

# Self-Esteem and Insight as Predictors of Symptom Change in Schizophrenia: A Longitudinal Study

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## Abstract

Though it is known that symptom profiles in schizophrenia change throughout the course of the illness, it is not yet clear which psychological antecedents predict these changes. The purpose of the present study was to explore “level of insight into mental illness” and “self-esteem” as predictors of positive symptom change in schizophrenia patients. Fifty-seven schizophrenia patients completed assessments of self-esteem, insight into mental illness, positive symptoms and paranoia once every four weeks for a total of eight individual testing sessions. Hierarchical linear regression analysis revealed that changes in self-esteem predicted future changes in paranoia as well as positive symptoms more broadly; decreases in self-esteem at any given time point were associated with an increase in persecutory beliefs and other positive symptoms at the following assessment. On the other hand, decreases in insight were not significantly associated with paranoia or positive symptoms, either as a stable trait of the mental illness or as a predictor of change over time. Taken together, these results suggest that change in self-esteem, but not insight, has a significant and unique association with positive symptoms of schizophrenia, and may be a valuable target for future treatment.

**Key Words:** Schizophrenia, Insight, Self-Esteem, Paranoia, Symptoms

## Introduction

Schizophrenia is a complex mental illness that is characterized by highly variable patterns of symptoms such as hallucinations, delusions, social withdrawal, and avolition. It is well known that, in addition to being variable across patients (1), the patterns of these symptoms can also vary substantially within the same patient over time (2-7). For

example, some patients may present with high levels of negative symptoms for a period of years, while other patients may experience a sudden onset of positive symptoms followed by a relatively rapid remission (6). Still others experience recurrent fluctuations of symptoms, each of which may last for weeks at a time and are separated by brief periods of remission (5, 8). Despite the therapeutic and scientific importance of being able to anticipate the re-emergence of these symptoms, it nevertheless remains difficult to predict the development and change in symptomatology over time.

Of particular interest in the present study are the psychological antecedents that precipitate changes in symptoms of schizophrenia. One proposed hypothesis is that decreases in insight may be directly related to increases in the severity of positive symptoms such as delusions and hallucinations. Schizophrenia and other related psychotic disorders are unique in that they are frequently accompanied by poor in-

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### Clinical Implications

The growing body of evidence for the role of insight and self-esteem in symptom development has important clinical implications. Patients who report feeling suspicious or having persecutory delusions may benefit from an intervention that is geared toward improving self-esteem. Importantly, first-episode patients and those at risk for developing schizophrenia may be targeted for psychological treatments that incorporate self-esteem therapy, with the ultimate goal of preventing a future relapse of positive symptoms. Preliminary exploratory randomized controlled trials have indicated that interventions with an emphasis on improving self-esteem result in widespread reduction in the severity of symptoms of schizophrenia, including positive symptoms, negative symptoms, and symptoms of general psychopathology (43). Case reports of individual psychotherapy have also linked the growth of self-concept with reductions in positive symptoms (44). Taken together, the results described in the present study implicate the need for future inquiry into the causal relationship of self-esteem on positive symptoms in schizophrenia, and the development of treatments to target this psychological antecedent of symptom exacerbation.

sight (9). Intuitively, it is reasonable to speculate that those with more severe delusions are unable to identify these experiences as features of the illness; in fact, it has been found that preservation of insight predicts favorable outcomes following relapse (10), and is modestly negatively correlated with the severity of positive symptoms in cross-sectional study designs (11-17). However, despite the theoretical coherence and evidence supporting the hypothesis that insight is linked with positive symptoms, nearly as much evidence suggests that there is no significant relationship between insight and either positive or negative symptoms of schizophrenia (18-21). One longitudinal study by Carroll and colleagues (11) demonstrated that while insight was initially related to positive symptoms at the first assessment, subsequent changes in insight were not significantly related to changes in positive symptoms across time. These results implicate the need for longitudinal studies to: 1) obtain a stable estimate of insight over repeated assessments; and, 2) evaluate the influence of changes in insight on symptom expression over time.

While findings regarding the relationship between insight and symptoms remain equivocal in the literature, evidence is growing to support the hypothesis that changes in positive symptoms are linked with fluctuations in self-esteem. As is the case with insight, schizophrenia patients also frequently have poor self-esteem (22, 23), as well as an elevated comorbidity with major depressive disorder (24). It has been observed that low self-esteem is significantly related to heightened paranoia (19, 25, 26) and perhaps to positive symptoms more broadly (27-30). Furthermore, one recent longitudinal study demonstrated that decreases in self-esteem predicted future changes in paranoia (31): using a diary-based system, schizophrenia patients reported an increase in paranoia shortly following decreases in self-esteem. These findings appear to suggest that feelings of worthlessness tend to lead to increases in persecutory beliefs. From a theoretical standpoint, it may be suggested that persecutory beliefs are invoked as a post hoc explanation for an otherwise inexplicable decrease in self-esteem. It

has been observed that individuals with schizophrenia often have difficulties distinguishing emotional experiences from one another and understanding their psychological and environmental antecedents (32, 33); through this lens, it can be hypothesized that persons with schizophrenia have difficulty attributing feelings of worthlessness to the appropriate environmental event, and instead develop beliefs that they are being oppressed by others to account for the subjective experience of worthlessness or powerlessness. In other words, feelings of ineptitude are attributed to an attack by others. This is consistent with observations that patients with higher levels of paranoia also tend to have higher levels of social anxiety compared to schizophrenia patients who report few symptoms of paranoia (34).

As is the case with insight and symptomatology, however, the evidence supporting the influence of self-esteem on positive symptoms (and paranoid ideation in particular) is limited by a lack of longitudinal study designs as well as contradictory reports. For example, Freeman and colleagues (35) have reported that low self-esteem was related to paranoia at a baseline assessment, but subsequent changes in self-esteem did not co-vary with changes in conviction of persecutory delusions over time.

The present study was conducted to shed light on the relationship between insight, self-esteem, and schizophrenia symptoms using a longitudinal approach. Given the discrepant findings in the literature regarding insight and self-esteem, a longitudinal design is well-suited to elaborate on the complex relationship between these variables. Participants in the present study completed a series of eight self-report questionnaires and semi-structured interviews separated by four weeks between each testing session. Of primary interest was the effect of changes in self-esteem and insight on positive symptoms of schizophrenia, and paranoia in particular. One item from the measure used to assess positive symptoms was examined separately from the rest to provide an index of paranoid ideation. Scores on these measures were first averaged together across the eight

time points and correlated with one another to examine the relationship between trait insight, self-esteem, and positive symptomatology; hierarchical linear regression analysis was then performed to examine the relationship between these variables as they changed over time.

## Methods

### Participants

Fifty-seven individuals meeting *DSM-IV-TR* criteria for schizophrenia ( $n=37$ ) or schizoaffective disorder ( $n=20$ ) were recruited from a local VA Medical Center to participate in a larger study of the effects of vocational rehabilitation (48 male; mean age=47.26,  $SD=8.31$  years). Psychiatric diagnosis was determined using the Structured Clinical Interview for the DSM-IV (SCID-I; 36); patients meeting criteria for current substance dependence or a chart diagnosis of mental retardation were excluded from the study. All participants were in a post-acute phase of illness, which was defined by no changes in medication, hospitalization or housing within the last 30 days. On average, participants had 12.68 years of education ( $SD=2.33$ ) and 6.95 psychiatric hospitalizations ( $SD=8.46$ ). Twenty-two participants (38%) were white, 34 (60%) were black, and one (2%) was Latino.

### Instruments

#### Rosenberg Self-Esteem Schedule

The Rosenberg Self-Esteem Schedule (RSES; 37) is a 10-item, self-report questionnaire that assesses participants' level of self-esteem. Subjects are asked to indicate how much they agree with statements such as, "I wish I could have more respect for myself," and "I feel that I am a person of worth, at least on an equal basis with others" on a 4-point Likert scale that ranges from "strongly disagree" to "strongly agree." The items are scored such that a higher value on the RSES indicates greater self-esteem. Though typically used in non-impaired samples, it has been demonstrated that schizophrenia patients can also reliably report their levels of self-esteem using the RSES (29, 38).

#### Scale to Assess Unawareness of Mental Disorder

The Scale to Assess Unawareness of Mental Disorder (SUMD; 18) is a semi-structured interview designed to assess participants' level of insight into their mental illness. Participants are asked a variety of questions about their symptoms, including whether they believe they currently have symptoms of mental illness, whether they believe they have had symptoms of mental illness in the past, and what they believe caused their mental illness. Trained and calibrated raters with at least a Bachelor's Degree assigned a score from 1–5, with higher scores indicating reduced insight. This semi-structured interview demonstrates good

reliability (18) and validity (39, 40) for use with schizophrenia patients. There are multiple factors that comprise the SUMD, including illness insight, symptom insight, and attribution; however, for the purposes of this study, we used the total score from the first three items of the SUMD, which provides a general index of illness insight. These include: 1) awareness of mental disorder; 2) awareness of treatment effects; and, 3) awareness of social consequences of the mental disorder.

#### Positive and Negative Syndrome Scale

The Positive and Negative Syndrome Scale (PANSS; 41) is a 30-item, semi-structured interview designed to assess five symptom categories associated with schizophrenia: positive symptoms (i.e., hallucinations and delusions), negative symptoms (i.e., avolition and anhedonia), cognitive symptoms (i.e., thought disorder), hostility, and depression (42). Trained and calibrated raters assigned a score from 1–7 for each item, with higher scores indicating more severe psychopathology. Given recent evidence supporting the role of self-esteem and insight in positive symptom changes (e.g., 11, 31), only the positive symptom category was examined for the purposes of this study. Additionally, one of the items from the positive symptom category was used as a measure of paranoia (the "suspiciousness/persecution" item). Positive symptom scores described in this study include all of the items except the suspiciousness/persecution item; the items that were included assessed delusions, unusual thoughts, somatic symptoms, grandiosity and hallucinations.

### Procedures

The procedures for this study were approved by the institutional review committees of Indiana University and the Roudebush VA Medical Center. After obtaining informed consent from each participant, the RSES, SUMD, and PANSS were administered for a baseline measure of current self-esteem, insight, and psychopathology. Following this initial assessment, all participants were offered a part-time, six-month paid work placement at the medical center and provided support services. Patients then completed these same three measures once every four weeks for approximately six months; at the conclusion of the study the participants had completed eight testing sessions. Thirteen of the fifty-seven patients completing the study missed one testing session; these participants, therefore, had only seven sets of scores on the RSES, SUMD, and PANSS.

### Data Analysis

The first set of analyses was aimed at establishing the relation between measures of trait self-esteem and trait insight, and measures of trait severity of positive symptoms. Trait

## Predictors of Symptom Change in Schizophrenia

self-esteem, insight, and psychopathology were defined as the average of RSES, SUMD, PANSS positive, and paranoia scores across all eight time points, respectively. Additionally, the relation between instability of self-esteem and insight and severity of psychopathology was examined. Instability of self-esteem and insight was defined as the standard deviation of RSES and SUMD scores, respectively (31). Pearson correlations were computed between trait level of positive symptoms and each of the following: 1) trait self-esteem; 2) trait insight; 3) instability of self-esteem; and, 4) instability of insight.

prediction of the dependent variable when accounting for autocorrelations within these measures. All analyses were conducted using Predictive Analysis Software (PASW) 17.0.

### Results

The mean score for each measure across eight time points is presented in Table 1. In Table 2, the correlations between trait self-esteem, trait insight, and trait positive symptoms are presented. After correction for multiple correlations, significant associations between trait self-esteem and trait paranoia and positive symptoms emerged ( $r$ 's=-0.57, -0.44;  $p$ 's<0.001), indicating that lower levels of self-esteem

**Table 1** Average Scores from each Measure across Eight Sessions over a Period of Six Months

	Assessment Session								Average Variability across Testing Sessions (SD)
	1	2	3	4	5	6	7	8	
RSES (range=10–40)	27.19	28.45	28.65	29.23	29.13	29.02	29.09	29.21	2.76
SUMD (range=3–15)	7.32	7.73	7.58	7.79	7.67	7.88	7.73	8.11	1.38
Positive Symptoms (range=6–29)	15.65	14.53	14.35	14.88	14.45	14.39	14.21	14.19	2.54
Paranoia (range=1–6)	3.49	3.33	3.40	3.36	3.45	3.41	3.45	3.19	0.89

RSES=Rosenberg Self-Esteem Schedule; SUMD=Scale to Assess Unawareness of Mental Disorder

The second set of analyses aimed to explore the temporal relation between the measures of self-esteem and insight and the symptom measures. Hierarchical linear random regression models were estimated for each of the following two hypotheses, separately: 1) change in self-esteem or insight predicts future change in paranoia; and, 2) change in self-esteem or insight predicts future change in positive symptoms. To test these hypotheses, two models were examined to explain changes in each of the dependent measures (positive symptoms and paranoia). When evaluating predictors of changes in positive symptoms, the first level of the regression model was set to account for the positive symptom score at the previous time point. For the first model, the second level of the regression was the insight score at the previous time point. Thus, this approach examined the ability of changes in insight to predict future changes in positive symptoms after accounting for the positive symptoms score at the previous assessment. The second model was identical to the first, with the exception that self-esteem scores replaced the insight measure to examine the predictive power of self-esteem on changes in positive symptoms. These steps were then repeated using the measure of paranoia as the dependent variable. A statistically significant beta weight for self-esteem (RSES) or insight (SUMD) at the previous time point after accounting for the score of the dependent measure at the previous time point would indicate improved

are associated with more severe paranoid ideation and other positive symptoms. The correlation between trait insight and trait paranoia or positive symptoms was not significant ( $r$ 's=-0.18, -0.12;  $p$ 's>0.19); similarly, insight and self-esteem were not significantly related to each other ( $r$ =0.13;  $p$ =0.35). Additionally, there was no relation between instability of self-esteem and trait symptoms of schizophrenia ( $r$ 's<0.21;  $p$ 's>0.12); individuals that had highly variable levels of self-esteem did not tend to have higher levels of paranoia, or other positive symptoms. Similarly, instability of insight was also not related to trait self-esteem or positive symptoms of schizophrenia ( $r$ 's<0.22;  $p$ 's>0.11).

In order to examine the temporal relationship between self-esteem level, insight, and symptom fluctuation in schizophrenia, hierarchical linear regression analysis was performed to estimate the effect of self-esteem and insight at each time point on positive symptoms and paranoia at the following assessment. Beta weights for each of the measures are presented in Table 3. Changes in self-esteem significantly predicted future changes in both paranoia ( $\beta$ =-0.17;  $p$ <0.01) and in positive symptoms more broadly at the trend level ( $\beta$ =-0.05;  $p$ =0.07), even after controlling for the level of paranoia and positive symptoms at the previous time point. By contrast, changes in insight did not significantly predict future changes in either paranoia ( $\beta$ =-0.02;  $p$ =0.69) or positive symptoms more broadly ( $\beta$ =0.00;  $p$ =0.98). These results

**Table 2** Correlations Between Average Scores of all Measured Variables

	Trait Self-Esteem	Self-Esteem Variability	Trait Insight	Insight Variability	Trait Paranoia	Trait Positive Symptoms
Trait Self-Esteem	—	-0.10	0.13	-0.22	-0.57*	-0.44*
Self-Esteem Variability		—	-0.13	0.01	0.21	0.13
Trait Insight			—	0.04	-0.18	-0.12
Insight Variability				—	0.08	0.20
Trait Paranoia					—	0.64*
Trait Positive Symptoms						—

\*p<0.001

**Table 3** Beta Weights for each Predictor at a Previous Time Point (T-1) onto the Relevant Symptom Measure at the Following Time Point (T)

	Positive Symptoms (T)	Paranoia (T)
Self-Esteem (T-1)	-0.05*	-0.17 <sup>†</sup>
Insight (T-1)	0.00	-0.02
Positive Symptoms (T-1)	0.92 <sup>‡</sup>	N/A
Paranoia (T-1)	N/A	0.34 <sup>‡</sup>

\*p=0.07; †p<0.01; ‡p<0.001

indicate that insight does not appear to be related to the level of positive symptom expression, either when considered as a stable trait or as it varies over time. By contrast, high self-esteem is significantly associated with fewer positive symptoms of schizophrenia when considered as a stable trait and as a predictor of change in symptoms over time.

## Discussion

The present study was designed to detect psychological antecedents that predict symptom exacerbation and remission in schizophrenia. To test this, we measured insight, self-esteem, and two areas of symptomatology associated with schizophrenia (paranoia and positive symptoms more broadly) at eight different testing sessions over a period of approximately six months. It was observed that trait insight (defined as the average insight score across all eight testing sessions) was not associated with trait levels of paranoia or positive symptoms. This observation contradicts the hypothesis that persons with schizophrenia who report severe hallucinations and delusions have lower insight into the severity of their mental illness. Furthermore, the observation

that fluctuations in insight were unrelated to fluctuations in positive symptoms indicates that level of insight is a poor predictor of future positive symptom changes in patients.

By contrast, self-esteem appears to have a much stronger relation with positive symptomatology. Trait self-esteem (defined as the average self-esteem score across all eight testing sessions) was significantly related to trait paranoia and trait positive symptoms, indicating that those with lower self-esteem tended to have more severe persecutory delusions and other positive symptoms such as hallucinations and disorganization. Furthermore, decreases in self-esteem significantly predicted exacerbation in both of these symptom domains at the following assessment. Once again, this improvement in predictive power was significant even after accounting for participants' level of paranoia and other positive symptoms at the previous assessment. The results presented here support the hypothesis that levels of paranoia, as well as positive symptoms more broadly, are a consequence of earlier changes in self-esteem (31). Future studies may be conducted to test the intriguing hypothesis that paranoid thoughts and exacerbation of hallucinations may be a secondary response to feelings of worthlessness.

*By contrast, high self-esteem is significantly associated with fewer positive symptoms of schizophrenia when considered as a stable trait and as a predictor of change in symptoms over time.*

These observations regarding insight and symptoms reported in the present study are largely supported by previous research, but some inconsistencies remain. For instance, we did not observe the significant correlations between insight and positive symptoms observed by others (e.g., 13, 14, 16, 17). This discrepancy may be due to measurement error as different assessment tools have been used to measure insight

and symptomatology in other studies. Alternatively, this discrepancy in the literature could be due to the longitudinal nature of the study. Because we were able to measure trait insight over a period of eight assessments, we were able to obtain a more reliable estimate of this construct.

Though our observations are largely consistent with, and extend observations from previous literature, there are some important limitations to the study. First of all, the present study was not a true experiment and, therefore, prohibits inferences regarding causality. However, the results presented here strongly suggest that self-esteem plays an important role in later symptom development, and future randomized controlled trials may be conducted to examine whether treatments geared toward improving self-esteem also tend to reduce paranoia and other positive symptoms. Second, the duration between testing sessions (four weeks) limits our ability to examine high-frequency changes in these variables. Finally, characteristics of our sample limit generalizability; most participants were middle-aged males, all of whom had consented to participate in a vocational rehabilitation treatment program. The effects observed in this study must be replicated in more diverse samples, including more women and patients refusing to participate in treatment.

The growing body of evidence for the role of insight and self-esteem in symptom development has important clinical implications. Patients who report feeling suspicious or having persecutory delusions may benefit from an intervention that is geared toward improving self-esteem. Importantly, first-episode patients and those at risk for developing schizophrenia may be targeted for psychological treatments that emphasize building self-esteem, with the ultimate goal of preventing a future relapse of positive symptoms. Preliminary exploratory randomized controlled trials have indicated that interventions with an emphasis on improving self-esteem result in widespread reduction in the severity of symptoms of schizophrenia, including positive symptoms, negative symptoms, and symptoms of general psychopathology (43). Case reports of individual psychotherapy have also linked the growth of self-concept with reductions in positive symptoms (44). Taken together, the results described in the present study implicate the need for future inquiry into the causal relationship of self-esteem on positive symptoms in schizophrenia, and the development of treatments to target this psychological antecedent of symptom exacerbation.

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