THE ROLE OF STIGMA IN THE MECHANISMS OF PSYCHOTHERAPY OUTCOME: A LONGITUDINAL STUDY

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ABSTRACT

Concealable stigma such as sexual or gender identity or mental illness has been linked to numerous adverse outcomes. Additionally, stigma of mental illness and help seeking stigma has been associated with reduced treatment utilization for psychological problems. Research on internalized stigma of mental illness (ISMI) has largely focused on a) the stigma associated with serious mental illness (e.g., schizophrenia; psychosis spectrum; bipolar-spectrum disorders) and b) the impact of stigma on disparities in treatment access/utilization. However, there have been few studies that have examined the impact of ISMI on treatment outcome or mechanisms through which ISMI influences treatment outcome. The current study addresses these gaps in literature by focusing on ISMI in a diverse outpatient sample within the Psychological Services Center (PSC) at Temple University. In this study, we investigated how mental health self-stigma influences outcome; processes that account for the relationship between mental health self-stigma and outcome; and how self-stigma changes over the course of up to ten therapy sessions in an outpatient setting. Data were drawn from adults participating in individual therapy at the PSC. Participants included 50 individuals (54% female; 76% White, 6% African American, 8% Multiracial, 6% Hispanic, 2% Middle-Eastern and Asian-American) who completed self-report measures of internalized stigma, psychological distress, shame, self-efficacy, social isolation, and hope for up to ten therapy sessions. Multilevel models were used to identify the trajectories of change for the main outcomes (psychological distress) and other variables of interest (stigma, shame, self-efficacy, social isolation, hope) across treatment. Baseline assessment of stigma was used to predict changes in the primary outcome in a set of conditional multilevel models.

Logistic regression was used to examine effect of baseline stigma on treatment dropout. Additionally, multilevel models with indirect effects were used to examine the mechanism of relationship between ISMI and treatment outcome. Gender, gender role conflict and demographic variables were considered as potential covariates. Psychological distress, social isolation, and shame significantly reduced over the course of treatment. We did not find significant changes in depression, self-efficacy or hope. Stigma did not significantly change over the course of treatment. Most notably, greater stigma at baseline and over time (at each time point) was significantly associated with greater psychological distress (i.e., poorer treatment outcome), and greater baseline stigma predicted a greater likelihood of treatment dropout. However, baseline stigma was not associated with rate of change in psychological distress. There were no significant indirect effects mediating the impact of stigma on treatment outcome. Findings suggest that greater ISMI impacts subjective report of psychological distress in the beginning stages of treatment and contributes to early treatment dropout. These findings suggest that clients' personal beliefs about mental health and stigma should be attended to throughout treatment to help clients achieve better treatment outcomes, not only in terms of symptom/distress reduction, but also functionally.

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CHAPTER 1

INTRODUCTION

Background

Goffman (1963) first defined stigma as a trait or attribute that changes a perception of an individual with that attribute "from a whole and usual person to a tainted, discounted one" (p. 3). Following from this definition, others have suggested that stigmatization occurs when an individual is perceived as possessing an attribute that "conveys a social identity that is devalued in a particular context" (Crocker, Major, & Steele, 1998, p. 3). Thus, initial models of stigma focused on defining the mechanisms through which stigma (i.e., the mark or attribute) links an individual to socially devalued or undesirable characteristics (i.e., stereotypes), which in turn are associated with discrimination (Link & Phelan, 2001), across a variety of attributes and contexts. In recent years, researchers made distinctions between stigma related to traits that are visible, such as physical disability or skin color, and traits that are less obvious or can be concealed, such as sexual orientation or HIV status (Pachankis, 2007; Quinn & Chaudoir, 2009).

Concealable stigma, such as mental illness or sexual or gender identity, has been linked to numerous adverse outcomes, such as increased psychological distress including depression and anxiety and health problems (Quinn & Chaudoir, 2009). Among many kinds of concealable stigmatized identities, mental health stigma has been associated with a range of psychological outcomes including depressive symptoms, decreased self-esteem, and impaired social adjustment (Corrigan, Watson, & Barr, 2006; Kao et al., 2016; Perlick et al., 2001). A meta-analysis of correlates and consequences of self-

stigma of mental illness found robust negative associations between stigma and hope (r = -.58, p < .001), self-esteem (r = -.55, p < .001), self-efficacy (r = -.54, p < .001), empowerment/mastery (r = -.52, p < .001), quality of life (r = -.28, p < .05), and treatment adherence (r = -.38, p < .001), as well as positive associations with symptom severity (r = .41, p < .001; Livingston & Boyd, 2010). Additional research focusing on stigma of severe mental illness has similarly reported that hope and self-esteem mediate the relationship between internalized stigma of mental illness (ISMI) and outcomes such as quality of life (Mashiach-Eizenberg, Hasson-Ohayon, Yanos, Lysaker, & Roe, 2013).

Mental health and help-seeking stigma have also been associated with reduced treatment utilization for psychological problems (Clement et al., 2015) and unfavorable attitudes to treatment (Mendoza, Masuda, & Swartout, 2015). Existing research in this domain has made theoretical and empirical distinctions between stigma of help-seeking vs. stigma of mental illness (Tucker et al., 2013), and perceived public stigma vs. internalized self-stigma of mental illness or help-seeking (Corrigan, Watson, & Barr, 2006). Findings from studies of perceived public stigma and treatment seeking have been mixed. For example, in a vignette study conducted in Germany, perceived public stigma, assessed as anticipated discrimination from others, was not significantly related to intentions to seek treatment for depression (Schomerus, Matschinger, & Angermeyer, 2009). In contrast, another vignette study, conducted in Belgium, found that higher perceived stigma was related to reluctance to engage in "informal" (e.g., friend support) help-seeking for depression and schizophrenia (Pattyn, Verhaeghe, Sercu, & Bracke, 2014). In contrast, there appears to be more consistent association between greater internalized/self-stigma and treatment-related attitudes, such as less importance placed

on professional treatment (e.g., from medical providers; Pattyn et al., 2014) and lower likelihood of help-seeking (Schomerus et al., 2009).

Greater self-stigma has been associated with more negative attitudes toward treatment (Mendoza, Masuda & Swartout, 2015), lower treatment compliance(Tsang, Fung, & Chung, 2010), and lower willingness to return for more counselling sessions (Wade, Post, Cornish, Vogel, & Tucker, 2011). However, little is known about how clients' experience and perception of mental health stigma influences treatment progress and outcome once clients have overcome stigma as a barrier to care. There are no consistent findings related to the perception of mental health stigma and dropout. In one study, the perception of mental health stigma was not associated with treatment dropout for Mexican American families (McCabe, 2002). In another study, assessing individuals in outpatient treatment for depression, even though younger patients reported greater perceived stigma than older (>65) patients, stigma was predictive of treatment discontinuation (assessed at 3-month follow up) only for older patients (Sirey, Bruce, Alexopoulos, Perlick, Raue, Friedman & Meyers, 2001). A large epidemiological survey in the United States and Ontario (Edlund et al., 2002) found that patients who were more uncomfortable with seeking help from a mental health professional (an indirect indication of stigma) were more likely to drop out of treatment, controlling for treatment type.

There is more consistency in studies of stigma and medication adherence. For example, in another study by Sirey and colleagues (Sirey, Bruce, Alexopoulos, Perlick, Friedman & Meyers, 2001), lower perceived stigma, higher self-rated severity of illness, age over 60 years, and absence of personality pathology were all predictive of greater adherence to treatment for depression. Howland and colleagues (2016) examined

correlates of internalized stigma in individuals with bipolar disorder who were poorly adherent to their medication. In this study, stigma levels were moderately high and negatively correlated with self-efficacy—a relationship that was present even after adjusting for symptom severity, comorbidities and demographic variables. There was no association of stigma with mania, but stigma was associated with depression, anxiety, guilt, suspiciousness, and hallucinations. Consistent with prior research (e.g., Ellison, 2013), there were no significant associations between ISMI and demographic characteristics.

Studies of stigma and treatment outcome are heterogenous in their methods and assess various dimensions of functioning and psychopathology. The vast majority of these studies rely on one-point follow-up designs and focus on severe mental illness (SMI), schizophrenia in particular. In general, greater stigma of mental illness has been related to poorer outcome, as indicated by greater depressive symptoms and lower self-esteem (Ritsher & Phelan, 2004) and social functioning (Yanos, Roe, West, Smith, & Lysaker, 2012). Studies of stigma in conditions other than SMI are scarce. There is some research that has attempted to bridge this gap. Ociskova and colleagues (2014) found that, among patients with anxiety spectrum and depressive disorders who participated in an intensive combined psychotherapy and medication program, greater stigma at baseline was associated with lesser improvement in anxiety symptoms following treatment. Similarly, among medicated patients undergoing cognitive behavioural therapy or brief psychodynamic therapy for anxiety in an inpatient setting, greater self-stigma predicted less change in objective overall illness severity (measured by Clinical Global Impression

ratings), but it did not predict change in depression or anxiety symptom severity (Ociskova et al., 2018).

Another study with patients in a short-term partial hospitalization program (*M* = 12.63 days, *SD* = 3.61) found that internalized stigma of mental illness was related to poorer mental and physical health at baseline (Pearl, Forgeard, Rifkin, Beard, & Björgvinsson, 2017). They also found that stigma decreased over the course of treatment. This reduction in stigma was associated with decreased symptom severity and increased functioning and quality of life, and patients showing greater reduction in stigma were more responsive to treatment. Most of the patients in this study were diagnosed with a mood or anxiety disorder as their primary diagnosis.

Overall, existing research suggests that various types of stigma of mental illness are negatively associated with initial willingness to seek help for psychological problems. Other lines of inquiry examined the impact of stigma on various outcomes and correlates of serious mental illness, with self-efficacy, hope, and social avoidance/adjustment emerging as important correlates, particularly in the context of severe mental illness. Even though studies have addressed disorders other than SMI, they are still not representative of effects of stigma in broader populations, as they exclusively assessed outcomes of inpatient or intensive partial hospitalizations, rather than typical outpatient therapy. Despite these important findings, little is known about specific mechanisms by which internalized stigma may influence or interfere with treatment outcome, especially for less severe clients presenting to an outpatient clinic. However, there are indications that greater baseline stigma is associated with the degree of improvement in treatment (Ociskova et al., 2014; Ociskova et al., 2018), whereas greater decrease in stigma

throughout treatment has been associated with better outcomes (Pearl et al., 2014).

Factors Linking Stigma and Treatment Outcome

Social Avoidance and Isolation and Stigma

Among individuals with SMI, stigma predicts impairment in social adjustment and avoidance of social interactions with people outside of one's family (Perlick et al., 2001). Greater internalized stigma has also been negatively associated with social functioning and quality of life (Yanos et al. 2012). Further, in a community sample of adults with elevated depressive symptoms, self-stigma of depression, treatment stigma, and stigmatizing experiences partially mediated the relationship between depression severity and avoidance (Manos, Rusch, Kanter, & Clifford, 2009). Interestingly, that study found no differences in stigma between people with and without a history of treatment, but stigmatizing experiences and treatment stigma partially mediated the relationship between depression severity and behavioral avoidance for individuals with history of treatment (psychotherapy and/or medication). Pachankis (2007) proposes that individuals with concealable stigma use social avoidance to cope with the potential implications of possessing this stigma. A significant drawback of this strategy, however, is that it does not provide necessary social support. In turn, lack of social support may lead to greater distress and social isolation, and so further self-stigmatization.

Self-efficacy and Stigma

Lower levels of self-efficacy, or the belief that one can successfully cope with adversity or task demands, have been consistently associated with greater stigma of mental illness (Livingston & Boyd, 2010; Corrigan et al., 2006). This has been true for individuals diagnosed with schizophrenia (Kleim et al., 2009), patients showing poor

treatment adherence (Howland et al., 2016), and people in outpatient treatment for depression (Oliveira, Esteves, & Carvalho, 2015). Low self-efficacy related to self-stigma has been associated with lower likelihood of pursuing life goals relevant to quality of life/life satisfaction, such as employment or independent living arrangements (e.g., Link, 1982; Corrigan, Larson, & Rusch, 2009). Independent of stigma research, self-efficacy has been well-established as an important factor in psychotherapy. A meta-analysis of cognitive-behavioral therapy for panic disorder found that panic self-efficacy was a mediator of treatment outcome (Fentz, Arendt, O'Toole, Hoffart, & Hougaard, 2014). In a correlational study of patients with mood disorders, self-efficacy explained 17% of the variance in social adjustment immediately post-discharge from inpatient treatment and 49% of the variance 2 months post-discharge (Cutler, 2005). Thus, in addition to being associated with treatment outcome as defined by remission or improvement in symptoms of psychopathology, self-efficacy is relevant for functional outcomes that may impact overall quality of life.

Shame and Stigma

Concealable identities, especially those that are associated with high levels of public stigma, can produce high levels of shame, resulting in further negative self-evaluative implications (Pachankis, 2007). Extant research suggests that shame and self-stigma are closely linked but not synonymous, with shame proneness mediating the relationship between insight and self-stigma of mental illness (Hasson-Ohayon et al., 2012), and many measures of stigma of mental illness containing a shame-specific subscale (Fox, Earnshaw, Taverna & Vogt, 2018). Shame in turn is related to therapeutic processes of self-disclosure (Derlega, Metts, Petronio, & Margulis, 1993). Even for

individuals who do not experience stigma, shame is a predictor of psychological symptoms and their severity and may affect the development and maintenance of psychopathology (Candea & Szentagotai, 2013).

Gender, Gender Role Conflict, and Stigma

There are consistent findings that men seek professional help (e.g., medical, mental health, substance use treatment) less frequently than women (Addis & Mahalik, 2003). It is important to note that many studies assessing gender role conflict and/or gender differences in attitudes to treatment and stigma do not explicitly assess gender (i.e., self-identification of an individual across the gender spectrum or in the dominant gender binary). Thus, it is more likely that the associations reported are related to biological sex. We use terms present in original studies being cited with this caveat. Although there are no consistent associations of gender and self-stigma of mental illness (Livingston & Boyd, 2010), men tend to report greater rates of stigma of help-seeking, which has been related to levels of gender role conflict (GRC). Importantly, in their meta-analysis, Livingston and Boyd did not examine factors that could moderate relationships of gender with stigma, nor the moderating effects of gender or other psychosocial factors on stigma.

Studies of GRC and stigma of help-seeking are limited to men. In one study of male college students, the relationship between gender role conflict and willingness to seek counselling for psychological and interpersonal concerns, as opposed to actual treatment seeking behaviors, was partially mediated by self-stigma of help-seeking, tendency to disclose distressing information, and attitudes toward help-seeking (Pederson & Vogel, 2007). For men experiencing higher gender role conflict, high self-stigma and

lower tendency to disclose were associated with less positive attitudes, which in turn were related to lower willingness to seek counselling. Similarly, Shepherd and Rickard (2012) found that the relationship between gender role conflict and intentions to seek treatment was mediated by self-stigma of help-seeking and attitudes toward seeking help. Research on gender differences in gender role conflict is limited, but it suggests that the factor structure of the dominant measure of this construct, The Gender Role Conflict Scale (O'Neil, 2008) is largely comparable across men and women (Herdman et al., 2012; Korcuska & Thombs, 2003), but there are mean differences on individual subscale scores (Zamarripa, Wampold, & Gregory, 2003). However, as previously mentioned, there are no data pointing to gender differences in the impact of GRC on help seeking or treatment outcome.

It is plausible that stigma is related to change in symptom severity and impairment over the course of treatment via changes in perceived shame, hope, self-efficacy and social isolation. These relationships may be additionally moderated by gender, in part due to gender role conflict. An important consideration for treatment outcome is changes in stigma itself, either as a by-product of ongoing treatment (Pearl et al., 2017; Ociskova et al., 2018), or in the context of an adjunctive intervention explicitly targeting stigma (Yanos et al., 2012). At the same time, it is possible that entering and participating in treatment may contribute to an acute increase in stigma, particularly for ethnic minorities (Parcesepe & Cabassa, 2013), possibly due to the fact that treatment creates a context in which mental illness becomes a central and salient aspect of one's identity. Thus, longitudinal models will be crucial for identification of the direction of the stigma—symptom severity—treatment outcome relationship.

Current Study

Research on ISMI has largely focused on (a) the stigma associated with serious mental illness (e.g., schizophrenia; psychosis spectrum; bipolar-spectrum disorders) and (b) the impact of stigma on disparities in treatment access/utilization. However, there have been few studies that have examined how ISMI influences treatment outcome or mechanisms through which ISMI influences treatment outcome. The present study addresses these gaps in literature by focusing on ISMI in an outpatient sample within the Psychological Services Center at Temple University. We examine ways in which constructs such as shame, hope, self-efficacy and social isolation may explain treatment response. A gap in literature will be addressed owing to the use of a longitudinal design of the study and the focus on broadly-defined clinical concerns (rather than serious mental illness, which has constituted the majority of research to date). Knowledge of how mental health self-stigma and associated constructs impact treatment may inform future study of interventions targeting stigma directly in initial phases of treatment to improve client outcomes.

Specific Aims and Hypotheses

Primary Aim 1 – Unconditional Growth Models.

Examine trajectories of stigma, stigma-associated constructs, and general psychological distress over the course of outpatient treatment.

Aim 1 hypothesis 1. ISMI will decrease over the course of treatment.

Aim 1 hypothesis 2. Social isolation and shame will decrease, whereas self-efficacy and hope will increase over the course of treatment.

Aim 1 hypothesis 3. General psychological distress (main treatment outcome) will decrease over the course of treatment.

Primary Aim 2 – Conditional Growth Models and Prediction of Dropout/Early Termination

Assess the influence of internalized stigma of mental illness on treatment outcome (measured as general psychological distress) and dropout. Baseline and weekly assessments of stigma will be examined.

Aim 2 hypothesis 1. Greater baseline stigma will be associated with slower rate of change in general psychological distress, smaller degree of change in psychological distress, as well as with early treatment dropout (by session 5).

Aim 2 hypothesis 2. Based on limited prior research (Pearl et al., 2017), greater reduction in stigma will be associated with greater improvement in treatment outcome.

Primary Aim 3 – Mediation Models

Examine mechanisms of the relationships between ISMI and treatment outcome.

Aim 3 hypothesis 1. The impact of stigma on treatment outcome will be mediated by changes in self-efficacy, hope, shame, and social isolation/functioning, such that improvement in these constructs will be associated with better treatment outcome.

Supplementary Aim and Hypotheses

To explore moderating role of sociodemographic characteristics (race, gender), with particular attention to the relationship of self-stigma of mental illness and perceived gender role conflict.

Hypothesis 1. There will be no gender differences in baseline stigma.

Hypothesis 2. There will be gender differences in gender role conflict.

Specifically, men will have higher scores on the restrictive emotionality scale and the success/power/competition scale. Men will also have higher scores on the restrictive and affectionate behavior scale. There will be no significant differences on the work/family conflict scale.

Hypothesis 3. There will be a direct effect of gender on outcome and an indirect effect of stigma. The relationship between gender and stigma will be moderated by GRC, such that gender will be significantly related to stigma only in the context of high GRC.

- Both men and women reporting higher gender role conflict will report greater self-stigma of mental illness and worse treatment outcome than individuals who report low GRC. This relationship will be stronger for men.
- Both men and women reporting lower GRC will have lower and comparable levels of self-stigma and comparable outcomes.

CHAPTER 2

METHODS

Participants

Participants were drawn from adults initiating individual psychotherapy at Temple University's Psychological Services Center. Individuals aged 18 and older who have a working knowledge of the English language were included. There were no eligibility or exclusion criteria related to participants' economic status, racial or ethnic identity, or any other demographic characteristics. Participants were not excluded on the basis of presenting problem or primary diagnosis, beyond the general referral policies of the clinic. Typically, clients who report their primary presenting problem to be psychosis or substance use disorder during the initial phone intake are referred out and therefore were not eligible for participation.

The expected sample size of 100 participants provided adequate power for stable random effects (Maas & Hox, 2005). Moreover, for primary aims, in simulations expecting small-moderate effects (d = .30) for the prediction of change across treatment, power was good (.81) to detect significant effects. However, due to the COVID-19 pandemic, the final sample comprised 50 participants, with power to detect significant intercept and slope falling to .46 and .54, respectively. Participants (N=50; 54% female, 4% non-binary; M_{age} = 28.92, SD_{age} = 8.25) completed a baseline/Session 1 assessment between February 2019 and January 2021. Number of attended sessions varied notably across participants (M = 6.74, SD = 3.42), with more than 50% participants completing at least 8 sessions. Participants who dropped out of treatment for any reason (n = 18) did not differ significantly on baseline characteristics from the participants who completed 10

sessions. Participants who terminated treatment early due to perceived improvement as reported by the treating clinician (n = 5) did not differ significantly on baseline characteristics from those who were still in treatment by session 10. Demographic characteristics for the study sample are included in Table 1.

Procedure

Following consent for therapy services, clinic staff informed eligible clients about the opportunity to participate in a research study. If clients expressed interest, the clinic staff obtained their informed consent for participation. Therapists emphasized that client participation in the study would not influence their eligibility to receive treatment. Client participants were informed of the confidentiality of their responses to questionnaires, as well as of the opportunity to sign a release of information form to share their questionnaire responses with their therapist, if they wished, for the purposes of informing treatment planning. Participants were informed of their right to withdraw from the study at any time.

Participants were expected to complete up to 10 psychotherapy sessions at the PSC for the purposes of study participation. Consenting participants completed a set of baseline questionnaires before initiation of clinical services and a set of self-report questionnaires at each subsequent session for up to ten sessions. Questionnaires were administered on paper or online, based on the participants' preference. Participants completed their final study session an average of 9.25 weeks (SD = 6.18) after Session 1.

Table 1. Sample Characteristics

	Mean	*SD*
Age	28.92	8.25
	n	%
Gender		
Female	27	54
Male	21	42
Non-binary	2	4
Race/ethnicity		
White	38	76
African-American	3	6
Asian-American	1	2
Middle-Eastern	1	2
Hispanic	3	6
Multiracial	4	8
DSM-5 diagnosis		
Anxiety	24	48
Mood	18	36
Externalizing (ADHD)	1	2
Adjustment	3	6
Other	3	6
Multiple diagnoses	13	26
No diagnosis	11	22
Z-code	13	26
Treatment history and dropout		
Previous treatment	46	92
Dropout due to early treatment completion	5	10
Treatment dropout by session 2-5	8	16
Treatment dropout after session 1	5	10
Treatment dropout total	18	36

Note: ADHD = Attention-Deficit/Hyperactivity Disorder.

Participants who completed at least 80% of study measures by session 5 received a voucher for two free sessions. Those who completed less than 80% of measures received a voucher for one session. Participants received additional compensation upon completion of their tenth session, similarly prorated based on the proportion of measures completed for sessions 6 to 10.

Measures

Internalized Stigma of Mental Illness Scale

The Internalized Stigma of Mental Illness Scale (ISMIS; Ritsher, Otilingam & Grajales, 2003) is a 29-item scale assessing five facets of stigma of mental illness: alienation, stereotype endorsement, perceived discrimination, social withdrawal, and stigma resistance. Items are rated on a 4-point Likert scale from 1 (strongly disagree) to 4 (strongly agree). Higher scores denote greater stigma. Participants completed this measure at their baseline session ($\alpha = .93$). Additionally, at sessions 2 through 10, participants completed an abbreviated version of the ISMI scale (Boyd, Otilingam, & Deforge, 2014), containing 10 items rated on the same 4-point Likert scale ($\alpha = .87$ at baseline, .75-.93 at remaining timepoints). The ISMIS has shown reliability and validity across a variety of languages and cultures (Boyd et al., 2014).

General Population Clinical Outcomes in Routine Evaluation

General Population Clinical Outcomes in Routine Evaluation (GP-CORE; Evans, Connell, Audin, Sinclair, & Barkham, 2005) is a 14-item measure derived from a larger CORE measure found to be sensitive to clinical and subclinical psychological symptoms in the general population (Evans et al., 2005). GP-CORE items are rated on a 5-point Likert scale from 0 (not at all) to 4 (most of the time). This measure was collected at all

timepoints and had internal consistency of α = .87 at baseline and .83-.94 at remaining timepoints.

PROMIS Social Isolation Scale

The Social Isolation Scale (Hahn et al., 2010) is part of the Patient-Reported Outcomes Measurement Information System (PROMIS), which is an initiative by the National Institutes of Health to develop item banks to easily assess common individual traits and outcomes (Cella et al., 2010). All PROMIS item banks have been calibrated for the general U.S. population. Like all PROMIS measures, the Social Isolation scale is a publicly available measure assessing feelings of isolation in the past week. It consists of eight items, rated on a 5-point Likert scale from 1 (never) to 5 (always). This measure was collected at all timepoints and had internal consistency of α = .95 at baseline and .93-.96 at remaining timepoints.

PROMIS Depression Scale

The PROMIS Depression Scale (Pilkonis et al., 2011; Pilkonis at al., 2014) consists of eight items assessing depression symptoms in the past week, rated on a 5-point Likert scale from 1 (never) to 5 (always). Like other PROMIS measures, this scale has accumulated considerable evidence for its validity and reliability throughout its development process and later use in diverse studies. This measure was collected at all timepoints and had internal consistency of α = .93 at baseline and .92-.96 at remaining timepoints.

General Self-Efficacy Scale

The General Self-Efficacy Scale (GSES; Schwarzer et al., 1995) is a 10-item scale

assessing the optimistic self-belief, i.e., the belief that one can face difficult tasks or cope with adversity. GSES has been translated and used in 33 languages and extensively validated with a variety of populations (Scholz, Doña, Sud, & Schwarzer, 2002). Items are rated on a 4-point Likert scale from 1 (not at all true) to 4 (exactly true). Higher scores indicate greater self-efficacy. This measure was collected at all timepoints and had internal consistency of $\alpha = .86$ at baseline and .79-.89 at remaining timepoints.

Adult Dispositional Hope Scale

The Adult Dispositional Hope Scale (Snyder et al., 1991) is a 12-item scale measuring dispositional hope. It has been widely used with people with mental illness (Schrank et al., 2012). Items are rated on a 4-point Likert scale from 1 (definitely false) to 4 (definitely true). Higher scores represent greater hope. This measure was collected at all timepoints and had internal consistency of $\alpha = .77$ at baseline and .84-.90 at remaining timepoints.

Personal Feelings Questionnaire-Second Edition

The Personal Feelings Questionnaire-Second Edition (PFQ-2; Harder & Zalma, 1990) is a 16-item, 4-point Likert scale, ranging from 1 (definitely false) to 4 (definitely true), with separate subscales assessing shame and guilt. The measure has shown convergent validity with other measures of guilt and shame (e.g., Averill et al., 2002). Only the shame subscale was of interest in the current study. The PFQ-2 was collected at all timepoints, with internal consistency of $\alpha = .88$ at baseline for the shame subscale, and .85-.96 at remaining timepoints.

Gender Role Conflict Scale

The Gender Role Conflict Scale (GRCS; O'Neil et al., 1986) was adapted by Korcuska and Thombs (2003) to include sex-specific items for assessment and comparison of gender role conflict between men and women. Unlike other measures, this scale was administered at session 1 only ($\alpha = .94$). It contains 37 items rated on a 6-point Likert scale from 1 (strongly disagree) to 6 (strongly agree), with higher scores indicating greater gender role conflict (see O'Neil, 2008 for summary of validity and reliability research).

All measures were scored as average item scores.

Data Analytic Plan

All analyses were conducted using R (version 4.0.4, February 2021). Descriptive statistics (see Table 1) were conducted using the stats package (R Core Team, 2018). Multilevel modeling (MLM) analyses were conducted using the lme4 and lmerTest packages (Version 1.1-26, Bates et al., 2015; Version 3.1-3, Kuznetsova, Brockoff, & Christensen, 2017). Distribution of all variables was assessed for normality, skewness, and kurtosis. For Aim 1, we identify the trajectories of change for the main outcomes (psychological distress) and other variables of interest (stigma, shame, self-efficacy, social isolation, hope) across treatment using linear multilevel models. Time was a within-person predictor and was modeled with a random slope. Time was centered at session 1 (T1). For Aim 2, baseline assessment of stigma was used to predict changes in the primary outcome (as indicated by the GP-CORE) in a set of conditional multilevel models. Logistic regression was used to examine effect of baseline stigma on treatment dropout. For Aim 3, multilevel models with indirect effects were used to examine the

mechanism of relationship between ISMI and treatment outcome. Specifically, shame, self-efficacy, hope, and social isolation were tested individually as mediators of the relationship between ISMI and psychological distress using the mediation package (Version 4.5.0, Tingley et al., 2014). Use of multilevel modeling allowed for closer investigation of rates and processes of change, by time-lagging the mediator and outcome for each available timepoint. Gender, gender role conflict and demographic variables were considered as potential covariates based on the literature. Ultimately, small sample size resulted in small group sizes for variables such as race and education level; thus, these variables were not included in the models. Missing data (i.e., for partial completion of outcome measures) was accommodated using full information maximum likelihood estimation.

CHAPTER 3

RESULTS

Descriptive Statistics

Descriptive statistics were obtained for all variables at T1. Table 2 shows the means, standard deviations, skewness statistics and kurtosis statistics. Shapiro-Wilk test of normality indicated that all variables of interest were normally distributed at T1 (>.90, $p > .05$).

Table 2. T1 Descriptive Statistics

T1 Variables	*N*	*Mean*	*SD*	*Skew*	*Kurtosis*
Stigma (long form)	47	1.87	0.46	0.01	-0.94
Stigma (short form)	49	1.78	0.44	-0.03	-1.05
GP-CORE	50	1.98	0.62	-0.13	-0.14
Depression	50	2.93	0.87	0.02	0.37
Social isolation	50	3.05	0.84	-0.58	0.04
Self-esteem	50	2.72	0.48	-0.62	0.67
Hope	49	2.72	0.45	0.08	-0.09
Guilt	50	1.46	0.86	0.23	-0.72
Shame	50	1.55	0.82	0.19	-0.76
GRCS	49	3.45	0.87	-0.26	-0.53

Note: GP-CORE = General Population-Clinical Outcomes in Routine Evaluation. GRCS = Gender Role Conflict Scale.

Baseline Correlations

To examine the pattern of relationships between primary variables of interest at baseline, a correlation matrix was estimated using pairwise deletion. The long-form stigma measure was associated with all study variables. Short-form stigma measure showed somewhat weaker correlations with other study variables and was not significantly associated with depressive symptoms or hope. Please refer to Table 3 for these correlations.

Table 3. T1 Correlation Matrix

	Stigma (long)	Stigma (short)	GRCS	GP-CORE	Depression	Social isolation	Self-efficacy	Hope	Shame
Stigma (long)	1								
Stigma (short)	.94***	1							
GRCS	.61***	.55***	1						
GP-CORE	.55***	.41*	.40*	1					
Depression	.49*	.35	.28	.86***	1				
Social isolation	.47*	.41*	.50*	.58***	.63***	1			
Self-efficacy	-.51***	-.40*	-0.36	-.65***	-.51***	-.47*	1		
Hope	-.41*	-.29	-.12	-.53***	-.50***	-.48*	.64***	1	
Shame	.55***	.49*	.45*	.55***	.57***	.44*	-.29	-.24	1

Note: *p<0.05; ***p<0.001. GRCS = Gender Role Conflict Scale. GP-CORE = General Population-Clinical Outcomes in Routine Evaluation.

Primary Aim 1 – Unconditional Growth Models

Hypothesis 1 - Stigma

Unconditional growth models estimated slope (rate of change over time) and intercept (initial value) for stigma (Table 4). Stigma did not reduce significantly throughout treatment and the rate of change in stigma did not differ across individuals. Variance of the intercept was significant, indicating individual differences in baseline stigma.

Hypothesis 2 – Other Variables

Similar to hypothesis 1, unconditional growth models estimated slope and intercept of other variables of interest to examine trajectories of those constructs over time. Participants showed a significant decrease in social isolation and shame over the course of treatment. Decreases in depressive symptoms and self-efficacy were not significant. Increase in hope was not significant. For all variables, variance of the intercept was significant, suggesting between-subjects differences in the starting values of all constructs. There was small but significant variance in slope for depression, social isolation, self-efficacy, and hope, suggesting individual differences in rates of change.

Hypothesis 3 – Treatment Outcome

As hypothesized, the unconditional growth model indicated that general psychological distress (as measured by the GP-CORE, primary outcome variable) decreased over the course of treatment. Variances of slope and intercept were significant, showing differences between individuals. Please refer to Table 4 for parameters for analyses for Aim 1.

Table 4. Unconditional Growth Models (Random Slopes) for All Study Variables

	Stigma (short form)	Psychological distress (GP-CORE)	Depression	Social isolation	Self-efficacy	Hope	Shame
	Est (SE)	*Est (SE)*	*Est (SE)*	*Est (SE)*	*Est (SE)*	*Est (SE)*	*Est (SE)*
Rate of Change (weeks)	.003 (.003)	-.021 (.007)**	-.021 (.021)	-.029 (.008)**	-.003 (.004)	.005 (.004)	-.019 (.007)*
Initial Value	1.807 (.060)***	1.935 (.090)***	2.863(.118)***	3.033 (.122)***	2.758(.058)***	2.719(.060)***	1.473(.105)***
Random Effects							
Individual (Level 2) Variance[a]	.163*	.355*	.603*	.676*	.148*	.164*	.474*
Rate of Change Variance[b]	.0001	.001***	.003***	.001***	.0003**	.0004***	.001
Residual (Level 1) Variance	.034	.109	.222	.150	.053	.034	.181
Correlation[c]	0	-.47*	-.45*	-.09	-.50*	-.09	-.35
Observations	325	330	332	332	329	322	326
Log Likelihood	-5.274	-190.909	-310.288	-257.149	-64.055	-17.274	-261.117
Akaike Information Criterion	22.548	393.818	632.576	526.299	140.109	46.549	534.234
Bayesian Information Criterion	45.25	416.612	655.407	549.13	162.886	69.196	556.956
ICC	.821	.692	.626	.791	.683	.800	.691

Note: *$p < .05$; **$p < .01$; ***$p < .001$. *a* = $p < .05$ according to profile confidence interval; *b* = $p < .05$ according to multiparameter deviance test; *c* = correlation between intercept and slope, $p < .05$ according to profile confidence interval. ICC = Intraclass Correlation Coefficient. Rate of change (weeks) centered on Session 1 (Week 0), ICC calculated from models without random slope for time. GP-CORE = General Population-Clinical Outcomes in Routine Evaluation.

Primary Aim 2 – Conditional Growth Models and Prediction of Dropout/Early Termination

Hypothesis 1

To examine the relationship between baseline stigma and treatment outcome, multilevel models were estimated using the baseline full-scale stigma variable (ISMI, z-scored) as the between-subject predictor and time as the within-subjects predictor variable. Stigma was used to predict slope (trajectory over time) and intercept (starting value) of the treatment outcome variable (GP-CORE). Psychological distress decreased significantly over time. Greater stigma at baseline predicted greater psychological distress. However, the interaction between baseline stigma and time was not significant, suggesting that the baseline stigma did not have an effect on the rate of change in treatment outcome. See Table 5 for summary of unconditional and conditional models.

To examine the effect of baseline stigma on treatment dropout, logistic regression was conducted using stigma at baseline as the predictor. Greater baseline stigma was significantly related to dropout for any reason (OR = 1.77, 95% CI 1.26-2.49), but not to early termination (e.g., due to improvement in symptoms; OR = 1.58, 95% CI 0.96-2.59).

Table 5. Growth Models of Treatment Outcome (GP-CORE)

	Unconditional model *Est (SE)*	Conditional model (no interaction) *Est (SE)*	Conditional model (with interaction) *Est (SE)*
Rate of Change	-.021 (.007)**	-.021 (.007)**	-.020 (.007)**
Baseline Stigma (z)		.260 (.077)**	.297 (.082)***
Rate of Change*Baseline Stigma			-.008 (.007)
Initial Value	1.935 (.090)***	1.932 (.082)***	1.931 (.082)***
Random Effects			
Individual (Level 2) Variance[a]	.355*	.266*	.268*
Rate of Change Variance[b]	.001*	.001***	.001***
Residual (Level 1) Variance	.109	.112	.112
Correlation[c]	-.47*	-.37	-.38
Observations	330	317	317
Log Likelihood	-190.909	-182.244	-185.603
Aikaike Information Criterion	393.818	378.487	387.206
Bayesian Information Criterion	416.612	404.800	417.277

Note: *$p < .05$; **$p < .01$; ***$p < .001$. *a* = $p < .05$ according to profile confidence interval; *b* = $p < .05$ according to multiparameter deviance test; *c* = correlation between intercept and slope, $p < .05$ according to profile confidence interval. ICC = Intraclass Correlation Coefficient. Rate of change (weeks) centered on Session 1 (Week 0). ICC calculated from models without random slope for time. GP-CORE = General Population-Clinical Outcomes in Routine Evaluation.

Hypothesis 2

To capitalize on availability of longitudinal stigma data, random slope multilevel model was estimated using short-form stigma (ISMI, person-centered) as the predictor of slope and intercept of treatment outcome (GP-CORE). Greater stigma was significantly related to greater psychological distress across time (i.e., at any given timepoint, individuals reporting greater stigma were reporting greater psychological distress). The interaction between stigma and the rate of change in distress was not significant (see Table 6).

Table 6. Effect of Stigma on Psychological Distress (Random Slope Model)

	Psychological distress *Est (SE)*
Stigma (person-centered)	.561 (.155)***
Rate of Change (weeks)	-.022 (.007)**
Stigma x time	.008 (.023)
Initial value	1.925 (.094)***
Random Effects	
Individual (Level 2) Variance[a]	.388*
Rate of Change Variance[b]	.001***
Residual (Level 1) Variance	.094
Correlation[c]	-.58*
Observations	319
Log Likelihood	-171.352
Akaike Information Criterion	358.705
Bayesian Information Criterion	388.826

Note: *$p < .05$; **$p < .01$; ***$p < .001$. *a* = $p < .05$ according to profile confidence interval; *b* = $p < .05$ according to multiparameter deviance test; *c* = correlation between intercept and slope, $p < .05$ according to profile confidence interval. ICC = Intraclass Correlation Coefficient. Rate of change (weeks) centered on Session 1 (Week 0). ICC calculated from models without random slope for time.

Primary Aim 3 – Mediation Models

To examine the mechanism of the relationships between stigma and treatment outcome, a series of mediation models was estimated. Each model included a single mediator of interest (depression, social isolation, self-efficacy, hope, shame) and random slope for time (weeks). It should be noted that the mediator variables do not appear to be fully independent, based on moderate correlations at baseline (see previously mentioned Table 3). Thus, a comprehensive model including all variables of interest would have been more appropriate. However, due to small sample size (further reduced by lagging variables), this analysis was not feasible. Stigma (between person) and the mediator variables (within person) were lagged in order to predict treatment outcome (within person). Contrary to hypotheses, there were no significant mediation paths. See Table 7 for indirect effects and corresponding confidence intervals.

Table 7. Multilevel Mediation Models of Stigma on Treatment Outcome

Mediator	Estimate	SE	95% CI
Stigma → self-efficacy	-.045	.078	
Stigma → treatment outcome	.142	.117	
Self-efficacy → treatment outcome	-.177	.103	
Indirect effect	.008		-.02-.05
Stigma → depression	.188	.175	
Stigma → treatment outcome	.174	.106	
Depression → treatment outcome	.198**	.043	
Indirect effect	.037		-.03-.12
Stigma → social isolation	.122	.151	
Stigma → treatment outcome	.166	.101	
Social isolation → treatment outcome	.281**	.047	
Indirect effect	.034		-.04-.12
Stigma → hope	-.028	.079	
Stigma → treatment outcome	.142	.114	
Hope → treatment outcome	-.363**	.100	
Indirect effect	.009		-.05-.07
Stigma → shame	.150	.153	
Stigma → treatment outcome	.165	.118	
Shame → treatment outcome	.104*	.053	
Indirect effect	.015		-.02-.06

Note: *$p < .05$; **$p < .01$; ***$p < .001$; *SE* = Standard Error; *95% CI* = Confidence Interval.

Supplementary Aim

To contribute to the literature on sociodemographic differences in stigma of mental illness, gender differences in baseline stigma (*z*-scored full-scale ISMI) were explored with an independent samples *t*-test. As hypothesized, there were no significant gender differences in baseline stigma ($t(43) = 0.967$, $p > .05$). A multi-group comparison (male, female, non-binary) was not possible due to small group size for non-binary individuals ($n = 2$). Separate *t*-tests were also conducted for overall Gender Role Conflict Scale and its four subscales, all non-significant. Random slopes multilevel models were also estimated with stigma as the outcome, gender role conflict (GRC) as the main predictor (between person), and time and gender included as covariates. There was a significant main effect of GRC, such that higher GRC was significantly associated with higher stigma. Contrary to hypotheses, the interaction between gender and GRC was not significant when stigma was the outcome of interest.

Additional random slope multilevel models examined the slope and intercept of treatment outcome (GP-CORE) when stigma was a predictor, with time, gender, GRC, and GRC x gender interaction included as covariates. These models consistently estimated significant decreases in GP-CORE over time ($b = -.020$ to $-.022$, $p < .01$) and indicated a significant difference in both intercept and rate of change across individuals. Neither gender nor its interaction with GRC was significantly related to treatment outcome in any of the models. When person-centered stigma was used as the main predictor of treatment outcome at each timepoint, as stigma increased, so did psychological distress. In contrast, baseline stigma was not significantly associated with treatment outcome when gender, GRC, and their interaction were included as covariates.

Gender role conflict (*z*-scored) was also a significant predictor of poorer treatment outcome in a model including person-centered stigma only, but was non-significant in models including baseline stigma (see Table 8).

Table 8. Multilevel Models of Stigma and Psychological Distress with Gender and Gender Role Conflict

	Stigma		Psychological distress		
	Model 1 *Est (SE)*	Model 2 *Est (SE)*	Model 1 *Est (SE)*	Model 2 *Est (SE)*	Model 3 *Est (SE)*
Rate of Change (weeks)	.003 (.003)	.003 (.003)	-.021 (.007)**	-.021 (.007)**	-.022 (.007)**
Intercept	1.889 (.061)***	1.882 (.062)***	1.901 (.118)***	1.962 (.110)***	1.952(.113)***
Gender role conflict (z)	.258 (.045)***	.290 (.059)***	.281 (.102)**	.184 (.127)	.215 (.126)
Stigma (person-centered)			.624 (.103)***		.639 (.105)***
Baseline stigma (z)				.138 (.103)	.117 (.103)
Male[a]	-.099 (.091)	-.101 (.091)	.015 (.156)	-.060 (.151)	-.033 (.151)
GRCS x Male		-.079 (.091)	-.015 (.156)	.065 (.157)	.019 (.155)
Random Effects					
Individual (Level 2) Variance[b]	.077*	.078*	.356*	.260*	.302*
Rate of Change Variance[c]	.0001*	.0001*	.001***	.001***	.001***
Residual (Level 1) Variance	.034	.034	.092	.111	.094
Observations	318	318	312	312	303
Log Likelihood	8.756	7.650	-160.286	-179.465	-157.122
Akaike Information Criterion	-1.512	2.700	340.572	378.931	336.245
Bayesian Information Criterion	28.584	36.558	378.002	416.361	377.096

Note: $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$. GRCS = Gender Role Conflict Scale. *a* = reference group Female. *b* = $p < .05$ according to profile confidence interval. *c* = $p < .05$ according to multiparameter deviance test. Rate of change (weeks) centered on Session 1 (Week 0).

CHAPTER 4

DISCUSSION

The present study examined the longitudinal trajectories of stigma, psychological distress and the relationships between psychological distress as an indicator of treatment outcome, stigma, and related constructs. We found that psychological distress, social isolation and shame significantly reduced over the course of treatment. We did not find significant changes in depression, self-efficacy, or hope. Stigma did not significantly change over the course of treatment. Although the original, 29-item ISMI scale has been shown to be sensitive to change over time, the 10-item version appears to be less sensitive (e.g., Wood, Byrne, Enache & Morrison, 2018). Most notably, consistent with the extant literature, greater stigma at baseline and over time (at each time point) was significantly associated with greater psychological distress (i.e., poorer treatment outcome). However, baseline stigma had no impact on rate of change in psychological distress. Logistic regression analysis results suggest that greater stigma at baseline significantly predicted likelihood of treatment dropout.

The present study attempted to contribute to the extant literature by not only showing an association of stigma and treatment outcome with self-efficacy, hope, shame, social isolation, and depression, but also taking advantage of the longitudinal design to elucidate indirect effects of these constructs. Mediation analyses were not significant, but we were able to confirm cross-sectional baseline associations between stigma, self-efficacy, hope, shame, social isolation and depression previously seen in the literature (Perlick et al., 2001; Corrigan et al., 2006; Livingston & Boyd, 2010). Due to small sample size (further reduced by lagging variables to examine true mediation), a

comprehensive, multiple mediation model incorporating all these variables could not be estimated, so the precise mechanism through which stigma influences treatment outcome remains to be clarified in future studies. Although these results do not support the hypotheses that stigma impacts the rate of change in psychological distress, they highlight the importance of considering stigma as a contributor to subjective distress perceived by psychotherapy clients. Interventions such as Acceptance and Commitment Therapy have been proposed as particularly well-tailored to address the related impacts of shame and stigma, showing reductions in clinical symptoms, distress, and shame or stigma in several studies (Luoma & Platt, 2015). Additionally, the findings suggest that addressing stigma in the initial stages of treatment may be important to preventing treatment dropout.

Given the inconsistencies in the extant literature regarding sociodemographic characteristics and their relationship with stigma of mental illness (Livingston & Boyd, 2010), the present study explored the role of gender through the lens of gender role conflict. Consistent with the (inconsistent) literature, no significant gender differences in stigma emerged. Further, contrary to hypotheses, there were no gender differences in GRC and no significant interactions between gender and GRC with regards to either stigma or treatment outcome. However, partially in line with exploratory hypotheses, greater GRC was significantly associated with higher stigma and poorer treatment outcome.

The present study had several limitations. Most notably, due to the COVID-19 pandemic, recruitment was interrupted and consent rates among telehealth clients were notably lower than in pre-pandemic, in-person clients. As a result, final sample size was

smaller than planned (50 vs. 100), which did not allow for meaningful inclusion of covariates and more fine-grained group comparisons (e.g., across race/ethnicity or diagnosis) or interactions. Additionally, 92% of the sample had a history of previous treatment at some point before recruitment for the study. There is scarce evidence of impact of "standard care" treatment on stigma (Pearl et al., 2016), and the findings on stigma-specific interventions (largely limited to SMI) are mixed (Griffiths et al., 2014; Mittal et al., 2012). Additionally, few studies to date have explicitly examined change in stigma over time (Livingston & Boyd, 2010). Given this limited prior research, it is possible that due to their previous experiences and low stigma levels overall, participants did not experience much change in their stigma levels while in treatment at their current treatment experience, even though they showed significant variability in their starting stigma levels. The final set of limitations has to do with measurement concerns. While the current study is notable for its inclusion of several constructs associated with stigma and treatment outcomes, all measures relied on self-report, which may have introduced issues of shared method variance. This study also did not directly assess functioning/quality of life, relying instead on symptom change and proxy measures, such as social isolation to determine "treatment outcome." Future studies should consider directly assessing outcomes such as quality of life, life satisfaction, occupational functioning and success in achieving important goals (e.g., social or professional). Additional measurement concerns surround the Gender Role Conflict Scale, which, thought extensively used in masculinities research, has not been validated with individuals outside of the gender binary. Finally, it is important to note that this was a short-term longitudinal study: although data collection at every session allowed for a

substantial number of data points, data collection ended before treatment was formally completed for many of the participants. This study format may have obscured the true extent of changes in stigma throughout treatment, as most prior studies finding significant reductions in stigma have used a single follow-up/pre-post design. It is possible that a meaningful decrease in stigma can only be observed along with a substantial drop in psychological distress that happens after more than 10 sessions. Alternatively, it has been posited (e.g., Pachankis, 2007; Pearl et al., 2016) that the mere fact of being in treatment may activate negative stereotypes and self-evaluative mechanisms related to self-stigma, so it is possible that the reduction in stigma is only observed near the point of completion of treatment (often coinciding with substantial symptom reduction, as mentioned above).

Despite these limitations, the present study contributes to existing literature by offering a longitudinal view on trajectories of stigma and treatment outcome, and their relationships with related constructs across time. The findings from this study provide further support to previous research linking self-efficacy, hope, social isolation, and shame to stigma and therapy outcome. Most notably, the present study is one of very few examining stigma and treatment outcome in non-intensive, outpatient setting, with clients presenting with a variety of psychological concerns that have not been classified as serious mental illness (SMI). Future studies should continue to utilize multilevel models with larger samples, thus allowing for a more nuanced view on these relationships and, ideally, direct comparisons of the role of stigma in recovery from SMI and other mental health concerns. Building on the findings that stigma negatively impacts levels of psychological distress, future studies should consider the practically relevant question of whether directly intervening on stigma in treatment may contribute to faster/greater

change in psychological distress and help clients achieve better treatment outcomes, not only in terms of symptom/distress reduction but also functionally.

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