Whose Eyes Are We Seeing Through?: A Proposed Investigation of the Effect of Self-Stigma Reduction Therapy on Quality of Life and Clinical Symptoms in Individuals Living with Schizophrenia

Senior Project Submitted to

The Division of Science, Mathematics, and Computing

of Bard College

by

Clara Griffin

Annandale-on-Hudson, New York

May 2020

Acknowledgements

To Justin Hulbert, I would like to share my sincere gratitude to you for demonstrating an unparalleled dedication to assisting in the methodical process of drafting, revising, and reviewing writing process. Your direct and highly specified feedback has been invaluable and I deeply appreciate the time you have taken to respond to questions, concerns, and discuss the academic drafting process.

To the other psychology professors who assisted me on my journey here, including Frank Scalzo, Justin Dainer-Best, Sarah Dunphy-Lelli, and Kristin Lane: Your support and guidance has been monumental and I'm proud that I have been able to connect with you both in and outside the classroom over the past few years. Your sincere dedication to fielding inquiries both on senior projects and in regards to future graduate studies has been second to none.

"The problem with the stigma around mental health is really about the stories we tell ourselves as a society."-Matthew Quick

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Abstract

Schizophrenia is a serious condition that results from the dysregulation of critical neurotransmitters in the brain, namely dopamine, and serotonin. Although schizophrenia remains one of the most stigmatized mental health disorders, there is ample scientific evidence that the progression of the disease is manageable and does not have to impair the afflicted individual from living an average life, especially with effective treatment. In fact, the key difference between a brain with and without schizophrenia is merely the ability to separate reality from excess neural activity triggered by the chemical imbalance of dopamine and serotonin. Since the discovery of schizophrenia, researchers have found an increasing number of environmental, genetic, neurological, and interpersonal factors that influence its pathology, treatment, and phenomenology. Recent research examining the effectiveness of clinical and pharmaceutical treatments for schizophrenia have found that, compared to either treatment type alone, combining both results in the greatest reduction of clinical symptoms and enhancement of quality of life. Specifically, atypical antipsychotics (that decrease the heightened transmission of dopamine and serotonin) together with cognitive-behavioral therapy have been found to be relatively effective in stimulating recovery. One of the newest forms of cognitive-behavioral therapy that has been utilized to improve the quality of life and ability to function in daily life, and to reduce symptomology and self-stigmatizing beliefs in patients diagnosed with schizophrenia, coined “self-stigma reduction cognitive-behavioral therapy” enhances the therapeutic benefits of cognitive-behavioral therapy by mitigating the negative psychological effects of stigmatization, primarily lowered self-esteem, self-efficacy, and treatment adherence. Thus, I am proposing a research design in which antipsychotics, cognitive-behavioral therapy, and self-stigma reduction cognitive behavioral therapy will be compared on their

effectiveness in improving and reducing the previously mentioned indicators of clinical recovery from schizophrenia.

Keywords: schizophrenia, self-stigma reduction, cognitive-behavioral therapy, antipsychotics

Introduction

General Introduction to Schizophrenia

When we hear the word "schizophrenia" brought up, what other adjectives are recalled soon after? Most likely, not particularly positive or even tolerant ones if you have not developed a personal connection with someone who has schizophrenia. Over time, learning to love someone with a serious mental health condition entails challenging the most common stereotypical beliefs society has conditioned us to unconsciously retain. Of course, most of us do not purposefully intend to worsen the clinical prognosis, lower self-esteem, reduce financial stability, stimulate the emergence of additional psychiatric conditions, socially distance, and contribute to the unemployment of individuals with schizophrenia. But how does living under these labels, categories, and Diagnostic and Statistical Manual of Mental Disorders, 5th Edition serial numbers actually change the public and self stigmatization of the mentally "ill" individual shift as a result? These questions need to be answered if we care about the progression of the United States towards a more accepting and caring diversity--if our communities have continued to bond together to work on decreasing stigma based on gender or ethnicity, why not try to challenge our preconceived associations (assuming they are negative) about individuals who fall under the category of mentally "abnormal"? After all, approximately 50% of us will meet the Diagnostic and Statistical Manual of Mental Disorders, 4th edition, criteria for a diagnosable mental illness by the time we reach 75 (Kessler et al., 2005). More importantly, why not encourage the people we care about in our lives

who may be considered mentally ill to challenge the negative beliefs they integrated into their self-concept?

Schizophrenia is not a rare disorder. In fact, every one of us has likely met far more people than we may think who either have schizophrenia or will go on to develop it given that, on average, this severe disorder affects about 1% of the world's population (Insel, 2010). Although more commonly diagnosed conditions such as anxiety and depression--respectively 6.7% and 4.4% (*Depression and Other Common Mental Disorders Global Health Estimates*, n.d; Jablensky, 2010) worldwide per year as of 2014) have been convincingly depicted within ancient Greco-Roman literature and mythology by today's criteria, schizophrenia was not identified until 1887 by German physician Emil Krapelin (Baxter, 2012; Crocq, 2015; Evans, 2003). Compared to many other more common mental disorders such as depression and anxiety, researchers and clinicians have found it much more challenging and controversial to advocate for one universal criterion of schizophrenia, given the diversity and profound affects the disorder has on multiple domains (Jablensky, 2010).

Moreover, recent meta-analyses aiming at identifying the symptomatology and prognosis of schizophrenia have shown that individual risk factors can lower at age at which the onset of schizophrenia occurs and its prevalence, including birth complications (particularly fetal hypoxia) cannabis use, childhood trauma and stress of the mother during the first trimester, infectious agents (notably influenza infection of the mother during pregnancy and early prenatal exposure to measles), migration, being born in an urban environment among other factors. Notably, recent technological advances that enable researchers to compare genotype and allele frequencies to millions of polymorphisms has shown that schizophrenia primarily results from the complex interaction of individual genetics with the environment of the individual. Some researchers have

hypothesized schizophrenia is 80% heritable as well, making it the mental disorder most associated with genetics today (Serý, n.d.).

Schizophrenia in Relation to Stigma

For clarification purposes, "stigma" can be defined as an "attribute that links a person to undesirable characteristics called stereotypes, according to Jones, 1984 and discrimination can be defined as the active rejection and exclusion of stigmatized individuals from society according to Link & Phelan, 2001. Moreover, "self-stigma," which has been strongly linked to individual experiences of public stigma, is commonly classified by researchers as a psychological process by which an individual internalizes negative stereotypes about mental illness, which results in "self-prejudicial and self-discriminatory reactions that turn in against oneself" (Fung et al., 2008). Researchers investigating stigma in relation to mental illness have concluded that public stigma and self-stigma are the two major forms in which stigmatization of people with mental illnesses occurs (Corrigan, 2004). Additionally, the term "discrimination" refers to a behavioral response to "prejudice", an agreement with a negative belief and a subsequent negative reaction that arises in response (Corrigan & Watson, 2002).

Studies from different countries on the stigmatization of mental health diagnosis have consistently ranked schizophrenia as one of the most stigmatized mental health conditions along with substance use disorders. In fact, the negative associations both the public and the professional community attribute to schizophrenia has been well documented to not only affect patients, but their support network of family. One study reported that 38.6% of patient's relatives reported experiencing stigmatization within the context of psychiatric treatment (such as lack of collaboration with professionals, inadequacy of service structures, and shortage of effective

treatments) versus 7.5% of the patients. In terms of experiencing negative attitudes and prejudice by the community, 28.8% of patients reported at least one significant occurrence compared to 1.3% of relatives. Finally, 24.4% of patient's relatives were able to describe the effect the patient's self-stigmatizing concept had on their self-perception, compared to only 7.5% of patients (Buizza et al., 2007). These differences in insight between relatives and patients in terms of how stigmatization affects their lives indirectly through their own internalization of direct public stigmatization, and how susceptible patients are to being discriminated against within institutional systems of care. Given this empirical observation, the importance of integrating psychosocial techniques for treating schizophrenia, such as self-reduction cognitive-behavioral therapy in order to assist the patient in understanding the multidimensional effects of stigma within their own lives is critical to improving the outcome of treatment overall.

Self-stigma is not a short-term or uncommon occurrence among the clinical population of individuals living with schizophrenia spectrum disorders. In fact, the majority of this population experience both significant self-stigma and resilience against their own self-stigmatizing beliefs while afflicted with schizophrenia (Gerlinger et al., 2013). Developing therapeutic options to assist patients in resisting their own self-stigmatization, and stigmatization from others which can be frequently internalized is paramount to treating schizophrenia-- as self-stigma currently has a significant counterproductive effect on the therapeutic and pharmaceutical benefits offered by mainstay treatment options (Tang & Wu, 2012; Tsang et al., 2010; Vauth et al., 2007).

Moreover, researchers conducting a meta-analysis on several categories of psychological phenomena distinct to self-stigma found that an weighted average of 52.6% of patients experience "stigma resistance" (an individual's capacity to counter stereotypes linked to schizophrenia), 49.2%

experience “alienation (shame)”, 26.8% experience stereotype endorsement/agreement, 35.2% experience “self-decrement, self-esteem decrement”, and overall 41.7% experience general self-stigma (Gerlinger et al., 2013). Given that the “negative symptoms” of schizophrenia are partially identifiable by an individual’s diminished ability to exhibit the neurotypical social and cognitive behaviors that are used to maintain social relationships-such as outward emotional expression and verbal expression (Correll & Schooler, 2020). Unfortunately, reduced functionality in these domains negatively impacts a patient’s ability to form healthy, supportive relationships that can negate the burden of psychopathological symptoms on the patient. Thus, an incredibly important component of therapeutic approaches, particularly cognitive-behavioral therapy, is to treat these symptoms of schizophrenia within a bio-psycho-social framework to treat schizophrenia by teaching patients social skills along with either personal or family/group therapeutic services (Rector & Beck, 2001).

To complicate matters, 47% of people diagnosed with schizophrenia in the United States are only treated with only antipsychotic medication (Cascade et al., 2008). Psychiatric consultation does not include social, occupational, or cognitive rehabilitation, which people diagnosed with schizophrenia could heavily benefit from given that schizophrenia affects their functioning in all of these domains. Atypical psychiatric consultation is not designed to address the numerous negative side effects of schizophrenia, but rather a “comprehensive evaluation of the psychological, biological, medical, and social causes of distress” (Psychiatric Consultations, 2017).

Additionally, as of 2010, the National Institute of Mental Health estimated that 40% of people living with schizophrenia in the United States did not receive treatment whatsoever (NIMH, 2018). The profound lack of treatment availability, not to mention therapeutic options for patients

speaks to the deeply discriminatory attitudes both the American public and clinical providers share towards schizophrenia. A highly relevant example of this bias is the highly stereotyped representation of schizophrenia in mainstream movies: in one study, out of 42 characters living with schizophrenia from 41 movies, a majority displayed violent behavior towards themselves or others, one third displayed homicidal behavior, and one fourth committed suicide (Owen, 2012). In actuality, the percentage of people diagnosed with schizophrenia that commit homicidal acts, according to one study of 1594 homicide offenders-5%, suggests that the vast majority do not actively commit violent acts (Silverstein & Pozzo, 2015).

The Global Burden of Disease Study coordinated by the Harvard School of Public Health, the World Health Organization that assessed the overall mortality and daily functional impairment from a variety of physical and mental health conditions concluded that schizophrenia is the 11th leading cause of the global burden of disease in terms of global financial loss (Lopez et al., 2020). This figure is due in large part to the intense public and self stigma patients face as a result of their diagnosis, treatment, side-effects from their psychiatric medication, display of their "negative" and "positive" symptoms (which mainly include visual, auditory, olfactory, or tactile hallucinations and delusions), or impairments in meeting the expectations of others in various societal roles, such as within a family or workplace.

In one study previously referred to (Gerlinger et al.., 2013) that conducted a meta-analysis of 54 highly validated studies on patient's perception of stigma, a cumulative average of 64.5% of individuals reported anticipating or perceived stigma directed at them. There exists empirical evidence that self-stigma is a mediating factor between the perception of stigmatization and all other psychosocial outcomes (Picco et al., 2017). These psychosocial domains can include hope for

recovery, individual self-esteem, and self-empowerment to persist with available treatment options (Livingston & Boyd, 2010). Moreover, the detrimental effects of both self-stigma and perceived stigma (anticipation of facing stereotypes from others) are highly interconnected, as they can both result in patients attaching less "care" to seeking the potential assistance offered by psychiatrist or general practitioners (Pattyn et al., 2014). The care patients attach to seeing a provider also is intertwined with gender and racial dynamics due to the differing anticipation of the severity of stigmatization towards receiving psychiatric treatment within different subgroups based on race or sex. A very recently published study found that individuals who had multiple marginalized groups, both externally identifiable like race and sex, and unobservable (history of family abuse or incarceration for example) had a significantly worse reported quality of life and poorer health due to greater disengagement with clinical services--a correlation which was partially mediated by anticipation of stigmatization and self-stigma (operationalized as "brooding rumination" about their marginalized identities (Reinka et al., 2020).

To further emphasize the importance of the severity of self-stigma, along with socioeconomic factors that amplify its psychosocial effects, another research finding demonstrated the correlation between actual experiences of stigmatization with anticipation of stigma and greater internalized stigma (Quinn et al., 2015). indicating that each form stigma takes is a component of a larger feedback loop that can progressively worsen the prognosis of a patient with schizophrenia unless they receive treatment, such as self-stigma reduction cognitive behavioral therapy (which will be outlined later in this paper), that provides patients with the psychological skills and tools to resist both self and public stigmatization. Empirically, the profound psychological benefits of

self-stigma reduction, including better treatment participation and cooperation with treatment providers.

Additionally, treatment participation is associated with less severe psychiatric symptoms, better global functioning, and better insight into the beneficial effects of medication. Reduced treatment participation was associated with higher agreement with self-stigmatizing ideas, self-esteem degradation, and poor insight into individual illness (Tsang et al., 2010). Thus, therapeutic treatments that are tailored to the needs of the patient to reduce self-stigma are crucial for improving and sustaining the rates of recovery and in preventing relapses in patients with schizophrenia. This is highlighted by the conclusions of one study that administered a battery of questionnaires on experienced stigma, external shame, social rank, personal recovery, positive symptoms, depression, and anxiety to fifty‐two individuals experiencing stigmatization and psychosis. The study found that stigma is significantly related to shame (social rank and external shame) emotional distress/reduced personal recovery, external shame mediated the relationship between experienced stigma and depression in psychosis, and social rank mediated the relationship between experienced stigma and personal recovery (Woods & Irons, 2017).

As it stands, pharmaceutical treatment alone is not sufficient for addressing the multidimensional effects that schizophrenia has on an individual's life--namely their social, occupational, and cognitive functioning. Moreover, the high prevalence of negative and highly stigmatized side effects, such as weight gain or mobile tardive dyskinesia (repetitive, involuntary movements), and socioeconomic challenges (for example accumulative medical costs with the continued duration and/or administration of multiple antipsychotics) have been found to result in significant treatment nonadherence, public and self stigma, and can greatly reduce overall physical

health, especially in elderly patients or patients with prior cardiovascular/auto-immune conditions (Stroup & Grey, 2018). A meta-analysis examining the clinical and economic consequences of taking an atypical antipsychotic for one year found that an average prescription of an antipsychotic can range from $793 (risperidone) to $2204 (aripiprazole). In addition, it was found that one-third of patients would experience a relapse requiring hospitalization and 40% of patients would experience a relapse that did not require hospitalization within a year of being prescribed an oral atypical antipsychotic (Edwards et al., 2008).

In other studies, treatment nonadherence to atypical antipsychotics was over 60% for every medication examined (Lieberman et al., 2005) and rates of rehospitalization or relapse ranged from 30% after 1 year to 80% after 5 years. In total, two-thirds of the cost of treatment over the span of one year were due to rehospitalization costs, and approximately 20% were due to medication (Dossenbach et al., 2005; Gumbly et al., 2006; Robinson et al., 2009). Treatment adherence without any other intervention is less than the majority as well: only 61% of patients living with schizophrenia had difficulty adhering to their prescribed antipsychotic over the period of 4 years in one study (Valenstein et al., 2020).

Moreover, the severity of extrapyramidal side effects that can occur with atypical antipsychotic medication in patients living with schizophrenia have been positively correlated with a poorer quality of life, shorter life expectancy, longer duration of schizophrenia, abandonment of therapy, discontinuation of pharmaceutical treatment. Any one of these outcomes, not to mention multiple, can result in a patient experiencing a relapse of schizophrenia, re-hospitalization, and significantly increased public and self-stigmatization (Caroff et al., 2011; D'Souza & Hooten, 2019; DiBonaventura et al., 2012; Inada et al., 1992; Stroup & Gray, 2018' Wubeshet et al., 2019). The

degree to which extrapyramidal side effects reduce the efficacy of treatment of schizophrenia in the United States cannot be understated--for example 42% of patients living with schizophrenia became non-compliant with pharmaceutical treatment within 2 years of starting treatment due to extrapyramidal side effects (Kane, 2001). In patients treated with atypical antipsychotics, 90% reported other significant metabolic side effects such as weight gain, salivation, and drowsiness (Jenkins et al., 2005). Studies have shown that the common metabolic side effects that can frequently occur with a prescription of second-generation antipsychotics are heavily stigmatized side effects one of the main factors in treatment noncompliance, even if the treatment is effective due to the patient's feelings of self-stigma including demoralization, impairment in the workplace, physical discomfort, and shame relating to social stigmatization (Novak & Švab, 2020).

However, in studies that focused on the clinical and economic consequences of combining pharmaceutical and therapeutic treatments, researchers found that therapeutic interventions designed to improve antipsychotic adherence did result in a significant improvement in adherence to medication in 15 of the 23 total psychosocial interventions that were analyzed. Other significant improvements that were noted in patients treated with both pharmaceutical and psychosocial treatments included reduced psychopathology, reduced hospitalization, reduced rates of relapse, improved social function, and improved insight into the need for treatment compared to patients treated with pharmaceutics alone (Dolder et al., 2003).

In terms of economic incentive to combine treatments, the cost of treatment overall per disability-adjusted life year was reduced 40% compared to the costs of pharmaceutical treatment alone. One major concern of psychiatrists is maintaining the effectiveness of the antipsychotic treatment over the long-term, as individuals living with schizophrenia generally need to continue

taking antipsychotic medication for at least one to two years after a relapse, and up to 75% of patients experience a relapse within 12 to 18 months of discontinuing antipsychotic medication, assuming that is their only form of treatment (Correll et al., 2018).

Thus, the improvement in treatment adherence and reduction in economic obstacles to receiving treatment can be theorized to improve overall prognosis of individuals living with schizophrenia while directly reducing self stigma through the teaching of psychosocial techniques to resist stigmatization and to reduce psychopathology by lessening the value that is placed on the distortions of reality that occur with schizophrenia, as specifically taught in cognitive-behavioral therapy (Doler et al., 2003). Without adjunct therapeutic treatment to address the profound psychological complications and symptoms of schizophrenia, pharmaceutical treatment alone is prone to result in low recovery rates and high rates of rehospitalization and relapses. However, in conjunction with pharmaceutical intervention, studies have reported numerous psychosocial effects that result from patient's awareness of the stigmatization within their lives on multiple dimensions in the clinical, public, and private (from family or friends) sphere treatment noncompliance, reduced self-esteem and self-efficacy, reduced quality of life, fewer economic obstacles to treatment adherence, and reduced social isolation (Tang & Wu, 2012)

The most concrete evidence that stigma profoundly harms the physical and mental wellbeing of individuals living with schizophrenia is the empirical data gathered from inpatients and outpatients dealing with schizophrenia. One study that interviewed seventy four stable outpatients who received treatment for schizophrenia in the United States found that 70% of the participant sample feared being viewed unfavorably because of they were receiving treatment for schizophrenia, 58% avoided telling others about their symptoms, 55% reported hearing offensive

statements about their illness, and forty three percent reported viewing offensive posts about psychiatric disorders on public social media accounts (Dickerson et al., 2002). Strikingly, self-reports of significant public stigmatization do not appear to be culturally bound, as another survey completed in Hong Kong reported that forty eight percent of the sample of individuals living with schizophrenia stated they faced medication-induced stigma, and forty four percent reported experiencing adverse events during hospitalization. The author discovered that experiencing stigmatizing experiences was positively correlated to clinically disruptive future events, including the unwelcome disclosure of illness, workplace difficulties, family rejection, and treatment non-adherence (Lee, 2002). Importantly, as one can infer that a higher level of public stigmatization could lead to self-stigmatizing experiences, repeatedly experiencing public stigmatization could further accelerate and reinforce the severity of self-stigmatization of an individual with schizophrenia.

Although public and self-stigma do pose a significant risk to the mental health of individuals suffering from schizophrenia, researchers have demonstrated that individuals living with a severe mental illness often have a high resilience, or ability to counteract a stigmatizing message. In one study, two thirds of participants who had previously been diagnosed with schizophrenia or schizoaffective disorder demonstrated high resistance towards measures of perceived devaluation and discrimination. A high resistance to stigmatizing messages was positively correlated with self-esteem, empowerment, quality of life, and negatively correlated with stigma measures and depression, both factors that can worsen the prognosis for schizophrenia. Hence, psychotherapeutic models of treatment for schizophrenia that focus on the patient employing their own inner resources to challenge their self-stigmatizing beliefs and focus on their strengths, as in self-stigma reduction

therapy, has been shown to improve the cognitive and emotional capabilities of patients along with enhancing readiness for change and and promoting adherence to antipsychotic medication (Fung et al., 2011; Sibitz et al., 2009).

Clinical Presentation of Schizophrenia

For diagnostic and practical purposes, the symptoms of schizophrenia have been classified into "positive" or psychotic and "negative" symptoms. Positive symptoms include delusions, conceptual disorganization (or disordered patterns of thought or speech), hallucinatory behavior, excitement, grandiosity, suspiciousness, and extreme moodiness including paranoia related to the distorted perception of reality. Negative symptoms include blunted emotional reactions or expression (especially in realms of motivation/pleasure through facial expressions or vocal tone and in strategically acting in accordance with plans), poverty of speech (lack of spontaneity and flow of conversation), emotional withdrawal, poor rapport, passive-apathetic social withdrawal, difficulty in abstract thinking, anhedonia, and stereotyped thinking (NIMH, 2020). The cognitive symptoms of schizophrenia can include difficulty processing information to make decisions, difficulty implementing information immediately after using it, and difficulty maintaining focus, memory, and attention.

The Diagnostic and Statistical Manual, 5th edition has set the criteria for schizophrenia as "The presence of 2 (or more) of the following, each present for a significant portion of time during a 1-month period (or less if successfully treated), with at least 1 of them being (1), (2), or (3): (1) delusions, (2) hallucinations, (3) disorganized speech, (4) grossly disorganized or catatonic behavior, and (5) negative symptoms: 1) For a significant portion of the time since the onset of the disturbance, level of functioning in 1 or more major areas (eg, work, interpersonal relations, or

self-care) is markedly below the level achieved before onset; when the onset is in childhood or adolescence, the expected level of interpersonal, academic or occupational functioning is not achieved. 2) Continuous signs of the disturbance persist for a period of at least 6 months, which must include at least 1 month of symptoms (or less if successfully treated); prodromal symptoms often precede the active phase, and residual symptoms may follow it, characterized by mild or subthreshold forms of hallucinations or delusions. 3) Schizoaffective disorder and depressive or bipolar disorder with psychotic features have been ruled out because either (1) no major depressive, manic, or mixed episodes have occurred concurrently with the active-phase symptoms or (2) any mood episodes that have occurred during active-phase symptoms have been present for a minority of the total duration of the active and residual periods of the illness. 4) The disturbance is not attributable to the physiologic effects of a substance (eg, a drug of abuse or a medication) or another medical condition. 5) If there is a history of autism spectrum disorder or a communication disorder of childhood onset, the additional diagnosis of schizophrenia is made only if prominent delusions or hallucinations, in addition to the other required symptoms or schizophrenia are also present for at least 1 month (or less if successfully treated) (NIMH, 2020). For clinicians to fully rule out other disorders similar in symptomatology, disorders such as heavy metal toxicity, adverse effects from drugs, and vitamin deficiencies must be ruled out.

In addition to the assessment of the main diagnostic criteria previously mentioned, a clinician should conduct separate assessments of cognition, depression, and mania to separate a diagnosis of schizophrenia from other psychotic disorders, such as manic-depression. To quantify the timeline of the psychotic episode, a clinician would classify psychotics episodes into: First episode, currently in acute episode, First episode, currently in partial remission, First episode,

currently in full remission, Multiple episodes, currently in acute episode, Multiple episodes, currently in partial remission, Multiple episodes, currently in full remission, Continuous, and Unspecified. The final part of the diagnostic assessment would include determining whether the patient has the separate diagnosis catatonia (a behavioral syndrome marked by an inability to move normally) which is highly associated with schizophrenia, and the current severity of the disorder is specified by evaluating the primary symptoms of psychosis and rating their severity on a 5 point scale from 0 (not present) to 4 (present and severe).

The updates to the diagnostic description and criterion of schizophrenia have been praised by clinicians and researchers for eliminating the diagnostic relevance of bizarre delusions for schizophrenia due to the difficult differentiation between bizarre and not bizarre , emphasizing two "negative" symptoms under the umbrella of cognitive impairment that have shown increasing evidence as typical in patients living with schizophrenia, and the replacement of designating schizophrenia into subtypes with a dimensional scale, acknowledging the extreme diversity and interconnectivity of individual psychopathology under the diagnosis of schizophrenia (Biedermann & Fleischhacker, 2016). However, numerous critiques of the DSM5 given by mental health advocates, researchers, and mental health professionals have pointed out that the classification of schizophrenia perpetuates the negative stigmatization of schizophrenia with an overemphasis on a limited, biomedical origin of the disorder (Wong, 2013).

Many psychotherapeutic techniques refute a strictly biomedical understanding of schizophrenia in favor of a more holistic understanding that takes into account the individual psyche, social, communal, and environmental factors that have been empirically proven to influence the course of schizophrenia. Additionally, both clinicians and patients challenge the prominent

ideology behind the DSM criteria for schizophrenia that they are “outside” the normal human spectrum of emotional expression or capacity, because there are many examples of extremely gifted and successful individuals living with schizophrenia who have been treated with medication, therapy, or a combination of the two.

Risk Factors for Schizophrenia

The risk factors for developing schizophrenia are numerous: currently the National Institute for Mental Health has identified, with the help of researchers, over 250 places in the genome that contribute to an overall risk of schizophrenia, largely hereditary, as studies demonstrating the risk for developing schizophrenia increases with the number of close relatives diagnosed with the disorder. In twin studies, schizophrenia has been shown to affect both members of identical twin pairs (who share 100% of their DNA) in 41% to 61% of cases, but only 0% to 28% of nonidentical twin pairs (who share 50% of their DNA) (Hilker et al., 2018). While the risk of developing schizophrenia is 1% in the population, is it 10% for individuals with first degree relatives with the disorder, and 48% in individuals who have two parents living with schizophrenia (Gottesman, I.I, 1991).

In recent studies, environmental factors, such as poverty, urban living environments, exposure to viruses or nutritional deficiencies before birth, and living under stressful circumstances have also been considered risk factors in the development of schizophrenic spectrum disorders. Specifically, numerous studies have reported an excess of pregnancy and birth complications that occurred in patients living with schizophrenia. Other researchers have found that “soft neurological signs" of schizophrenia exists in both pre schizophrenic children and adults, including more postural and upper limb movement abnormalities, mixed handedness, social maladjustment

compared to peers, significantly lower IQ scores (which did not decrease in one study that retested patients twenty years after their first IQ test). Urban living environments are significantly correlated with the development of schizophrenia as individuals are more likely to experience social isolation (Goldberg & Morrison, 1963). Migration is seen as a risk factor (most specifically for African-Caribbean children who migrated to England, but not their parents or white peers in one study) as it increases the risk of early social adverse experiences such as being raised in foster homes and early behavioral disturbances (Gilvarry et al., 1999).

Social stress has been linked to both the onset and relapse of schizophrenia, a theory that has been difficult for researchers to conclusively prove. In terms of drug use, individuals who consume cannabis, but not other drugs, were found to be twice as likely to develop psychotic symptoms over their lifetime: one Swedish study specifically found a direct correlation between the amount of cannabis consumed and the likelihood of developing schizophrenia (Andreasson et al., 1987). The same study illustrates the environmental factors most likely to increase the risk of developing schizophrenia as depicted in Figure 1 in the appendix.

Typically, the symptoms of schizophrenia develop around late teen years to early thirties, with males typically experiencing an earlier onset by late twenties compared to women. The symptomatology of schizophrenia has been shown to begin with gradual changes in thinking, mood, and social functioning after an initial episode of psychosis, in which the sufferer experiences a complete disconnect with reality in the form of hallucinations or delusions, usually first occurring in mid-adolescence. Although it is possible for young children to experience schizophrenia, it is a rare phenomenon, and symptoms may differ from adolescents or adults in presentation. In addition

to the aforementioned positive and negative symptoms, a patient with schizophrenia is more likely to have differences in brain structure and function.

A recent study that performed numerous MRI scans of the brains of people diagnosed with schizophrenia found that these patients displayed significant reductions in gray matter within the bilateral insula/inferior frontal cortex, superior temporal gyrus, anterior cingulate gyrus/medial frontal cortex, thalamus and left amygdala. Additionally, in white-matter analyses of volumetric and diffusion-weighted images, schizophrenia was associated with decreased FA and/or WM in interhemispheric fibers, anterior thalamic radiation, inferior longitudinal fasciculus, inferior fronto-occipital fasciculus, cingulum and fornix. In examining confounding variables that could have led to these results, male gender, chronic illness and negative symptoms were associated with more severe GM (gray matter) abnormalities and illness chronicity was associated with more severe WM (white matter) deficits. The meta-analyses revealed overlapping GM and WM structural findings in schizophrenia, characterized by bilateral anterior cortical, limbic and subcortical GM abnormalities, and WM changes in regions including tracts that connect these structures within and between hemispheres. However, the available findings are biased towards characteristics of schizophrenia samples with poor prognosis (Bora et al., 2011).

Section 2

Rewiring the Brain: Atypical Antipsychotics at Work

Second generation antipsychotics were formulated in the 1980s to reduce the most serious extrapyramidal side effects compared to first generation antipsychotics, in their partial, rather than permanent, modulation of both the dopamine (D2) receptors and serotonin (5-HT2A) receptors (Solmi et al., 2017). Nonetheless, previous literature has shown that second-generation

antipsychotics are not significantly more effective at reducing positive symptoms than first-generation antipsychotics (Lally & MacCabe, 2015). Currently in the United States, there are 11 FDA approved second-generation antipsychotics and have recently become the main treatment choice for youth dealing with early-onset schizophrenia spectrum disorders. This class of medications can also be used as a treatment for bipolar disorder and less commonly, severe depression (*Atypical Antipsychotics | MHA Screening – Mental Health America*, 2011). However, there still only remains one second-generation antipsychotic that has shown to be effective for treating treatment-resistant schizophrenia, clozapine, which has shown to be more effective in reducing the positive and negative symptoms, decreasing the days patients spend hospitalized.

However, 50% to 70% of patients with schizophrenia can be expected to experience at least one serious side effect from antipsychotic medication (Desai et al., 2018; Wubeset et al., 2019). Second and first generation antipsychotics treat the symptoms of schizophrenia through the antagonism of the dopamine receptor, which increases the neurotransmission of acetylcholine (Li et al., 2016). The main empirical finding that led to the development of "atypical antipsychotics" (second-generation antipsychotics), which are serotonin antagonists as well is the *dopamine-serotonin hypothesis* that concluded lysergic acid diethylamide (LSD) enhanced the effects of serotonin in the brain. In the United States, atypical antipsychotics are typically selected as the first line pharmaceutical treatment over "typical" antipsychotics, which target dopamine receptors alone, because they are associated with significantly fewer "extrapyramidal" (D'Souza & Hooten, 2019) adverse drug effects.

Previous research has shown that atypical antipsychotics typically have metabolic side effects, including weight gain, hyperlipidemia, and diabetes, which has contributed to the increased

risk of cardiovascular failure in individuals living with schizophrenia. Moreover, as schizophrenia is linked to other factors that can compound the risk of developing cardiovascular issues, such as frequent smoking, high-fat diet, neglect of personal care, and institutional barriers to physical treatment (partially due to stigma), tracking the medical health of patients prescribed atypical antipsychotics is critical for their physical and mental wellbeing (Patel et al., 2014).

The so-called “newer class” of antipsychotics are now the first-line psychiatric treatment for schizophrenia because they address the positive symptoms of schizophrenia as least as effectively if not more so than first-generation antipsychotics (Leucht et al., 2009; Suzuki et al., 2011; Zhang et al., 2013). Additionally, in some studies, second-generation antipsychotics have been shown to reduce the severity of negative and cognitive symptoms with small to moderate efficacy, varying by prescription, compared to first-generation antipsychotics or placebos in previous single blind randomized controlled trials (Carpenter et al., 1988; Pagsberg et al., 2017; Corbo et al., 2017). In other studies--including several meta-analyses--the efficacy of second-generation antipsychotics over first-generation antipsychotics in the reduction of negative symptomatology is inconclusive, or in other words, researchers only found a small or nonsignificant effect size (Fusar-Poli et al., 2015; Veerman et al., 2017).

Moreover, authors who compared first generation to second generation antipsychotics in previous literature found that there was either a small or nonsignificant effect size in the reduction of extrapyramidal side effects (Crossley et al., 2018; Peluso et al., 2012; Veerman et al., 2016). The small, but significant reduction in antipsychotic symptoms can be traced to the higher affinity atypical antipsychotics have for serotonergic receptors (5HT2A) compared to dopaminergic receptors (D1 and D2). Once binding to dopaminergic receptors, atypical antipsychotics rapidly

dissolve, particularly at the receptor site D2, which mitigates the antagonistic effect typical antipsychotics have on acetylcholine caused by their affinity for dopaminergic receptors that regulate the production of acetylcholine (Blair & Dauner, 1992).

Researchers have clarified that extrapyramidal side effects can increase the severity of negative, cognitive, and mood symptoms associated with schizophrenia (Tandon & Jibson, 2002). Given that the effectivity of both first and second generation antipsychotics is reduced by extrapyramidal side effects--according to another study 70.7% of patients who were treated using second generation antipsychotics (most commonly Risperidone and Aripiprazole) experienced at least one adverse drug reaction, 57.7% of patients experienced more than one suspected adverse drug reaction (Rafaniello et al., 2016), it would be fair to state that the current pharmaceutical options offered to treat schizophrenia are only limited in their effectiveness, and can increase or cause as many detrimental psychological and physical side effects as they can improve. In an independent meta-analysis of 51 studies out of 1214 that met inclusion criteria, the authors found a discontinuation rate of over 50% for second-generation antipsychotics (Gentile, 2019) which is not to be unexpected given the economic and psychological/physical burden they can have on the patient.

However, as both atypical and typical antipsychotics have been shown to significantly reduce positive symptoms, which prompts clinicians to recommend them as the first option for the treatment of symptoms classified under psychotic disorders, including schizophrenia, in the United States. Specifically, in the most comprehensive meta-analysis of randomized controlled trials conducted with the consent of patients who had multi-episode schizophrenia as of 2018, antipsychotics outperformed placebos in terms of total symptoms, positive symptoms, negative

symptoms, depressive symptoms, quality of life, and social functioning. Among these differences, the mean difference in overall symptoms was the largest approaching a significant medium size effect (Haddad & Correll, 2018

Empirical Backing for Current Alternative Treatments

Practitioners of psychosocial models of treatment for schizophrenia, namely of the four most prevalent forms of therapeutic intervention for patients with schizophrenia including cognitive-behavioral therapy, cognitive remediation therapy, family intervention therapy, and social skills training emphasize that the DSM5 places more importance on schizophrenia as a biological phenomenon at expense of the psychological symptoms, such as depression and severe self-stigmatization that result in the high rates of comorbidity seen in patients with schizophrenia. Additionally, the lack of education and community training and/or understanding of schizophrenia can accelerate and worsens the stigmatization patients experience and internalize without therapeutic options for group or family supportive psychotherapeutic options, as the treatment of schizophrenia is primarily monopolized in the United States by the pharmaceutical industry which leads to public and patient estrangement.

Furthermore, clinicians of psychosocial treatment modules for schizophrenia argue that there exists a disconnect between the utility of prescription medication to assist patients in recovering from schizophrenia, according to the DSM5 criterion, and patient's own expectations and needs for their own "full" recovery, including improvement in their social, occupational, and cognitive functioning. The lack of effectiveness of antipsychotics in significantly reducing the risk of rehospitalization, relapse, or additional comorbid symptoms speaks to the lack of transparency and intercommunication between clinicians and their patients as to what a complete recovery from

schizophrenia presents. Simply put, the clinician (especially one solely trained in administering pharmaceutical treatments) is very isolated from the extreme forms of public and self-stigmatization, and additional risk factors for psychopathology (such as urban environments) that the patient lives with within the onset of their diagnosis, which heavily impact their responsiveness to treatment. Furthermore, within the field of humanistic psychology today, researchers counter that even highly distressing and abnormally presenting as schizophrenia can be understood and effectively treated with individualized psychological approaches that do not adhere to one dominant framework of classification (British Psychological Society Division of Clinical Psychology, 2011; Cooke, A., & Kinderman, P., 2017;) Consequently, the clinical obstacles of attempting to treat schizophrenia within a framework that does not account for the profound influence stigmatization and individualized risk factors confounding the treatment effectivity of pharmaceutical treatment must be addressed as well as they can be within a highly individualized therapeutic setting to most effectively mitigate the detrimental effects they have on a patient's prognosis.

This is not to say clinicians who provide pharmaceutical treatment are not unaware of the substantial obstacles patients living with schizophrenia face to recovery due to the heightened burden of public and elf stigmatization, and additional risk factors that complicate treatment. In fact, many providers delay a diagnosis of schizophrenia as long as possible diagnosing patients (insert an article on patients dealing with the term schizophrenia and the words providers associate with schizophrenia) if they've displayed the relevant criteria of symptoms for the mental illness because of their awareness of the highly negative public stigma in the United States and the severe self-stigmatization a patient living with schizophrenia could face as result of internalizing public

stigmatization even from their close social network. Psychosocial treatments, such as family intervention therapy can aid in helping the patient access social protective factors such as social support, well‐functioning families and coping skills to stabilize the individual (Stephen & Marder, 2000). Many clinicians also delay or misdiagnose schizophrenia deliberately or out of their own biased beliefs towards the disorder because of the awareness that the patient's own social network of family and friends may also not know how to handle the increased self-stigma of their loved one other than by acquiescing to them if they see them as not healthy enough to hear or understand the challenges they pose towards the patient's self-stigma due to their own misunderstanding or prejudice-which requires high stigma resilience on the part of the patient to combat self stigma and help their close ones understand they are not the stereotypes placed upon them.

Thankfully, psychosocial treatments such as social skills training that consists of specific-disorder social and instrumental skills such as basic conversation, medication management, or communication reentry (specifically through occupational retraining). For the purposes of this proposal, I will focus on the procedures and evidence for cognitive-behavioral therapeutic modules of treatment for schizophrenia. In general, cognitive-behavioral therapy focuses on the reduction of symptoms, reduction of relapse, and enhancement of functional capacity is attempted to be reached through the clinician offering perspective on the patient's experience of disease experiences and responses to them. Within the dialogue between the clinician and the patient, the patient learns how to have a more realistic understanding and develops new coping strategies for dealing with their psychopathological symptoms with the assistance of the clinician's expertice (Dickerson & Lehman, 2006). Although cognitive-behavioral therapy exists in several forms for the treatment of schizophrenia, all of them aim to foster a therapeutic environment in which a strong therapeutic

alliance can be fostered between the patient and clinician, on psycho-education, i.e., informing patients about schizophrenia and psychosis and emphasizing the critical role of medication in controlling symptoms and preventing relapse, and on the identification of psychological issues that are experienced more severely by the individual patient.

It is expected during the course of successful cognitive-behavioral therapy for patients with schizophrenia that they will learn how to recognize the warning signs of an oncoming psychotic episode and in general symptoms of their individual clinical psychopathology, acquire and utilize stress reduction and coping techniques in lieu of their emerging symptoms, and learn cognitive restructuring techniques to reframe how they process and handle their symptoms as well as the external obstacles they face as a result of their disorder (Bellack, 2004). A large and growing body of research has shown the efficacy of cognitive-behavioral therapy in reducing patient's positive and negative symptoms (Bechdolf et al., 2005a, Bechdolf et al., 2005b, Drury et al., 1996, Gumley et al., 2006, Kemp et al., 1996, Kemp et al., 1998, Kuipers et al., 1997, Sensky et al., 2000, Startup et al., 2005, Tarrier et al., 1999, Tarrier et al., 2004, Temple and Ho, 2005).

Specifically, in a meta-analysis focusing exclusively on positive symptoms, symptom reduction was 35% greater in CBT patients than in controls, and the success rate for reducing positive symptoms increased from 41% in controls to 59% with CBT (Zimmermann et al., 2005). A meta-analysis of meta-analyses of CBT effects concluded that CBT led to substantial declines in general psychopathology and persistent reductions in positive symptoms (Pfammatter et al., 2006). CBT may also improve medication adherence. Compliance Therapy (CT), a form of CBT developed specifically to improve medication adherence, has been shown to enhance adherence for as long as 18 months after the end of the program (Kemp et al., 1996; Kemp et al., 1998). The

positive effects of CBT can also be seen in the early stages of schizophrenia. Applying CBT during an inicial phase following the onset of the first psychotic episode has been reported to reduce global psychopathology, symptoms, and social dysfunction (Bechdolf et al., 2005b). An additional positive outcome associated with CBT is improved mental state (Gumley et al., 2006). The effects of CBT have generally been found to be long-lasting, with effects lasting from 6 months to 2 years after the cessation of treatment (Bechdolf et al., 2005a, Drury et al., 1996, Sensky et al., 2000, Startup et al., 2005, Tarrier et al., 1999, Temple and Ho, 2005).

SECTION 3: PROPOSED STUDY

Overview of Current Proposed Study

In the clinical, randomized controlled experiment I am proposing, I aim to replicate the original findings of a randomized, controlled trial conducted by Fung, Tsang, and Cheung (Fung et al., 2011) that compared a researcher developed self-stigmatization program (the first of its design) combining psychoeducation, cognitive-behavioral therapy, motivational interviewing, social skills training, and goal attainment programs (collectively operationalized as “self-stigma reduction cognitive-behavioral therapy”) compared to control “newspaper reading” group. However, my novel proposal would replace the “newspaper reading” group with a “pharmaceutical only” group and add pharmaceutical treatment to the “self-stigma reduction cognitive behavioral therapy group.” The aim of the proposed study is to demonstrate how self-stigma may undermine both psychosocial and pharmaceutical treatment adherence.

Summary of Methods and Empirical Support for Proposed Design

The five key treatment strategies that have been integrated into the “self-stigma reduction cognitive behavioral therapy” are based on empirical findings that demonstrate 1) individuals with

schizophrenia are able to acquire realistic and empirical information about their mental illness via psychoeducation to challenge their self-stigma (Holmes and River, 1998, Watson and Corrigan, 2001). Second, self-stigma may be regarded as a collection of irrational ideas on self-concept and abilities. Cognitive behavioral therapy could reconstruct and normalize their self-stigmatized beliefs, and thus promote their positive self-esteem (Kingdon and Turkington, 1991, Holmes and River, 1998, Knight et al., 2006). The benefits of satisfactory psychosocial treatment adherence were emphasized in the session. Third, as many self-stigmatized individuals have poor readiness for change (Fung et al., 2010), motivational interviewing will move them forward towards the action stage to change their problematic behaviors (Miller and Rollnick, 2002, Rusch and Corrigan, 2002). Fourth, individuals with schizophrenia often have inadequate social skills which prevent them from effectively handling difficult social situations (Tsang, 2001, Kopelowicz et al., 2006). Adopting social skills training should enhance their specific skills to improve their daily life and social relationship (Lauriello et al., 1999).

Thus, the program upgrades their social skills so as to facilitate their coping with stigmatized social conditions that they may encounter. Finally, self-stigmatized individuals often endorse the belief that they do not deserve for value which undermines their motivation to pursue meaningful life roles (Lysaker et al., 2007). The Goal Attainment Program which adopts the cyclical framework of affirming personal worth, imaging the future, establishing sense of control, and setting realistic goals is thus incorporated to instill hope in the individuals, and help them develop realistic life goals (Ng and Tsang, 2002).

Null Hypothesis

There will be no statistically significant differences between the mean scores of the participants in the self-stigma reduction program (including group therapy sessions, motivational interviewing, cognitive behavioral therapy, social skills training, psychoeducation, and a goal-attainment program) and in the pharmaceutical-only treatment condition on The Chinese Self-Stigma of Mental Illness Scale, on The Change Assessment Questionnaire, The Psychosocial Treatment Compliance Scale, The Brief Psychiatric Rating Scale, The Global Assessment of Functioning Scale, The Scale to Assess Unawareness of Mental Disorders, and The Chinese General Self-Efficacy Scale.

Alternative Hypothesis

Participants self-stigma reduction program (including group therapy sessions, motivational interviewing, cognitive behavioral therapy, social skills training, psychoeducation, and a goal-attainment program) will have an signifcantly lower mean score within a p-value of .05 or lower (under the presumption the null hypothesis is true) on the The Chinese Self-Stigma of Mental Illness Scale, a significantly higher mean score on The Change Assessment Questionnaire, a significantly higher mean score on The Psychosocial Treatment Compliance Scale, a significantly lower mean scale on The Brief Psychiatric Rating Scale, a significantly higher mean score on The Global Assesment of Functioning Scale, a significantly lower scale on The Scale to Assess Unawareness of Mental Disorders, and a significantly higher mean score on The Chinese General Self-Efficacy Scale compared to the pharmaceutical-only treatment group.

Section 4: Proposed Methodology

Clinical Design and Setting

The clinical design of the self stigma reduction study as outlined in the Fung et al. study, consisting of 16 sessions, will be followed as organized in Figure 2 in the appendix.

Within 16 sessions, there will be 12 group sessions and four individual follow up sessions which integrate the 5 modalities mentioned above in the diagram. The program will be pilot tested by an experienced occupational therapist before being implemented. In terms of the pharmaceutical only group, participants will also only receive 16 sessions in which they continue their normal psychiatric consultation (include the same provider and medication if not deemed adverse to their psychological or mental health) for the same time period. All participants will partake in the study at the same psychiatric hospital, as in the Fung et al. study, all participants were tested at the Kowloon Hospital. That way, if any participant experiences an adverse event, relapse, or needs to be hospitalized, the setting of the experiment will enable providers to efficiently and effectively meet their psychiatric needs. The participant will be blinded as to what condition they are assigned to as the consent form will involve some deception specifying that the study is merely on the "effectiveness of the treatment they receive" so as to avoid distorted the results of the experiment with the participant's expectations or biases towards psychosocial or pharmaceutical methods of treatment. The clinicians, selected prior to the start of the study for their expertise in providing cognitive-behavioral therapy for patients with schizophrenia, who provide the psychosocial treatment will be extensively trained in the 5 modules of the "self-stigma reduction cognitive-behavioral therapy" outlined in the Fung et al. study in conjunction with the cognitive-behavioral techniques they already implement with patients.

At any point in the study, the participant can decide to discontinue their participation without penalty and without the possibility of therapeutic or pharmaceutical services being terminated because of their decision. For each session participants attend in either condition, they will receive monetary compensation equivalent to the transportation costs it took to attend the

session, and the cost of 3 meals for the day in addition to a payout of $500 per visit. During the study, participants will undergo several assessments of their physical and mental health to ensure that they are not highly at risk of relapse or in need of hospitalization. If the results of these biomedical or mental health assessments indicate the participant is above the acceptance threshold for continuation in the study, they will be asked to end their participation and seek immediate treatment at the psychiatric hospital at which the study is taking place, or another facility if it is warranted.

Recruiting Method

Participants would be recruited to participate in this study through a hired recruiter whose main priority would be to contact local psychiatric facilities specializing in the treatment of schizophrenia, first as a part-time employee, then later on as full-time once a steady stream of recruited participants have enrolled into the study. Administrators of local psychiatric facilities will also be contacted and given information regarding this study to distribute to patients. However, all visits between participants and researchers will be conducted at the same psychiatric facility under a pre-determined group of researchers. See Appendix B for the Inclusion and Exclusion criteria for this study.

Participants

Based on the original Fung et al. study, the sample size will be 34 for each treatment group with an alpha level of 5% and a beta level of 20% resulting in a power level of 80%. Participants aged between 18 to 65 and enrolled in a local psychiatric facility receiving psychosocial treatment for at least three months prior to the commencement of the study. Information regarding this study will be shared with facility administrators to present to patients for recruitment purposes in public

informational sessions, email newsletters, letters to the addresses of participants, and telephone calls. Eligible participants should obtain at least the mean scores in either one of the self-stigma subscales (scoring ≥ 71.67 on stereotype agreement, ≥ 64.94 on self-concurrence, or ≥ 64.06 on self-esteem decrement) of the Chinese Self-stigma of Mental Illness Scale to make sure that they had notable level of self-stigmatization in view of the fact that well established norms that helped us to make this classification are not available. The randomization of participants to the experimental or comparison protocol for each participating organization was conducted via the generation of random numbers ranging from 0.1 to 1.0 by SPSS. Individuals who received random numbers ≥ 0.5 were allocated to the experimental protocol and those who received random numbers < 0.5 were allocated to the comparison group. Identical treatment format and duration will be provided for the two groups. Two group sessions per week will be given to participants according to their condition. Participants must be have a minimal level of neurological functioning without any medical assistance, not currently taking any drugs or alcohol or any mdications or supplements that could interact with antipsychotic medications (see Appenix B for all-inclusive Inclusion and Exclusion criteria).

Instruments

The Chinese Self-stigma of Mental Illness Scale (CSSMIS; Fung et al., 2007*)* consists of four subscales to measure perceived stigma (stereotype awareness) and self-stigma (stereotype agreement, self-concurrence and self-esteem decrement). The subscales of self-stigma are developed based on the three-tier mechanism of self-stigmatization (Corrigan et al., 2006, Fung et al., 2007). “Stereotype agreement” is the initial stage of self-stigma, which refers to the endorsement of mental illness stigma commonly held in public towards schizophrenia. Certain

individuals may internalize the public stereotypes to their own (self-concurrence), and their self-esteem would then be undermined (self-esteem decrement). Each subscale contains 15 items. The items are rated from a 9-point Likert scale ranging from "(1) strongly disagree" to "(9) strongly agree". The total score of each subscale ranges from 15 to 135. This scale has been translated and validated by Fung et al. (2007). Its psychometric properties (internal consistency: α = .82–.90; test–retest reliability: *ICC* = .71–.81) were good (Fung et al., 2007).

The Change Assessment Questionnaire for People with Severe and Persistent Mental Illness (CAQ-SPMI; Hilburger, 1995*)* is a 32-item instrument measuring the continuation of stages of change (SOC). The SOC model suggests that several stages are involved regarding individuals' readiness for changing their own mental health problems. The stages include "precontemplation" (with no awareness of own problem and intention to change), "contemplation" (with awareness of own problem, but do not take any action for change), "action" (with commitment for changing own problematic behaviors), and "maintenance" (with prolonged efforts for consolidating the change). Each item is rated on a 5-point Likert scale anchoring from "(1) strongly disagree" to "(5) strongly agree". The SOC continuous score is computed according to the algorithm of the "mean score of contemplation subscale + mean score of action subscale + mean score of maintenance subscale — mean score of precontemplation subscale". Higher score represents better readiness for change. The CAQ-SPMI demonstrated satisfactory internal consistency (α = .79–.89) (Chou et al., 2004).

The Psychosocial Treatment Compliance Scale (PTCS; Tsang et al., 2006*)* consists of 17 items scoring on a 5-point Likert scale ranging from "(1) never" to "(5) always". The PTCS has the "participation" (12 items) and "attendance" (5 items) subscales. The "Participation" subscale

measures participants' engagement and cooperation towards the prescribed psychosocial treatment (e.g., “was willing to follow therapists' instructions”), whereas the “attendance” subscale measures participants' level of keeping appointments and punctuality (e.g., “attended prescribed psychosocial treatment on time”). Adherent participants obtain higher scores in the PTCS. Good psychometric properties (internal consistency: α = .87–.96; test–retest reliability: *ICC* = .86–.90) were demonstrated for the subscales (Tsang et al., 2006).

The *Brief Psychiatric Rating Scale* (BPRS; Overall and Gorham, 1962*)* is a reliable 18-item scale to assess psychopathology (Leucht et al., 2005, Ligon and Thyer, 2000). The items are rated from “(0) not present” to “(7) extremely severe”. Higher total score represents more severe psychotic symptoms experienced by the participants.

The *Global Assessment of Functioning* Scale (GAF; American Psychiatric Association, 2000*)* is a single-item questionnaire rated from 0 to 100. Individuals who have better psychological, social and occupational functioning obtain higher scores in the GAF.

The Scale to Assess Unawareness of Mental Disorders (SUMD; Amador et al., 1993*)* is used to measure participants' current and past awareness of mental illness, the achieved effect of medication, and the social consequences of having a mental disorder. The items are scored on a 5-point Likert scale anchoring from “(1) aware” to “(5) not aware”. Participants with better insight score lower on the insight items. It was suggested that these items demonstrated satisfactory inter-rater intra-class coefficient (*ICC* = .67 -- .89) (Fung et al., 2008).

The Chinese General Self-efficacy Scale (CGSS; Chiu and Tsang, 2004*)* is a 10-item CGSS that is rated from "(1) Not at all true" to "(4) Exactly true". Participants with better general self-efficacy obtained higher summated scores. The CGSS demonstrated good internal consistency (α = 0.92–0.93) and test-retest reliability (*ICC* = 0.75–0.94) (Chiu and Tsang, 2004).

2.4. **Data collection**

Assessments will be conducted at the following intervals: 1) before the commencement of intervention; 2) after the 7th group session; 3) after the 12th group session; 4) two months after the 12th group session; 5) four months after the 12th group session; and 6) six months after the 12th group session. The therapists offering the self-stigma reduction program will provide the demographic data, and complete the GAF and BPRS before the commencement of the treatment program. In addition, they will provide the scores of the above rating scales and the PTCS at the six assessment intervals. The CSSMIS (Chinese version of the Self-Stigma of Mental Illness Scale), CAQ-SPMI, SUMD and CGSS will be completed by experienced research assistants via face-to-face interview with the participants. The raters will not be informed of the treatment assignment of the participants. Before data collection, a training session with case illustrations and discussion will be provided to the case therapists and the research assistants by the research associate experienced in implementing the above questionnaires to ensure the reliability and validity of questionnaire completion.

Predicted Results

I propose that participants in the "self-stigma reduction cognitive-behavioral therapy" condition will score significantly lower on the *The Chinese Self-stigma of Mental Illness Scale*,

significantly higher on *The Change Assessment Questionnaire for People with Severe and Persistent Mental Illness* Scale, significantly higher on the *The Psychosocial Treatment Compliance Scale*, significantly lower on the The *Brief Psychiatric Rating Scale*, significantly lower on the *The Scale to Assess Unawareness of Mental Disorders*, significantly higher on the The *Global Assessment of Functioning*; and significantly higher on the *The Chinese General Self-efficacy Scale* compared to participants in the pharmaceutical only treatment group. These predictions are made under the premise of replicating the actual findings of Fung et al. which demonstrated that reduced self-stigmatization improved the prognosis of patients living with schizophrenia in terms of many domains including treatment adherence, self-efficacy, understanding of their condition, and willingness to change.

Data Analysis

Based on the statistical methods used in Fung et al., independent *t*-tests will be used to compare the dosage of intervention received by the experimental and comparison groups. A Chi-square test will be used to compare the attrition rate between the two groups. The baseline scores of BPRS, GAF, CSSMIS, CAQ-SPMI, CGSS, SUMD and PTCS between the two groups will be compared by independent *t*-test. The corresponding baseline score will be treated as covariate for analysis once significant differences will be identified. These baseline scores between the four different study sites will be compared by one-way ANOVA. The outcomes of different study sites will be compared using the repeated measures ANOVA to explore the institutional influences on the outcomes. The active intervention (baseline to post-assessments) and maintenance (post to third follow-up assessments) effects of the program were tested between the experimental

and comparison groups. Repeated measures ANOVA/ANCOVA with Bonferroni correction (*p*-value adjustment within each variable by dividing the number of time intervals; Tabachnick and Fidell, 2001) will be used to determine if significant differences exist. Only measures that have demonstrated active intervention effect at post-assessment will be included for the examination on the maintenance effect. This will be to determine if the active intervention effects are maintained along the follow-up period.

Discussion

I predict, based on the information discussed in Fung et al., that my findings will suggest that the self-stigma reduction program has the active effect to reduce self-esteem decrement, facilitate the readiness for changing own problematic behaviors, and enhance psychosocial treatment participation among individuals with schizophrenia as demonstrated by significant differences in the mean scores on 7 instruments assessing psychosocial wellbeing. However, the importance of acceptance and empathy of the social circles that the individual living with schizophrenia is exposed to cannot be understated. Public stigmatization of schizophrenia can lead to an individual living with its symptoms to further isolate themselves from doing activities that could strengthen their self-esteem and reduce their self-stigma such as participating in normal family and friends. A negative feedback cycle results when the additional pressure of anticipating public stigma after getting the diagnosis can worsen alongside the severity of symptoms. With more severe or overt symptoms, public stigmatization can increase well lowering the self-esteem of the individual with schizophrenia. Therefore, interventions, such as cognitive-behavioral therapy, that focus on reducing negative self-beliefs are critical to mitigating the effects of the public's view of schizophrenia on the individual.

Public stigmatization has long been held towards individuals with severe mental illnesses because there is a cultural implicit belief system that schizophrenia is associated with criminality, violence, and impaired functionality in the workplace. There is often an “us versus them” (or an “in-group” and “out-group” dynamic towards those with severe mental illnesses such as schizophrenia with specific derogatory labels such as “psycho”, “crazy”, or “nonsencial” being used to label anyone living with schizophrenia. These labels deny the fundamental reality that every individual has personal strengths and weaknesses in their psychological makeup. The impact of external stigmatization on the individual living with the mental disorder can be particularly severe when they do not feel that their immediate family and friends can see their individuality outside of their diagnosis. Without empathy and pro-active support from immediate family members, the self-stigmatization of individuals with schizophrenia can increasingly internalize stigma from the outside world. Additionally, the symptoms of schizophrenia may worsen if stigmatization from the immediate social circle of the individual living with schizophrenia leads to the withdrawal of transportation, financial, or other practical support and empathetic confrontation towards the individual’s self-stigmatizing beliefs.

The absorption of public stigma into one’s own personal belief system can result in its perpeutation of this stigma onto even immediate friends and family members, creating cognitive dissonance for the person close to the individual living with schizophrenia as they attempt to reconcile their negative beliefs regarding schizophrenia as a condition with the individual they are close to. The friend or family member may distance or stereotype the individual living with schizophrenia in order to maintain their own feelings of belonging and status within society. Also at risk is the validation of the stigmatizing views immediate friends and family place onto individuals

living with schizophrenia because they might adjust their presentation to keep a connection with the stigmatizing friend or family member. However, there is an optimistic side even though family and friends may at first show great prejudice and discrimination towards diagnosed individuals with schizophrenia. Empirical data has shown that exposure to individuals living with schizophrenia and education through family therapy and other forms of educational interventions have lessened external stigma and thereby internalized stigma.

Strengths/Limitations

Inherent self-esteem is a confounding factor in this study as it is suggested that individuals with lower self-esteem demonstrate poorer treatment participation (Corrigan, 2004, Fung et al., 2008, Tsang et al., 2010). It is because they are more likely to endorse feelings of hopelessness and query the beneficial outcomes of psychosocial treatment. On the other hand, their improved participation could be due to increased self-esteem which could be associated with a number of external factors not strictly due to the therapeutic intervention. Treatment side-effects in combination with the individual chemistry of the participant could be a confounding factor on the success of both conditions (Fleischhacker et al., 2003, Tsang et al., 2006). The sample size is not robust, therefore the results of this proposed study could be validated further by expanding the sample size. Also worth noting is that the effects of the self-stigma reduction program were not found to be significant during a 6 month follow up period, implicating that the statistical significance of the program may lessen over time without consistent implementation over a period longer than 12 weeks. Furthermore, additional measures could be implemented to assess the clinical improvement of participants undergoing the self-stigma reduction program to track the overall differences in life satisfaction and social belonging in addition to the statistical measures.

In terms of strengths of the program, the psychoeducation protocol administered cited empirical evidence that challenged self-stigmatizing beliefs to establish a positive self-concept of those living with schizophrenia. Cognitive-behavioral therapy addresses negative self-evaluation through what is referred to as a "normalization strategy" emphasizing appraisal of oneself in terms of understanding how negative appraisals can lead to behaviors and emotions that match it and distinguishing between realistic and irrational appraisals. Social skills training can improve assertive skills and social problem solving skills which could increase the ability of individuals living with schizophrenia to effectively navigate stigmatizing social situations. The goal attainment program may have expanded their self-esteem by helping them appreciate their own self-worth, assets, and meaningful life goals.

Future Directions and Applications

Future studies could observe the effects that self-reduction in an individual living with schizophrenia has on the implicit biases of those living most closely with them towards schizophrenia. Additionally, the effectiveness of the self-reduction program in both the short-term and the long-term could be studying with individuals exhibiting mild, moderate, and severe positive and negative symptoms of schizophrenia to delinate the robustousness of the program over severity of psychiatric illness. The study design could be improved by increasing the sample size while diversifying the participant population along racial and gender demographics to control for these factors. To verify the diagnosis of schizophrenia, the structured interview from the DSM-5 could be implemented by psychologists on the research team. Finally, the confounding effects of the therapeutic alliance could be controlled for on the difference throughout the study.

Conclusion

This study aimed to examine the effects of implementing a "self-stigma reduction program" that included motivational interviewing, social skills training, psychoeducation, cognitive behavioral therapy, and a goal attainment program on participant's readiness for change, level of self-stigmatization, adherence to psychosocial treatment, level of psychopathology, level of overall functioning, current and past level of awareness of mental illness, and self-efficacy. In the future, the observed positive effects of the program may be more readily accepted by existing medical authorities if the effects were shown to remain consistent over a longer-time period than has previously been recorded. Of note, however, is that pharmacological treatments are the most effective treatment on the market for specific positive symptoms (hallucinations, delusions) of schizophrenia. Thus, pharmacological treatment or the self-reduction program ought not to be implemented separately to achieve best results of reduction in symptology of schizophrenia along with reducing the psychosocial impact of the diagnosis. The importance of the self-reduction program lies in its ability to mitigate the effects that public stigmatization has on the individual living with the condition, thereby improving the state of their psychological wellbeing towards intrinsic beliefs and characteristics that are correlated with mental health. Although schizophrenia is a severe mental illness, reducing stigma around the symptoms of the disorder can increase the willingness of individuals with the condition to seek treatment, improve the quality of treatment, mitigate the negative effects of external stigmatization, and strengthen the existing positive intrinsic characteristics of those with the disorder.

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Appendixes

Appendix A: Consent Form

Informed Consent Agreement

Protocol Number: **Expires:**

Study Title: Whose Eyes Are We Seeing Through?: A Proposed Investigation of the Effect of Self-Stigma Reduction Th0erapy on Quality of Life and Clinical Symptoms in Individuals Living with Schizophrenia

Student Researcher: Clara Griffin

Faculty Advisor: Justin C. Hulbert, Ph D.

You are being asked to take part in a research experiment conducted at Bard College as part of a Senior Project in Psychology that seeks to assess whether cognitive behavioral therapy with pharmaceutical intervention is supeior to pharmaceutical intervention alone on reducing the negative symtomology of self-stigmatization in individuals living with the diagnosis of Schizophrenia.

To decide whether or not you wish to participate, you should know enough about its risks and benefits to make an informed judgment. This consent form gives you information about the research study, and the experimenter will provide you with additional information about the specific intervention you will be assigned to. Once you have received an overview of what each experimental intervention will consist of, you will be asked if you wish to participate and, if so, you will sign the consent form. You can choose not to participate, and you can choose to end your participation at any time during the study.

Background: Therapy for the reduction of negative patterns consistent with self-stigmatization in individuals who have received a diagnosis of general schizphrenia consists of psychoeducation, cognitive behavioral therapy, motivational interviewing, social skills training, and supervised goal attainment. Pharmaceutical

treatment typically includes antipsychotic medications which control delusions and hallucinations through alternating levels of dopamine and serotonin. Atypical antipsychotic medications are a newer class of drugs that can be prescribed in cases where the potential negative side effects of first generation antipsychotic medications need to be mitigated.

What you will do in this study: Should you be eligible and decide to participate, you will be invited to a psychiatric facility once per week for twelve group therapy appointments and four times after the twelfth session for four follow up individual sessions if assigned to the therapeutic intervention including pharmeutical medication condition. For pharmetucial treatment, you will be invitied for weekly consultations with an appointed psychiatrist at the facility. Experimenters will assess your levels of self-stigma, readiness for change, insight, general self-efficacy, and treatment adherance at six separate intervals in both conditions you could be randomly assigned to. These assessments entail the use of standardized instruments administered during face-to-face interviews with research assistants who have been trained prior in respecting your rights as a participant and in the technical assessments they will perform.
Upon entering the psychiatric facility, you will be given detailed instructions to guide you through each part of the experiment and answer any questions you may have about the procedure. At any point, you may bring up unanswered questions or concerns regarding the intervention you are receiving or the procedures and protocols of the experiment to be answered by a facilitator of the study.

Risks and benefits: One of the most prominent benefits of cognitive behavioral therapy for schizophrenia is its reduction of negative symptomatology that is resistant to pharmeutical treatment alone, commonly observed in individuals living with schizophrenia. Additionally, cognitive behavioral therapy can be used to target mood or anxiety disorders comorbid with schizophrenia whilst treating the most limiting symptoms of the disorder. A reduction in the psychological effects of comorbid symtomology can greatly improve the social and occupational functioning of an individual living with schizophrenia. In terms of the effectiveness of cognitive behavioral therapy, recent studies have found that incorporating the treatment to a comprehensive therapeutic support plan significantly reduced positive symptoms of schizophreia (namely delusions, hallucinations, hyperactivity, and illogical thought patterns) on a short term and long term basis. Other major improvements observed included greater personal awareness, reduced dysphoria, and reduced severity of psychotic thought patterns (Morrison, 2019). However, despite the apparent enhancement in treatment effectiveness that cognitive behavorial therapy provides, there are notable risks to be aware of. Both positive and negative symptoms (including apathy, lethargy, and withdrawal from social situations) have still been observed in fifty percent of clinical patients who adhere to a treatment plan emphasizing cognitive behavioral therapy (Kart et al., 2020). In patients who did not adhere to treatment plans assigned by cognitive behavioral therapists, the prevalence and severity of these symptoms is significantly increased. Therefore, cognitive

behavioral therapy is not recommended as the sole treatment for schizophrenia at the exclusion of antipsychotic medications. To minimize the impact of risks to the participant, there will be ongoing assessments and direct lines of communication available for individuals to reach out should they experience any distressing or impairing symptoms during this study. Additionally, participants may drop out of the study at any point if they feel unable to continue for personal or practical reasons. There will be no penalty or fine imposed on participants who leave the study of their own accord, and compensation for the duration of their active enrollment will be provided.

Compensation: For the entirety of the study, participants will be paid $500 per visit in addition to coverage for 3 meals per visitation period and transportation expenses.

Your Rights: For the entirety of this study, your participation is completely voluntary and you may withdraw at any point without fear of reprecauction. Your compensation will include all visits until that point. Your resignation may be given in-person or by phone at any time to one of our researchers or laboratory personnel.

Confidentiality: All of your sensitive health information, including initial intake data, therapeutic progress reports, psychosocial assessment results, medical file history, and contact data will be kept in a encrypted database only accessible to authorized personnel including the principle investigator, research assistants, supervisors, and medical as well as mental health professionals providing mental health assistance for this study.

The results of this study may be used in future publications and experimental research, online in academic databases such as the Bard College Digital Commons, and discussed in academic conferences like the American Psychological Association Eastern Convention.

STATEMENT OF CONSENT:
"I understand the purpose of this research. My participation in this research is voluntary. If I wish to stop the initial intake process or treatment session for any reason, I may do so without having to give an explanation.

The researcher has reviewed the relevant risks and potential direct/indirect benefits with me, to the extent there are any. I am aware the information will be publicly referred to in studies accessible online and at the Stevenson Library of Bard College in Annandale, New York."

By signing below, I agree with the above **statement of consent** and further certify that I am at least 18 years of age.

_____ _____

Participant signature Date

_____
Participant name (printed)

Appendix B: Inclusion and Exclusion Criteria

Inclusion Criteria

1. Diagnosed by certified psychiatrists with Schizophrenia according to the DSM-5
2. Willing and able to provide informed consent for the psychiatric and psychological treatment verbally and in written form.
3. Willing to participate in multiple (15) study visits (following screening), each lasting 25-30 minutes each.
4. Aged between 18-65
5. Completed above primary level education.
6. Received psychosocial treatment for three months prior to commencement of study.
7. Measured to have a mean score of either more than 71.67 on stereotype agreement, more than 64.94 on self-occurance, or greater than 64.06 on the self-esteem decrement on the Chinese Self-Stigma of Mental Illness Scale.

Exclusion criteria

1) History of self-harm or suicidal tendencies or behavior.
2) No reported physical address, emergency contacts, or prior psychiatrist.
3) Current medical injuries or conditions that cause neurological impairment or ongoing distress.
4) History of brain injury or condition causing neurological impairment or difficulties.
5) Usage within the last six weeks prior to study commencement of anticholinlinergic drugs, antidepressants drugs (could cause an irregular heartbelt), antihistamines (can cause excessive drowsiness), anti-infection Medications (can affect the blood absorption rates of anti-psychotic medications), Benzodiazepines (could cause excessive drowsiness), blood pressure medications (could cause an abnormal heartbeat or dangerously lower blood pressure) Heart rhythm drugs (can worsen abnormal heart rhythms), mood Stabilizers (can alter blood levels of antipsychotic medications), anti-seizure Medications, opioid pain relievers, Parkinson's drugs, corticosteroids, and herbal supplements including chasteberry (can make antipsychotic medications less effective), ginkgo biloba (could cause seizures), Ginseng (can worsen side symptoms), and kava (can intensify side effects with phenothiazine antipsychotic medications).
6) Current or past history of illicit drug usage.
7) Present usage of psychiatric medications for mental health conditions separate from schizophrenia known to
8) Lack of sleep (less than 6 hours the night throughout the study).
9) Existing addition or medical ailments.

10) Any alcohol intake 24 hours before an appointment.
11) Consumption of grapefruit within the last 5 days.

Appendix C: Chinese Self-Stigatization of Mental Illness Scale

Table 2. Factor loadings and data-model fit of Internalized Stigma of Mental Illness.

	1st-order	2nd-order
Standardized factor loading		
Alienation	—	*0.959*
I feel out of place in the world because I have a mental illness	0.713	0.711
Having a mental illness has spoiled my life	0.834	0.833
People without mental illness could not possibly understand me	0.753	0.754
I am embarrassed or ashamed that I have a mental illness	0.749	0.748
I am disappointed in myself for having a mental illness	0.864	0.864
I feel inferior to others who don't have a mental illness	0.680	0.681
Stereotype Endorsement	—	*0.982*
Stereotypes about the mentally ill apply to me	0.693	0.692
People can tell that I have a mental illness by the way I look	0.759	0.759
Mentally ill people tend to be violent	0.514	0.514
Because I have a mental illness, I need others to make most decisions for me	0.690	0.688
People with mental illness cannot live a good, rewarding life	0.752	0.752
Mentally ill people shouldn't get married	0.626	0.626
I can't contribute anything to society because I have a mental illness	0.755	0.756
Discrimination Experience	—	*0.992*
People discriminate against me because I have a mental illness	0.749	0.747
Others think that I can't achieve much in life because I have a mental illness	0.743	0.744
People ignore me or take me less seriously just because I have a mental illness	0.828	0.827
People often patronize me, or treat me like a child, just because I have a mental illness	0.574	0.574
Nobody would be interested in getting close to me because I have a mental illness	0.782	0.784
Social Withdrawal	—	*0.984*
I don't talk about myself much because I don't want to burden others with my mental illness	0.629	0.625
I don't socialize as much as I used to because my mental illness might make me look or behave 'weird'	0.796	0.794
Negative stereotypes about mental illness keep me isolated from the 'normal' world	0.816	0.818
I stay away from social situations in order to protect my family or friends from embarrassment	0.821	0.823
Being around people who don't have a mental illness makes me feel out of place or inadequate	0.787	0.787
I avoid getting close to people who don't have a mental illness to avoid rejection	0.700	0.700
Stigma Resistance	—	*−0.107*[a]
I feel comfortable being seen in public with an obviously mentally ill person	0.193	0.191
In general, I am able to live life the way I want to	0.747	0.742
I can have a good, fulfilling life, despite my mental illness	0.808	0.815
People with mental illness make important contributions to society	0.428	0.424
Living with mental illness has made me a tough survivor	0.468	0.468
Fit indices		
χ^2	930.663	936.299
df	367	372
p-value	<0.001	<0.001
CFI	0.979	0.979
RMSEA	0.068	0.068
SRMR	0.073	0.074

df = degree of freedom; CFI = comparative fit index; RMSEA = root mean square of approximation; SRMR = standardized root mean square residual; Stigma Resistance items are reversely coded; Second-order factor loadings are in *italics*.
[a]p = 0.094; all other ps < 0.05 for factor loadings.
doi:10.1371/journal.pone.0098767.t002

Appendix D: The Change Assessment Questionnaire for People with Severe and Persistent Mental Illness

TABLE 1. Stages of Change Scale: Item Development

	Precontemplation subscale
Item 1:	As far as I'm concerned, I don't have any problems that need changing. (McConnaughy et al., 1983) As far as I'm concerned, I don't have any head injury problems in attention and learning, memory and concentration that need changing. (Change Assessment Questionnaire–TBI; Lam et al., 1988) As far as I'm concerned, I don't have any mental health problems that need changing. (CAQ-SPMI; Hilburger, 1994)
	Contemplation subscale
Item 4:	It might be worthwhile to work on my problem. (Original) It might be worthwhile to work on my head injury problems. (CAQ-TBI) It might be worthwhile to change a few things about myself. (CAQ-SPMI)
	Action subscale
Item 3:	I am doing something about the problems that have been bothering me. (Original) I am doing something about the head injury problems that have been bothering me. (CAQ-TBI) I am doing something to deal with the mental health problems that have been bothering me. (CAQ-SPMI)
	Maintenance subscale
Item 6:	It worries me that I might slip back on a problem I have already changed, so I am here to seek help. (Original) [Lam et al. (1988) did not include a Maintenance subscale.] It worries me that I might slip back on a mental health problem I've made good progress on. So I'm here to get some help to keep from slipping back. (CAQ-SPMI)

Note. CAQ-SPMI = Change Assessment Questionnaire for People with Severe and Persistent Mental Illness.

Appendix E: The Brief Psychiatric Rating Scale

NAME: _____ DATE: _____
PATIENT ID#: _____ MD: _____

BRIEF PSYCHIATRIC RATING SCALE (BPRS)

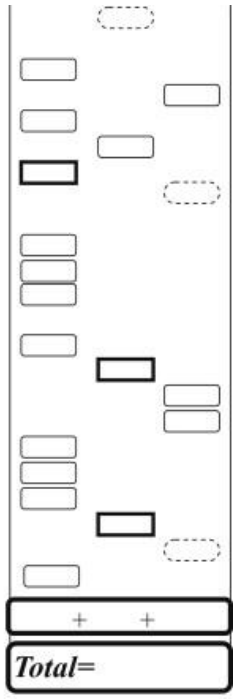
Please enter the score for the term which best describes the patient's condition.

0 = not assessed, 1 = not present, 2 = very mild, 3 = mild, 4 = moderate, 5 = moderately severe, 6 = severe, 7 = extremely severe

1. **SOMATIC CONCERN** Degree of concern over present bodily health. Rate the degree to which physical health is perceived as a problem by the patient, whether complaints have a realistic basis or not. SCORE ☐	10. **HOSTILITY** Animosity, contempt, belligerence, disdain for other people outside the interview situation. Rate solely on the basis of the verbal report of feelings and actions of the patient toward others; do not infer hostility from neurotic defenses, anxiety, nor somatic complaints. (*Rate attitude toward interviewer under "uncooperativeness"*). SCORE ☐
2. **ANXIETY** Worry, fear, or over-concern for present or future. Rate solely on the basis of verbal report of patient's own subjective experiences. Do not infer anxiety from physical signs or from neurotic defense mechanisms. SCORE ☐	11. **SUSPICIOUSNESS** Brief *(delusional or otherwise)* that others have now, or have had in the past, malicious or discriminatory intent toward the patient. On the basis of verbal report, rate only those suspicions which are currently held whether they concern past or present circumstances. SCORE ☐
3. **EMOTIONAL WITHDRAWAL** Deficiency in relating to the interviewer and to the interviewer situation. Rate only the degree to which the patient gives the impression of failing to be in emotional contact with other people in the interview situation. SCORE ☐	12. **HALLUCINATORY BEHAVIOR** Perceptions without normal external stimulus correspondence. Rate only those experiences which are reported to have occurred within the last week and which are described as distinctly different from the thought and imagery processes of normal people. SCORE ☐
4. **CONCEPTUAL DISORGANIZATION** Degree to which the thought processes are confused, disconnected, or disorganized. Rate on the basis of integration of the verbal products of the patient; do not rate on the basis of patient's subjective impression of his own level of functioning. SCORE ☐	13. **MOTOR RETARDATION** Reduction in energy level evidenced in slowed movements. Rate on the basis of observed behavior of the patient only; do not rate on the basis of patient's subjective impression of own energy level. SCORE ☐
5. **GUILT FEELINGS** Over-concern or remorse for past behavior. Rate on the basis of the patient's subjective experiences of guilt as evidenced by verbal report with appropriate affect; do not infer guilt feelings from depression, anxiety or neurotic defenses. SCORE ☐	14. **UNCOOPERATIVENESS** Evidence of resistance, unfriendliness, resentment, and lack of readiness to cooperate with the interviewer. Rate only on the basis of the patient's attitude and responses to the interviewer and the interview situation; do not rate on basis of reported resentment or uncooperativeness outside the interview situation. SCORE ☐
6. **TENSION** Physical and motor manifestations of tension "nervousness", and heightened activation level. Tension should be rated solely on the basis of physical signs and motor behavior and not on the basis of subjective experiences of tension reported by the patient. SCORE ☐	15. **UNUSUAL THOUGHT CONTENT** Unusual, odd, strange or bizarre thought content. Rate here the degree of unusualness, not the degree of disorganization of thought processes. SCORE ☐
7. **MANNERISMS AND POSTURING** Unusual and unnatural motor benavior, the type of motor behavior which causes certain mental patients to stand out in a crowd of normal people. Rate only abnormality of movements; do not rate simple heightened motor activity here. SCORE ☐	16. **BLUNTED AFFECT** Reduced emotional tone, apparent lack of normal feeling or involvement. SCORE ☐
8. **GRANDIOSITY** Exaggerated self-opinion, conviction of unusual ability or powers. Rate only on the basis of patient's statements about himself or self-in-relation-to-others, not on the basis of his demeanor in the interview situation. SCORE ☐	17. **EXCITEMENT** Heightened emotional tone, agitation, increased reactivity. SCORE ☐
9. **DEPRESSIVE MOOD** Despondency in mood, sadness. Rate only degree of despondency; do not rate on the basis of inferences concerning depression based upon general retardation and somatic complaints. SCORE ☐	18. **DISORIENTATION** Confusion or lack of proper association for person, place or time. SCORE ☐

Appendix F: The Global Assessment of Functioning Scale

26.	I feel annoyed by people who criticize my drinking (or drug use). (If not applicable, mark "never")	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
27.	I have an upset stomach.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
28.	I am not working/studying as well as I used to.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
29.	My heart pounds too much.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
30.	I have trouble getting along with friends and close acquaintances.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
31.	I am satisfied with my life.	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0
32.	I have trouble at work/school because of drinking or drug use. (If not applicable, mark "never")	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
33.	I feel that something bad is going to happen.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
34.	I have sore muscles.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
35.	I feel afraid of open spaces, of driving, or being on buses, subways, and so forth.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
36.	I feel nervous.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
37.	I feel my love relationships are full and complete.	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0
38.	I feel that I am not doing well at work/school.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
39.	I have too many disagreements at work/school.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
40.	I feel something is wrong with my mind.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
41.	I have trouble falling asleep or staying asleep.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
42.	I feel blue.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
43.	I am satisfied with my relationships with others.	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0
44.	I feel angry enough at work/school to do something I might regret.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
45.	I have headaches.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4



For More Information Contact:
OQ MEASURES LLC
E-MAIL: INFO@OQMEASURES.COM
WEB: WWW.OQMEASURES.COM
TOLL-FREE: 1-888-MH SCORE, (1-888-647-2673)
FAX: 801-990-4236

Appendix G: The Scale to Assess Unawarness of Mental Disorders

GENERAL ITEMS

1. Awareness of mental disorder
In the most general terms, does the subject believe that he/she has a mental disorder, psychiatric problem, emotional difficulty, etc.?

C	P	
0	0	Cannot be assessed.
1	1	Aware: subject clearly believes that he/she has a mental disorder.
2	2	
3	3	Somewhat: is unsure whether he/she has a mental disorder but can entertain the idea that he/she might.
4	4	
5	5	Unaware: believes he/she does not have a mental disorder.

2. Awareness of achieved effects of medication
What is the subject's belief regarding the effects of medication? Does the subject believe that medications have lessened the intensity or frequency of his/her symptoms (i.e., if applicable)?

C	P	
0	0	Cannot be assessed or item not relevant.
1	1	Aware: subject clearly believes medications have lessened the intensity or frequency of his/her symptoms.
2	2	
3	3	Somewhat: is unsure whether medications have lessened the intensity or frequency of his/her symptoms but can entertain the idea.
4	4	
5	5	Unaware: believes that medications have not lessened the intensity or frequency of his/her symptoms.

3. Awareness of the social consequences of mental disorder
What is the subject's belief regarding the reason he/she has been admitted to the hospital, involuntarily hospitalized, arrested, evicted, fired, injured, etc.?

C	P	
0	0	Cannot be assessed or item not relevant.
1	1	Aware: subject clearly believes that the relevant social consequences are related to having a mental disorder.
2	2	
3	3	Somewhat: is unsure whether the relevant social consequences are related to having a mental disorder.
4	4	
5	5	Unaware: believes that the relevant social consequences have nothing to do with having a mental disorder.

SUBSCALE ITEM

6. Awareness of thought disorder
Is the subject aware that his/her communications are disorganized and difficult for others to comprehend?

C	P	
0	0	Cannot be assessed or item not relevant.
1	1	Aware: subject clearly believes that his/her communications or thoughts are disorganized.
2	2	
3	3	Somewhat: is unsure whether his/her communications or thoughts are disorganized but can entertain the idea.
4	4	
5	5	Unaware: believes that he/she does not have disorganized communications or thoughts.

Attribution: How does the subject explain this experience?

C	P	
0	0	Cannot be assessed or item not relevant.
1	1	Correct: symptom is due to mental disorder.
2	2	
3	3	Partial: unsure but can consider possibility that it is due to a mental disorder.
4	4	
5	5	Incorrect: symptom is unrelated to a mental disorder.

Appendix H: The Chinese General Self-Efficacy Scale

Table 3 Rotated factor analysis of the Chinese version of the SCI Exercise Self-Efficacy Scale (n=321)

Exercise self-efficacy statement	Factor		C^2
	1	2	
That I can overcome barriers and challenges with regard to physical activity and exercise if I try hard enough (ES1)	0.646	0.123	0.420
That I can find means and ways to be physically active and exercise (ES2)	0.673	0.203	0.546
That I can accomplish my physical activity and exercise goals that I set (ES3)	0.747	0.135	0.602
That when I am confronted with a barrier to physical activity or exercise I can find several solutions to overcome this barrier (ES4)	0.668	0.215	0.446
That I can be physically active or exercise even when I am tired (ES5)	0.656	0.184	0.419
That I can be physically active or exercise even when I am feeling depressed (ES6)	0.620	0.15	0.682
That I can motivate myself to start being physically active or exercising again after I've stopped for a while (ES9)	0.795	0.213	0.632
That I can be physically active or exercise even if I had no access to a gym, exercise, training, or rehabilitation facility (ES10)	0.806	0.205	0.684
That I can be physically active or exercise even without the support of my family or friends (ES7)	0.303	0.645	0.778
That I can be physically active or exercise without the help of a therapist or trainer (ES8)	0.402	0.754	0.765
Eigen value	4.954	1.020	
Percentage of variance	49.543	10.202	

Notes: Extraction method: principal-component analysis with varimax rotation. Item with a factor loading greater than 0.40 is retained for that factor. C^2 indicates communality coefficients.

Appendix I: DEBRIEFING STATEMENT

Study Title: Whose Eyes Are We Seeing Through?: A Proposed Investigation of the Effect of Self-Stigma Reduction Th0erapy on Quality of Life and Clinical Symptoms in Individuals Living with Schizophrenia
Senior Project Student: Clara Griffin
Faculty Advisor: Justin C. Hulbert, Ph.D. (Psychology Program, Bard)

This study was designed to investigate the effectiveness of a combined pharmaeutic and cognitive-behavioral therapeutic intervention compared to a pharmetuical-only intervention on the severity of self and perceived societal stigmatization in individuals diagnosed with Schizophrenia. Cognitive-behavioral therapy for individuals with schizophrenia can be administered in both group and individual formats, both of which were implemented in this study. For the purposes of this study, self-stigma in individuals diagnosed with schizophrenia was assessed in three separate "core" domains including an initial stage of "stereotype agreement" (agreement with publicly held beliefs regarding schizophrenia), "self-concurrence" (the internalization of those public stereotypes), and "self-esteem decrement" (the reduction in self-esteem). Each scale contains 15 items. Based on prior studies, the severity of self-stigmatization in individuals living with severe mental illnesses can hinder their adherance to psychosocial treatments. In this particular study, the experimental cognitive-behavioral therapy was administered along with motivational interviewing, social skills training, psychoeducation,and a goal attainment program. Previous randomized, controlled trials have shown that this particular program has significantly improved self-esteem, promoted readiness for changing personal problematic behaviors, and enhanced psychosocial adherence. Therefore, I hypothesized that participants in the combined condition including pharmaceutical and the self-stigma reduction program would score significantly lower on *The Chinese Self-stigma of Mental Illness Scale*, significantly higher on *The Change Assessment Questionnaire,* significantly higher on *The Psychosocial Treatment Compliance Scale*, signficnatly lower on *The Brief Psychiatric Rating Scale*, significantly higher on *The Assessment of Functioning Scale*, a significantly lower score on *The Scale to Assess Unawareness of Mental Disorders*, significally lower on *The Scale to Assess Unawareness of Mental Disorders*, and significantly higher on *The Chinese Self-efficacy Scale*. Altogether

What if I want to know more?

Please contact the researcher, Clara Griffin, at cg0074@bard.edu or her faculty supervisor, Dr. Justin Hulbert (jhulbert@bard.edu), if you have any further questions regarding the study. If you have concerns about your rights as a research participant, please contact the Bard College IRB at irb@bard.edu. Should you experience any health concerns or would like to receive additional information on the results of the study, you can inform a researcher or administrator involved with the study that you would like to do so. If you feel you need immediate assistance, please do not hesitate to contact a crisis hotline such as the National Alliance on Mental Illness's (NAMI's) HelpLine (at 1-800-950-6264) or New York State's Project Hope line by texting or calling 988.

Figures

Figure 1

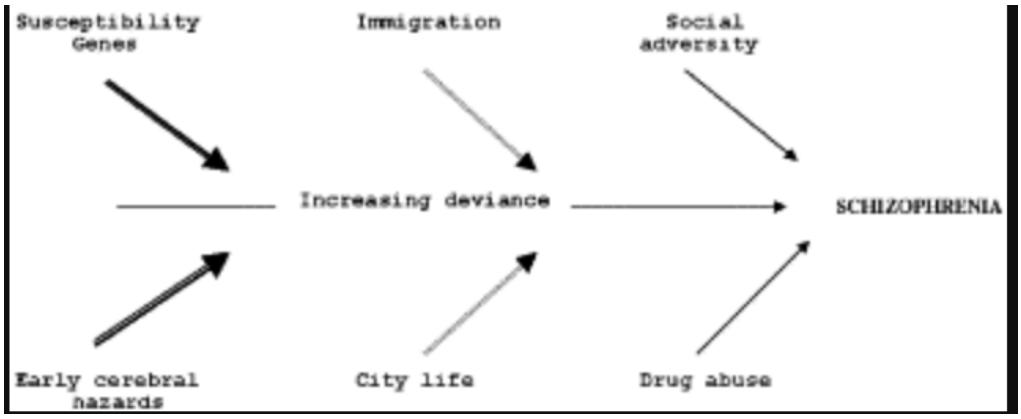


Fig. 1. *The influence of risk factors over time on the development of schizophrenia*

Figure 2

Modalities	Sessions and contents
Psychoeducation	1. Beginning the journey towards recovery
	2. Confronting the myths of schizophrenia
Cognitive behavioral therapy/ motivational interviewing	3. Impact of social stigma on recovery
	4. Self-stigma as barriers to recovery
	5. Combating self-stigma I: affirming personal worth
	6. Combating self-stigma II: disputing by evidence
	7. Combating self-stigma III: the art of acceptance
Social skills training	8. Social skills training I: being assertive
	9. Social skills training II: dealing with stigmatizing social situation
Goal attainment program	10. Goal attainment I: goal setting
	11. Goal attainment II: action planning
Round-up	12. Round-up of group session
Individual follow-up	13.–16. Monitor of progress

Figure 2*: Depicts the content of what each therapeutic cognitive behavioral session will consist of according to the Self-Stigma Reduction Program as outlined in the Fung et al. 2011 randomized controlled trial*

Figure 3

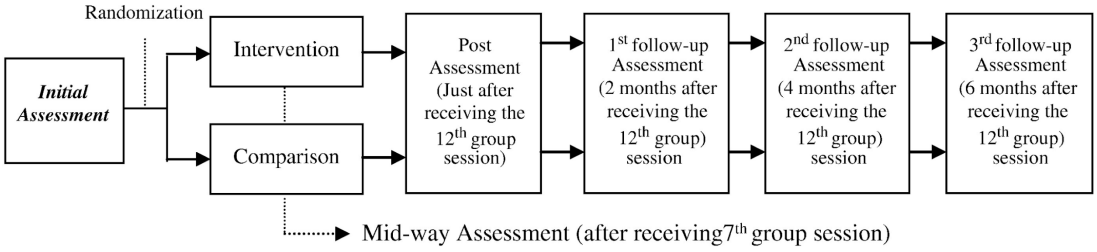


Fig. 3. *The procedures of data collection.*

Figure 4

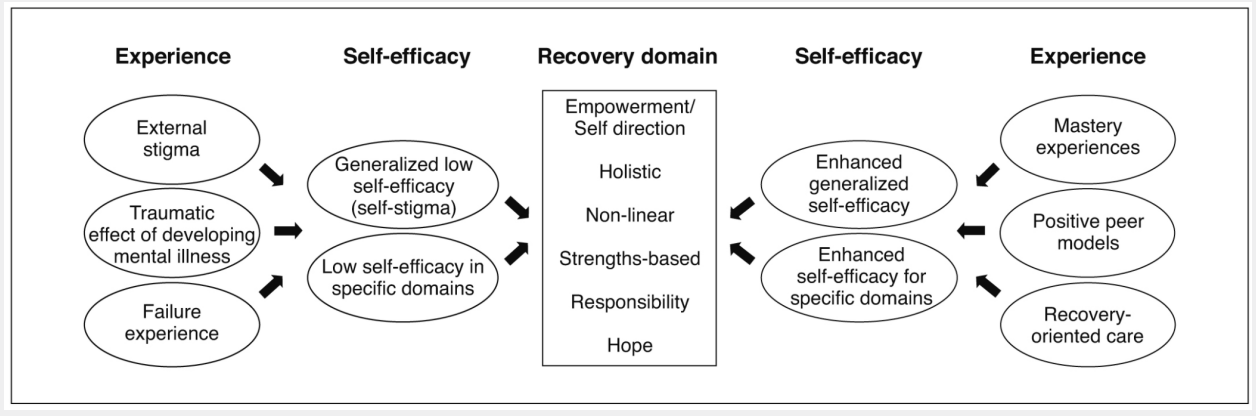


Figure 4*: A model of the relationship between self‐efficacy and recovery*

Figure 5

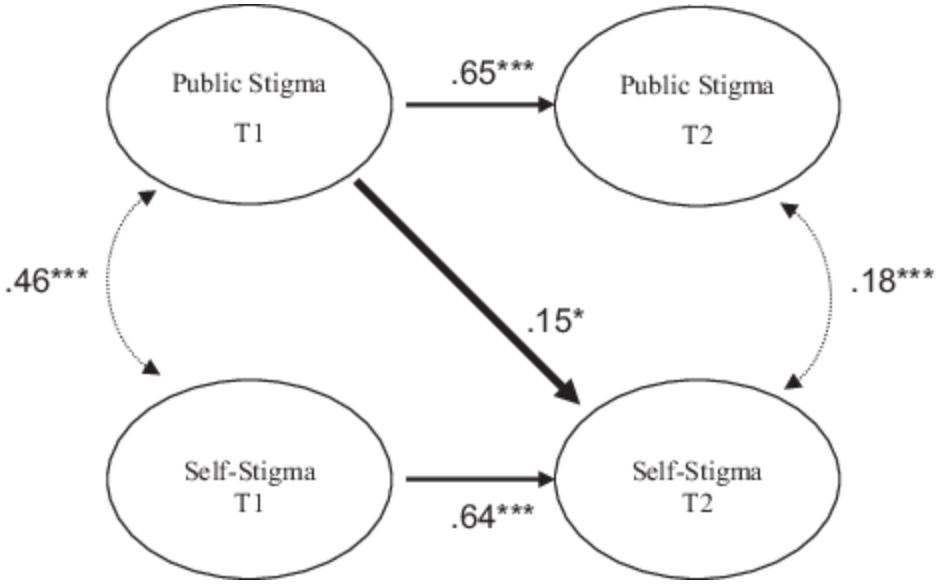


Figure 5*: Is Stigma Internalized? The Longitudinal Impact of Public Stigma on Self-Stigma.*

Figure 6

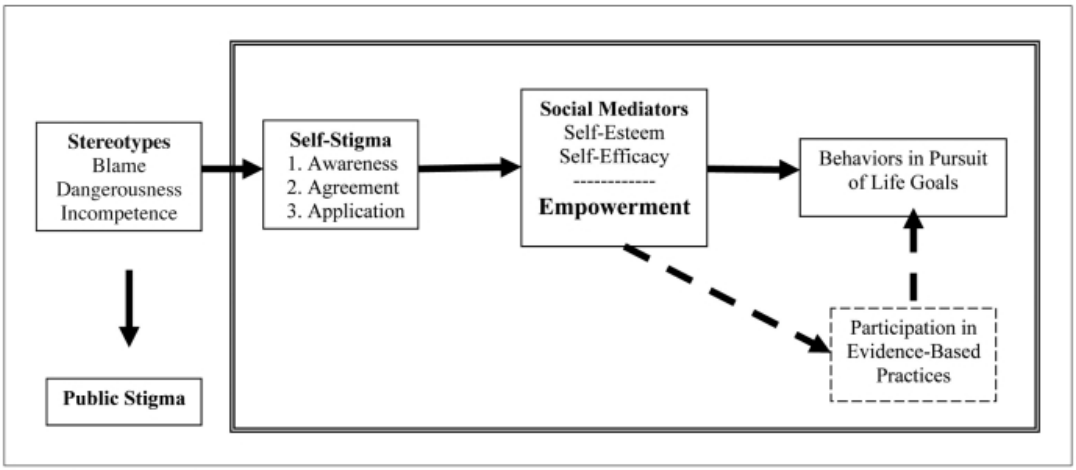


Figure 6*: The "Why try" Effect.*

Figure 7

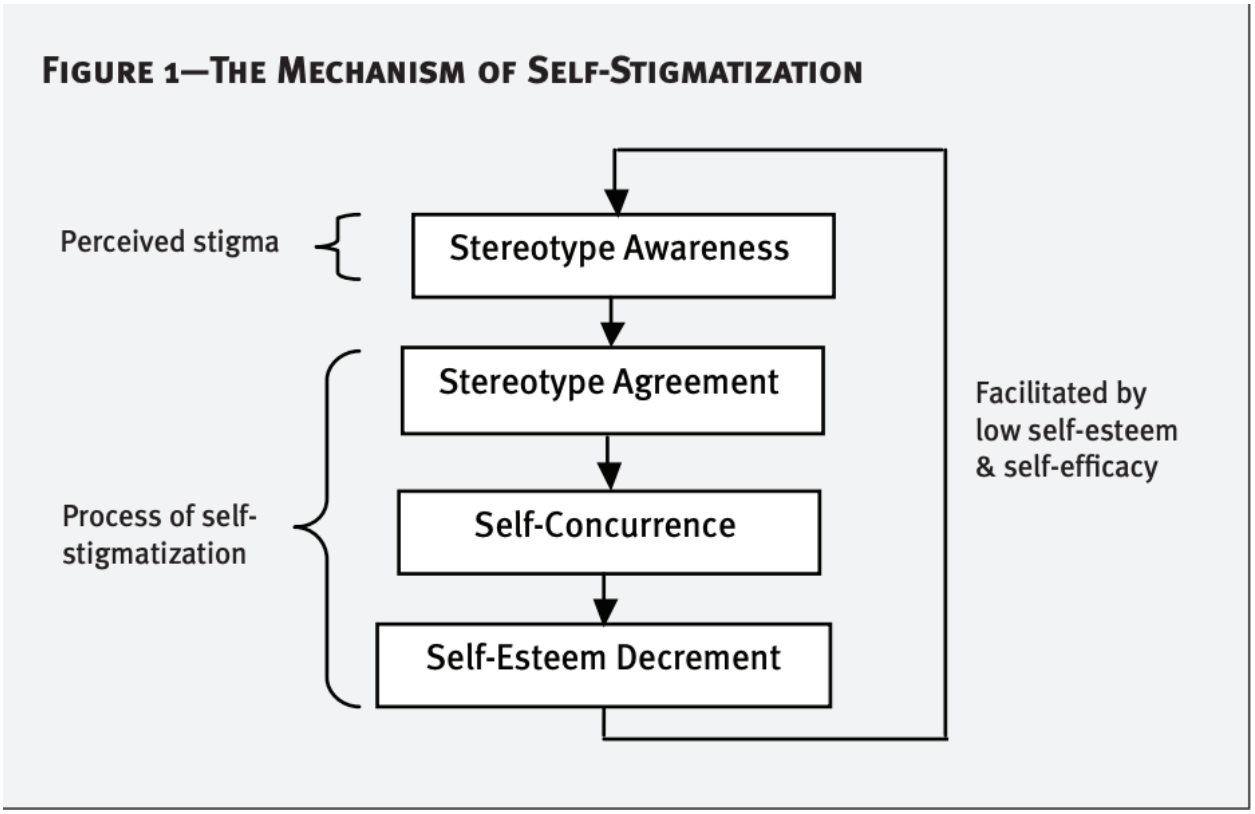


Figure 7*: The Mechanism of Self-Stigmatization.*

Figure 8

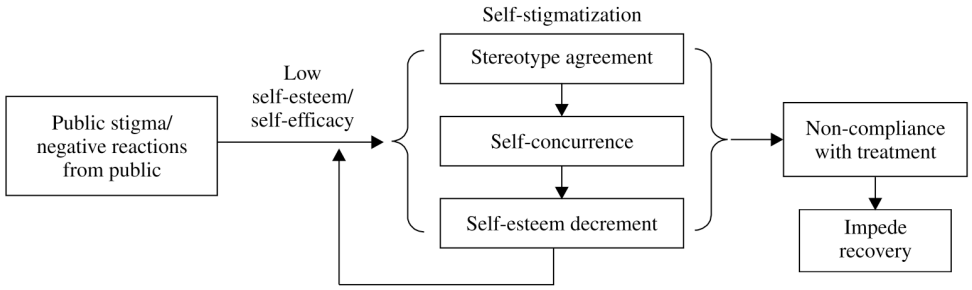


Figure 8*: The simplified process of self-stigmatization on the recovery process.*