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## Support for the Social-Cognitive Model of Internalized Stigma in Serious Mental Illness

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### Abstract

One prominent social-cognitive model of internalized stigma by Corrigan and his colleagues (2012; 2002) proposes that individuals are exposed to societal stereotypes about mental illness, at least tacitly agree with them, and may apply them to oneself, engendering harmful self-beliefs. There is limited empirical support for this model in serious mental illness. Moreover, it is not clearly established how internalized stigma and its associated factors impact recovery in this population. The current study uses structural equation modeling (SEM) to assess the social-cognitive model's goodness of fit in a sample of Veterans with serious mental illness (Veteran sample,  $n = 248$ ), and then validates the model in a second and independent sample of individuals receiving community-based psychiatric rehabilitation services (community sample,  $n = 267$ ). Participants completed the Self-Stigma of Mental Illness Scale (SSMIS; Corrigan et al., 2006) and measures of self-esteem, self-efficacy, and recovery attitudes. Consistent with Corrigan

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and colleagues' formulation of internalized stigma, SEM analyses showed a significant indirect pathway from stereotype awareness, to stereotype agreement, to application to self, to self-esteem decrement, to poorer recovery attitudes. Additionally, there was a significant direct effect from stereotype awareness to self-esteem. This study shows that individuals with serious mental illness experience psychological harm from stigma in two ways: (1) through perceived public prejudice and bias, and (2) through internalizing these negative messages. In particular, stigma harms individuals' self-esteem, which then reduces their recovery attitudes.

## Keywords

serious mental illness; internalized stigma; self-stigma; social-cognitive model; perceived stigma; recovery attitudes

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## 1. Introduction

Negative public perceptions of individuals who have mental illness are common. These stereotypes, prejudice, and discrimination constitute public stigma (Link and Phelan, 2001). Internalized or self-stigma occurs when individuals with a mental health diagnosis or problem believe these negative biases and apply them to themselves (Corrigan and Watson, 2002). Internalized stigma is pronounced in serious mental illness (Jorm and Griffiths, 2008), with 21.7% of people with affective disorders (Brohan et al., 2011) and 41.7% of people with psychotic disorders (Brohan et al., 2010) reporting moderate to high levels of internalized stigma. Given its prevalence and pervasive negative impact, internalized stigma is a major barrier to recovery and an important intervention target in this population (Wood et al., 2016; Yanos et al., 2015). To improve the potency and precision of interventions targeting internalized stigma, it is necessary to understand its relationships with associated factors and how it leads to its commonly observed negative outcomes.

### 1.1 The Social Cognitive Model

Social-cognitive theory (Bandura, 2001) provides a useful framework for understanding the determinants and consequences of internalized stigma. One prevailing model within this framework, by Corrigan and his colleagues (2012; 2002), proposes that an individual (1) becomes generally aware of negative public stereotypes about mental illness through everyday exposure in society (awareness), then (2) often overtly or tacitly accepts that these negative public stereotypes are legitimate or true (agreement). Then, when the person experiences mental health problems, is diagnosed, or interacts with the mental health care system, the social category of having a mental illness becomes personally relevant. This can lead to (3) concurring that the negative public stereotypes apply to him/herself (application), with a resulting (4) decrease in self-concept, feeling devalued by society, and holding diminished expectations for their lives (harm)<sup>1</sup>. The resulting harms associated with

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<sup>1</sup>According to Yanos and colleagues (2020, 2008), the harm from internalized stigma is amplified among individuals with high clinical insight (i.e., the "insight paradox," Lysaker et al., 2007). Over time, their identity becomes increasingly defined by the perceived limitations of having mental illness. This "illness identity" reduces hope and self-esteem, and leads to a cascade of negative recovery-related outcomes, including increased suicide risk, social isolation, avoidant coping, decreased treatment engagement, decreased vocational functioning, and increased psychiatric symptoms.

internalized stigma impact psychological outcomes (e.g., increased hopelessness, suicidal ideation, depression, etc.) (Hofer et al., 2016; Drapalski et al., 2013; Oexle et al., 2017), interfere with the pursuit of personally meaningful activities (i.e., “why try”; Corrigan et al., 2016, 2009), and reduce overall quality of life (Picco et al., 2016). This model is of potential interest for clinicians because, if stigma exposure is a progressively harmful process, it is prudent to identify the best time to intervene to minimize its impact.

Although Corrigan’s model is heavily cited, its empirical support has been less conclusive in serious mental illness. Corrigan and colleagues (2011) conducted a longitudinal study to examine interrelationships among the four stages and poor outcomes ( $n = 85$ ). Results partially supported the progressive nature of internalized stigma. They found a “trickle down” effect—more people endorsed awareness of stereotypes than agreement with these messages, and even fewer people endorsed applying these messages to themselves. Additionally, correlations between proximal stages (e.g., application-harm) were greater than distal stages (e.g., application-awareness). However, regression analyses revealed that awareness and agreement were not independent predictors of poor outcomes beyond self-application. The authors concluded that the stages can be conceptualized in two sets: awareness-agreement and application-harm, with the later stage contributing most directly to poor outcomes.

Adequate evaluation of this theoretical model requires statistical modeling approaches, such as structural equation modeling (SEM) or path analysis, to map out the interactive pathways among internalized stigma and its associated factors. Previous studies using these methods to test social-cognitive models in serious mental illness have been limited in several ways. First, a handful of studies have examined segments of the model but not the complete pathway from awareness → agreement → self-application → psychological harm (e.g., Drapalski et al., 2013; Muñoz et al., 2011; Schrank et al., 2014). Second, the majority of studies have been restricted by small sample sizes. For example, Watson and colleagues (2007) found partial support for aspects of the model, but sample size constraints ( $n = 71$ ) precluded an analysis of the full model. They found that stereotype agreement mediated the effect of group identification (GI) and perceived legitimacy (PL) of mental illness stigma on self-application, and self-application mediated the effect of GI/PL on self-efficacy. Stereotype awareness was not significantly correlated with the later stages (i.e., agreement, application, self-esteem, or self-efficacy).

Only two SEM studies had adequate sample sizes to test the full model, but these studies did not include people with serious mental illness. One study by Corrigan and colleagues (2016) found empirical support for most of the model in an adequately large sample ( $n = 423$ ). People who agree with and apply stigmatizing beliefs to themselves have low self-esteem, self-efficacy and “why try” attitudes. The pathway from awareness → agreement was not significant. This study used online-only recruitment and included no data on mental health diagnoses. A second study by Göpfert and colleagues (2019) found empirical support for the complete pathway (awareness → agreement → self-application → self-esteem) in an online sample ( $n = 550$ ), as well as a face-to-face sample ( $n = 180$ ) of individuals with depression. There was also a significant direct path from stereotype awareness → self-esteem.

Another key limitation of studies examining social-cognitive models is that psychiatric symptoms are often the primary outcome of interest (see Drapalski et al., 2013; Schrank et al., 2014). Mental health care in recent years has shifted away from scientific models that focus on symptom reduction and has moved towards models of care that prioritize recovery (Bellack, 2006), defined as “a process of change through which individuals improve their health and wellness, live a self-directed life, and strive to reach their full potential” (Ellison et al., 2018). It is well-established that internalized stigma is associated with impaired functioning (Link, 1987; Yanos et al., 2012, 2010) and worse recovery-related outcomes (e.g., hope, self-esteem, self-efficacy, quality of life; Corrigan et al., 2016; Picco et al., 2016; Yanos et al., 2020). Emerging research has similarly found an association between internalized stigma and subjective appraisals of recovery (Cunningham and Lucksted, 2017). In a longitudinal study, internalized stigma was associated with a decrease in recovery attitudes one year later (Oexle et al., 2017). However, only one study examined the impact of internalized stigma on recovery attitudes within a social-cognitive model (Muñoz et al., 2011). In it, internalized stigma was significantly correlated with recovery attitudes, but the final statistical model did not include a path from internalized stigma to recovery, perhaps because self-concept was not included in the model as a mediator.

Lastly, the pathways through which mental health stigma contributes to negative outcomes, beyond the internalization of stigma, have been largely unexplored. Social cognitive theory states that people learn in two ways: through direct experience and observational learning (Bandura, 2001). Previous research has shown that discrimination results in a poorer self-concept (Drapalski et al., 2013). Relatedly, the extent to which a person believes that others will discriminate against them for having a mental illness (anticipated stigma) predicts poor self-esteem two years later (Link et al., 2001). It is less clear whether people with serious mental illness learn they are devalued by observing prejudices in society (perceived stigma) and subsequently experience harm without internalizing these biases (Crocker and Major, 1989).

## 1.2 The Current Study

The goal of the current study was to test how well data from clinically-stable individuals with serious mental illness fit the social-cognitive model of internalized stigma, with recovery as the primary outcome. First, we evaluated a single pathway model from stereotype awareness, to stereotype agreement, to application to self, to self-esteem decrement, to poorer recovery attitudes (“internalization”) (see Figure 1). Second, we evaluated whether adding self-efficacy as a second mediator between internalized stigma and recovery improved the goodness-of-fit of the model. Third, we tested the direct effect from stereotype awareness to self-esteem decrement as a secondary pathway to psychological harm (“perceived stigma”). Lastly, we validated our final model by assessing its goodness of fit in an independent sample of individuals with serious mental illness receiving community-based psychiatric rehabilitation services.

## 2. Methods

### 2.1 Participants

Primary data was collected from baseline interviews during a randomized controlled trial for the Ending Self Stigma intervention (Drapalski et al., in press, 2020). Two hundred and forty-eight Veterans with a chart diagnosis of schizophrenia, schizoaffective disorder, bipolar disorder, or major depressive disorder with or without psychotic features participated in the study. Participants were recruited from outpatient mental health programs at three Veterans Affairs (VA) Medical Centers in the Mid-Atlantic region via flyers posted in participating clinics, announcements during program groups and meetings, clinician referrals, and review of clinic and program rosters (henceforth “Veteran sample”). A partial HIPPA waiver was obtained to allow review of charts to confirm eligibility. Eligible participants were between the ages of 18 and 80 years, receiving mental health services at a participating site, were willing to participate in all study activities, and did not have severe or profound mental retardation.

Analyses were then validated in an independent sample (n=267) of adults receiving psychosocial rehabilitation services at five community sites (rural, suburban, and urban) in Maryland and participating in a separate trial of Ending Self Stigma (henceforth “community sample”) (Lucksted et al., 2017). Recruitment methods, eligibility criteria, and measures were the same as in the Veteran sample; the validation analyses also used baseline data.

### 2.2 Measures

**2.2.1 Demographic and Clinical Characteristics**—Demographic and clinical characteristics were collected for each participant. Primary psychiatric diagnosis was determined based on the participants’ clinical chart and/or current mental health provider. Mental health status was further characterized via the Brief Symptom Inventory (BSI; Derogatis, 1993), a 53-item self-report questionnaire assessing nine primary psychiatric symptom domains over the past week. The Global Severity Index (GSI) of the BSI was calculated to characterize overall distress; higher GSI scores reflect greater distress.

**2.2.2 Internalized Stigma**—Internalized stigma was measured with the Self-Stigma of Mental Illness Scale (SSMIS; Corrigan et al., 2006; Watson et al., 2007), a 40 item self-report questionnaire with four subscales (10 items each) that each correspond to a step of the social-cognitive model: (1) stereotype awareness (alpha = 0.91), (2) stereotype agreement (alpha = 0.72), (3) stereotype self-concurrence (alpha = 0.81), and (4) self-esteem decrement (alpha = 0.88; Corrigan et al., 2006). Participants rated their agreement with each item on a 9-point Likert scale (1 = strongly disagree; 9 = strongly agree). The SSMIS has shown strong reliability (Corrigan et al., 2011, 2006; Rüscher et al., 2006) and validity (Clement et al., 2015; Corrigan et al., 2011, 2006; Fung et al., 2008, 2007; Rüscher et al., 2006; Schomerus et al., 2011; Watson et al., 2007). For the current study, data from the self-esteem (or “harm”) subscale was excluded because the language has been described as confusing and offensive (see Corrigan et al., 2012; Göpfert et al., 2019; Watson et al.,

2007). We opted instead to use three additional scales capturing different aspects of “harm:” self-esteem, self-efficacy, and recovery attitudes (see scale descriptions below).

**2.2.3 Self-Esteem**—Self-esteem was measured using the Self-Esteem Rating Scale-Short Form (SERS-S; Lecomte et al., 2006). Self-esteem refers to the overall value, worth, or importance that one places on him/herself as a person (Harter, 1990). On the SERS-S, participants rated positive (10 items) and negative beliefs about themselves (10 items) on a 7-point Likert scale (1=never; 7 always). Both positive and negative subscales have demonstrated good internal consistency ( $\alpha = 0.91$ , and  $\alpha = 0.87$ , respectively), good test-retest reliability ( $r = 0.90$ , and  $r = 0.91$ , respectively,  $p < 0.001$ ), and adequate construct validity for individuals with schizophrenia (Lecomte et al., 2006). Total scores calculated from the two subscales were included in analyses, by reverse scoring the negative subscale. Higher total scores indicate greater self-esteem.

**2.2.4 Self-Efficacy**—The New General Self-Efficacy (GSE) Scale (Chen et al., 2001) was used to assess participants’ global level of self-efficacy. The GSE consists of 8 items assessing a person’s confidence in his/her ability to achieve their goals despite difficulties, on a 5-point Likert scale (1 = *strongly disagree*; 3 = *neutral*; 5 = *strongly agree*). The score is calculated as an average of each rating. Although there are many measures of self-efficacy, the GSE scale has been shown to be more reliable and valid than others (Scherbaum et al., 2006).

**2.2.5 Recovery Attitudes**—The Maryland Assessment of Recovery in People with Serious Mental Illness Scale (MARS; Drapalski et al., 2012) was administered to assess self-reported recovery. Participants rated 25 items on a 5-point Likert scale (1 = not at all; 5 = very much), with higher scores reflecting greater recovery attitudes. Items capture (a) perceptions of control over one’s life (e.g., “I can influence important issues in my life”); (b) strengths and abilities to overcome challenges (e.g., “My strengths are more important than my weaknesses”); (c) beliefs in abilities to achieve goals (e.g., “I am confident that I can make positive changes in my life”); and (d) one’s role in achieving goals (e.g., “I am responsible for making changes in my life”). The MARS has very good internal consistency ( $\alpha = .96$ ; Drapalski et al., 2016), excellent test-retest reliability ( $r = .84$ ; Drapalski et al., 2016), and construct validity with recovery-related constructs (e.g., hope, empowerment, self-efficacy, and personal agency; Ahmed et al., 2013; Drapalski et al., 2016).

## 2.3 Procedures

The Institutional Review Boards at the University of Maryland School of Medicine/VA Maryland Health Care Systems and the Washington DC VA Medical Center approved the protocol. The investigation was carried out in accordance with the latest version of the Declaration of Helsinki. The nature of the procedures was fully explained. Participants were evaluated for the capacity to give informed consent before providing written informed consent. Participants participated a structured assessment interview (baseline to the parent RCT) lasting approximately 90 minutes and were compensated \$40.

## 2.4 Data Analysis

The scaled scores were verified to not substantially deviate from normality. Models were also fit using robust maximum likelihood using M-plus version 8.1 ([www.statmodel.com](http://www.statmodel.com)), which produces standard errors and chi-square test statistics robust to deviations from normality. Because we had two separate, sizable samples of persons with serious mental illness, we were able to use single-indicator SEM, which requires using independent measurement error estimates for each scale in the analysis. Hence, for the primary analysis of the Veteran sample, we used measurement error variance estimates from the community sample and vice versa when we validated the model using the community sample data. These estimates were based on the coefficient alpha estimates from each sample which were very similar: .91, .88, .84, .92, and .94 in the community sample, and .92, .87, .84, .92, and .95, respectively, in the Veteran sample for SSMIS - stereotype awareness, SSMIS - stereotype agreement, SSMIS-stereotype self-concurrence, SERS-S, MARS, and GSE.

We used the four fit statistics recommended by (Kline, 2016) and conventional cut-off values to assess model fit: (1) The traditional chi-square goodness-of-fit statistic is interpreted as a “badness of fit statistic” (Kline, 2016), hence,  $p > .05$  indicates preliminary support; (2) Root mean square error of approximation (RMSEA,  $< .08$  indicates acceptable fit); (3) Comparative fit index (CFI,  $> .90/.95$  indicates acceptable/good fit); and (4) the Standardized root mean square residual (SRMR,  $< .08$  indicates acceptable fit. To compare non-nested models (i.e. with versus without self-efficacy construct), we used the Akaike and Bayesian information criteria (AIC and BIC). To test the hypothesis of a direct affect from stereotype awareness to self-esteem, we used the Satorra and Bentler (2010) scaled chi-square difference statistic for nested models which does not require normality.

## 3. Results

The Veteran sample characteristics are presented in Table 1. Means, standard deviations, and Pearson correlations of the scale scores in the Veteran sample are displayed in the top half of Table 2. The fit of our initial model for the Veteran sample (Table 2 – model 1) was “good” with  $\chi^2$  goodness of fit test not significant and RMSEA, CFI, and SRMR all indicating acceptable to good fit. The model with self-efficacy added (Figure 1–dashed lines, Table 2–model 2) did not have a good fit as the  $\chi^2$  goodness of fit test was significant and the RMSEA was greater than .08. The AIC and BIC for model 2 were also greater than those of model 1 indicating that model 1 (excluding self-efficacy) fit the data better than model 2 (including self-efficacy). We therefore proceeded with model 1.

The chi-square difference test then compared model 1 with the direct effect from awareness of public stigma to self-esteem added (table 2- model 3) to the original model 1. This test was statistically significant supporting the addition of this direct effect ( $p = .014$ ). Therefore, model 3 became our final model. It also had somewhat better global fit versus model 1, as indicated by the upper bound of the 95% confidence interval of the RMSEA (.000, .081), nearly achieving the less-than-.08 criteria. All path coefficients for this model (see Figure 1) are significant and in the expected direction.



Finally, we validated the above final model by fitting it to the independent community sample ( $n = 267$ ). Demographically this sample differed notably from the Veteran sample. It was younger, had more females, had a lower level of education, and was less likely to have been married (see Table 1). The community sample also included 23 participants with non-psychotic depression (excluded from Veteran sample) and fewer individuals with bipolar disorder (26% versus 42%). Generally, correlations among the scale scores in the community sample were similar to those in the Veteran sample (see Table 2). As shown in Table 3 the fit of model 3 to the community sample, like the fit to the Veteran sample, was “good” with non-significant  $\chi^2$  goodness of fit test and RMSEA, CFI, and SRMR all passing criteria for good fit.

#### 4. Discussion

This study provides empirical support for Corrigan and colleagues’ social-cognitive formulation of internalized stigma in a group of clinically-stable individuals with serious mental illness. Unique from existing research, our analysis tested the comprehensive model in a sufficiently large sample of Veterans in outpatient care, validated the model in a second and independent sample of individuals receiving community-based psychiatric rehabilitation services, and used single indicator SEM—a sophisticated statistical modeling approach that accounts for measurement error. We found that the internalization of stigma can be modeled with a single, streamlined pathway: from stereotype awareness, to stereotype agreement, to application to self, to self-esteem decrement, to poorer recovery attitudes. Model goodness-of-fit was reduced when including self-efficacy as an additional consequence of internalized stigma. Additionally, it was revealed that stereotype awareness had a direct influence on self-esteem.

The results involving the core internalization pathway are generally consistent with previous research on components of the social cognitive model in serious mental illness (Corrigan et al., 2011; Drapalski et al., 2013; Watson et al., 2007), adding empirical confidence to this formulation. Despite its theoretical grounding (Corrigan and Rao, 2012; Corrigan and Watson, 2002), the connection between stereotype awareness and stereotype agreement has received mixed empirical support (see Corrigan et al., 2016; Watson et al., 2007). Our data show that there is a significant, albeit modest association between these two variables ( $r = .17$ ) in serious mental illness samples.

This finding suggests that perception of societal prejudices does potentiate agreeing with them, which increases the likelihood of internalization and harm. Nonetheless, the relationship between stereotype awareness and internalization may be moderated by other factors. Not everyone who is exposed to societal stigma will agree with its tenets, and not all who do will internalize them. For example, some people respond to stigma by becoming energized and empowered, while others remain relatively indifferent and unaffected (Corrigan and Watson, 2002). Reactions are shown to vary based on individual factors such as group identification, perceived legitimacy of stigma messages, and rejection sensitivity (Major and O’Brien, 2005; Rüscher et al., 2009). Thus, these variables may be fruitful targets for intervention to reduce the harms caused by stigmatization, such as reducing perceived legitimacy of its messages. Given the difficulty of changing stigma at

societal levels, it may also be useful to determine whether there is a dose effect between how much one is exposed to stigmatizing messages and how likely one is to agree with them, along with influential moderators and mediators.

The SEM analyses revealed a second pathway through which public stigma contributes to psychological harm. Here we provide the first direct support for a perceived stigma pathway, from stereotype awareness → self-esteem decrement. This pathway to psychological harm is consistent with observational learning in social cognitive theory (Bandura, 2001). Although the perceived stigma pathway is not as strong ( $r = -.15$ ) as the internalization pathway ( $r = -.55$ ), it shows that individuals with serious mental illness do not need to internalize stigma, nor have direct experiences with discrimination or prejudice, for their self-concept to suffer. Awareness of negative judgements about people with mental illness is enough to cause individuals to feel demoralized by societal biases, even if they do not believe these messages to be true. Likely this is due to expectations that most people will devalue or reject them for having a mental illness. Having support from close family members or friends may help individuals to refute or ignore others' negative judgements, mitigating this effect (Ji et al., 2019). Conversely, those who have less support or already have low self-esteem may be especially vulnerable to develop poor recovery attitudes from internalized or perceived stigma (Link et al., 2001).

Our model extended the social-cognitive model of internalized stigma by validating that internalized stigma significantly lowers self-esteem, which in turn, reduces recovery attitudes. This finding is in line with notions that internalized stigma impairs functioning in various life domains, including the achievement of independent living (Link, 1987), vocational or educational activities (Yanos et al., 2010), and interpersonal relationships (Yanos et al., 2012). Here we show that subjective appraisals of recovery status were also diminished as a result of internalized stigma. This is informative because each individual operationalizes "recovery" differently based on their values, goals, and aspirations (Bellack, 2006). There likely is a dynamic interaction between subjective appraisals of recovery and objectively defined functional outcomes (Lieberman and Kopelowicz, 2005). For example, recovery attitudes may be instrumental in motivating a person to sustain effort in various domains, and success in a domain may increase perceptions of recovery. It will be useful to examine how internalized stigma influences recovery over time, given that recovery is defined as a process that occurs in a non-linear fashion (Ellison et al., 2018).

Although reduced self-efficacy is described as a consequence of internalized stigma in the theoretical model (Corrigan and Rao, 2012; Corrigan and Watson, 2002), it was not retained in the final model in our study. This was because adding it as a parallel mediator in addition to self-esteem between internalized stigma and recovery reduced model fit. Undoubtedly, this was due to overly high correlation (or redundancy) between self-esteem, self-efficacy, and recovery. For example, in a prior study self-efficacy accounted for approximately 59% of the variance in MARS scores (Bellack and Drapalski, 2012). On the other hand, it is possible that internalized stigma impacts self-esteem more than self-efficacy. Individuals who are unable to overcome negative expectations and stereotypes about mental illness may adapt an overly critical and negative view of themselves (self-esteem), but still feel capable in his/her ability to complete general tasks (self-efficacy). Recovery attitudes may

be most impacted when individuals feel they lack mastery in specific skills or tasks that are fundamental to their self-concept.

Our results suggest that interventions could be introduced early on, prior to the development of internalized stigma. Early intervention and prevention efforts might halt or slow the progression of internalized stigma development or self-esteem decrement associated with perceived stigma. These anti-stigma initiatives could be incorporated into routine therapy. Two potential ways to ameliorate perceived stigma and its impacts might include: (1) Cognitive-Behavioral Therapy (CBT) strategies to challenge stigmatizing beliefs and attitudes perpetuated by society, and (2) Acceptance and Commitment Therapy (ACT) strategies to accept the existence of societal stigma while focusing on living a values-driven life and enhancing coping skills that improve self-esteem, empowerment, and help-seeking behavior (Mittal et al., 2012). Both approaches should be supplemented with psychoeducation that explains how self-stigma develops, dispels stigma myths, and highlights counter examples to mental illness stereotypes. Moreover, these strategies may be equally useful in helping to ameliorate internalized stigma even if it has already developed.

The study has several limitations. First, the cross-sectional nature of this study precludes us from drawing conclusions about causality. Longitudinal studies are needed to provide a clearer picture as to how individuals influence and are influenced by stigma in their environment. Second, our samples may not be representative of all individuals that suffer from internalized stigma because our sample included only those individuals receiving mental health treatment. Internalized stigma is associated with less professional help-seeking and treatment adherence (Clement et al., 2015; Corrigan et al., 2014). Third, our sample may not be representative of all individuals receiving mental health treatment because our sample included only those individuals receiving an intervention to reduce internalized stigma. Lastly, we did not examine positive factors related to stigma resistance that may moderate/mediate relationships in the model.

In summary, this is the first study to sufficiently test Corrigan and his colleagues' social-cognitive formulation of internalized stigma in serious mental illness. Findings largely confirm previous work, but with additional conclusions. We show for the first time that stereotype awareness potentiates the agreement with and application of stigmatizing attitudes in this at-risk population. Importantly, we extend the model by showing that individuals with serious mental illness experience psychological harm from stigma in two ways: (1) through perceptions of societal prejudice and bias, and (2) through the internalization of these negative attitudes. In particular, stigma harms individuals' self-esteem, which then reduces their recovery attitudes.

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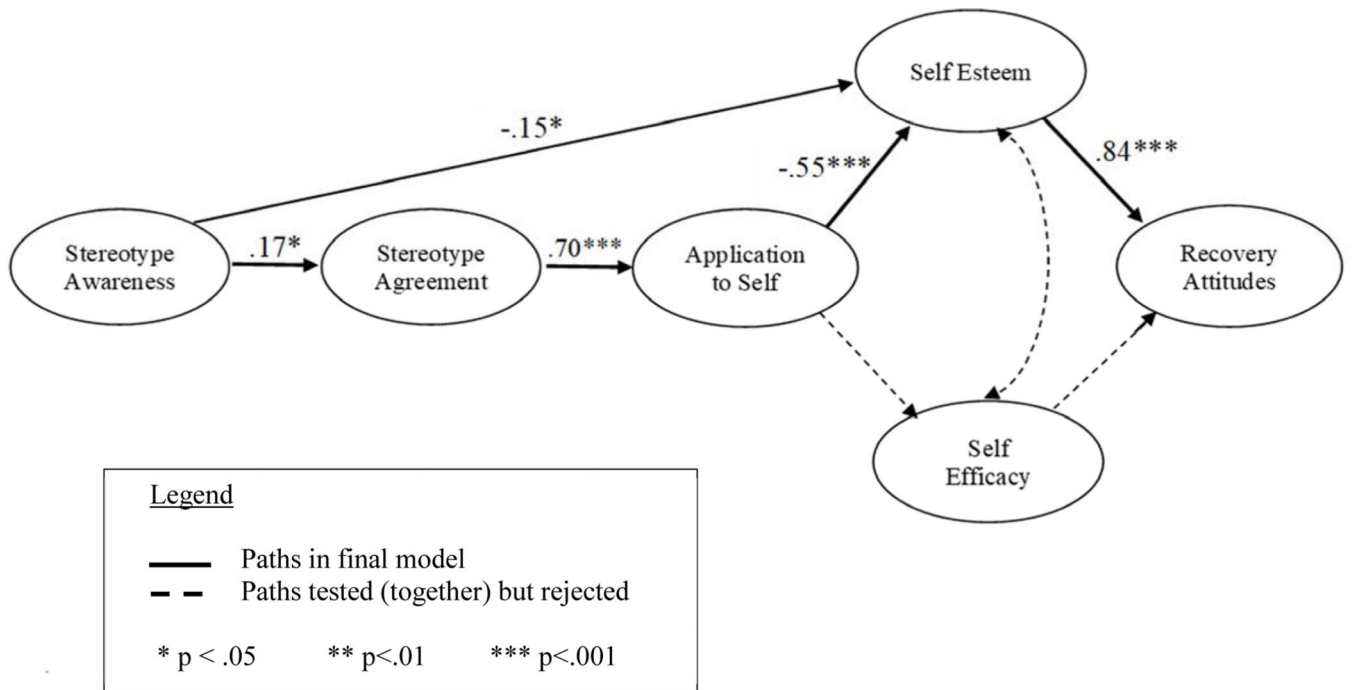
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### Highlights

- The internalization of stigma can be modeled with a single pathway in serious mental illness: from stereotype awareness, to stereotype agreement, to application to self, to self-esteem decrement, to poorer recovery attitudes
- Perceived stigma (stereotype awareness) has a direct influence on self-esteem decrement
- Anti-stigma interventions should be implemented early on in the course of treatment





**Figure 1.** Structural part of SEM for social-cognitive model of internalized stigma with recovery attitudes (Veterans sample).

**Table 1.**

Participant demographic and clinical characteristics.

Characteristic	Veteran ( <i>n</i> = 248)	Community ( <i>n</i> = 267)
Age	53.37 ± 9.16	44.78 ± 12.29
Male, <i>n</i> (%)	215 (86.7)	162 (60.7)
Race, <i>n</i> (%)		
African American	141 (56.9)	123 (46.1)
Caucasian	84 (33.9)	117 (43.8)
Other	23 (9.3)	27 (10.1)
Diagnosis, <i>n</i> (%)		
Schizophrenia	63 (25.4)	78 (29.2)
Schizoaffective	64 (25.8)	56 (21.0)
Bipolar Disorder	103 (41.5)	70 (26.2)
Major Depression with psychosis	18 (7.3)	15 (5.6)
Major Depression	-	23 (8.6)
Psychosis NOS	-	11 (4.1)
Other	-	14 (5.2)
Education, <i>n</i> (%) (12 years or more)	229 (92.3)	183 (68.5)
Married, <i>n</i> (%) (current or previous)	157 (63.3)	75 (28.1)
BSI: Global Severity Score	48.33 ± 10.82	44.36 ± 9.22

*Note.* Mean ± SD displayed for continuous variables. Count (percent) displayed for categorical variables. BSI = Brief Symptom Inventory

**Table 2.**

Means, standard deviations, and intercorrelations among indicator variables.

Indicator Variable	M	SD	1	2	3	4	5	6
Veteran Sample								
1. SSMIS - aware	62.3	19.4	-					
2. SSMIS - agree	31.5	15.6	.15	-				
3. SSMIS - apply	25.0	14.0	.13	.61	-			
4. MARS	95.3	18.0	-.13	-.29	-.46	-		
5. SE - total	96.3	20.2	-.22	-.33	-.50	.78	-	
6. GSE	28.4	6.1	-.10	-.10	-.35	.64	.62	-
Community Sample								
1. SSMIS - aware	57.3	19.9	-					
2. SSMIS - agree	31.6	16.0	.19	-				
3. SSMIS - apply	23.6	13.9	.09	.62	-			
4. MARS	98.5	17.4	-.19	-.29	-.38	-		
5. SE - total	99.9	21.4	-.25	-.28	-.39	.64	-	
6. GSE	29.7	5.4	-.18	-.17	-.26	.65	.53	-

*Note.* SSMIS = Self Stigma of Mental Illness; MARS = Maryland Assessment of Recovery in People with Serious Mental Illness Scale; SE = Self-Esteem Rating Scale-Short Form; GSE = New General Self-Efficacy Scale

**Table 3.**

Fit indices for social-cognitive structural equation models

Sample	Model #	Model	$\chi^2$	df	p	RMSEA	CFI	SRMR	AIC / BIC or $\chi^2$ difference test <sup>a</sup>
Veteran	1	w/ Self Esteem only	10.43	6	.11	.055 (.000, .109)	.987	.040	10178.4 / 10231.1
Veteran	2	w/ both Self Esteem & Self Efficacy	21.62	8	.006	.083 (.042, .126)	.966	.045	12185.2 / 12252.0
Veteran	3	#1 + direct eff.: Awareness → Self Esteem	4.23	5	.52	.000 (.000, .081)	1.00	.017	$\chi^2 = 6.00$ , df = 1 p = .014
Comm.	3	#1 + direct eff.: Awareness → Self Esteem	8.45	5	.13	.051 (.000, .108)	.987	.030	---

<sup>a</sup>AIC/BIC smaller is better fit. Satorra-Bentler chi-square difference test