to decreased willingness to seek treatment and higher rates of treatment discontinuation (Barney et al., 2006; Sirey et al., 2001).

Commonly expressed reasons for not reporting depressive symptoms and not seeking treatment for depression include embarrassment, concerns that others will think less of them, and beliefs that they will be perceived as neurotic, unbalanced, or irritating (Barney et al., 2006; Bushnell et al., 2005; Priest et al., 1996). Negative effects associated with disclosing a history of depression extend beyond concerns about the reactions of medical professionals; depressed patients also anticipate negative consequences to employment, health insurance, and friendships (Roeloffs et al., 2003). Considering the detrimental consequences of such stigmatizing views, an accurate understanding of attitudes and stereotypes regarding depression is essential and can facilitate the development of stigma reduction efforts.

Labeling a person as depressed negatively impacts attitudes toward, emotional responses to, desire for future interaction with, and willingness to help that person (Sacco & Dunn, 1990). Stereotypes associated with depression include beliefs that people with depression are responsible for their condition (Barney, Griffiths, Christensen, & Jorm, 2009) and that they could pull themselves together (Crisp, Gelder, Rix, Meltzer, & Rowlands, 2000, p. 5). Another common stereotype is that depression is a sign of personal weakness

(Wang, Fick, Adair, & Lai, 2007; Wang & Lai, 2008). There is also a belief that people with depression are unpredictable, dangerous, or violent (Crisp et al., 2000; Crisp, Gelder, Goddard, & Meltzer, 2005; Link, Phelan, Bresnahan, Stueve, & Pescosolido, 1999; Wang & Lai, 2008). Thus, substantial evidence indicates that negative stereotypes regarding depression are common (e.g., Crisp et al., 2000; Crisp et al., 2005; Wang & Lai, 2008) and that the label of depressed cues negative attitudes, stereotypes, emotions, and behaviors (Sacco & Dunn, 1990).

IMPORTANCE OF ASSESSING IMPLICIT STIGMA

Nearly all research conducted on the stigmatization of mental illness has assessed explicit attitudes and stereotypes, which are considered to be conscious and controllable. In contrast, implicit measures are assumed to reflect more automatic beliefs (Greenwald & Banaji, 1995). This reliance on explicit measures is problematic because explicit reports can be vulnerable to social desirability biases and contingent upon forthright reporting, as well as self-awareness regarding one's beliefs. Implicit and explicit measures are assumed to reflect separate constructs (Greenwald & Banaji, 1995), and empirical findings support their distinction (Lane, Banaji, Nosek, & Greenwald, 2007). Some research has found that implicit and explicit measures were not significantly correlated (Karpinski & Hilton, 2001; Rüschi, Corrigan, Todd, & Bodenhausen, 2010; Teachman, Wilson, & Komarovskaya, 2006). A meta-analysis identified the relationship between implicit and explicit measures as weak, with an average correlation of $r = .19$ (Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005). Lane et al. (2007) similarly reported a weak median correlation of $r = .22$ in studies administering implicit association tasks (IATs) online. Thus, correlations between explicit and implicit measures are typically small in magnitude.

Implicit measures are more predictive of behaviors that are automatic or spontaneous, including nonverbal behaviors, whereas explicit measures are more predictive of controlled behaviors (Asendorpf, Banse, & Mucke, 2002; Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997). In a study by Asendorpf et al. (2002) examining shy-related behaviors, spontaneous behaviors (e.g., tension in body

posture) were uniquely predicted by the IAT, whereas controlled behaviors (e.g., speech duration) were uniquely predicted by explicit measures. Similarly, in a study of race-related behavior, explicit measures predicted assessments of guilt in a jury task, while implicit measures predicted eye contact and frequency of blinking during an interview (Dovidio et al., 1997).

To our knowledge, three published studies have examined explicit and implicit stigma regarding mental illness. Teachman et al. (2006) used implicit association tasks (IATs) and semantic differential scales to examine attitudes and stereotypes of mental illness, in comparison to physical illness. Implicit and explicit measures of attitudes, helplessness, and blameworthiness were not significantly related to one another. Participants endorsed more negative attitudes toward mental illness, relative to physical illness. This occurred on both explicit and implicit measures, but the negative response bias against mental illness was expressed more strongly on the implicit measure of attitude. The stereotype about the helplessness of mental illness was also expressed on both implicit and explicit measures. In contrast, participants implicitly endorsed stereotypes regarding blameworthiness to a greater extent for mental illness, compared to physical illness; however, this was not evidenced on the explicit measure of blameworthiness, demonstrating the value of including implicit measures of stigma.

A subsequent study by Peris, Teachman, and Nosek (2008) confirmed the ability of implicit and explicit measures to predict different types of behavior. Specifically, an IAT assessing mental illness stigma predicted overdiagnosing psychiatric disorders. Ratings of a more negative prognosis, however, were predicted by explicit measures of mental illness stigma.

More recently, Rüsçh et al. (2010) examined implicit self-stigma regarding mental illness in a heterogeneous sample of people with mental illness. Participants completed two separate IATs, which assessed self-esteem and attitudes toward mental illness, comprising implicit self-stigma. Self-report measures assessed explicit self-stigma and quality of life. Higher implicit and explicit self-stigma both independently predicted self-reported quality of life. In addition, implicit and explicit measures were not significantly correlated.

HOW DEPRESSION STIGMA COMPARES TO OTHER CONDITIONS

The previously described studies represent an important shift toward incorporating implicit measures into stigma research on mental illness; however, further research is needed to extend such results to specific disorders. Research examining the stigma of mental illness has combined heterogeneous disorders under a single broad category. Yet a growing body of research indicates that the public perception of these disorders is variable, with some disorders being viewed as more stigmatizing than others (e.g., Feldman & Crandall, 2007). Schizophrenia, mania, and eating disorders are associated with more negative attitudes than depression (Norman, Sorrentino, Windell, & Manchanda, 2008; Roehrig & McLean, 2010; Wolkenstein & Meyer, 2008). People also report a greater willingness to interact with people experiencing depression, as opposed to schizophrenia, substance dependence, or alcohol dependence (Marie & Miles, 2008; Norman et al., 2008; Phelan & Basow, 2007). Nonetheless, desired social distance from depressed persons exceeds that reported in regard to interacting with people experiencing common stress (Link et al., 1999; Phelan & Basow, 2007).

Furthermore, depression is rated as less stable (i.e., more likely to change over time) and more controllable than other mental disorders (e.g., cocaine dependence, schizophrenia, eating disorders) and physical disorders (e.g., cancer; Corrigan et al., 2000; Esses & Beaufoy, 1994; Pescosolido, Monahan, Link, Stueve, & Kikuzawa, 1999; Roehrig & McLean, 2010). Whereas people with severe depression are blamed less for their condition than people with eating disorders or substance addiction, they are blamed more than those with schizophrenia or dementia (Crisp et al., 2000; Crisp et al., 2005).

Perceived dangerousness has been identified as an important predictor of social rejection and avoidance (Corrigan et al., 2002; Feldman & Crandall, 2007). However, other research suggests that the relationship between dangerousness and desired social distance is not consistently found for depression (Angermeyer, Matschinger, & Corrigan, 2004; Dietrich, Matschinger, & Angermeyer, 2006). Nevertheless, people with depression are perceived as more dangerous than people without mental illness, people experiencing nonclinical stress, and people with eating disorders (Crisp et al., 2000; Link et

al., 1999; Phelan & Basow, 2007). Depressed persons are perceived as less dangerous than people with schizophrenia, alcohol dependence, and substance dependence (Crisp et al., 2000; Crisp et al., 2005; Link et al., 1999; Pescosolido et al., 1999; Pescosolido et al., 2010; Phelan & Basow, 2007).

Thus, mental disorders differ in regard to the degree of associated negative attitudes and the relevance of various stereotypes (e.g., dangerousness). To understand stigma regarding depression, it is therefore important to examine stigmatizing views related to depression specifically. Having a reference group for comparison, however, can facilitate comparison of results across research (Hinshaw, 2007).

Prior research has utilized physical illness as a comparison for mental illness and suggests that psychiatric disorders are perceived more negatively than physical disorders (Corrigan et al., 2000; Teachman et al., 2006). In addition, mental-behavioral disorders are generally considered more controllable in onset and less stable than disorders with a physical genesis (Weiner, Perry, & Magnusson, 1988). More negative emotions (e.g., anger) and less pity are associated with mental-behavioral disorders, and research participants report being less prone to like, or provide charity or assistance to, people with such disorders (Weiner et al., 1988). In regard to personal disclosure of one's condition, more stigma is associated with disclosing a history of depression compared to hypertension or diabetes (Roeloffs et al., 2003).

In sum, research suggests that there is more stigma associated with mental, compared to physical, disorders. However, considering research that depression is perceived differently than other mental disorders, it is unclear how stigma regarding depression specifically compares to the stigma of physical illness.

PRESENT STUDY

To address these gaps and expand existing knowledge regarding depression stigma, the present study examined negative attitudes toward depression, relative to physical illness. The present study also examined the extent to which undergraduates endorsed stereotypes regarding the controllability, stability, and etiology of depression, relative to physical illness. Responses in these domains were compared across implicit and explicit measures, using implicit

association tasks (IATs) and corresponding semantic differential scales, to determine whether explicitly endorsed responses differed from automatic, less controllable implicit responses. Participants were expected to endorse depression as more negative, more controllable, less stable, and more psychologically-caused than physical illness. This was expected to occur on both implicit and explicit measures, but be especially pronounced when assessed with implicit measures (cf. Teachman et al., 2006).

METHOD

Participants

Participants were 162 undergraduate students (124 women, 38 men) from a state university in an urban setting. The mean age of participants was 22.76 ($SD = 5.00$) years. The sample included 47 Caucasians (29.2%), 31 Hispanics/Latinos (19.3%), 28 African Americans (17.4%), 23 Southeast Asians (14.3%), 20 South Asians/East Indians (12.4%), five multi-racial (3.1%), four Middle Easterners (2.5%), two Native Hawaiians (1.2%), one Native American (0.6%), and one participant (0.6%) who did not report her race/ethnicity.

Implicit Measures

IATs (Greenwald, McGhee, & Schwartz, 1998) assess the speed at which individuals categorize different stimuli and attributes, using reaction time as a dependent measure. Faster response times are assumed to reflect stronger automatic associations (Greenwald & Banaji, 1995). Prior research has used IATs to examine attitudes regarding various topics, including ethnicity and race (Greenwald et al., 1998), obesity (Teachman, Gapinski, Brownell, Rawlins, & Jeyaram, 2003), religion (Rowatt, Franklin, & Cotton, 2005), and mental illness (Teachman et al., 2006). IATs have also been used in web-based research (e.g., Nosek, Banaji, & Greenwald, 2002).

Participants in this study performed four separate IATs (see Appendix), which assessed automatic attitudes (IAT 4) toward depression and physical illness, in addition to stereotypes regarding the stability (IAT 1), controllability (IAT 2), and etiology (IAT 3) of such conditions. Each IAT utilized identical target categories of depressed or physically ill, but varied in the attribute categories and stimuli

used. Participants were required to categorize stimuli into attribute dimensions assessing stability (e.g., permanent vs. temporary), controllability (e.g., controllable vs. uncontrollable), etiology (e.g., psychological vs. biological), and attitudes (e.g., good vs. bad).

Positive scores on the IAT reflect faster reaction times when Target A (e.g., depressed) is paired with Attribute A (e.g., permanent), compared to when Target B (e.g., physically ill) is paired with Attribute A (e.g., permanent), suggesting an implicit tendency to associate Target A with Attribute A. Thus, positive scores on IATs 1-4 reflected implicit tendency to associate depression with permanence (1), controllability (2), psychological causes (3), and positive attitudes (4), relative to physical illness. Negative scores reflected a tendency to react more quickly when pairing physical illness with these attributes. Scores of greater magnitude, independent of sign (i.e., positive or negative), suggest greater differences in reaction times when categorizing stimuli into Targets A and B, thus indicating stronger response tendencies.

Computation of IAT scores was based on the scoring algorithm provided by Greenwald, Nosek, and Banaji (2003), who recommended calculating the means of correct latencies for each block and then calculating a pooled standard deviation for both practice and test trials. Each error latency was replaced with the score obtained by adding 600 milliseconds to the mean for the block. Subsequently, the values from each block were averaged, and differences were obtained between the practice and test trials. Next, each difference was divided by its associated pooled trials standard deviation. Finally, these two values were averaged to obtain an overall *D* score for each IAT.

Explicit Measures

The semantic differential represents a measurement technique in which various concepts are numerically rated based on words of opposite meaning (Osgood, Suci, & Tannenbaum, 1957). Semantic differential scales have been used in the assessment of attitudes toward individuals with mental illness (e.g., Crisp et al., 2000; Olmsted & Durham, 1976). Link, Yang, Phelan, and Collins (2004) recommended using semantic differential scales in research examining mental illness stigma, due to their adequate reliability, construct

validity, flexibility, and ability to directly assess stereotyping. The semantic differential has also been noted to be subject to a social desirability bias that is not extreme (Link et al., 2004, p. 520). The semantic differential was considered particularly appropriate for the present study because it allowed a comparison of explicit and implicit responses (e.g., Greenwald et al., 1998; Teachman et al., 2006).

The semantic differential scales utilized in the present study assessed explicit attitudes and stereotypes regarding stability, controllability, and etiology, utilizing the words utilized in the IATs. Participants used a 7-point scale to rate the concepts depressed and physically ill on 38 pairs of bipolar attributes. High scores represented greater endorsement of each condition (i.e., depression or physical illness) as more unstable, uncontrollable, biologically-caused, and associated with negative attitudes. Low scores represented greater endorsement of each condition as more stable, controllable, related to psychological (rather than biological) causes, and related to more positive attitudes.

Internal consistency reliability was adequate for the semantic differential subscales assessing attitudes ($\alpha = .93$ for depression; $\alpha = .95$ for physical illness), stability ($\alpha = .88$ for depression; $\alpha = .91$ for physical illness), and controllability ($\alpha = .77$ for depression; $\alpha = .79$ for physical illness), but was relatively low for the semantic differential subscales assessing etiology ($\alpha = .63$ for depression; $\alpha = .58$ for physical illness).

Procedures

After providing informed consent, participants completed the explicit and implicit measures, which were administered online. The order in which subjects completed the implicit and explicit measures was counterbalanced. Additional counterbalancing occurred for the different explicit questionnaires and for the order in which participants completed the specific IATs. This is consistent with previous research (Teachman et al., 2006) and follows the recommendations of Greenwald, Nosek, & Banaji (2003). Participants also provided demographic information. Following completion of participation, participants received credit for their participation and were debriefed online.

RESULTS

IAT Data Reduction

The recommendations of Greenwald et al. (2003) were followed to analyze IAT data. Thus, response trials were excluded from analyses if response times were too slow (e.g., latencies exceeding 10,000 milliseconds). Less than .01% of all trials were deleted due to slow responding. Twenty-seven participants (16.7%) whose extremely fast response times suggested carelessness in responding (as indicated by more than 10% of trials with a latency less than 300 milliseconds) were excluded from analyses (Greenwald et al., 2003). The remaining sample included 135 participants.

Relations between Implicit and Explicit Measures

Correlations are displayed in Table 1. No significant correlations were found between corresponding implicit and explicit measures (i.e., controllability, stability, etiology, or attitudes). To a certain extent, this was expected considering that implicit measures required participants to rate depression relative to physical illness, while the explicit measures involved direct ratings of each condition (depression or physical illness) without a comparison condition. No significant correlations were observed between implicit measures.

An examination of correlations between explicit measures of depression revealed significant relationships of controllability with etiology and stability, such that greater endorsement of depression as controllable was related to endorsing depression as more psychologically caused and temporary. There was a significant negative relationship between the explicit measures of attitude and etiology, such that greater endorsement of depression as psychologically caused was related to more negative explicit attitudes. No other significant correlations were observed between explicit measures of depression.

An examination of correlations between explicit measures of physical illness revealed that only the correlation between controllability and attitudes was statistically significant, such that more negative attitudes were associated with higher perceptions of the uncontrol-

TABLE 1. Correlations and Descriptive Statistics for Implicit and Explicit Measures

	1	2	3	4	5	6	7	8	9	10	11	12
Implicit Stability	—											
Implicit Controllability	.07	—										
Implicit Etiology	-.03	-.05	—									
Implicit Attitudes	.07	.09	-.09	—								
Explicit Stability (D)	-.06	-.11	.01	-.06	—							
Explicit Controllability (D)	.05	.08	.06	.04	-.33**	—						
Explicit Attitudes (D)	.00	-.07	-.23**	.09	.15	.08	—					
Explicit Etiology (D)	-.11	.13	-.06	.07	-.16	.26**	-.17*	—				
Explicit Stability (P)	.01	-.28**	.07	-.07	.21*	-.05	.08	.05	—			
Explicit Controllability (P)	-.03	.00	-.06	-.13	-.01	.33**	.19*	.12	-.16	—		
Explicit Attitudes (P)	.00	-.13	.01	.03	.24**	-.07	.55**	-.28**	.16	.18*	—	
Explicit Etiology (P)	.10	.08	.11	-.01	-.11	.08	-.12	.11	-.09	.01	.10	—
Mean	-.20	-.03	.37	-.21	35.48	26.53	43.12	58.39	36.09	28.61	42.10	65.59
SD	.39	.31	.38	.38	9.99	7.69	6.59	8.92	10.38	7.23	7.07	9.63

Note. "D" refers to depression, and "P" refers to physical illness. Positive implicit scores reflect a tendency to associate depression with permanence, controllability, psychological causes, and positive attitudes, relative to physical illness. Negative implicit scores reflect a tendency to associate depression with impermanence, uncontrollability, biological causes, and negative attitudes, relative to physical illness. Higher scores on the explicit scales reflect greater endorsement of negative attitudes, and stereotypes of each condition as temporary, uncontrollable, and related to biological, nonpsychological causes. * = Correlation is significant at $p < .05$ (2-tailed); ** = Correlation is significant at $p < .001$ (2-tailed).

lability of physical illness. Significant correlations were found between corresponding explicit measures of stability, controllability, and attitudes, but not etiology. This suggests that participants who endorsed depression as stable, controllable, and negative also tended to endorse the same characteristics for physical illness.

Explicit Views of Depression and Physical Illness

A series of one sample *t*-tests examined whether participants' explicit ratings on the semantic differential scales differed significantly from the midpoints of the scales (the midpoint represents no endorsement of stereotypes or attitudes in either direction). Participants rated both depression, $t(134) = 4.05, p < .001, d = 0.70$, and physical illness, $t(134) = 4.59, p < .001, d = 0.79$, as significantly different from the midpoints for stability, rating both as more temporary than permanent. For attitudes, participants rated both depression, $t(134) = 26.65, p < .001, d = 4.61$, and physical illness, $t(134) = 23.17, p < .001, d = 4.00$, as significantly different from the midpoints, rating both as more negative than positive. Explicit ratings of etiology significantly differed from the midpoints for depression, $t(134) = -7.32, p < .001, d = -1.26$, but not for physical illness, $t(134) = 1.91, p = .058, d = 0.33$, such that depression was rated as more related to psychological, rather than biological, causes. Explicit ratings of controllability did not significantly differ from the midpoint for physical illness, $t(134) = 0.99, p = .33, d = 0.17$, but significantly differed for depression, $t(134) = -2.23, p = .028, d = -0.38$. Thus, participants rated depression as more controllable than uncontrollable, but rated physical illness as neither controllable nor uncontrollable.

To evaluate the hypothesis that participants would view depression more negatively and as more controllable, temporary, and psychologically-caused than physical illness, a series of matched-pairs *t*-tests compared participants' ratings of depression to physical illness on explicit measures. Means and standard deviations are presented in Table 1. Hypotheses concerning differences in explicit measures of controllability and etiology were supported.

Significant differences occurred for explicit ratings of controllability, $t(134) = -2.81, p = .006, d = 0.28$, such that participants rated depression as more controllable than physical illness. There was a significant mean difference between explicit ratings of the etiology of depression and physical illness, $t(134) = -6.77, p < .001, d = 0.78$,

suggesting that participants rated depression as more related to psychological, nonbiological, causes than physical illness. Contrary to hypotheses, no significant differences occurred between explicit ratings of attitudes toward depression and physical illness, $t(134) = 1.82, p = .071, d = 0.15$. In addition, no significant differences were observed between explicit measures of stability for depression and physical illness, $t(134) = -0.55, p = .58, d = 0.06$.

Implicit Views of Depression as Compared to Physical Illness

A series of one sample *t*-tests examined whether participants' IAT scores differed significantly from zero (reflecting no difference in regard to ratings of depression, relative to physical illness) on each of the four implicit measures. Means and standard deviations are presented in Table 1. Significant differences were obtained for implicit measures of stability, $t(134) = -5.84, p < .001, d = 1.01$, attitudes, $t(134) = -6.37, p < .001, d = -1.10$, and etiology, $t(134) = 11.38, p < .001, d = 1.97$. In contrast, the implicit measure of controllability did not significantly differ from zero, $t(134) = -1.11, p = .27, d = -.19$. Thus, participants' implicit responses were consistent with views of depression as more temporary, negative, and related to psychological, nonbiological causes, than physical illness; however, their implicit responses on the controllability of depression and physical illness were similar.

Were Response Tendencies Especially Pronounced When Measured Implicitly?

To test the hypothesis that the difference between ratings of depression and physical illness would be greater when measured implicitly, compared to explicitly, the recommendations of Teachman et al. (2006) were followed. A difference score between explicit measures of depression and physical illness was calculated for each explicit measure, to correspond with the relative nature of the implicit measures. Next, scores on both explicit and implicit measures were transformed to *z*-scores (making the scales equivalent). An interpretable zero-point was created for implicit and explicit measures by subtracting the mean/SD from each *z*-score. The zero-point reflects no difference between the ratings of depression and physical illness. A positive value reflects a tendency toward viewing depression as

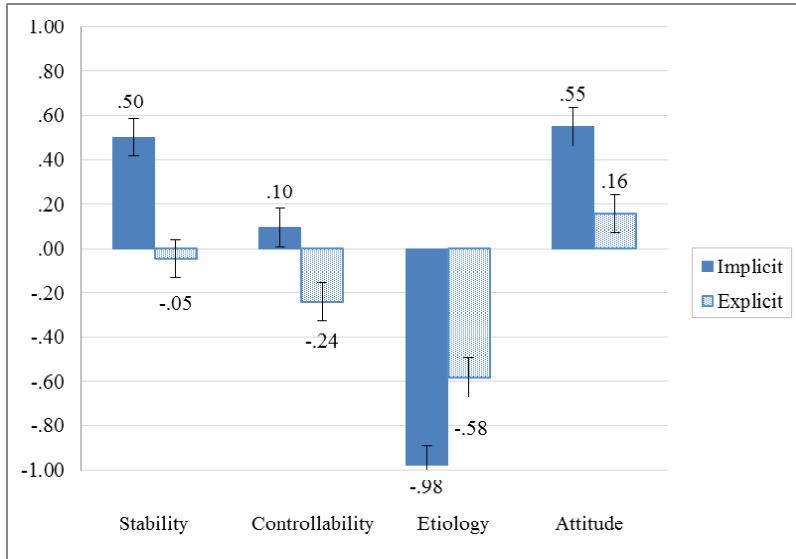


FIGURE 1. A Visual Comparison of Explicit and Implicit Response Tendencies

Note. This figure reflects means of standardized scores for implicit and explicit measures. Standard error bars are included. The zero-point reflects no difference between the ratings of depression and physical illness. A positive value reflects a tendency toward viewing depression as more temporary, uncontrollable, biologically-caused, and related to negative attitudes, relative to physical illness. A negative value reflects a tendency toward viewing depression as more permanent, controllable, psychologically-caused, and related to positive attitudes, relative to physical illness.

more temporary, uncontrollable, biologically-caused, and related to negative attitudes, relative to physical illness. Conversely, a negative value reflects a tendency toward viewing depression as more permanent, controllable, psychologically-caused, and related to positive attitudes, relative to physical illness.

Means of standardized scores for implicit and explicit responses tendencies are displayed in a graph for visual comparison (see Figure 1). Explicit and implicit views of etiology indicated depression as more related to psychological causes than physical illness. This view was more pronounced when measured implicitly. Depression was viewed with more negative attitudes relative to physical illness, and this view was also more pronounced when measured implicitly. Ratings for stability demonstrated an implicit, but not explicit, tendency to view depression as more temporary than physi-

cal illness. Finally, ratings of controllability revealed an explicit, but not implicit, tendency to view depression as controllable, relative to physical illness.

DISCUSSION

The present study examined implicit and explicit attitudes and stereotypes regarding the etiology, stability, and controllability of depression, using physical illness as a comparison condition. Findings suggested some similarities between explicit views and implicit responses toward these phenomena, but also revealed a number of differences. A high degree of congruence was found between explicit and implicit responses on the etiology of depression compared to physical illness. Participants consistently linked psychological causes with depression and to a greater extent than for physical illness. Although large effect sizes were observed for both implicit and explicit comparisons of etiology for depression and physical illness, the effect was more pronounced on the implicit measure ($d = 1.97$) than the explicit measures ($d = 0.78$).

Responses in the other three domains (attitudes, stability, and controllability) differed considerably across implicit and explicit measures. When comparing depression to physical illness, implicit responses indicated a large effect ($d = -1.10$) of more negative attitudes toward depression than physical illness. In contrast, the difference between explicit attitudes was small ($d = 0.15$) and not statistically significant. Similar results were obtained regarding the stability of depression and physical illness. Implicit responses linked depression with lower temporal stability than physical illness (a large effect, $d = 1.01$), but no differences were found in explicit ratings of stability. Finally, the reverse pattern was observed for the controllability of depression and physical illness. Explicit responses indicated that depression was viewed as more controllable than physical illness (a small effect, $d = 0.28$), but implicit responses regarding controllability did not differ between depression and physical illness.

To our knowledge, this is the first study to examine implicit attitudes and stereotypes regarding depression. However, prior research on explicit views suggests that depression is perceived as less temporally stable and more negative and controllable than physical illness (Corrigan et al., 2002; Elliott & Frank, 1989; Hsu et al., 2008;

Lai, Hong, & Chee, 2001), while generally perceived as strongly related to psychological causes (e.g., Jorm et al., 1997). The present study found evidence of each of those perceptions, but as described above, the extent to which those perceptions appeared usually differed across implicit and explicit measures. The consistent and large effect for psychological causation of depression, compared to physical illness, replicates previous findings on explicit views of depression (Jorm et al., 1997; Link et al., 1999) and suggests that this is a strongly held belief. Although it is tempting to speculate about substantive reasons for the discrepancy in effect size magnitude across implicit and explicit etiology scores, the simplest explanation is the low internal consistency of the etiology semantic differential scale (Reinhardt, 1996).

The absence of significant differences in explicit attitudes toward depression and physical illness contradicts the findings of prior investigations (e.g., Elliott & Frank, 1989; Hsu et al., 2008; Lai et al., 2001). One possible explanation of this discrepancy is that explicit attitudes about depression may be less negative now than in the past. In support of this explanation, Crisp et al. (2005) provided evidence that negative explicit attitudes toward people with severe depression decreased, whereas positive explicit attitudes increased, from 1998 to 2003. In contrast, Pescosolido et al. (2010) and Angermeyer and Matschinger (2004) found no change in desired social distance from depressed persons from 1996 to 2006 and 1990 to 2001, respectively. Although Crisp et al.'s finding of a change in explicit attitudes is encouraging, enthusiasm is tempered, both by the inconsistent findings on attitude change in prior research and by the present finding that implicit attitudes toward depression were considerably more negative than implicit attitudes toward physical illness. It may be that the failure to detect differences in explicit attitudes about depression and physical illness is due to social desirability effects, rather than actual attitude change. As noted by Wilson, Lindsey, and Schooler (2000), conclusions about attitude change based on explicit measures may be misleading, and implicit attitudes may continue to influence behavior even after apparent changes in explicit attitudes.

Prior research has found that depression is explicitly rated as less stable than physical disorders, such as cancer and AIDS (Corrigan et al., 2000; Esses & Beaufoy, 1994). The present study found a similar result with implicit measures, with depression implicitly endorsed

as more temporary than physical illness. However, when measured explicitly, depression and physical illness were rated similarly (as more temporary than permanent). The cause of these differences in implicit and explicit stability ratings is unclear; they may be due to social desirability, poor awareness of one's beliefs, or an alternate explanation. Regardless, the results suggest that college students may view depression as a temporary mood state, rather than a chronic and recurrent condition.

The present finding on explicit ratings of controllability was consistent with prior research, in which depression is rated as more controllable than physical disorders (Corrigan et al., 2000; Esses & Beaufoy, 1994). Unexpectedly, implicit ratings of controllability did not differ between depression and physical illness. The discrepancy between explicit and implicit responses on controllability is intriguing, and suggests the possibility that, relative to automatic responses, explicit responses may overestimate depression controllability and/or underestimate physical illness controllability. If social desirability processes are at work, participants may be reticent to characterize physical illness as controllable and may be inclined to project control over mood and emotion. Considering prior findings that attributions of responsibility relate to blaming the person for their condition (e.g., Weiner et al., 1988), it seems likely that explicit ratings of controllability may co-occur with explicit blame for depression.

Limitations should be considered when interpreting the findings of the present study. First, the low internal reliability of the explicit measure of etiology suggests that results based on this scale should be interpreted with caution. Second, although undergraduate samples have been used in prior research to understand depression stigma (e.g., Norman et al., 2008; Phelan & Basow, 2007), the use of an undergraduate sample likely limits generalizability of the findings beyond college students. Research suggests that level of education inversely relates to stigmatizing views, such that those with less education tend to harbor more stigmatizing explicit attitudes regarding depression (Cook & Wang, 2010; Yen et al., 2005). Third, the low number of males in the sample represents a limitation, particularly considering prior research indicating that stigmatizing views vary by gender (e.g., Wang et al., 2007). Fourth, although the

present study examined a specific mental illness (depression), the comparison condition of physical illness is broad. Finally, although the present study demonstrated differences in implicit and explicit views, it did not examine the utility of such measures in predicting behaviors toward depressed persons. Future work is encouraged to incorporate behavioral measures, such as social interaction tasks that include behaviors under varying levels of cognitive control (e.g., speech content, eye contact, physical proximity).

Implications

Previous research investigating the efficacy of anti-stigma campaigns has relied exclusively on explicit measures to assess change (e.g., Crisp et al., 2005; Griffiths, Christensen, Jorm, Evans, & Groves, 2004). However, changes observed in explicit attitudes may be more reflective of controlled behaviors and potentially influenced by social demands. Moreover, findings from the present study confirm that explicit views toward depression may differ markedly from implicit responses. The inclusion of implicit measures in research on stigma reduction efforts would provide valuable information regarding change in automatic attitudes and beliefs, which may be more predictive of spontaneous and nonverbal behaviors when interacting with depressed people (Asendorpf et al., 2002; Dovidio et al., 1997).

Future research should also explore additional ways in which stigma regarding depression can be targeted efficiently. Researchers have suggested that increasing people's awareness of the discrepancy between their explicit and implicit beliefs may be an effective strategy of reducing stigma (Corrigan et al., 2003; Monteith, 1993). Considering the negative impact of stigma on treatment seeking and treatment discontinuation (Barney et al., 2006; Sirey et al., 2001), identifying effective ways of modifying such beliefs could be valuable in increasing people's willingness to report depressive symptoms, seek treatment, and complete treatment for depression.

APPENDIX. IMPLICIT ASSOCIATION TASK (IAT) STIMULUS WORD LISTS

Depressed: sad, hopeless, gloomy, tearful, miserable, depressed

Physically Ill: sick, illness, influenza, disease, virus, cancer

Permanent:

stable, always, constant, persistent, chronic, prolonged, forever

Temporary:

impermanent, unstable, variable, fleeting, short-term, brief, occasional

Controllable:

avoidable, preventable, guilty, at fault, manageable, blameworthy

Uncontrollable:

unavoidable, inevitable, innocent, faultless, unmanageable, blameless

Psychological:

stress, trauma, mental, cognitive, life event, coping style, learned, acquired, helplessness

Biological:

genes, hormones, chemical, physiology, brain, neurotransmitter, physical, inherited, hereditary

Good: positive, pleasant, enjoy, glorious, wonderful, bliss

Bad: negative, horrible, agony, terrible, unpleasant, despise

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