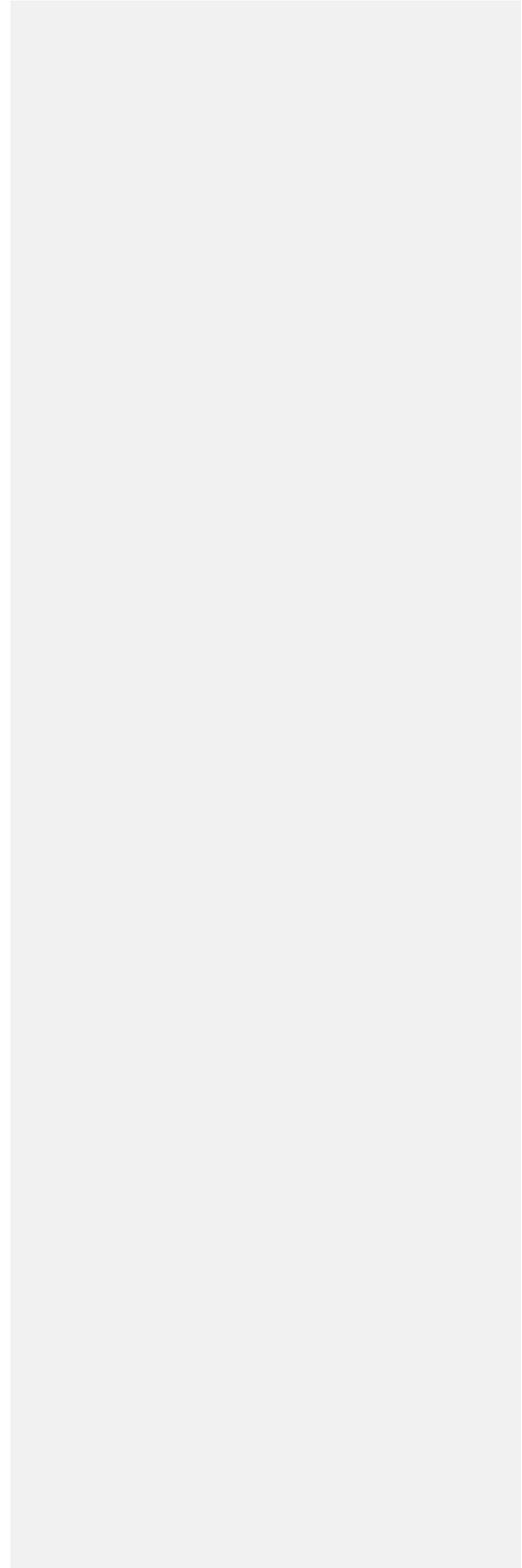


**Social Cognitive Deficits and Lack of Insight in Schizophrenia  
Patients**

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### *Abstract*

Background: Negative symptoms in schizophrenia include several impairments in social and cognitive functioning that differ from person to person. Deficits in social cognition include the inability to receive employment, live independently, maintain a group of friends, or behave appropriately in public settings. A significant cognitive deficit seen in schizophrenia patients known as lack of insight, or “unawareness of illness” can range from patient to patient. This study determines whether patients with more severe social cognitive deficits have greater lack of insight than patients with less severe symptoms.

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Methods: Data was collected from 90 participants. Prior to all other assessments, severity of symptoms was measured in all patients with the Positive and Negative Symptoms Scale (PANSS). Patients with schizophrenia receiving medication as well as a set of healthy controls were assessed with the Bell-Lysaker Emotion Recognition Task (BLERT), an assessment measuring social functioning. Controls and patients were then asked to give a confidence rating of their performance after each item.

Results: The PANSS scores of patients, BLERT average confidence rating, and the total amount correct on the BLERT were significantly correlated, with p-values of less than 0.000 each. These data show that a lower PANSS score does have an effect on the patient's ability to self-assess their performance on a measure.

Discussion: This study shows that patients who face greater impairments in social cognition have greater difficulty in self-assessment than those who have more mild symptoms. They are less aware of their own symptoms as well as their ability to perform the tasks given to them.

**Table 1: Demographics**

	N	%
Gender		
Female	38	42.2
Male	52	57.8
Race		
Caucasian	33	36.7
African American	50	55.6
Asian	4	4.4
Other	3	3.3
Ethnicity		
Non-Hispanic	69	76.7
Hispanic	21	23.3
Education		
Middle school or less	3	3.3
Some high school	9	10.0
High school diploma	23	25.6
Some college	33	36.7
College degree	15	16.7
Higher than college	7	7.8
Age		
	Mean	SD
	43.4	9.7

**Table 2: Significance Value of Variables**

Variable	p value
Total Correct BLERT (out of 21)	.000**
BLERT mean confidence rating	.000**
PANSS (general)	.000**

\*\* p value < .05

### ***1.0 Review of Literature***

Schizophrenia is a debilitating neuropsychological disorder that occurs in about 0.5 to 1.1 percent of adults worldwide (CDC, 2011). It is widely known for its devitalizing positive symptoms such as a hallucinations and delusions; however, its negative symptoms are just as devastating. Unfortunately, this disorder is a genetic disease that cannot be attributed to a single gene and no individual experiences the same exact symptoms (Coyle, 2012). Negative symptoms, for example, include several impairments in social and cognitive functioning that can differ from person to person. Deficits in social cognition may include the inability to receive employment, live independently, maintain a group of friends, or behave appropriately in public settings. (Wiersma et al., 2000; Auslander et al., 2001; Ho et al., 1997) Another significant cognitive deficit that most schizophrenia patients possess is their lack of insight, or “unawareness of illness” (Harvey, Pinkham, 2015). Today, social cognitive deficits have become a large target for pharmacological treatment (Pinkham et al., 2013).

The Social Cognition Psychometric Evaluation Study (SCOPE) identified and improved the best existing measures of social cognition in order to apply them to large-scale studies targeting treatment of social cognitive deficits. The SCOPE study was comprised of five phases. The two primary goals of the first half of these phases were one, to identify a set of domains that could categorize the aspects of social cognition and two, to evaluate the psychometric properties of the measures that fit under each domain. The second half of the study included administering these tests and then viewing patients’ scores in order to examine a relationship between the social cognition measures that were evaluated and functional outcome (Pinkham et al., 2013).

The four domains identified in the SCOPE study included emotion processing, social perception, theory of mind, and attributional style/bias. Under these categories are around five to

six cognitive measures that assess aspects specific to each domain. Emotion processing was defined as the ability to use emotions and perceive others' emotions. The Bell-Lysaker Emotion Recognition Task (BLERT), the Penn Emotion Recognition Task (ER-40), and the Facial Emotion Discrimination Task (FEDT) are used to assess emotion processing by asking the patient to detect different facial expressions. The next domain of social perception is the ability to decode and interpret social cues from others, and the Relationships Across Domains (RAD) is used to assess this. In the RAD, a patient is given several vignettes and must identify the social cue or implication found in each one. Theory of mind is the domain defined as the ability to represent mental states of others including, inference of intentions, dispositions, or beliefs. The tasks used for this domain are The Awareness of Social Inference Test (TASIT) and the Hinting Task; in both, the participant must detect the social inference within a conversation. Attributional style or bias is the way in which individuals explain the causes of a social event or interaction. The Ambiguous Intentions Hostility Questionnaire (AIHQ) tests this domain. This task is composed of different negative situations that could either be accidental, intentional, or ambiguous and the patient must detect which of these the situation is (Pinkham et al., 2013). Together these four domains and measures have been used to examine the relationship between social cognition and functional outcome, not just in the SCOPE study, but in others as well.

A separate study was conducted to target treatment for deficits in social cognition by using the four domains and evaluated measures from the SCOPE study. The results for each domain showed significant score differences between healthy subjects and patients. Each domain except for Attributional Bias, with a p-value of 0.039, had p-values less than 0.0001, which are all significant (Mehta et al., 2014). The study showed that all patients with schizophrenia scored

more poorly for each task than any healthy control did, and that treatment for negative symptoms is growing more prevalent.

In recent studies, impairments in social cognition have been linked to poor social functioning. Social functioning is the ability to perform skilled acts in domains of everyday living skills (Leifker, 2009). In schizophrenia, these skills are often delayed by deficits in social cognition, which is significant because these impaired everyday living skills are determinants of impairments in overall functioning (Buchanan et al., 2005). Both positive and negative symptoms contribute to mediating the relationship between performance social functioning assessments and real world outcomes, or overall functioning (McClure et al., 2012).

Another impairment in schizophrenia is unawareness of illness, or lack of insight. Unawareness of illness extends into the unawareness of cognitive and functional deficits. It has been shown in a study done by Dante Durand in 2014 that unawareness of illness is a predictor of less severe depression in schizophrenia patients, but greater severity of positive and negative symptoms. In Durand's study, patients provided self-reports on their cognitive deficits and completed tasks assessing cognitive performance. The study found that there was no correlation between the patients' self-reports and cognitive performance; this means that because patients gave themselves high-ratings on their cognitive abilities, there were no similarities in how they thought they did versus how they actually did on these tasks, i.e., a high rating of cognitive abilities and a high score on a cognitive ability task (Durand et al., 2014). This particular study displays how unaware schizophrenia patients are of their own impairments.

The domains of social cognition identified by the SCOPE study have been used in several recent studies; the measures have been employed in studies to target better treatment for negative

symptoms, more specifically in studies examining patients' ability to self-assess their own illness.

***2.0 Research Question and Hypothesis:***

***Research Question:***

Will patients with severe social cognitive deficits experience greater difficulty in self-assessment of their everyday functioning?

***Hypothesis:***

H1: If patients are more impaired in social cognition, they will have more difficulty in self-assessment of everyday functioning.

### **3.0 Proposed Methods:**

#### *3.1 Participants:*

Participants consisted of patients with schizophrenia or schizoaffective disorder who are receiving medication. The study also included a set of healthy controls who received the same assessments as the patients. Data was collected from 90 participants.

#### *3.2 Assessments*

##### *3.2.1 PANSS*

The Positive and Negative Syndrome Scale is completed before all other measures. The patient is asked a series of questions that measure severity of both negative and positive symptoms. A trained interviewer rates the patient 1-7 on 30 different symptoms (Kay, Opler, Fiszbein, 1987).

Symptom severity served as a predictor of

##### *3.2.2 BLERT*

All patients are examined using the Bell Lysaker Emotion Recognition Task (BLERT). This task assesses social functioning and was selected as a measure in the first half of the SCOPE study.

The task consists of twenty-one items. Each item is a different video displaying different emotions; the participant is asked to identify the emotion once the video has ended.

##### *3.2.3 Self-Assessment: Confidence Rating on BLERT*

After each item on the BLERT, the participant is asked to rate their confidence in their answers with a rating from 0 to 100. This assesses confidence levels in participants. The total number of correct items is then compared to how many each participant believed they got correct (by looking at the confidence ratings).

### 3.3 Procedure

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This study was conducted by employing all measures identified in the SCOPE study. A preliminary assessment (PANSS) is completed before all other measures in order to assess the severity of each patient's symptoms. All participants were then examined with the assessments measuring social cognition. These measures included the Relationships Across Domains (RAD), Ambiguous Intentions and Hostility Questionnaire (AIHQ), Penn Emotion Recognition Task (ER-40), and the Awareness of Social Inference Test (TASIT). After each measure, participants were asked to give a self-report on their performance. This study focused only on the BLERT measure and each participant's confidence rating in order to determine whether or not the patient's symptom severity affected their ability to self-assess their performance.

### 3.4 Statistical Analysis:

Data was analyzed through SPSS. Analyzing just the BLERT scores, an analysis of variance (ANOVA) was run on the data regarding confidence ratings and total amount correct for each participant. To compute the average confidence ratings of each patient, the total confidence ratings of correct answers and total confidence ratings of incorrect answers were added and then divided by 21, which is the amount of items in the BLERT. The significance values in table 2 were found through running a correlational analysis on the BLERT items.

## 4.0 Results

### 4.1 Symptom Severity (PANSS) compared with BLERT scores

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The data shows that patients with higher ratings on the PANSS (more severe symptoms) received lower scores on the BLERT. A patient with an overall PANSS rating of 41 received a score of 4 correct out of 21 items on the BLERT. Data revealing a patient with a PANSS rating of 18 received a score of 19 correct out of 21 items. This sample from the data shows that a patient with more severe symptoms has overall greater impairment in social cognition.

### 4.2 Symptom Severity (PANSS) compared with Average Confidence Ratings

By computing the average confidence rating for each participant, it was shown that with a higher rating on the PANSS, there were also higher average confidence ratings. The patient with an overall PANSS of 41 gave themselves an average confidence rating of 97 out of 100 points. The patient with a PANSS of 18 gave an average confidence rating of 82 out of 100 points. This data shows that the higher the symptom severity in a patient, the less awareness of illness they possess.

### 4.3 Average Confidence Ratings Compared to Total Amount Correct

Those with higher confidence ratings had lower scores on the BLERT. For example, a schizophrenia patient scored 4 correct out of 21 items on the BLERT, while giving an average confidence rating of 97 out of a 100-point scale whereas a healthy control scored 19 correct out of 21 items, but gave an average confidence rating of 82 out of 100 points. This data shows that patients with greater impairment in social cognition have less awareness of their illness.

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### ***5.0 Discussion***

These results on lack of insight have also been shown in previous research on self-assessment in (Durand et al., 2014); this study found that schizophrenia patients on average overestimate their cognitive and functional ability as well. Another study concerning self-assessment in schizophrenia proved that a misestimating of ability emerged as a strong predictor of real-world functioning (Gould et al., 2015). The limitations of this study included patients who were not able to complete the full assessment. Patients without a high contact clinician were also excluded. Future research includes focusing on the effects of depression in schizophrenia patients on the accuracy of their self-assessment of functioning. There is little data on how depression can be treated in schizophrenia so it is important that future research is conducted on the effects of depression on social functioning in schizophrenia patients.

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