Stigma Resistance is Positively Associated with Psychiatric and Psychosocial Outcomes: A Meta-analysis

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Abstract

To better understand how stigma resistance impacts functioning-related domains, we examined mean effect sizes between stigma resistance and: 1) symptoms (overall, positive, negative, and mood symptoms); 2) self-stigma; 3) self-efficacy; 4) quality of life; 5) recovery; 6) hope; and 7) insight, and 8) overall outcomes (the average effect size across the constructs examined in each study). The mean effect size between stigma resistance and overall outcomes was significant and positive (r = 0.46, p <0.001, k = 48). A large, negative effect size was found between stigma resistance and self-stigma (r = -0.57, p<.001, k = 40). Large, positive effect sizes were found with self-efficacy (r = 0.60, p < 0.001, k = 25), quality of life (r = 0.51, p < 0.001, k = 17), hope (r = 0.54, p <0.001, k = 8), and recovery (r = 0.60, p<0.001, k = 7). Stigma resistance had a significant medium and small relationship with insight and symptoms, respectively. Race significantly moderated overall outcomes, self-stigma, mood symptoms, functioning, and hope associations. Education significantly moderated symptoms, functioning, and mood symptoms associations, and age significantly moderated self-stigma and negative symptom associations. Stigma resistance may be a key requirement for recovery. Individual characteristics influence resisting stigma and future work should prioritize cultural factors surrounding stigma resistance.

Key words: stigma resistance, meta-analysis, stigma, recovery, outcomes

1. Introduction

Public stigma—negative attitudes, actions, or beliefs about mental illness (Link and Phelan, 2001)—is prevalent (Vahabzadeh et al., 2011) and often leads to negative treatment of those with severe mental illness (e.g., discrimination; Corrigan et al., 2012; Stuart, 2004). Stigma also has the potential to affect how people view or treat themselves. Self-stigma involves moving beyond awareness of public stigma to agreeing with it and applying it to oneself (Corrigan and O'Shaughnessy, 2007; Watson et al., 2007). When public stigma is internalized, it can lead to decreased hope, quality of life, self-esteem, and greater symptom severity, including depression (Hasson-Ohayon et al., 2014; Lipsey and Wilson, 2001; Staring et al., 2013), as well as reduced help-seeking (Clement et al., 2015).

Given the strong relationships between self-stigma and poorer recovery-related outcomes (Yanos et al., 2008), greater attention has turned to understanding the process (or processes) by which stigma is resisted (Boyd et al., 2004; Sibitz et al., 2011). Past work has conceptualized stigma resistance as being unaffected by stigmatizing attitudes (Boyd et al., 2004; Ritsher et al., 2003) as well as more actively challenging or deflecting encounters with stigma (Thoits, 2011). Theoretical work on stigma resistance suggests that resisting stigma may lead to individuals from stigmatized groups experiencing greater empowerment (Campbell and Deacon, 2006). Specifically, resisting stigma may involve rejecting a social identity that is tied to stigma as well as an increased sense of agency. Thoits (2011) further theorized that particular factors may be key to helping individuals resist stigma more effectively, such as having greater resources, experincing positive outcomes from resisting stigma previously, posessing multuiple role-identities outside of being a person with a mental illness, or experiences with peers who are resisting stigma. Although originally examined as part of larger self-stigma measures (King et

al., 2007; Rister et al., 2003), stigma resitance has since been discussed theoretically (Thotis, 2011) and psychometrically (Sibitz et al., 2011) as distinct from self-stigma. While recent work has emphasized the need to further study stigma resitance, it remains relatively under-studied, particularly in comparison to self-stigma (Nabors et al., 2014; Sititz et al., 2011; Thoits, 2011). One factor that may contribute to the lack of attention on stigma restiance in the literature relates to measurement issues that accompany existing measures of this construct.

The most commonly used measure is the "Stigma Resistance" subscale of the Internalized Stigma of Mental Illness Scale (ISMIS; Ritsher et al., 2003). This subscale is comprised of 5 reverse-scored items that reflect a positive illness identity, such as "I can have a good, fulfilling life, despite my mental illness" and "Living with mental illness has made me a tough survivor." Although assessed as part of internalized stigma, a recent factor analysis revealed the stigma resistance items form a unique factor from the rest of the ISMIS items (Sibitz et al., 2011). In addition to the ISMIS, a less widely used assessment that taps a construct highly related to stigma resistance is the "Positive Aspects" subscale of the Stigma Scale (King et al., 2007). This subscale also consists of 5 items that assess a positive illness identity (e.g., "Having had a mental health problem has made me a more understanding person," or "Having had mental health problems has made me a stronger person").

However, issues with both scales have led to inconsistent usage of both instruments. First, although the overall ISMIS has shown good reliability (Boyd et al., 2014), the Stigma Resistance subscale scores have variable reliability (Ritsher et al., 2003). As a result, some research on self-stigma using the ISMIS calculates a self-stigma score that excludes Stigma Resistance subscale or examines this sub-scale separately (Lysaker et al., 2012; Mashiach-Eizenberg et al., 2013; Park et al., 2013). More recent studies have examined the item loadings

of the ISMIS and conclude that the Stigma Resistance items comprise a distinct factor from the remainder of the ISMIS, and recent studies have also demonstrated adequate reliability of this sub-scale in samples with schizophrenia spectrum disorders (Campellone et al., 2014; Nabors et al., 2014). Next, while the Positive Aspects subscale scores of the Stigma Scale have shown adequate reliability (King et al., 2007), it remains infrequently used. This may be, in part, due to the less frequent use of the Stigma Scale. Despite the limitations of existing measures, both measures have demonstrated good construct validity in the validation work and subsequent studies. For example, in the validation study for the ISMIS, the Stigma Resistance sub-scale was positively associated with self-esteem and recovery and negatively associated with self-stigma and depressive symptoms; similarly, in the Stigma Scale validation, the Positive Aspects sub-scale was negatively related to self-stigma and positively related to self-esteem (Stuart, 2004; King et al., 2007).

Understanding the relationship between stigma resistance and outcomes across existing literature is important in order to further shed light on the process of stigma resistance, the link between stigma resistance and some of the negative outcomes that frequently accompany self-stigma, and how interventions might address stigma resistance. Before work continues in this important area, a synthesis of existing literature is needed in order to establish existing relationships between resisting stigma and outcomes, as well as identify the impact of measurement issues. The present study is a meta-analysis examining the relationship between stigma resistance and symptoms and functioning-related outcome variables. Employing meta-analytic methods, furthermore, allows us to apply artifact corrections to the statistical analyses in order to determine the mean effect size of relationships with and without the influence of measurement error. Therefore, this study will also examine the degree to which measurement

error is impacting current measurements of stigma resistance's relationship with outcomes. To our knowledge, no systematic review or meta-analysis of mental health stigma resistance has been conducted, and only one theoretical paper has discussed the construct in the context of mental health (Thoits, 2011). Aims and hypotheses of the current study include:

(1) Assessing the strength and direction of the relationship between stigma resistance and overall outcomes, as well as the relationship between stigma resistance and symptoms (overall, positive, negative, and mood), self-efficacy, quality of life, recovery, hope, and insight. We hypothesize that stigma resistance will have a positive relationship with quality of life, hope, recovery, insight, and self-efficacy; stigma resistance will be negatively related to symptoms and self-stigma.

(2) Examining moderators of these relationships, including age, gender, race, education level, and diagnosis of sample participants. We hypothesize that relationships between stigma resistance and outcomes will be stronger with increasing age, given that increased age has been associated with lower self-stigma (Werner et al., 2008). Because stigma may be greater toward some clinical diagnoses and this treatment may worsen one's experience of mental illness (Corrigan, 2007), we hypothesize that having a schizophrenia-spectrum diagnosis will be associated with a weaker relationship between stigma resistance and positive outcomes. Other moderator analyses were exploratory.

(3) Examine the degree to which psychometric properties of current measures of stigma resistance affect the ability to detect potential relationships. We estimate the level of impact of poor reliability on attenuated correlations by calculating standard effect sizes as well as effect sizes adjusted for internal consistency (Card, 2012).

2. Method

2.1 Literature Search

We used PRISMA guidelines for conducting and reporting our meta-analysis (Moher et al., 2009). Studies were identified through conducting searches in the electronic databases *PsycINFO, PsycARTICLES, Pubmed, Medline, Web of Science,* and *Embase*. Key-words searched included: Internalized stigma of mental illness, stigma resist*, self stigma and mental health, self stigma scale. Studies published through May 15th 2015 were eligible. If studies reported self-stigma using the ISMIS, but did not report the stigma resistance subscale data in their published work, authors were contacted. We conducted forward searches of reference lists and citations of key articles. See Figure 1 for the Study Retrieval Flowchart.

2.2 Study Selection: Inclusion and Exclusion Criteria

To be included in analyses, studies needed to (1) report bivariate relationships between symptoms or a functioning-related outcome variable and either the Stigma Resistance subscale of the ISMIS or the Positive Aspects subscale of the Stigma Scale, (2) assess stigma in an adult mental health sample (those with a diagnosis and/or in a mental health treatment setting), and (3) be available in English. Studies were excluded if sufficient information was not available after contacting the author or when a study's sample overlapped with that of another study. If studies involved an intervention-design, only baseline relationships were examined. We also included dissertation/thesis reports.

A total of 791 unique, full-text records were screened for eligibility. The most common reasons for excluding articles were if the ISMIS/Stigma Scale was not used or participants were a non-mental health sample. Initially, only ten studies included sufficient information for analyses in the published record. For studies in which the ISMIS was used, but stigma resistance

was not included in the publication, we contacted authors (n = 95), with multiple requests for authors who did not respond. Of these requests, author responses provided data for 38 additional records. In order to avoid inflating the overall mean effect sizes (Card, 2012), when multiple papers were taken from the same sample of participants, effect sizes were only used from one study (See Figure 1 for full study retrieval details).

2.3 Coding

Studies were coded according to a modified codebook (Lipsey and Wilson, 2001) and described below. A select number of studies were randomly selected for double coding (k = 19; 40.4%) whereby two researchers independently coded study information and consensus was researched to ensure accuracy of data coded.

2.3.1 Basic study information. We coded publication year and average sample size. We coded the measure of stigma resistance used; however, because so few studies used the Stigma Scale (versus the ISMIS), categorical moderation analyses were not performed with subgroups of less than 4 (Lipsey and Wilson, 2001). Similarly, the language in which measures were administered was also coded but there was insufficient variability to assess for moderation.

2.3.2 Sample characteristics. Sample characteristics included demographic information coded as continuous moderators: mean sample age, gender (percent female), race (percent White), mean level of education, and diagnosis (percent with a schizophrenia-spectrum diagnosis).

2.3.3 Effect size. For each study, the effect size between stigma resistance and symptoms and/or functioning-related outcome variables was coded. Similar constructs were then grouped to calculate mean effect sizes. Ten main symptom and functioning-related outcomes were reported across the studies (i.e., self-stigma, overall symptoms, positive symptoms, negative symptoms,

mood symptoms, self-efficacy, quality of life, recovery, hope, and insight), so results represent the mean relationship between stigma resistance and each of these ten categories. When an outcome construct was measured in multiple ways or contained sub-groupings (e.g., positive, negative, and mood symptoms), a set of sub-codes were applied so further analyses could be conducted at the sub-group level. An overall outcome effect size was also computed for each study by calculating an average of the effect sizes of the reported relationships with stigma resistance. This involved reverse-scoring effect sizes that reported negative relationships with stigma resistance (e.g., symptoms or self-stigma). Each study provided one overall effect size and potentially one effect size per construct. Coding was entered into SPSS version 21.0.

2.4 Meta-Analytic Method

Effect sizes were calculated using a random effects model because it assumes that effect sizes are similar (but not identical) across studies due to effects of within-study and between-study variability (Lipsey and Wilson, 2001). When a study reported multiple measures of the same construct (or constructs considered similar and grouped for the purposes of this meta-analyses), an average of these effect sizes was used and weighted by sample size in order to maintain statistical independence (Card, 2012). This weighted average was used to calculate the "overall outcomes" effect size. When samples overlapped (different reports of sample that shared the same participants), the larger sample size was used.

Before mean effect sizes were conducted, individual study level effect sizes were transformed using Fisher's r-to-Z-transformation to adjust for the non-normal distribution of Pearson's *r*, and then the inverse variance was applied to weight by sample size. To calculate the mean effect sizes, a macro ("MeanES") was used in SPSS version 21.0 (Wilson, 2010). The strength of the mean effect sizes were discussed in light of Cohen's (1992) recommendations

(small = .10-.29, medium = .30-.49, large = .50 and above; Cohen, 1992). Orin's Fail-safe N's were also conducted to examine the strength of effect sizes and to determine the number of null findings necessary to bring each mean effect size to below a meaningful level (ES <.15; Lipsey and Wilson, 2001).

To address aim two and test for potential moderation, the heterogeneity across studies was examined using the Q-statistic generated by Wilson's (2010) macro. Significant results ($p<.10$) suggest that effect sizes may be drawn from more than one population (Sagie, 1993). The Q-statistic was then used to calculate the I^2 index. While a significant Q-statistic informs whether moderation may be present, the I^2 index informs the extent of the heterogeneity (Higgins and Thompson, 2002; Huedo-Medina et al., 2006). I^2 values below 25% reflect low heterogeneity, 25%-50% medium heterogeneity, 50%-75% high heterogeneity, and above 75% extreme heterogeneity (Fazel et al., 2009). I^2 values greater than or equal to 25% were examined for the presence of moderators, as this suggests between study variability in effect sizes was greater than expected by chance and this threshold has been used in other meta-analyses (Huedo-Medina et al., 2006).

Meta-regressions were run to test moderator variables using a macro provided by Wilson (2010), "MetaReg," which runs a weighted generalized least squares regression (Wilson, 2010). The following continuous moderators were examined: mean age, mean education, percent female, percent White, and percent of the sample with a schizophrenia-spectrum diagnosis. Regressions were run using the mixed effects model, allowing results to be estimated using errors associated with sampling differences or moderator variables, as well as random, unidentified factors such as unidentified moderators (Lipsey and Wilson, 2001). Because meta-

regressions use list-wise deletion, each moderator was examined independently in order to maximize the number of studies included in the analysis.

To address aim three, we conducted separate analyses using corrected and uncorrected data. An artifact correction was applied using the formula provided by Card (2010) in order to correct for the poor reliability of the stigma resistance scales and under-weight studies with lower scale reliability. This technique was applied in order to generate an estimate of the effect sizes likely if psychometric reliability were not limiting the detection of effect size strength (Card, 2010). Artifact corrections were applied only to the stigma resistance scales in order to isolate the effect of the psychometric properties specific to these scales. Analyses presented as the primary results use corrected effect sizes but uncorrected effect sizes were also analyzed and are discussed in light of broader psychometric issues.

3. Results

3.1 Sample

Forty eight (45 journal articles and three published dissertation/theses) were included in the meta-analyses, from which 165 unique effect sizes were coded. The mean publication year was 2012 (*SD* = 2.2 years; range = 2003-2015). The mean sample size was 170.6 (*SD* = 265.9; range = 21-1811). The mean sample age was 43.0 (*SD* = 6.5; range = 24.6-59.6) and the mean level of education was 12.5 years (*SD* = 1.5 years; range = 9.0-14.7). On average, samples were comprised of 46.0% women and 47.6% White participants. On average, study samples were comprised of 65.2% participants with schizophrenia-spectrum disorders; moreover, 20 samples were entirely comprised (100%) of participants with schizophrenia-spectrum disorder diagnoses. Three studies used the Stigma Scale and 45 used the ISMIS. The mean stigma resistance score on the ISMIS was 2.7 (out of 5-point mean score; SD = 2.1; range = 1.1-2.9) and the mean

positive aspects score on the Stigma Scale was 10.4 (out of a 40-point total score; SD = 4.8; range = 8.8-11.9). The mean internal reliability for the stigma resistance scales included in the overall analysis was .56 (*SD*=.13).

3.2 Mean Effect Sizes

The relationship between stigma resistance and overall outcomes was a significant, medium effect (r =.46; K =48). The mean effect sizes for the relationship between stigma resistance and each outcome construct was also statistically significant. The strongest associations were a significant, large negative mean effect size with self-stigma (r = -0.57; K = 40) and significant, large positive mean effect sizes with self-efficacy (r = .60; K=25), recovery (r =.60; K=7), hope (r = .54; K=8), and quality of life (r = .51; K=17). Resisting stigma also had a significant, medium effect size with insight (r = .38; K = 4) and significant, small associations with overall symptoms (r =-.28; K=20) and each symptom sub-domain. See Table 2 for additional statistics on the mean effect size associations.

Orwin's Fail-safe N was also calculated to reveal the number of omitted studies with zero correlations needed to drive each mean association to an inconsequential level (e.g., <.15; Moher et al., 2009). Orwin's N values showed most mean effect associations to be fairly robust against potential file-drawer limitations. For example, approximately 85 studies with insignificant mean effects would be needed to drive the mean association between stigma resistance and overall outcomes to an inconsequential level, 65 for the self-efficacy association, 35 studies would be needed for the self-stigma association, and 21 for the recovery association. However, only 5 studies with insignificant finding would drive the mean effect size for the association between stigma resistance and insight to an inconsequential level, suggesting less confidence in the insight finding.

3.3 Moderator Analyses

Heterogeneity analyses were significant for the stigma resistance–overall outcomes association, as well as for 9 of the additional mean effect sizes. This suggests that these associations were being impacted by between-study variability greater than would be expected by chance. The only mean effect size not impacted by high between-study variability was the association between stigma resistance and positive symptoms (Q =3.6) The remaining mean effect sizes not only had significant Q values, but also had large I^2 values, strongly suggesting the presence of moderator variables. Moderation analyses are presented in Table 3. Contrary to our hypotheses, participant mean age only significantly moderated the relationship between stigma resistance and self-stigma and negative symptoms. Education significantly moderated the relationship between stigma resistance and self-stigma, overall symptoms, mood symptoms, and quality of life. The percent of the sample with schizophrenia-spectrum diagnoses and participant sex were not significant moderator for any associations examined. Race significantly moderated the relationship between stigma resistance and overall outcomes, self-stigma, mood symptoms, quality of life, and hope.

3.4 Psychometric Reliability of Stigma Resistance Measures

Finally, we examined mean effect sizes both adjusting for and not adjusting for internal consistency of the stigma resistance measure. When uncorrected effect sizes were computed, all of the 11 outcome constructs were lower than the non-corrected effect sizes but remained significant (See Table 2).

4. Discussion

In light of the growing interest in stigma resistance, this meta-analysis offers an important contribution to this expanding area of work by synthesizing relationships between stigma

resistance and a variety of psychosocial and psychiatric outcomes, illuminating important relationships. Indeed, our findings point to stigma resistance potentially having a central role in recovery. Stigma resistance was significantly related to each outcome domain in the hypothesized direction, with greater stigma resistance being related to greater overall outcomes, self-efficacy, quality of life, recovery, hope, insight and lower levels of symptoms and self-stigma. This meta-analysis also offers a unique contribution by gathering a substantial amount of unpublished data, as only 10 published studies originally included relevant data. With the generous assistance of many authors, the present study synthesizes data for 48 reports on stigma resistance and outcomes, reflecting data for 8,187 individuals.

Findings of large, significant effect sizes between stigma resistance and recovery, self-efficacy, hope, and quality of life suggest these domains may be particularly relevant to stigma resistance. Theoretical work by Thoits (2011) posits that stigma resistance involves challenging stereotypes and the application of stereotypes to oneself and that resisting stigma is facilitated by a sense of identity that extends beyond one's mental illness. An important component of stigma resistance reflected in the items of both stigma resistance measures we included in these analyses (i.e., the ISMIS and SS) is that of having a positive illness identity. This conceptualization is supported by the strength and direction of the mean effect sizes observed in our findings. That is, as one had greater stigma resistance, one had increased self-efficacy, hope, and recovery scores.

The present findings also build on those reported in Livingston and Boyd's (2010) meta-analysis of correlates of self-stigma that found greater self-stigma being associated with decreased self-esteem, empowerment, self-efficacy, quality of life, hope, and social support. At the time of Livingston and Boyd's self-stigma meta-analysis, only ten reports were available using the ISMIS. Our study was able to contribute to the synthesis of this literature by comparing

associations between self-stigma and outcomes with the present findings on stigma resistance and outcomes. Consistent with our hypothesis, the present findings revealed a large, negative relationship between stigma resistance and self-stigma. However, of note, the magnitude of this relationship was not so large as to suggest these are two sides of the same construct. That is, although strongly related, we believe several associations in the present findings support stigma resistance as distinct from self-stigma. For instance, building on Sibitz et al (2011)'s report that the stigma resistance subscale comprises a distinct factor from the remainder of the ISMIS, we also found that stigma resistance was significantly related to negative symptoms, a relationship not observed in relation to self-stigma (Lipsey and Wilson, 2001; Nabors et al., 2014). Particularly given the increasing popularity of the ISMIS tool, more work is needed to determine distinctions between the relationship of self-stigma and stigma resistance with outcomes.

These results also shed light on variables that moderate associations between stigma resistance and specific outcomes. First, participant race significantly moderated the relationship between stigma resistance and overall symptoms as well as mood symptoms so that having a sample with a greater number of White participants meant stigma resistance had a stronger positive relationship with symptoms. While these findings need replication and further work, they may suggest potential areas for important future investigation. For example, past work has discussed the construct of "double stigma," (Gary, 2005), whereby individuals from disadvantaged groups face compounding barriers and stigmas. Furthermore, groups who experience social devaluation from multiple sources might particularly benefit from interventions that provide external support in the stigma resistance process (Gary, 2005). Further work should investigate whether and how race and mental illness stigmas may interact and the impact this may have on one's experiences resisting stigma. Participant age was also a significant moderator

for associations between stigma resistance and self-stigma and negative symptoms. This may suggest that an important area for future investigation will be understanding whether distinct factors impact resisting stigma early versus late in the course of one's illness. For example, social support has been linked to reduced self-stigma among those with early phase psychosis (Mueller et al., 2006) and future work could consider how to most effectively assist individuals resist stigma early in their course of illness. It may also be that age is an important variable because it is related to the development of one's self-concept (Piers & Harris, 1964; Shavelson, Hubner, & Stanton, 1976). Indeed, possessing a richer sense of identity and ability to articulate one's personal narrative have been linked with greater recovery (Firmin et al., 2015; Lysaker, Roe, & Yanos, 2007; Yanos, Roe, Markus, & Lysaker, 2008). Taken together, future work should pursue how stigma may shape one's self-concept and how interventions may help promote one's self-concept in the face of stigma, particularly during critical periods in one's developmental identity formation.

Some moderation findings were contrary to our hypotheses, such as the lack of moderation related to samples with higher schizophrenia-spectrum disorders. Initially, we drew this hypothesis from literature suggesting individuals with schizophrenia-spectrum disorders may face greater public stigma, which may then worsen one's experience of mental health symptoms (Corrigan, 2007). It may be that the lack of significant moderation in our study suggests that stigma resistance is something individuals with even the most severe and stigmatized diagnoses can engage in effectively. However, it is possible that the lack of moderation in our findings stems from methodological issues, such as variability across studies in how diagnoses were assessed and assigned (e.g., chart review, self-report, researcher rated).

In order to examine measurement issues, this study also analyzed corrected and uncorrected effect sizes and found that both sets of analysis revealed significant relationships in the hypothesized directions. Given that mean effect sizes were stronger when studies with poor reliability were under-weighted, these findings point to ample room for the improvement of existing measurement tools. At the same time, the significant effect sizes observed using uncorrected data—largely gathered through contacting authors for unpublished analyses—suggests relationship between stigma resistance and symptoms and outcomes have largely been under-studied.

This study has several limitations. First, all studies were cross-sectional and correlational. As Livingston and Boyd (2010) noted, the lack of longitudinal work in this area significantly limits clinical implications and interpretations regarding causality and directionality of associations found. However, given the state of the literature, the current synthesis is an important step that can inform the direction of longitudinal investigations. Another issue, common in many meta-analyses and known as the "file drawer problem," is publication bias toward significant findings (Card, 2012). Additionally, and particularly salient in this study, stigma resistance associations were frequently excluded from publications. Yet, we were able to contact many authors with existing, unpublished data and, for data we could include, we found significant relationships. In addition, Orwin's fail-safe N analyses indicated that a relatively large number of studies with non-significant findings would be needed to drop the mean effect sizes for most of the association included in this study to an inconsequential level. Nonetheless, effect sizes should still be interpreted in light of this limitation and the need for further research. Relatedly, relatively fewer studies have used the Positive Aspects subscale of the Stigma Scale, and as more data becomes available, future research should examine how this construct may

differ from the Stigma Resistance subscale of the ISMI. The low internal reliability of both measures is also a limitation, and future work should consider ways to improve the measurement of the construct of stigma resistance.

These findings also suggest several important areas for future work. Given the relationships observed between stigma resistance and outcomes with significant functional implications at the cross-sectional level, more research is needed to understand whether stigma resistance precedes improvement in other outcomes (e.g., quality of life or insight) or whether other outcomes studied are prerequisites for effectively resisting stigma (e.g., symptom reduction or improved insight is necessary before stigma can be effectively addressed and resisted), or if the relationships are bidirectional. Second, given the high levels of variability, it seems likely that additional moderators, such as duration of illness, may explain unaccounted for between study variance. Further work is also needed to examine areas where preliminary work is promising but was not frequent enough to examine meta-analytically (e.g., metacognition, emotional regulation; Nabors et al., 2014; Raij et al., 2013) in order to better understand whether stigma resistance is linked to symptoms and potentially other aspects of recovery.

Finally, our meta-analytic findings point to stigma resistance as a promising construct regarding intervention. Given that resisting stigma was associated with a number of positive outcomes (e.g., reduced symptoms and improved functioning), treatment and future research should focus on investigating ways to promote stigma resistance or adapt existing interventions that target self-stigma in ways that might promote stigma resistance (Mittal et al., 2013; Yanos et al., 2012). Given the pervasive impacts of mental illness stigma (Corrigan et al., 2009; Lipsey et al., 2001; Lysaker et al., 2007), it seems important to note that stigma resistance was associated with improved outcomes for individuals across all diagnostic groups; thus, resisting stigma may

be an important cross-diagnostic treatment target. Overall, stigma resistance demonstrated notable relationships with a variety of outcomes that are central to recovery and we suggest that further work on stigma resistance should guide intervention development in this important domain.

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Table 1 *Studies Analyzed*

Study (K=48)	N	Mean Age	Mean Edu	% Female	% White	% Psychosis	SR α	Association with SR	Measure	ES Corrected	ES Original
Boyd Ritsher & Phelan (2004)	126	51 (10.0)	--	6.4	62.1	83.3	0.59	Efficacy/Esteem	RSE	0.34	0.26
								Efficacy/Esteem	BUES	0.37	0.28
								Recovery	RAS	0.47	0.36
								Self/Perceived Stigma	PDD	-0.14	-0.10
								Self/Perceived Stigma	ISMIS	-0.44	-0.34
								Symptoms (Mood)	CESD	-0.30	-0.23
Brown, et al., (2010)	449	59.6 (16.4)	--	81.0	--	0.0	0.59 [d]	Self /Perceived Stigma	PDD	-0.26	-0.20
								Self /Perceived Stigma	ISMIS	-0.98	-0.75
								Symptoms (Mood)	PHQ	-0.27	-0.21
Campellone, Caponigro, & Kring (2014)	51	45.9 (10.6)	14.4 (2.5)	47.0	--	100.0	0.72	Efficacy/Est	Sense of Power	0.39	0.33
								Self /Perceived Stigma	ISMIS	-0.34	-0.03
								Symptoms (Negative)	CAINS	-0.47	-0.40
Corrigan, et al., (2010)	85	44.8 (9.7)	13.5 (2.3)	32.0	34.0	88.0	0.61	Efficacy/Esteem	RES	0.56	0.44
								Efficacy/Esteem	RSE	0.48	0.38
								Functioning/QL	Lehman	0.60	0.47
								Hope	BHS	0.32	-0.25
								Self/Perceived Stigma	ISMIS	-0.49	-0.38
								Self/Perceived Stigma	PDD	-0.20	-0.16
								Symptoms (Mood)	CESD-D	-0.33	-0.26
Costain, et al., (2014)	25	46.8 (12.6)	--	40.0	--	100	0.70	Self/Perceived Stigma	ISMIS	-0.67	-0.55
Chang, et al., (2014)	347	43.76 (11.27)	--	57.3	0.0	45.1	0.52	Symptoms (Mood)	DSSS	0.08	0.06
Clement, et al., (2012)	117	36.1 (11.1)	--	79.5	87.2	--	0.62	Self/Perceived Stigma	ISMIS	-0.81	-0.64
Cuhadar & Cam (2014)	47	--	--	83.0	--	0.0	0.55	Self/Perceived Stigma	ISMIS	-0.16	0.12
								Functioning/QL	BDFS	0.08	-0.06
Drapalski, et al., (2013)	100	45.6 (9.2)	--	45.0	--	42.0	0.58	Efficacy/Est	GSE	0.39	0.30
								Efficacy/Est	RSE	0.39	0.30
								Recovery	MHRM	0.63	0.48
								Symptoms (Positive)	BSI	-0.12	-0.09

								Symptoms (Mood)	BSI	-.024	-0.18
								Symptoms (Mood)	BSI	-0.11	-0.08
Evans-Lacko, et al., (2012)	1835	43.3	--	--	--	--	0.65	Efficacy/Est	BUES	0.56	0.45
								Self /Perceived Stigma	ISMIS	-0.53	-0.43
								Self /Perceived Stigma	PDD	-0.21	-0.17
Farrelly, et al., (2014)	201	41.8 (11.1)	--	54.5	53.5	47.5	0.58	Self /Perceived Stigma	DISC	0.00	0.00
	200							Self /Perceived Stigma	ISMIS	-0.62	-0.47
	199							Self /Perceived Stigma	QUAD	-0.21	-0.16
Gabbidon, et al., (2013)	117	54.0 (12.7)	--	52.0	76.0	20.0	0.62	Self /Perceived Stigma	ISMIS	-0.81	-0.64
	91							Self /Perceived Stigma	QUAD	-0.19	-0.15
Gibbons, et al., (2012)	33	46.9 (16.7)	--	48.5	66.7	--	0.42	Self /Perceived Stigma	Stigma Q	0.11	0.07
Griffiths, et al., (2014)	320	24.6 (7.1)	--	95.1	--	0.0	0.65	Efficacy/Esteem	SES	0.45	0.36
	325							Self/Perceived Stigma	ISMIS	-0.50	-0.40
	317							Symptoms (Mood)	DASS-21 dep.	-0.45	-0.36
Hasson-Ohayon, et al., (2014)	80	44.0 (11.3)	--	46.0	--	100	0.03	Functioning/QL	LRI	0.99	0.19
	79							Recovery	RAS	0.71	0.13
	80							Self /Perceived Stigma	ISMIS	-0.27	-0.05
Hasson-Ohayon, et al. (2012)	60	42.4 (15.7)	11.8 (3.0)	18.3	--	78.3	0.18	Insight	SAI-E	0.73	0.31
								Self /Perceived Stigma	ISMIS	-0.52	-0.22
Kean (2011)	28	45.3 (10.2)	--	39.3	67.9	100.0	0.62	Functioning/QL	CASIG	0.52	0.41
King, et al. (2007)	193	42.9 (12.4)	--	42.5	76.5	52.0	0.64	Efficacy/Esteem	RSE	0.45	0.36
								Self /Perceived Stigma	SS	-0.41	-0.33
Klose (2010)	96	39.7 (11.5)	--	47.9	83.3	17.7	0.58	Efficacy/Esteem	GSE	0.14	0.11
								Self /Perceived Stigma	ISMIS	-0.39	-0.30
Lien, et al., (2014)	160	43.6 (11.8)	13.3 (2.7)	80.0	--	64.4	0.75	Efficacy/Esteem	RSES	0.50	0.41
								Efficacy/Esteem	GSES	0.39	0.32
								Hope	BHS	0.42	0.34
								Symptoms (Mood)	BDI-II	-0.42	-0.36
Lanfredi, et al., (2015)	516	46.6 (15.3)	--	68.2	--	0.0	0.42	Efficacy/Esteem	BUES	0.60	0.39
								Self/Perceived Stigma	ISMIS	-0.75	-0.31
Lu & Wang (2012)	92	26.1 (7.5)	--	41.3	0.0	100	0.59 [d]	Self/Perceived Stigma	ISMIS	-0.99	-0.89
								Symptoms (Negative)	CSANS	0.04	0.03

								Symptoms (Positive)	CSAPS	-0.14	-0.11
Lysaker et al., (2007)	133	46.9 (9.7)	12.8 (1.8)	8.0	43.5	100.0	0.52	Efficacy/Esteem Functioning/QL Hope Insight Self /Perceived Stigma Symptoms (Negative) Symptoms (Positive)	MSEI QOLS BHS PANSS ISMIS PANSS PANSS	0.54 0.24 0.64 0.10 -0.33 -0.11 -0.15	0.39 0.17 0.46 0.07 -0.24 -0.08 -0.11
Mashiach-Eizenberg, et al. (2013)	178 177 176 179	41.3 (13.1)	11.8 (3.0)	54.2	--	100.0	0.59	Efficacy/Esteem Functioning/QL Hope Self/Perceived Stigma	RSE MANSA Hope Scale ISMIS	0.12 0.26 0.23 -0.10	0.09 0.20 0.18 -0.08
McGuire, et al., (2014)	118	47.7 (8.9)	--	20.0	34.0	100	0.61	Functioning/QL Hope Self/Perceived Stigma Symptoms (Negative) Symptoms (Positive) Symptoms (Total) Recovery	QOL Hope Scale ISMIS PANSS PANSS PANSS RAS	0.40 0.53 -0.35 -0.21 -0.32 -0.36 0.51	0.31 0.41 -0.27 -0.17 -0.25 -0.28 0.40
Moriarty, et al., (2012)	50	50.1 (10.6)	12.73 (2.2)	50.0	46.0	100	0.59[d]	Functioning/QL	Time Budget	0.31	0.24
Nabors, et al., (2014)	62	50.9 (10.6)	12.7 (2.2)	5.0	40.0	100.0	0.50	Efficacy/Esteem Self /Perceived Stigma Symptoms (Negative) Symptoms (Positive) Symptoms (Mood)	RSE ISMIS PANSS PANSS PANSS	0.62 -0.54 -0.50 -0.09 -0.14	0.44 -0.38 -0.35 -0.06 -0.10
Oscikova, et al. (2014)	76	40.2 (12.8)	--	76.2	--	0.0	0.64	Self/Perceived Stigma Symptoms (Mood) Symptoms (Mood) Symptoms (Overall)	ISMIS BAI BDI CGIS	-0.54 -0.09 -0.39 -0.26	-.43 -0.07 -0.31 -0.21
Oscikova, et al. (2014)	369	41.5 (13.3)	--	56.6	--	10.8	0.58	Self/Perceived Stigma	ISMIS	-0.39	-0.30
Park, et al., (2013)	49	49.6 (7.2)	11.2 (2.1)	28.6	--	100	0.59	Efficacy/Esteem Functioning/QL Self/Perceived Stigma	DAS BQOL ISMIS	0.40 -0.18 -0.34	0.31 -0.14 -0.26

Rusch, et al., (2014)	100	42.0 (11.3)	14.7 (3.2)	59.0	98.0	27.0	0.60	Efficacy/Esteem	BUES	0.80	0.62
								Efficacy/Esteem	RSE	0.77	0.60
								Self/Perceived Stigma	ISMIS	-0.72	-0.56
								Symptoms (Mood)	CES-D	-0.57	-0.44
Rusch, et al., (2014)	113	41.0 (10.0)	--	50.9	--	--	0.60	Efficacy/Esteem	RSE	0.68	0.53
								Functioning/QL	WHOQOL-BREF	0.57	0.44
								Self/Perceived Stigma	ISMIS	-0.59	-0.46
								Self/Perceived Stigma	PDD	-0.39	-0.30
								Symptoms	BSI	-0.43	-0.33
Rusch, et al., (2014)	183	--	--	--	--	--	0.54	Efficacy/Esteem	BUES	0.69	0.51
								Efficacy/Esteem	RSE	0.60	0.44
								Functioning/QL	WHOQOL-BREF (soc)	0.60	0.44
								Functioning/QL	WHOQOL-BREF (psych)	0.37	0.27
								Self/Perceived Stigma	ISMIS	-0.47	-0.35
								Symptoms (Overall)	BPRS	0.08	0.06
Russinova, et al., (2014)	82	--	--	68.0	70.0	34.0	0.58	Efficacy/Esteem	Emp. Scale	0.50	0.38
								Efficacy/Esteem	GPSES	0.42	0.32
								Recovery	PGRS	0.46	0.34
								Self/Perceived Stigma	ISMIS	-0.22	-0.17
								Symptoms (Mood)	CES-D	-0.28	-0.21
Sarisoy, et al., (2013)	228	35.6 (10.3)	10.4 (3.8)	53.0	--	47.8	0.58	Functioning/QL	MRQ	0.12	0.09
								Self/Perceived Stigma	ISMIS	-0.37	-0.28
Schrank, et al., (2013)	263	39.9 (12.6)	--	41.9	--	100.0	0.71	Hope	IHS	0.66	0.56
	257							Insight	SAI-E	0.08	0.07
	257							Self/Perceived Stigma	ISMIS	-0.11	-0.09
	257							Symptoms (Mood)	CESD/ADS	0.06	0.05
	263							Symptoms (Negative)	PANSS	-0.14	-0.12
	257							Symptoms (Positive)	PANSS	-0.14	-0.03
	249							Symptoms (Total)	PANSS	-.020	-0.17
Segalovich, et al., (2013)	60	39.9 (12.9)	9 (4.3)	20.0	--	100	0.47	Efficacy/Esteem	RSE	0.99	0.60
								Self/Perceived Stigma	ISMIS	-0.88	-0.77
Sibitz, et al. (2013)	80	32.1 (10.5)	--	42.5	--	100	0.59	Self/Perceived Stigma	ISMIS	-0.62	-0.50
								Symptoms (Total)	PANSS	-0.09	-0.08

								Symptoms (Negative)	PANSS	-0.25	-0.04
								Symptoms (Positive)	PANSS	-0.05	-0.21
Sibitz, et al. (2011)	157	37.3 (11.9)	--	45.5	100	100	0.73	Efficacy/Esteem	RSE	0.60	0.51
								Efficacy/Esteem	RES	0.60	0.50
								Functioning/QL	WHOQOL-BREF	0.53	0.45
								Self/Perceived Stigma	ISMIS	-0.33	-0.28
								Self/Perceived Stigma	PDD	-0.30	-0.26
								Symptoms (Mood)	CESD/ADS	-0.54	-0.46
Silverman (2013)	83	37.6 (14.7)	--	55.0	64.0	7.3	0.64	Self/Perceived Stigma	SS	-0.64	-0.43
Sorsdahl, et al., (2010)	142	37.0 (11.3)	--	64.5	--	58.0	0.59[d]	Efficacy/Esteem	BUES	0.56	0.43
								Self/Perceived Stigma	ISMIS	-0.71	-0.54
								Self/Perceived Stigma	PDD	0.11	0.08
Staring, Hurrne, & Gaag (2013)	21	40.6 (--)	--	33.3	--	100	0.25	Efficacy/Esteem	DAS	0.30	0.15
								Hope	BHS	0.59	0.29
								Self/Perceived Stigma	ISMIS	-0.23	-0.11
								Symptoms (Mood)	BDI-13	-0.40	-0.20
								Symptoms (Negative)	PANSS	-0.34	-0.17
Tang & Wu (2012)	100	46.0 (10.2)	--	19.0	--	100	0.76	Functioning/QL	WHOQOL-SF12	0.33	0.29
Temilola, et al., (2013)	256	39.5 (10.6)	11.8 (3.0)	48.0	--	100	0.50	Functioning/QL	WHOQOL-BREF	0.36	0.25
								Self/Perceived Stigma	ISMIS	0.14	0.10
								Symptoms (Positive)	BPRS	0.13	0.09
Tsai, Lysaker, & Vohs (2010)	77	46.7 (8.9)	12.8 (2.2)	17.0	29.0	100	0.52	Efficacy/Esteem	MSEI	0.54	0.39
								Functioning/QL	QLS	0.21	0.15
								Self/Perceived Stigma	ISMIS	-0.54	-0.39
								Symptoms (Mood)	MAQ	-0.33	-0.24
Uhlmann, et al., (2014)	23	35.4 (11.3)	14.7 (3.0)	39.1	--	100	0.58	Self/Perceived Stigma	ISMIS	-0.38	-0.31
Walston (2012)	100	47.0 (10.1)	12.5 (1.1)	30.0	51.0	97.0	0.58	Insight	BCIS	0.36	0.27
								Insight	BCIS	0.45	0.34
								Insight	IS	0.26	0.20
								Recovery	MORS	0.87	0.66
								Recovery	MHRM	0.83	0.63

								Self/Perceived Stigma	ISMIS	-0.50	-0.38
								Self/Perceived Stigma	ISMIS	-0.63	-0.48
Yanos, et al., (2012)	39	47.1 (7.9)	11.5 (2.9)	28	20.5	97.0	0.52	Efficacy/Esteem	RSE	0.60	0.43
								Functioning/QL	QLS	0.08	0.06
								Hope	BHS	0.52	0.44
								Symptoms (Negative)	PANSS	-0.18	-0.13
								Symptoms (Positive)	PANSS	-0.10	-0.07

Note. Effect sizes represent the association between stigma resistance and a psychosocial outcome variable. [a] N represents the sample size for the effect size reported., [b] See Table C4 for scale abbreviation and corresponding full titles., [c] Original effect sizes, pre-artifact correction. [d] Stigma Resistance alpha unavailable or not obtained from authors. Original alpha of this subscale of .59 from Boyd et al (2003) used as a substitute. Scale abbreviations by construct. Efficacy/Esteem: BUES = Boston University Empowerment Scale, DAS = Defeatist Performance Beliefs subscale of the Dysfunctional Attitudes Scale, GPSES = Generalized Perceived Self-Efficacy Scale, MSEI = Multidimensional Self-Esteem Inventory, RSE = Rosenberg Self Esteem Scale, Sens of Power = Sense of Power Scale. Functioning/Quality of Life: BDFS = Bipolar Disorder Functioning Scale, CASIG = Client's Assessment of Strengths Interests and Goals: Quality of Life subscale, LRI = Life Regard Index, MANSA = Manchester Short Assessment of Quality of Life, MRQ = Multidimensional Relationship Questionnaire, PHR = Physical Health Rating, QOLS = Quality of Life Scale, Time Budget = Semi-structured interview of week-long diary of activities completed (planning, participation, and social contact assessed and rated), WHOQOL-BREF/SF12 = World Health Organization Quality of Life-BREF. Insight: BCIS = Beck Cognitive Insight Scale, IS = Birchwood's Insight Scale, PANSS = Positive and Negative Syndrome Scale, SAI-E = Schedule for Assessment of Insight-Expanded Version. Hope: Hope Scale = Adult Dispositional Hope Scale, BHS = Beck Hopelessness Scale, HIS = Integrated Hope Scale. Recovery: MHRM = Mental Health Recovery Measure, MORS = Milestones of Recovery Scale, PGRS = Personal Growth and Recovery Scale, RAS = Recovery Assessment Scale. Self/Perceived Stigma: DISC = Discrimination and Stigma Scale, ISMIS = Internalized Stigma of Mental Illness Scale, PDD = Perceived Discrimination Devaluation Scale, QUAD = Questionnaire on Anticipated Discrimination, Stigma Q = Stigma Questionnaire, SS = Stigma Scale. Symptoms (Mood): AAS = Annihilation Anxiety Scale, BDI-13 = Dysfunctional Believes about Cognitive Abilities, CAINS = Clinical Assessment Interview for Negative Symptoms, CESD/ADS = Center for Epidemiologic Studies Depression Scale; Allgemeine Depressionsskala Scale (German version), DASS = Depression Anxiety Stress Scale: An Anxiety Measure, DSSS = Depression and Somatic Symptoms Scale, PHQ = Multidimensional Anxiety Questionnaire, MAQ = Patient Health Questionnaire. Symptoms (Negative): BPRS = Brief Psychotic Rating Scale, PANSS = Positive and Negative Syndrome Scale. Symptoms (Positive): BSI = Brief Symptom Inventory, PANSS = Positive and Negative Syndrome Scale.

Table 2
Overall mean effect sizes by outcome grouping (data using **Corrected ES**'s except for Original ES listed for comparison)

Corrected ES's	K	N	Original ES	**Corr ES**	SE	95% CI	Z	Q	I^2
Overall outcomes	48	8187	0.32	**0.46**	0.03	[0.40, 0.53]	14.19***	342.28***	86.27
Self-stigma	40	6861	-0.36	**-0.57**	0.06	[-0.69, -0.45]	-9.12***	946.93***	95.88
Symptoms	20	2684	-0.20	**-0.28**	0.04	[-0.35, -0.21]	-7.45***	63.86***	70.25
Pos symptoms	8	881	-0.11	**-0.17**	0.03	[-0.24, -0.11]	-5.02***	3.60	0.00
Neg symptoms	9	853	-0.16	**-0.23**	0.06	[-0.35, -0.12]	-4.03***	19.05*	63.26
Mood symptoms	14	2265	-0.20	**-0.29**	0.06	[-0.40, -0.19]	-5.35***	76.05***	89.48
Efficacy/Esteem	25	5037	0.42	**0.60**	0.04	[0.52, 0.69]	13.84***	177.49***	86.48
Functioning/QL	17	1875	0.29	**0.51**	0.12	[0.27, 0.75]	4.18***	415.56***	96.15
Recovery	7	833	0.38	**0.60**	0.14	[0.32, 0.89]	4.20***	97.59***	93.85
Hope	8	995	0.40	**0.54**	0.09	[0.37, 0.71]	6.29***	44.87***	84.40
Insight	4	542	0.16	**0.38**	0.17	[0.05, 0.72]	2.24*	41.69***	92.80

Note. K = number of effect sizes used in the calculation of the mean effect size. N = number of participants included in the calculation of the mean effect size across studies. ES = weighted mean effect size. SE = standard error. 95% CI = 95% confidence interval for the mean effect size. Z = z-test for statistical significance of the mean effect size. A z-score greater than 1.96 indicates statistical significance. Q = Test for heterogeneity. A significant Q indicates greater between-study variability than would be expected by chance. I^2 = I^2 index indicates the percentage of between-study variability. ****p*<.001, **p*<.05.

Table 3
Moderator Analyses

Association	K (N)	B	SE	95% CI	Z
SR—Overall outcomes					
Mean Age	45 (7,858)	-0.00	0.01	[-.02, .01]	-0.55
Mean Edu.	17 (1,711)	-0.08	0.06	[-.19, .04]	-1.29
% Female	46 (6,176)	-0.01	0.19	[-.38, .37]	-0.04
% White	24 (2,804)	0.48	0.11	[.26, .70]	4.27***
% Psychosis	39 (4,621)	0.02	0.10	[-.21, -.17]	-0.22
SR—Self-stigma					
Mean Age	38 (7,043)	0.02	0.01	[.00, .05]	2.00*
Mean Edu.	14 (1,463)	0.20	0.09	[.02, .38]	2.18*
% Female	39 (5,361)	0.23	0.39	[-.55,1.01]	0.58
% White	18 (2,081)	-0.38	0.17	[-.71, -.05]	-2.26*
% Psychosis	32 (3,798)	-0.10	0.22	[-.52, .32]	-0.47
SR—Symptoms (total)					
Mean Age	18 (2,402)	-0.00	0.01	[-.02, .02]	-0.09
Mean Edu.	7 (824)	-0.16	0.05	[-.25, -.07]	-3.37***
% Female	19 (2,484)	-0.05	0.17	[-.39, .30]	-0.26
% White	10 (1,347)	-0.26	0.14	[-.54, .02]	-1.81^{t}
% Psychosis	18 (2,408)	-0.02	0.11	[-.24, .20]	-0.21
SR—Negative Symptoms					
Mean Age	9 (853)	-0.01	0.01	[-.02, -.00]	-2.44*
Mean Edu.	4 (285)	-0.11	0.10	[-.31, .08]	-1.13
% Female	9 (853)	0.33	0.35	[-.34, 1.01]	0.96
% White	4 (352)	-0.10	1.06	[-2.18, 1.99]	-0.09
% Psychosis	9 (853)	-1.82	7.14	[-15.82, 12.18]	-0.26
SR—Mood Symptoms					
Mean Age	13 (2,183)	0.01	0.01	[-.01, .02]	-0.81
Mean Edu.	5 (584)	-0.20	0.07	[-.33, -.06]	-2.88**
% Female	14 (2,265)	-0.19	0.17	[-.52, .14]	-1.12
% White	8 (1,039)	-0.28	0.16	[-.59, .02]	-1.81*
% Psychosis	11 (1,423)	0.19	0.12	[-.05, .43]	1.54

Table 3 (Continued)
Moderator Analyses

Association	K (N)	B	SE	95% CI	Z
SR—Efficacy/Esteem					
Mean Age	24 (4,955)	-0.00	0.01	[-.02, .02]	-0.35
Mean Edu.	11 (994)	-0.06	0.06	[-.18, -.06]	-0.99
% Female	24 (3,226)	-0.13	0.23	[-.59, .33]	-0.57
% White	13 (1,488)	0.28	0.18	[-.08, .63]	1.53
% Psychosis	22 (2,390)	-0.09	0.15	[-.38, .20]	-0.59
SR—Functioning/QL					
Mean Age	18 (2,402)	-0.03	0.04	[-.11, .05]	-0.79
Mean Edu.	7 (824)	0.13	0.07	[.00, .27]	1.96*
% Female	19 (2,484)	0.28	0.74	[-1.17, 1.74]	0.38
% White	10 (1,347)	0.30	0.14	[.03, .58]	2.16*
% Psychosis	18 (2,408)	0.13	0.38	[-.62, .87]	0.33
SR—Recovery[1]					
Mean Age	6 (751)	0.01	0.03	[-.05, .07]	0.29
% Female	7 (833)	0.06	0.70	[-1.30, 1.43]	0.09
% White	5 (654)	0.10	0.69	[-1.26, 1.46]	-0.14
% Psychosis	7 (833)	0.58	0.45	[-.30, 1.45]	1.30
SR—Hope					
Mean Age	8 (995)	0.00	0.03	[-.05, .05]	0.14
Mean Edu.	5 (593)	0.02	0.11	[-.21, .24]	-0.16
% Female	8 (995)	-0.42	0.30	[-1.02, .17]	-1.39
% White	6 (711)	0.70	0.29	[.13, 1.27]	2.40*
% Psychosis	8 (995)	0.54	0.37	[-.19, 1.26]	1.46

Note. K = number of effect sizes used in the moderation analysis. N = number of participants included in the moderation analysis. SE = standard error. 95% CI = 95% confidence interval for B. Z = z-test for statistical significance of B. A z-score greater than the absolute value of 1.96 indicates statistical significance. ^{t}p<.1,*p < .05, **p<.01, ***p<.001. [1] Insufficient data available to perform moderation analysis for education variable.

Figure 1

Study Retrieval Flowchart