NIH-PA Author Manuscript

NIH-PA Author Manuscript

NIH-PA Author Manuscript

Implicit and Explicit Stigma of Mental Illness: Attitudes in an Evidence-Based Practice

Laura G. Stull, Ph.D.[1], **John H. McGrew, Ph.D.**[2], **Michelle P. Salyers, Ph.D.**[2], and **Leslie Ashburn-Nardo, Ph.D.**[2]

[1]Anderson University, Anderson, IN, USA

[2]Indiana University Purdue University Indianapolis (IUPUI), Indianapolis, IN, USA

Abstract

The extent to which explicit and implicit stigma are endorsed by mental health practitioners utilizing evidence-based practices is unknown. The purposes of the current study were to 1) examine implicit and explicit biases among Assertive Community Treatment (ACT) staff and 2) explore the extent to which biases predicted the use of treatment control mechanisms. Participants were 154 ACT staff from nine states. Overall, participants exhibited positive explicit and implicit attitudes towards people with mental illness. When modeled using latent factors, greater implicit, but not explicit, bias significantly predicted greater endorsement of restrictive or controlling clinical interventions. Thus, despite overall positive attitudes toward those with mental illness for the sample as a whole, individual differences in provider stigma were related to clinical care. Mental health professionals, and specifically ACT clinicians, should be educated on types of bias and ways in which biases influence clinical interventions.

Keywords

Stigma; mental illness; implicit attitude; Implicit Association Test; Assertive Community Treatment

The stigma surrounding mental illness can act as a pervasive barrier to opportunities that define a good quality of life (e.g., good jobs, safe housing, satisfactory health care, diverse social interactions), can serve as an impediment to people getting the help they need (Corrigan & Watson, 2002; President's New Freedom Commission, 2003), and can be disempowering, eroding hope that recovery from mental illness is even possible. Stigma involves many factors, including stereotypes, prejudice, and discrimination. Commonly held stereotypes about people with mental illness that have been consistently identified in surveys of the general public include incompetence (e.g., incapable of independent living or competitive work), blame (e.g., weak character is responsible for the disorder), and dangerousness (e.g., potentially violent) (Brockington et al., 1993; Hamre et al., 1994; Link et al., 1999). Unfortunately, mental health professionals also have been found to endorse

negative stereotypes about mental illness (Lyons & Ziviani, 1995; Mirabi et al., 1985; Scott & Philip, 1985). One review indicated that mental health professionals' beliefs were similar to or more negative than the general population (Schulze, 2007) and another review found negative beliefs even in studies with overall positive attitudes among professionals (Wahl & Aroesty-Cohen, 2010). Interestingly, staff working with people with psychosis or in inpatient settings may have the most negative attitudes (Hansson et al., 2011).

Importantly, attitudes can influence behaviors. Positive attitudes increase the desire to help the stigmatized group (Batson et al., 2002), increase the likelihood that doctors and nurses engage in positive therapeutic interactions with suicidal patients (Demirkiran & Eskin, 2006), and predict physicians' appropriate use of medical procedures with minority patients (Green et al., 2007). In contrast, negative attitudes predict whether mental health professionals assign more diagnoses and poorer prognoses to consumers portrayed though clinical vignettes (Peris et al., 2008) and, when a mental condition is perceived as controllable, tend to elicit decreased pity, increased anger, and an unwillingness to assist (Weiner et al., 1988).

Most research on mental illness stigma has focused on the detrimental effects of explicit negative expectations and attitudes of others. However, there is increasing recognition that explicit measures may underestimate levels of stigma (Hinshaw & Stier, 2008). In contrast, implicit attitudes (i.e., evaluations that may reside outside of conscious control or awareness) may be more sensitive to detecting associations that persons would not explicitly endorse or would prefer not to reveal.

Importantly, implicit measures may provide unique information concerning biased attitudes and enhance predictions of discriminatory behaviors. While explicit stigma is self-reported and occurs within conscious awareness, implicit stigma occurs outside of conscious control. Further, explicit and implicit measures may differentially predict behavioral outcomes due to operating through reflective (e.g., basing decisions on knowledge about facts and values) versus impulsive (e.g., basing decisions on associative links and motivational orientations) systems (Strack & Deutsch, 2004), or based on whether outcomes are controllable or spontaneous (Asendorpf et al., 2002).

Implicit stigma of mental illness has been found across a range of populations, including the general population (Teachman et al., 2006), medical and psychology students (Lincoln et al., 2008), adolescents (Saporito et al., 2011), Asian Americans (Cheon & Chiao, 2012), Chinese college students (Wang et al., 2012) and those with mental illness (Rusch et al., 2007; Rusch et al., 2010; Teachman et al., 2006). Moreover, there is initial evidence that implicit and explicit stigma may differentially predict clinical decisions. Specifically, among those with mental health training, explicit bias was related to more negative estimates of patient prognoses, whereas implicit bias was related to a tendency to over-diagnose (Peris et al., 2008).

Assertive Community Treatment

There is an increased focus in the mental health field on integrating evidence-based practices with the recovery model (Frese et al., 2001; Salyers & Macy, 2004). Although ACT, an

intensive case management program, is widely recognized as an evidence-based practice and has been shown to produce better client outcomes (e.g., increased housing stability, reduced hospital use) (Bond et al., 2001; Ziguras, 2000), ACT has been criticized as being paternalistic and incompatible with a recovery orientation (Gomory, 1999). Thus, a concern is whether ACT facilitates recovery. Because the recovery model aims to reduce stigmatizing treatments (e.g., treatment that emphasizes illness and keeps people from integrating into society), the study of explicit and implicit stigma towards mental illness among ACT staff is particularly appropriate.

One reason ACT has been criticized as being coercive (Gomory, 1999) is the use of treatment control strategies, such as intensive medication monitoring, outpatient commitments, and representative payeeships (agency managing a consumer's finances), that limit consumer freedom and assume that, if not used, consumers will not act in their own best interest (Moser & Bond, 2009). However, it is important to consider the context and conditions under which strategies are used. For example, recovery-oriented ACT teams may use control strategies differently – with greater consumer involvement, when there is demonstrated need, and after other attempts have already been made (Salyers et al., 2011). Moreover, it is possible that mandated treatment may pave the way for later recovery, although it also should involve the recovering individuals (Munetz & Frese, 2001).

The use of specific control mechanisms among ACT programs has been associated with consumer characteristics (schizophrenia-spectrum diagnoses and substance use), lower levels of staff education, and lower quality of services (Moser & Bond, 2009), as well as pessimistic staff attitudes (Moser & Bond, 2011). Although use of control mechanisms has not been associated with fidelity to the ACT model (Moser & Bond, 2009), ACT teams with lower levels of recovery-orientation appear to be more likely to endorse use of treatment control mechanisms such as outpatient commitments, injection medications, and daily medication monitoring (Salyers et al., 2011). In the current study, we expected staff with more positive attitudes and weaker stereotypes (i.e., less stigma) to act in less stigmatizing ways (i.e., less endorsement of controlling interventions).

In summary, our primary purpose in the current study was to examine the extent to which ACT practitioners exhibit explicit and implicit mental illness bias. Based on prior findings (Teachman et al., 2006), we hypothesized that mental health practitioners would demonstrate implicit negative attitudes and stereotypes about the helplessness and blameworthiness of persons with mental illness. A second purpose was to explore the extent to which explicit and implicit bias predict the endorsement of treatment control mechanisms, hypothesizing that greater levels of stigma would predict greater endorsement of treatment control mechanisms.

Method

Participants

The total sample included 154 participants from 55 ACT teams. Initially, recruitment focused on a single state. Of the 126 participants (81.8%) who indicated location, a total of 67 ACT staff were from Indiana, out of an estimated potential pool of 320 individual

participants (20.9% response rate). To increase sample size, recruitment was expanded to other states. A total of 59 ACT staff from eight other states participated (28 did not indicate a location).

One-hundred twenty participants (77.9%) provided information on their role on the team: 86 were staff members, 27 were team leaders, and 7 were program directors. Across these roles participants reported the following disciplines: social work (n = 59), psychology (n = 25), nursing (n = 7), sociology (n = 4), psychiatry (n = 3), education (n = 1), and other (n = 21). The sample was 77.5% female and had a mean age of 41.7 years (SD = 11.2). Race or ethnicity was reported as 87.5% Caucasian, 7.5% African-American, 0.8% Hispanic, 0.8% multiracial, and 4.2% indicated another group. Participants reported an average of 11.0 years (SD = 8.9) in the mental health field and 3.2 years (SD = 2.4) in their current position. There were no significant differences on descriptive data for participants recruited from Indiana compared to other states.

Implicit Measure

A web-based, computerized version of the Implicit Association Test (IAT) (Greenwald et al., 1998) was used to assess automatic associations regarding mental illness. The IAT was developed, administered, and managed using Inquisit Desktop Edition (Version 3) by Millisecond Software, which includes a web license for electronic administration. The IAT has been widely used to assess implicit attitudes and stereotypes and has adequate psychometric properties (Nosek et al., 2006). The key IAT assumption is that informants show faster reaction times when stimuli are paired in ways that are consistent vs. inconsistent with well-learned automatic associations, i.e., implicit biases. The IAT is a relative assessment; that is, evaluations of one group are compared with evaluations of a second group. In the current study, stimuli were used from a previously developed IAT (Teachman et al., 2006) comparing mental illness and physical illness groups.

Participants completed three different IATs. All tasks contrasted "physical illness" and "mental illness" and were rated using one of three stimulus sets: 1) "bad" versus "good", 2) "blameworthy" versus "innocent", or 3) "helpless" versus "competent". Within tasks, participants were presented with both compatible (mental illness + bad) and incompatible trials (mental illness + good). The good/bad stimulus is thought to assess a general evaluation of negative attitudes (Teachman et al., 2006). The helpless/competent category taps into stereotypes regarding the abilities of persons with severe mental illness. The controllability category (innocent/blameworthy) is a key distinction between physical and mental illness, in that mental illness is believed to be under more personal control (Crandall & Moriarty, 1995).

In each IAT, there were two critical trial blocks: one block where the target and descriptor categories reflected negative mental illness associations and one block reflecting negative physical illness associations. Consistent with Teachman's work (2006), each critical block consisted of 56 classification trials. The first 20 trials were practice and the remaining 36 constituted the experimental data. The outcome measure was response time, with shorter latencies indicating stronger automatic associations of concepts with the stimulus group. Implicit stigma was indicated by faster responding when mental illness was associated with

bad, blameworthy, and helpless category labels. Following the IAT scoring algorithm developed by Greenwald and colleagues (2003), difference scores (D scores; calculated by dividing the difference between reaction time averages for the mental illness and physical illness test blocks by the standard deviation of all the latencies in the test blocks) were calculated for each association such that positive scores indicated more implicit bias against mental illness.

Explicit Measure

Consistent with previous research (Greenwald et al., 1998; Peris et al., 2008; Teachman et al., 2006), we included a series of single-item explicit bias measures. Participants were asked to rate their attitudes toward "persons with mental illness" and "persons with physical illness" on 7-point semantic differential scales (e.g., 1=bad to 7=good). Ratings were made for bad/good, blameworthy/innocent and helpless/competent biases, with lower scores indicating more negative views. Participants were instructed to mark the middle of the range if they considered both anchors to be irrelevant to either category. These items were designed to parallel the IATs to permit implicit/explicit comparisons. A difference score was calculated for each target attitude or stereotype (e.g., blameworthiness ratings for persons with physical illness minus ratings for persons with mental illness), with a positive score indicating a negative evaluation of persons with mental illness relative to physical illness. When the single items pertaining to mental illness were included in the modeling analyses, items were reverse-scored so that higher scores indicated a negative evaluation of mental illness. Additional explicit stigma measures were included in the survey, including perceived dangerousness, but are not reported in this paper due to a focus on comparing implicit and corresponding explicit attitudes.

Treatment Control Mechanisms

The extent to which staff endorsed the use of treatment control mechanisms was assessed using a clinical vignette. Although use of treatment control mechanisms in ACT has been previously analyzed at an organizational level (Moser & Bond, 2009), and Neale and Rosenheck (2000) examined therapeutic limit-setting activities on intensive case management teams, the use of treatment control mechanisms has not been assessed at an individual level with ACT teams. Because vignettes have been identified as a useful tool for measuring stigma towards mental illness (Link et al., 2004), a vignette was created which assessed participants' endorsements of the use of various control mechanisms, based on the clinical and personal information provided. The vignette described a 21 year-old female with schizophrenia and cannabis abuse, unstable housing, past history of abuse by others, and a pattern of disappearing for several weeks at a time. The full vignette is available from the first author upon request.

After reading the vignette, staff answered 12 questions concerning treatment options using a 7-point scale (1 = strongly disagree to 7 = strongly agree). Staff rated the degree to which they endorsed the use of six previously studied treatment control mechanisms (e.g., inpatient hospitalization, representative payeeship, injection medications) (Moser & Bond, 2009), five items assessing staff support for client independence/autonomy in various treatment domains (e.g., manage own medications), and a single item assessing response to presence

of substance abuse symptoms (random drug screens). An "other" item allowed staff to recommend another intervention. One item was deleted from the final scale based on low item-total correlations (use of agency owned/operated housing). Internal consistency was acceptable for the final 11-item measure ($\alpha = 0.71$), marginally acceptable for the six item restrictive practices subscale ($\alpha = 0.65$) and poor for the five item non-autonomous practices subscale ($\alpha = 0.54$). Five items were recoded so that higher scores would indicate greater endorsement of control; we report the mean score of the measure (see Table 1).

Demographics

Participants provided demographic information on age, gender, race/ethnicity, marital status, highest level of education completed, current discipline, length of time in current position, and length of time in the mental health field. Participants also indicated their position on the team (program director, team leader, or staff member), the name of their team (to identify the number of teams represented), and the state in which their team was located.

Procedure

Participants were recruited by email. ACT team leaders and program directors were initially targeted and were asked to forward study information to other ACT staff. Emails contained a brief introduction and study description, web link for the study, and an attached recruitment letter with more details. All survey measures, including the IAT, could be accessed by the emailed web link. Staff and program director participants were compensated with $10 gift cards and team leader participants with $20 gift cards because they completed additional measures requiring an increased time commitment (30-45 minutes for staff versus 45-60 minutes for team leaders). The university Institutional Review Board approved the study procedures.

The order in which participants first completed explicit or implicit measures was assigned randomly. In addition, we counterbalanced the order in which each IAT (good vs. bad; helpless vs. competent; blameworthy vs. innocent) was completed and the order of presentation of compatible or incompatible trials. Participants were assigned to one of 12 "clusters" of trials, each cluster used a fixed trial order (e.g., cluster 1 had trials in the following order: good vs. bad, helpless vs. competent, blameworthy vs. innocent, with all trials starting with compatible items). Assignment was sequential and repeated after every 12th participant, based on the order in which they completed the survey, such that participant one completed cluster one, participant two completed cluster two, etc. Although it would have been ideal to assign participants randomly to clusters, random assignment was limited by the software. Random assignment could only be used at one level and was reserved for order of presentation of the implicit and explicit measures.

Results

Implicit and Explicit Bias of Mental Illness

We computed *t*-tests to examine the extent to which ACT practitioners exhibited explicit and implicit mental illness bias. Effect sizes were calculated using Cohen's *d*. Table 1 displays descriptive statistics of all variables. We used one sample *t*-tests to compare each IAT score

to zero (which reflects having neither positive nor negative associations with mental illness versus physical illness), consistent with prior studies (Peris et al., 2008; Teachman et al, 2006). Contrary to hypotheses, participants demonstrated implicit preferences for mental illness compared to physical illness, associating mental illness with good (versus bad; t_{108} = -4.91, $p < 0.01$, d = -0.47) and competent (versus helpless; t_{106} = -2.29, $p = 0.02$, d = -0.22). There also was a trend toward associating mental illness compared to physical illness with innocent (versus blameworthy; t_{107} = -1.98, $p = 0.05$, d = -0.19).

Results using explicit attitudes mirrored those for implicit attitudes. We used one sample t-tests to compare item scores to 3.5 (midpoint of the 7-point scale) for the three semantic differential items assessing explicit evaluations of persons with mental illness as bad (relative to good), blameworthy (relative to innocent), and helpless (relative to competent). Participants viewed people with mental illness as relatively good (t_{130} = -9.34, $p < 0.01$, d = -0.82), innocent (t_{130} = -6.14, $p < 0.01$, d = -0.54), and competent (t_{132} = -5.51, $p < 0.01$, d = -0.48).

We created difference scores to assess the relative negative evaluations on the semantic differential items of persons with mental illness compared to physical illness as bad, blameworthy, and helpless. Positive scores indicate viewing mental illness (compared to physical illness) as relatively more bad, blameworthy, and helpless. We computed one sample t-tests to compare the difference scores to 0 (no difference in attitudes) and found that people with mental illness, relative to physical illness, were viewed as relatively good (t_{129} = -3.82, $p < 0.01$, d = -0.34), but did not differ from physical illness on blameworthy versus innocent (t_{128} = -1.00, $p = 0.32$, d = -0.09) or helpless versus competent (t_{132} = 0.20, $p = 0.84$, d = 0.02).

In examining demographic variables and implicit bias, level of education was significantly and negatively related to implicit bias of mental illness compared to physical illness as bad (versus good; r = -0.33, p < 0.01), blameworthy (versus competent; r = -0.22, p < 0.05), and helpless (versus innocent; r = -0.31, p < 0.01). Age was positively related to implicit bias of mental illness compared to physical illness as bad (versus good; r = 0.23, p < 0.05). Regarding explicit bias, team position was related to viewing mental illness (compared to physical illness) as relatively more bad (r = -0.30, p < 0.01) and as bad (relative to good; r = -0.27, p < 0.01); staff demonstrated more positive attitudes than team leaders and program directors.

Relationships Between Implicit and Explicit Measures and Treatment Control Mechanisms

We calculated Pearson correlations to determine univariate associations between variables (see Table 1). Correlations between corresponding implicit and explicit measures were not significant (r ranged from 0.01 to 0.19). Staff who endorsed the use of more control mechanisms were more likely to show increased implicit stigma toward those with mental illness, relative to physical illness, as being bad (r = 0.23, $p = 0.02$) and helpless (r = 0.27, $p < 0.01$), and were more likely to show increased explicit stigma towards those with mental illness as being more helpless than competent (r = 0.19, $p = 0.03$). Stereotypes of blameworthiness were unrelated to endorsement of control mechanisms for both implicit and explicit measures.

Stigma as a Predictor of Treatment Control Mechanisms

The second aim of this study was to explore the extent to which explicit and implicit biases predict use of treatment control mechanisms. To evaluate this question, we used latent variable structural equation modeling (SEM). The model was fit to the data using AMOS Version 19. Full maximum likelihood methods were used and full information maximum likelihood estimation was used to deal with missing data.

As a first step, multivariate techniques were used to identify the latent variables underlying implicit bias, explicit bias, and control mechanisms, thereby reducing measurement error. The explicit bias factor included the three semantic differential Bad-Good, Blameworthy-Innocent, and Helpless-Competent items (all significantly intercorrelated; r range 0.27-0.36). The implicit bias factor was comprised of the three IATs (mental illness + bad, mental illness + blameworthy, mental illness + helpless), which were all significantly intercorrelated (r range: $0.19 - 0.42$). The control mechanism latent factor was comprised of two theoretically-derived indicators: interventions which enhanced autonomy (5 items; e.g., let client manage their own medications) and interventions that prescribed restrictive practices (6 items; e.g., daily medication monitoring). For interpretability purposes, the items which assessed enhanced autonomy were reverse-scored.

Next, the fit of the hypothesized model (depicted in Figure 1) was examined along with the significance of the paths connecting the mental illness bias factors to the control mechanism factor. Assessment of model fit was based on non significant chi-square, the root-mean-square error of approximation index (RMSEA less than .08), the comparative fit index (CFI above .90) and the Tucker-Lewis index (TLI above .90) (Browne & Cudeck, 1993; Hu & Bentler, 1999).

All four goodness of fit indices suggested a good fit for the model ($X^2 = 23.61$, df = 18, $p = 0.17$; RMSEA = 0.05, CFI = 0.95, TLI = 0.90). As depicted in Figure 1, all indicators loaded significantly onto their respective factors. There was a moderately strong relationship between the implicit and explicit bias factors ($r = 0.42$). Results indicated that implicit bias (standardized coefficient = 0.36, $p = 0.03$), but not explicit bias (standardized coefficient = 0.20, $p = 0.14$), was a significant predictor of greater endorsement of control mechanisms. A total of 23% of the variance in control mechanisms was accounted for by the model, with implicit and explicit bias respectively explaining 13.0% and 4.0% of the variance. Nested model comparisons confirmed that the baseline model fit deteriorated significantly when the implicit path, but not the explicit path, was forced to zero and when the implicit and explicit paths were forced to be equal, implying that the path coefficients are significantly different (see Table 2).

Additional models were tested to examine the prediction of each control mechanism subscale separately. When predicting control mechanisms as measured by the restrictive practices subscale, the model was a poor fit. However, fit indices suggested a good fit for a model predicting only the non-autonomous practices subscale ($X^2 = 12.45$, df = 12, $p = 0.41$; RMSEA = 0.02, CFI = 0.99, TLI = 0.99). All indicators loaded significantly onto their respective factors. Similar to the hypothesized model, implicit bias (standardized coefficient = 0.25, $p = 0.03$), but not explicit bias (standardized coefficient = 0.15, $p = 0.13$), was a

significant predictor. As shown in Table 2, the same pattern of nested model results obtained when constraining parts of the model as discussed above were again found when constraining parts of the model and predicting non-autonomous practices, with the exception that the deterioration relative to the baseline model when forcing implicit and explicit paths to be equal was now at a trend level, implying that the path coefficients are significantly different.

Discussion

Implicit and Explicit Bias of Mental Illness

Overall, ACT practitioners had positive explicit and implicit attitudes toward people with mental illness. Specifically, participants had positive explicit views of people with mental illness as good (relative to bad), innocent (relative to blameworthy), and competent (relative to helpless). When compared to people with physical illness, those with mental illness were viewed as relatively good (explicit and implicit), competent (implicit), and innocent (implicit).

Interestingly, in contrast to expectations, differences in attitudes toward mental and physical illness revealed a more robust preference for mental illness using all implicit measures and using one explicit measure. Further, staff demonstrated more positive explicit attitudes than team leaders and program directors. These findings are consistent with the contact hypothesis (Allport, 1954); the level of exposure ACT staff have to mental illness may increase their positivity towards this group. Additionally, contact has been shown to be particularly influential in affecting implicit attitudes (e.g., Aberson et al., 2004; Ashburn-Nardo et al., 2007). It also may be that people with more positive associations with mental illness choose to work in positions that involve frequent contact with people with mental illness. When originally developed, ACT was targeted for individuals diagnosed with severe mental illness who experience the most persistent and extreme symptoms of the illness. Thus, ACT practitioners may have a particular preference for persons with mental illness.

Our findings of generally positive views towards people with mental illness are inconsistent with one prior review reporting that beliefs of mental healthcare providers did not differ from, or were more negative, than the general population across 7 of 9 studies (Schulze, 2007). However, a more recent review found that 14 of the 19 reviewed studies demonstrated overall positive attitudes among mental health professionals regarding mental illness (Wahl & Aroesty-Cohen, 2010). Regardless, Wahl and Aroesty-Cohen (2010) note that negative attitudes were present even in studies that demonstrated overall positive results, concluding "A mixture of positive and negative views continues to be found for mental health professionals" (p.58). Thus, our findings contribute to a growing body of literature and provide some evidence of positive views among mental health professionals.

Notably, participants with higher levels of education demonstrated lower levels of all three types of implicit bias. These findings are consistent with another study with similar methodology, in which participants with advanced mental health training demonstrated more positive implicit and explicit evaluations of people with mental illness (Peris et al., 2008). However, no prior studies have examined the attitudes of practitioners restricted to a single

evidence-based mental health treatment model. Given the increased attention on providing mental health services that are both evidence-based and facilitate recovery, it is particularly encouraging to find positive attitudes among ACT practitioners. Further, it is important to consider the role that advanced education may serve in reducing implicit biases.

Consistent with prior work on explicit and implicit bias of mental illness, when assessed using manifest variables, the corresponding explicit and implicit bias measures were not related (Lincoln et al., 2008; Peris et al., 2008; Teachman et al., 2006). However, when explicit and implicit biases were modeled as latent factors, there was a moderate to strong relationship between the factors. Specifically, as participants' explicit bias increased, so did their implicit bias. This is contrary to the only other previous study in which explicit and implicit bias of mental illness were examined in a structural equation model and found to be unrelated, although the study used only the "good" versus "bad" categories in their IAT (Peris et al., 2008). However, the findings are consistent with recent research, which has shown that implicit and explicit measures can be strongly related (Greenwald et al., 2009). In fact, overall, there is a moderate relationship between implicit and explicit stigma, with an average $r = 0.24$ in one meta-analysis of the IAT and self-report measures (Hofmann et al., 2005) and an average $r = 0.37$ in a review of 57 different content domains (Nosek, 2005). Moreover, Nosek and colleagues (2006) used a multitrait-multimethod framework and demonstrated that the IAT and self-report were related but distinct constructs, even after accounting for common method variance. In addition, relationships between the IAT and analogous explicit measures are even stronger when using latent models to control for measurement error (Cunningham et al., 2001).

Stigma as a Predictor of Treatment Control Mechanisms

A second purpose of this study was to explore the extent to which explicit and implicit bias predict use of treatment control mechanisms. When modeled using latent factors, implicit, but not explicit, bias significantly predicted the endorsement of restrictive or controlling clinical interventions when considered together, and non-autonomous interventions when considered separately. This finding is consistent with research linking implicit race bias to disparities in medical diagnosis and decision making (Green et al., 2007). Interestingly, Peris and colleagues (2008) found that implicit and explicit bias latent factors differentially predicted outcomes, with explicit (but not implicit) bias predicting more negative patient prognoses and implicit (but not explicit) bias predicting over-diagnosis. They argued that clinicians might recognize their prognoses as general evaluations of people with mental illness, whereas diagnostic decision-making may bear little obvious relevance to general evaluations, concluding that, "implicit biases may be linked to deliberative clinical decisions only for circumstances in which the person is not aware that his or her attitudes or stereotypes may be influential" (p. 759). This is one possibility, but another may have to do with whether the control mechanism outcomes employed in the present research are readily recognized as a form of bias. Specifically, using control mechanisms (e.g., monitoring medications) arguably is a paternalistic approach. While being paternalistic may appear to be helpful and not seem stigmatizing superficially, it is condescending and implies incompetence and helplessness among the service recipients (Deegan, 1990). This is supported by the finding in the current study that implicit (but not explicit) bias predicted

mechanisms that limited autonomy (e.g., client manages their own money, discuss personal goals), when considered separately from restrictive practices (e.g., inpatient hospitalizations). Indeed, such benevolent forms of bias are often difficult to recognize. For example, as shown in the racism literature, Whites are often reticent to endorse overtly negative racial attitudes, yet they more freely endorse "complimentary" racial stereotypes of Blacks' athleticism and sexual prowess (Czopp & Monteith, 2006) that Blacks find personally offensive (Czopp, 2008). Thus, it may be that implicit instead of explicit biases were significant predictors in the present research because people are less likely to be aware that benevolent and superficially positive forms of bias are still forms of bias; we would therefore expect a comparably "hidden" bias to predict such judgments. Given that education has been recommended as a way to reduce such forms of bias (Ashburn-Nardo et al., 2008), it is important for ACT staff to be educated on recognizing these attitudes as forms of bias and to be more aware of how these attitudes may affect their use of restrictive interventions.

Additionally, recent research indicates the potential for changing implicit attitudes and related behaviors, with evaluative conditioning as one possible mechanism. For example, repeatedly pairing alcohol-related cues with negative stimuli resulted in stronger negative implicit attitudes toward alcohol and reduced alcohol consumption (Houben et al., 2010) and, in a positive training condition, pairing self-relevant stimuli (e.g., pictures of the participant pretending to give a speech) with positive facial expressions led to less negative implicit social anxiety (Clerkin & Teachman, 2010). However, further research is needed to examine evaluative conditioning and other avenues for changing implicit attitudes regarding mental illness and related behaviors.

It is important to note that even though implicit but not explicit attitudes were significant predictors when modeled as latent factors, explicit attitudes of the helplessness (vs. competence) of people with mental illness were significantly related to endorsement of using control mechanisms. Further, implicit attitudes of people with mental illness (vs. physical illness) as bad and helpless were also significantly related to control mechanisms. A recent review found that many mental health professionals doubt the possibility of recovery (Wahl & Aroesty-Cohen, 2010). It makes sense that the more helpless people with mental illness are perceived, the more likely practitioners would be to step in and recommend more restrictive and less autonomy-enhancing interventions. Further, it may be that the use of control mechanisms among ACT practitioners is governed by strong concern (i.e. "bad" reflects a judgment that the problem is severe) and belief that consumers are unable to deal with their illness on their own (i.e. viewing people as "helpless"), but not beliefs regarding why they have the illness (i.e. viewing people as "blameworthy"). Again, these may reflect paternalistic approaches, which appear helpful, but are actually condescending and imply incompetence and helplessness. Thus, strategies are needed which target mental health practitioners' attitudes that people with mental illness are helpless or that severe problems require autonomy-restricting interventions.

The study had several limitations. One limitation, also common with other studies using the IAT, is that IATs are relative measures and can be limited by the comparison condition. We could only capture implicit bias towards mental illness relative to bias toward physical

illness; however, even relative IATs have been shown to predict non-relative outcomes (Ashburn-Nardo & Johnson, 2008) such as the control mechanisms in the present study. While we chose this comparison based on prior research (Teachman et al., 2006), it is possible that other comparison conditions could be more fruitful or future research could employ a non-relative implicit measure such as the Go/No-Go Association Task (Nosek & Banaji, 2001). Further, comparing the responses of ACT providers on the explicit measures to a representative group instead of an absolute zero would be of additional utility. Our dependent variable, treatment control mechanisms, is limited in that we did not observe actual behavioral use of interventions. However, we enhanced the self-report aspect by providing a clinical vignette, a useful and common method for assessing stigma (Link et al., 2004). SEM analyses were restricted given the small sample size, and should be considered preliminary. We would have preferred to treat each of the eleven treatment control mechanisms as separate indicators of the control mechanism factor, but we lacked the power to do so.

Conclusions

This study addresses a need to examine the attitudes of mental health professionals towards those they treat (Wahl & Aroesty-Cohen, 2010) and the impact of those attitudes on treatment. Explicit and implicit attitudes of ACT practitioners in this study were positive toward individuals with mental illness. This is encouraging given that other studies have found negative attitudes among mental health professionals (Schulze, 2007; Wahl & Aroesty-Cohen, 2010). Further studies are needed to confirm and extend our findings for other evidence-based practices, including other studies of ACT. Although overall attitudes in the current sample were positive, latent models of implicit (but not explicit) bias predicted the endorsement of treatment control mechanisms, particularly interventions that limited autonomy. Further, explicit attitudes that people with mental illness are helpless were related with endorsement of treatment control mechanisms. Thus, even at very low levels, relative stigma may predict clinical care. These findings underscore the importance of not just assessing attitudes, but examining the extent to which variability in attitudes predicts judgments and behaviors.

Given concerns that ACT intervenes using paternalistic and coercive means (Gomory, 1999) these findings are potentially important. Because ACT teams often target consumers who are not effectively engaged with treatment and are frequent users of psychiatric hospitals, substance abuse centers, jails, shelters, and other facilities, interventions may be enacted out of well-intentioned forms of bias. Mental health professionals, and specifically ACT clinicians, should be educated on the ways in which these attitudes convey bias to consumers and should work to be aware of how biases influence how they intervene with consumers.

Acknowledgments

References

Aberson CL, Shoemaker C, Tomolillo C. Implicit bias and contact: The role of interethnic friendships. J Soc Psychol. 2004; 144:335–347. [PubMed: 15168433]

Allport, G. The Nature of Prejudice. Reading, MA: Addison-Wesley; 1954.

Asendorpf JB, Banse R, Mucke D. Double dissociation between implicit and explicit personality self-concept: The case of shy behavior. J Pers Soc Psychol. 2002; 83:380–393. [PubMed: 12150235]

Ashburn-Nardo L, Johnson NJ. Implicit outgroup favoritism and intergroup judgment: The moderating role of stereotypic context. Social Justice. 2008; 21:490–508.

Ashburn-Nardo L, Monteith MJ, Arthur SA, Bain A. Race and the psychological health of African Americans. Group Process Interg. 2007; 10:471–491.

Ashburn-Nardo L, Morris KA, Goodwin SA. The Confronting Prejudicial Responses (CPR) model: Applying CPR in organizations. Acad Manage Learn Edu. 2008; 7:332–342.

Batson C, Chang J, Orr R, Rowland J. Empathy, attitudes, and action: Can feeling for a member of a stigmatized group motivate one to help the group? Pers Soc Psychol B. 2002; 28:1656–1666.

Bond G, Drake R, Mueser K, Latimer E. Assertive community treatment for people with severe mental illness: Critical ingredients and impact on patients. Dis Manage Health Outcomes. 2001; 9:141–159.

Brockington I, Hall P, Levings J, Murphy C. The community's tolerance of the mentally ill. Br J Psychiatry. 1993; 162:93–99. [PubMed: 8425146]

Brown, MW.; Cudeck, R. Alternative ways of assessing model fit. In: Bollen, KA.; Long, JS., editors. Testing structural equation models. Newbury Park (CA): Sage; 1993. p. 136-162.

Cheon BK, Chiao JY. Cultural variation in implicit mental illness stigma. J Cross Cult Psychol. 2012; 43:1058–1062.

Clerkin EM, Teachman BA. Training implicit social anxiety associations: An experimental intervention. J Anxiety Disord. 2010; 24:300–308. [PubMed: 20102788]

Corrigan P. How stigma interferes with mental health care. Am Psychol. 2004; 59:614–625. [PubMed: 15491256]

Corrigan P, Watson A. Understanding the impact of stigma on people with mental illness. World Psychiatry. 2002; 1:16–20. [PubMed: 16946807]

Crandall C, Moriarty D. Physical illness stigma and social rejection. Br J Soc Psychol. 1995; 34:67–83. [PubMed: 7735733]

Cunningham WA, Preacher KJ, Banaji MR. Implicit attitude measures: Consistency, stability, and convergent validity. Psychol Sci. 2001; 12:163–170. [PubMed: 11340927]

Czopp AM. When is a compliment not a compliment? Evaluating expressions of positive stereotypes. J Exp Soc Psych. 2008; 44:413–420.

Czopp AM, Monteith MJ. Thinking well of African Americans: Measuring complimentary stereotypes and negative prejudice. Basic Appl Soc Psych. 2006; 28:233–250.

Deegan PE. Spirit breaking: When the helping professions hurt. Humanist Psychol. 1990; 18:301–313.

Demirkiran F, Eskin M. Therapeutic and nontherapeutic reactions in a group of nurses and doctors in Turkey to patients who have attempted suicide. Soc Behav Personal. 2006; 34:891–906.

Frese FJ, Stanley J, Kress K, Vogel-Scibilia S. Integrating evidence-based practices and the recovery model. Psychiat Serv. 2001; 52:1462–1468.

Gomory T. Programs of assertive community treatment (PACT): A critical review. Ethical Hum Sci Serv. 1999; 1:147–163.

Green AW, Carney DR, Pallin DJ, Ngo LH, Raymond KL, Lezzoni LL, Banaji MR. Implicit bias among clinicians and its prediction of thrombolysis decisions for black and white patients. J Gen Intern Med. 2007; 22:1231–1238. [PubMed: 17594129]

Greenwald A, McGhee D, Schwartz J. Measuring individual differences in implicit cognition: The implicit association test. J Pers Soc Psychol. 1998; 74:1464–1480. [PubMed: 9654756]

Greenwald A, Nosek B, Banaji M. Understanding and using the Implicit Association Test: I. An improved scoring algorithm. J Pers Soc Psychol. 2003; 85:197–216. [PubMed: 12916565]

Greenwald AG, Poehlman TA, Uhlmann EL, Banaji MR. Understanding and using the Implicit Association Test: III. Meta-analysis of predictive validity. J Pers Soc Psychol. 2009; 97:17–41. [PubMed: 19586237]

Hamre P, Dahl A, Malt U. Public attitudes to the quality of psychiatric treatment, psychiatric patients, and prevalence of mental disorders. Nord J Psychiat. 1994; 48:275–281.

Hansson L, Jormfeldt H, Svedberg P, Svensson B. Mental health professionals' attitudes toward people with mental illness: Do they differ from attitudes held by people with mental illness? Int J of Soc Psychiatry. 2011:1–7.

Hinshaw SP, Stier A. Stigma as related to mental disorders. Annu Rev Clin Psycho. 2008; 4:367–393.

Hofmann W, Gawronski B, Gschwendner T, Le H, Schmitt M. A meta-analysis on the correlation between the Implicit Association Test and explicit self-report measures. Pers Soc Psychol B. 2005; 31:1369–1385.

Houben K, Schoenmakers TM, Wiers RW. I didn't feel like drinking but I don't know why: The effects of evaluative conditioning on alcohol-related attitudes, craving and behavior. Addict Behav. 2010; 35:1161–1163. [PubMed: 20810220]

Hu L, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternative. Struct Equ Modeling. 1999; 6:1–55.

Lincoln TM, Arens E, Berger C, Rief W. Can antistigma campaigns be improved? A test of the impact of biogenetic vs psychosocial causal explanations on implicit and explicit attitudes to schizophrenia. Schizophrenia Bull. 2008; 34:984–994.

Link B. Understanding labeling effects in the area of mental disorders: An assessment of the effects of expectations of rejection. Am Sociol Rev. 1987; 52:96–112.

Link B, Phelan J, Bresnahan M, Stueve A, Pescosolido B. Public conceptions of mental illness: Labels, causes, dangerousness, and social distance. Am J Public Health. 1999; 89:1328–1333. [PubMed: 10474548]

Link BG, Yang LH, Phelan JC, Collins PY. Measuring mental illness stigma. Schizophrenia Bull. 2004; 30:511–541.

Lyons M, Ziviani J. Stereotypes, stigma, and mental illness: Learning from fieldwork experiences. Am J Occup Ther. 1995; 49:1002–1008. [PubMed: 8585582]

Mirabi M, Weinman M, Magnetti S, Keppler K. Professional attitudes toward the chronic mentally ill. Hosp Community Psych. 1985; 36:404–405.

Moser LL, Bond GR. Scope of agency control: Assertive community treatment teams' supervision of consumers. Psychiat Serv. 2009; 60:922–928.

Moser LL, Bond GR. Practitioner attributes as predictors of restrictive practices in assertive community treatment. J Amer Psychiatric Nurses Assoc. 2011; 17:80–89.

Munetz MR, Frese FJ. Getting ready for recovery: Reconciling mandatory treatment with the recovery vision. Psychiatr Rehabil J. 2001; 25:35–42. [PubMed: 11529451]

Neale MS, Rosenheck RA. Therapeutic limit setting in an assertive community treatment program. Psychiat Serv. 2000; 51:499–505.

Nosek B. Moderators of the relationship between implicit and explicit evaluation. J Exp Psychol. 2005; 134:565–584.

Nosek BA, Banaji MR. The Go/No-go Association Task. Soc Cognition. 2001; 19:625–666.

Nosek, B.; Greenwald, A.; Banaji, M. The Implicit Association Test at age 7: A methodological and conceptual review. In: Bargh, JA., editor. Social psychology and the unconscious: The automaticity of higher mental processes. Philadelphia: Psychology Press; 2006. p. 265-292.

Peris T, Teachman B, Nosek B. Implicit and explicit stigma of mental illness: Links to clinical care. J Nerv Ment Dis. 2008; 196:752–760. [PubMed: 18852619]

President's New Freedom Commission on Mental Health. Achieving the promise: Transforming mental health care in America Final report (No SMA-03-3832). Rockville, MD: Department of Health and Human Services; 2003.

Rusch N, Corrigan PW, Todd AR, Bodenhausen GV. Implicit self-stigma in people with mental illness. J Nerv Ment Dis. 2010; 198:150–153. [PubMed: 20145491]

Rusch N, Lieb K, Gottler I, Hermann C, Schramm E, Richter H, Jacob GA, Corrigan PW, Bohus M. Shame and implicit self-concept in women with borderline personality disorder. Am J Psychiatry. 2007; 164:500–508. [PubMed: 17329476]

Salyers M, Stull L, Rollins A, Hopper K. The work of recovery on two assertive community treatment teams. Adm Policy Ment Hlth. 2011; 38:169–180.

Salyers MP, Macy VR. Recovery-oriented evidence-based practices: A commentary. Community Ment Hlt J. 2004; 41:101–103.

Saporito JM, Ryan C, Teachman B. Reducing stigma toward seeking mental health treatment among adolescents. Stigma Research Action. 2011; 1:9–21. [PubMed: 24286023]

Schulze B. Stigma and mental health professionals: A review of the literature. Int Rev Psychiatr. 2007; 19:137–155.

Scott D, Philip A. Attitudes of psychiatric nurses to treatment and patients. Br J Med Psychol. 1985; 58:169–173. [PubMed: 4016020]

Strack F, Deutsch R. Reflective and impulsive determinants of social behavior. Pers Soc Psychol Rev. 2004; 8:220–247. [PubMed: 15454347]

Teachman B, Wilson J, Komarovskaya I. Implicit and explicit stigma of mental illness in diagnosed and healthy samples. J Soc Clin Psychol. 2006; 25:75–95.

Wahl O, Aroesty-Cohen E. Attitudes of mental health professionals about mental illness: A review of the recent literature. J Community Psychol. 2010; 38:49–62.

Wang X, Huang X, Jackson T, Chen R. Components of implicit stigma against mental illness among Chinese students. PloS one. 2012; 7

Weiner B, Perry RP, Magnusson J. An attributional analysis of reactions to stigma. J Pers Soc Psychol. 1988; 55:738–748. [PubMed: 2974883]

Ziguras SJ, Stuart GW. A meta-analysis of the effectiveness of mental health case management over 20 years. Psychiat Serv. 2000; 51:1410–1421.
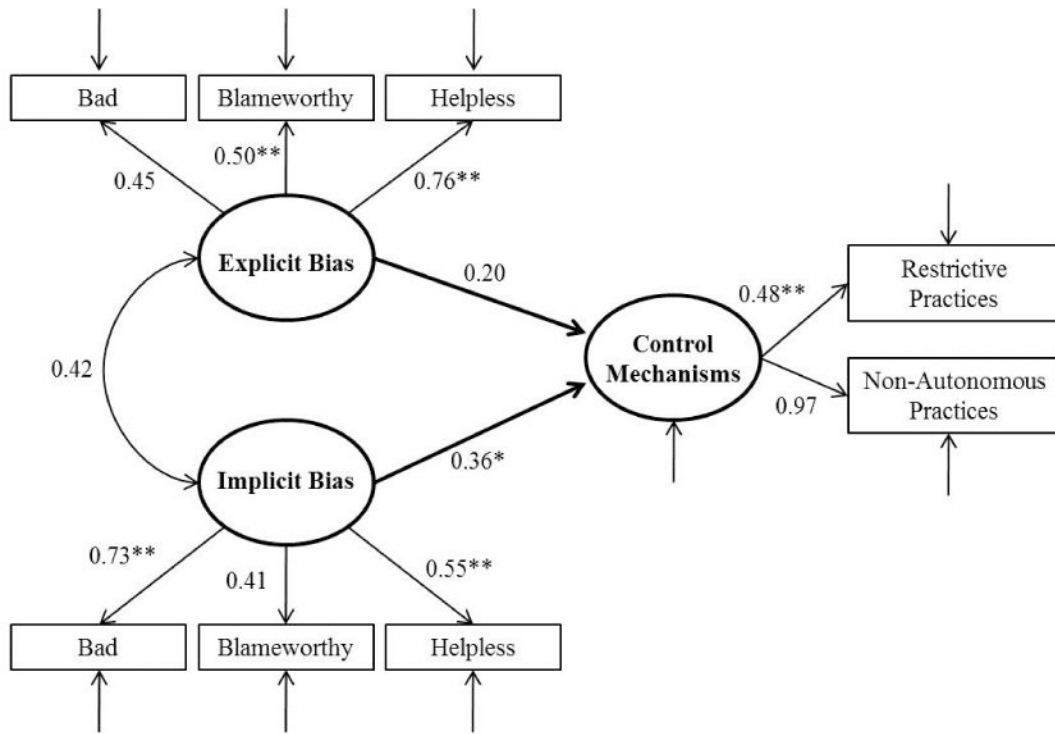
Figure 1.
Test of hypothesized model.
* p   0.05, ** p < 0.01

Table 1

Descriptive Statistics and Correlations between Explicit Measures, Implicit Measures, and Dependent Variable

Measure	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
Mean (SD)												
Explicit Measures												
1. Semantic differential: MI[1] bad	-											
2.35 (1.41)												
2. Semantic differential: MI blameworthy	0.27**	-										
2.79 (1.33)												
3. Semantic differential: MI helpless	0.34**	0.36**	-									
2.86 (1.33)												
4. Difference score: bad	0.49**	-0.04	-0.02	-								
-0.36 (1.08)												
5. Difference score: blameworthy	-0.02	0.56**	0.07	0.04	-							
-0.12 (1.32)												
6. Difference score: helpless	0.06	0.07	0.47**	0.21*	0.04	-						
0.02 (1.30)												
Implicit Measures												
7. IAT MI: bad (vs. good)	0.17	0.10	0.23*	0.17	0.26**	0.12	-					
-0.20 (0.42)												
8. IAT MI: blameworthy (vs. innocent)	0.04	0.15	0.29**	0.10	0.19	0.10	0.29**	-				
-0.07 (0.37)												
9. IAT MI: helpless (vs. competent)	-0.03	0.06	0.17	0.10	0.17	0.01	0.42**	0.19*	-			
-0.09 (0.40)												
Dependent Variable												
10. Control mechanisms (total scale)	-0.08	0.11	0.19*	-0.05	0.12	0.07	0.23*	0.02	0.27**	-		
4.16 (0.80)												
11. Restrictive practices subscale	-0.15	0.02	0.09	-0.05	0.06	0.07	0.18	-0.09	0.23*	0.92**	-	
4.89 (1.03)												

Measure	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
Mean (SD)												
12. Non-autonomous interventions subscale	0.04	0.21**	0.27**	-0.03	0.16	0.04	0.30**	0.17	0.25**	0.78**	0.47**	-
3.29 (0.80)												

[1]MI is abbreviation for mental illness.

*
p < 0.05.

**
p < 0.01.

Table 2

Comparison of Structural Equation Models

Model	X^2	df	RMSEA	CFI	TLI	R^2	X^2_{diff}
1. Hypothesized Model	23.61	18	0.05	0.95	0.90	0.23	
Constrained Hypothesized Models							
2. Implicit Constrained	30.45[*]	19					
Comparison of models 1 & 2							6.84[**]
3. Explicit Constrained	25.63	19					
Comparison of models 1 & 3							2.02
4. Both Constrained	40.64[**]	19					
Comparison of models 1 & 4							17.03[**]
Other Models							
5. Restrictive Practices Only	20.39	12	0.07	0.88	0.72	0.05	
Comparison of models 1 & 5							3.22
6. Non-Autonomous Practices Only	12.45	12	0.02	0.99	0.99	0.12	
Comparison of models 1 & 6							11.16
Constrained Non-Autonomous Practices Models							
7. Implicit Constrained	18.85	13					
Comparison of models 6 & 7							6.40[*]
8. Explicit Constrained	14.65	13					
Comparison of models 6 & 8							2.20
9. Both Constrained	15.97	13					
Comparison of models 6 & 9							3.52[a]

[*] $p < 0.05$;

[**] $p < 0.01$

[a] This chi-square difference was significant at a trend level ($p = 0.06$).