Impaired Insight in Patients with Newly Diagnosed Nonaffective Psychotic Disorders with and without Deficit Features

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Abstract

Patients with schizophrenia who have primary, enduring negative symptoms, or the deficit syndrome, have poorer psychosocial functioning but lesser clinical distress compared to nondeficit patients. Poor awareness of impairment in patients with deficit schizophrenia may contribute to this seeming contradiction. We hypothesized that poor insight would be present early in the course of illness in deficit patients, and that those with deficit features would have a greater impairment in insight than those without deficit features. One-hundred one first-episode patients with nonaffective psychotic disorders were categorized into deficit (*n*=31) and nondeficit (*n*=70) groups. The deficit patients had significantly poorer insight than nondeficit patients when rated using a self-report questionnaire, and nearly significantly poorer insight rated by clinical researchers. Further, this effect remained for self-rated insight and reached statistical significance for researcher-rated insight after controlling for positive, negative, and general psychopathology symptoms. These results suggest that the treatment of deficit patients may be particularly complicated by poor insight.

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Contributors

Hanan D. Trotman conducted statistical analyses and served as the primary author in writing the report. Brian Kirkpatrick supervised the writing of the report. Michael T. Compton designed and managed the overarching study. All authors contributed to and approved the final article.

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Conflicts of Interest

The authors know of no conflicts of interest pertaining to this research or this article.

Keywords

Deficit syndrome; First-episode psychosis; Insight; Proxy for the Deficit Syndrome; Schizophrenia

1. INTRODUCTION

Individuals with deficit schizophrenia manifest primary and persistent negative symptoms (Carpenter et al., 1988; Kirkpatrick et al., 1989; 2001) that are not secondary to other explanatory factors (e.g., antipsychotic medication, depressive symptoms, thought disorder, hallucinations, or delusions). Studies of patients with the deficit syndrome have indicated a history of poor social functioning (Fenton and McGlashan, 1994; Strauss et al., 2010; Tiryaki et al., 2003) and poorer premorbid adjustment (Buchanan et al., 1990; Mayerhoff et al., 1994).

Despite poor functioning, deficit patients generally have less clinical distress than nondeficit patients (Fenton and McGlashan, 1994; Kirkpatrick et al., 1994). Specifically, deficit schizophrenia is associated with greater levels of anhedonia, but less depression and suicidal ideation. Lack of awareness of illness, or poor insight, may be one explanation for this combination of lower distress despite marked social functioning impairments in patients with deficit schizophrenia. Patients who lack insight are to varying degrees unaware of their symptoms and the need for treatment, and fail to acknowledge the consequences of their disorder (Amador et al., 1993). Poor insight is related to more severe negative symptoms (Gharabawi et al., 2007; Kemp and Lambert, 1995; Mutsatsa et al., 2006), which makes insight a useful target for understanding decreased distress in this group. In addition, impaired insight in schizophrenia patients predicts interpersonal (Lysaker et al., 1998) and global functioning deficits (Parellada et al., 2008). Impaired insight in schizophrenia is also inversely correlated with depressive symptoms in chronic (Carroll et al., 1999; Kemp and Lambert, 1995; Mintz et al., 2003; Smith et al., 1998) and first-episode patients (Mutsatsa et al., 2006). By definition, deficit patients have greater levels of negative symptoms, poorer functioning, and lower levels of affective distress than nondeficit patients.

Studies of negative symptoms and insight have not adequately addressed primary negative symptoms. This may explain why some studies of poor insight and negative symptoms fail to find an association (Amador et al., 1994; Smith et al., 1998). Further complicating the association between negative symptoms and insight are data indicating that more severe positive and disorganized symptoms are also associated with lower levels of insight (Amador et al., 1993; Amador et al., 1994; Carroll et al., 1999; Chen et al., 2001; Collins et al., 1997; Kemp and Lambert, 1995; Mintz et al., 2003; Mutsatsa et al., 2006).

The current study investigated differences in impaired insight in deficit and nondeficit patients at first hospitalization. Three reports to date (Amador, Yale, Carpenter, Kirkpatrick, unpublished data, 1994 (cited in Amador et al., 1994); Arango et al., 1999; Kirkpatrick et al., 2000) have examined insight in deficit versus nondeficit schizophrenia. The unpublished data were derived from a sample of patients with chronic schizophrenia and found that deficit patients had poorer insight compared to nondeficit patients. One published archival report of first-episode patients in inner-city London found that patients with the deficit syndrome had poorer insight than nondeficit patients (Kirkpatrick et al., 2000). Another published report of insight in deficit schizophrenia investigated insight and awareness of dyskinesia in 43 patients with schizophrenia and tardive dyskinesia (Arango et al., 1999). In that report, the authors identified six patients with the deficit syndrome, who demonstrated less awareness of their dyskinetic movements compared to the 37 nondeficit patients.

Unawareness of tardive dyskinesia was positively correlated with impaired insight, suggesting that these factors may tap a similar construct. We hypothesized that deficit patients would have poorer insight in the first episode of psychotic illness compared to nondeficit patients.

2. METHOD

2.1. Setting and sample

Patients were referred to a study, primarily addressing the duration of untreated psychosis (Compton et al., 2008; 2009a; 2009b; 2009c), from their psychiatric treatment provider during hospitalization in a psychiatric unit of a large, university-affiliated, public-sector hospital or an urban county psychiatric crisis center. Two-hundred eighty-one patients were screened for inclusion in the study. Inclusion criteria required that patients were aged 18–40 years, had a clinical diagnosis (and then a research-based diagnosis) of a primary psychotic disorder, were able to speak English, had a Mini-Mental State Examination (MMSE; Cockrell & Folstein, 1988; Folstein et al., 2001) score of ≥23, and were able to give written informed consent. Exclusion criteria included the presence of a significant medical condition that could compromise ability to participate in the evaluation, known mental retardation (as determined by the patient's, family's, or treating clinician's report of a prior diagnosis), the presence of a substance-induced psychotic disorder or a psychotic disorder due to a general medical condition, prior outpatient antipsychotic treatment of >3 months duration, and previous hospitalization for psychosis prior to 3 months before index hospitalization. One-hundred seventy-two patients were excluded during the screening process because they did not meet study inclusion criteria or refused to participate. Eight patients were diagnosed with schizoaffective disorder and excluded from current analyses. The study was explained to all participants and informed consent was obtained. Patients included in the study ranged in age from 18 to 39 years and the majority of patients (80.2%) were assessed between hospital day 3 and 10. Patients had a mean length of hospital stay of 12.6±7.2 days.

2.2. Measures

The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID; First et al., 1998) was used to diagnose primary psychotic disorders and substance use disorders. Symptom severity (positive, negative, and general psychopathology) was rated with the *Positive and Negative Syndrome Scale* (PANSS; Kay et al., 1987). Depression was assessed (as a measure of subjective distress) using the *Calgary Depression Scale for Schizophrenia* (CDSS; Addington et al., 1993). Insight was assessed using the *Birchwood Insight Scale* (BIS; Birchwood et al., 1994). The BIS is an 8-item, self-report instrument in which individuals indicate if they 'agree,' 'disagree,' or are 'unsure' with statements designed to assess insight (e.g., 'I do not need medication'). The maximum possible total score is 12, and higher scores indicate better insight (Birchwood et al., 1994). Insight was also assessed with the 'Lack of Insight and Judgment' item of the PANSS. For this measure of insight, higher scores indicate poorer insight.

Patients were categorized as having a deficit or nondeficit psychotic disorder based on the *Proxy for the Deficit Syndrome* (PDS; Kirkpatrick et al., 1993), using PANSS scores. The following formula was used to quantify deficit-like features: negative symptoms (blunted affect + poverty of speech) – emotionality (hostility + guilt + anxiety + depressed mood). This represents the distinctive combination of high negative symptoms and a lack of negative affect and dysphoria that is characteristic of deficit patients (Kirkpatrick et al., 1989; 1993; 1994). Validation of the deficit/nondeficit categorization was based on finding the following characteristics of a typical group of deficit patients compared to nondeficit patients: comparable or less severe positive symptoms; less severe depressed mood, anxiety,

guilt, and hostility; and comparable demographic features (with the possible exception of a greater proportion of males), including chronicity of illness (Kirkpatrick et al., 1996a; 1996b; 1996c). Prevalence rates for the deficit syndrome have been noted to approximate 15% of first-episode patients (Kirkpatrick et al., 2001; Mayerhoff et al., 1994).

The PDS formula was calculated for each patient and yielded a continuous score of deficit-like features. PDS values in the current sample ranged from +2 to -22 (with no values from -17 to -21). Various cut-off points were examined to adequately dichotomize patients into deficit and nondeficit groups. The cut-off point that demonstrated the most valid deficit/nondeficit categorization was between -5 and -6. Patients with PDS scores from +2 to -5 were categorized as 'deficit' and patients with PDS scores from -6 to -22 were categorized as 'nondeficit.' The PDS categorized 31% of the current patient sample into the deficit group. The proportion of the sample characterized as deficit in the current study is comparable to other published reports of the PDS (Cohen et al., 2004; Kirkpatrick et al., 2001), which is typically higher than studies using the SDS. Another classification, which categorized 17% of the sample into the deficit group, was examined secondarily.

2.3. Statistical analyses

Analyses were conducted using SPSS version 17. Independent samples *t* tests were used to assess differences between deficit and nondeficit groups on continuous demographic and clinical variables. Chi-square analyses were used to investigate group differences between deficit and nondeficit status for categorical variables (e.g., substance abuse status). Analyses of covariance were used to assess differences between deficit and nondeficit groups while controlling for the effects of covariates.

3. RESULTS

Sociodemographic characteristics of the overall study sample (*n*=109) have been reported previously (Compton et al., 2009a; Compton et al., 2009d). The mean age was 23.1±4.7 years, 76.1% were male, 89.9% were African American, 91.7% were single and never married, 69.7% lived with parents or other family members in the month prior to hospitalization, 61.5% were unemployed prior to hospitalization, and the mean years of educational attainment was 11.6±2.4 years. SCID-based diagnoses of the 101 participants included in the present analysis are shown in Table 1. Substance use disorder diagnoses, also based on the SCID, are shown in Table 2. The presence of substance use disorders did not differ in deficit and nondeficit patients.

There was a trend-level correlation between negative symptoms and insight as measured by the BIS (*r*=-0.187, *p*=.063), but no correlation with the 'Lack of Insight and Judgment' item of the PANSS (*r*=0.001, *p*=0.992). Depression was significantly correlated with insight (BIS: *r*=0.203, *p*=0.048; PANSS Lack of Insight and Judgment item: *r*=-0.359, *p*<.001).

The PDS categorization yielded groups similar to other samples categorized using the *Schedule for the Deficit Syndrome* (Kirkpatrick et al., 1993; 1994; 1996c; 2001). By definition, negative symptoms were more severe and depressive symptoms less severe in the deficit group (Table 3). The deficit group exhibited greater impairment in insight, as measured by the BIS (*t*=-2.48, *p*=0.015, *d*=-0.49) and a trend-level difference was observed between the two groups when insight was assessed with the 'Lack of Insight and Judgment' item of the PANSS (*t*=1.78, *p*=0.078, *d*=0.44). Furthermore, deficit patients had significantly lower BIS scores (*F*=4.681, *p*=0.033) and higher PANSS 'Lack of Insight and Judgment' item scores (*F*=6.305, *p*=0.014) after controlling for PANSS positive, negative, and general symptoms.

Analyses were re-run using a cut-off point that classified approximately 15% of the sample as being in the deficit state, which some would argue is a better representation of the prevalence of the deficit syndrome. This resulted in 17% being classified as deficit patients. The pattern of findings (data not shown) did not change meaningfully.

4. DISCUSSION

First-episode patients categorized as having the deficit syndrome experienced less subjective distress than the nondeficit group, as assessed by the CDSS, which is consistent with previous literature (Fenton and McGlashan, 1994; Kirkpatrick et al., 1994). The deficit group manifested greater negative symptoms, as would be expected, and poorer insight compared to the nondeficit group. The deficit patients demonstrated significantly poorer insight after controlling for PANSS positive, negative, and general symptoms. Poor insight in the deficit group was not attributable to age at hospitalization, race/ethnicity, marital status, years of education, or MMSE score, as these did not differ across groups. Variation in insight is also unlikely to be explained by alcohol or cannabis abuse or dependence as these did not differ between groups. Previous literature suggests that the deficit state is not associated with disorganized symptoms (Arango et al., 2000) and data from the current study further support this claim. This report supports the assertion that patients with deficit status appear to have poorer insight than nondeficit patients (Amador, Yale, Carpenter, Kirkpatrick, unpublished data, 1994 (cited in Amador et al., 1994); Arango et al., 1999; Kirkpatrick et al., 2000).

There are several important limitations to be considered. First, patients were categorized as deficit or nondeficit at first hospitalization, and follow-up data to validate the stability of the categorization were not available. Nonetheless, it is important to categorize patients as deficit/nondeficit early in the course of illness to identify those at risk for greater impairment. Second, impaired neurocognition, which is associated with both deficit status and poor insight, was not directly assessed with the exception of the MMSE used to screen patients for study participation. The MMSE score (recorded as part of the determining of eligibility) did not differ between deficit and nondeficit groups, but this finding was not unexpected as the MMSE does not evaluate cognitive impairments in a detailed fashion. The use of a self-report measure of insight is another important limitation of this study. Self-report bias can be driven by either self-deception or other-deception. Nonetheless, self reporting has some strengths including the eliminating of clinician bias (e.g., patients' symptoms or cognitive impairment may influence clinicians' perspectives on the illness). Further, the BIS used in the current study has been highly correlated ($r = 0.80$, $p < 0.01$) with an interviewer-based measure of insight (Young et al., 2003), and it was complemented by a researcher-rated measure as well.

Impaired neurocognition has been proposed as an explanation for impaired insight and for deficit status. In this regard, deficit patients demonstrate greater impairment on measures of frontal (Buchanan et al., 1994; Simon et al., 2009) and parietal lobe functioning (Buchanan et al., 1994). Deficit patients also show sensory integration deficits (Arango et al., 2000; Buchanan et al., 1990). Research on poor awareness of impairment has most consistently implicated prefrontal cortical function as a source of the difficulty (Sapara et al., 2007; Shad et al., 2006). However, deficit patients appear to have a very widespread impairment in cognition compared to other people with schizophrenia (Cohen et al., 2007), so the circuits that underlie the greater impairment in insight in deficit patients are not clear. Poor insight is related to working memory deficits, memory recall (episodic memory) impairment, and general cognitive (verbal ability) impairment (Donohoe et al., 2005). Spatial working memory errors also show a significant inverse association with insight (Mutsatsa et al., 2006). Despite these findings, patients' level of insight is not related to their awareness of

cognitive deficits; data suggest that patients' insight regarding their clinical symptoms has no impact on their awareness of cognitive impairment (Donohoe et al., 2009). Future studies of the deficit syndrome might further investigate the interactive effects of cognition and insight. Given other findings showing that both negative symptoms and depression are associated with variation in insight, further research should examine whether the deficit syndrome—which takes into account both persistent, primary negative symptoms as well as lack of negative affect and dysphoria—is more associated with impaired insight than either of these factors individually. Studies might also aim to investigate the relationship between mode of onset of psychosis, insight, and deficit status. For example, an insidious mode of onset, in which the transition from impaired premorbid functioning to psychosis is very gradual, may leave patients more susceptible to misattributing or not recognizing subtle changes in their psychological state.

The association between poor insight and deficit status has clinical and research implications. In a clinical setting, poor insight in patients with the deficit syndrome may be a severely limiting factor for this highly debilitated group. Little evidence exists for the efficacy of antipsychotic medications in treating negative symptoms (particularly deficit symptoms) in schizophrenia (Buckley and Stahl, 2007). Further, clinical trials demonstrating treatment efficacy for negative symptoms most often rely on rating scales that combine primary and secondary negative symptoms as well as state and trait negative symptoms. True deficit symptoms are likely to be far more resistant to change than what those studies suggest. A qualitative review demonstrated improvements in insight following cognitive-behavioral treatments compared to standard care (Turkington et al., 2006). If future studies demonstrate that the deficit state in schizophrenia is malleable through psychosocial interventions, improved insight could provide a useful scaffold for psychosocial treatment adherence.

Individuals with deficit schizophrenia have blunted or flat affect, are socially withdrawn, and may have limited interpersonal functioning. The deficit syndrome in schizophrenia may be a manifestation of an interaction between psychosis and an amotivational syndrome as patients seem unconcerned about their social deficits. But does poor insight have its benefits? Karow and Pajonk (2006) argue that improved insight is associated with poor subjective quality of life in schizophrenia patients. Although improved insight is a major treatment goal, important consequences may result from substantial improvements in insight in the absence of improved symptoms and psychosocial functioning. The current study was not designed to validate the deficit syndrome, but suggests that deficit status is a useful subcategory of schizophrenia, and perhaps psychotic disorders more broadly, and demonstrates differences in insight at the first episode between deficit and nondeficit patients.

Acknowledgments

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Table 1

SCID diagnoses of 101 first-episode psychosis patients

Delusional disorder	1 (1.0%)
Brief psychotic disorder	4 (4.0%)
Psychotic disorder not otherwise specified	12 (11.9%)
Schizophreniform disorder	22 (21.8%)
Schizophrenia	62 (61.4%)

Table 2

Frequencies of substance abuse and dependence diagnoses in deficit and nondeficit groups

	Deficit	Nondeficit
Alcohol		
Abuse	5 (16.1%)	11 (15.7%)
Dependence	4 (12.9%)	9 (12.9%)
Cannabis		
Abuse	5 (16.1%)	13 (18.6%)
Dependence	14 (45.2%)	28 (40.0%)

Table 3

Sociodemographic and clinical characteristics in deficit and nondeficit groups

	Deficit	Nondeficit	p
Age, years	22.3±5.5	23.3±4.4	0.309
Sex, male	27 (87.1%)	53 (75.7%)	0.194
Race, African American	30 (96.8%)	62 (88.6%)	0.532
Relationship status, single and never married	31 (100%)	65 (92.9%)	0.312
Years of education	11.3±2.3	11.6±2.4	0.556
MMSE score	28.2±1.7	28.3±1.6	0.894
PANSS hallucinations + delusions	8.5±2.3	8.9±2.0	0.331
PANSS conceptual disorganization	3.4±1.2	3.2±1.3	0.591
PANSS negative symptoms	25.2±6.5	19.8±6.3	<0.001
CDSS depression score	1.7±1.9	5.3±3.8	<0.001
BIS insight score[*]	4.4±3.1	6.1±3.3	0.015
PANSS insight and judgment item[**]	5.1±1.5	4.6±1.3	0.078

[*] Higher scores on the BIS indicate better insight.

[**] Higher scores on the PANSS 'Lack of Insight and Judgment' item denote poorer insight.