

ORIGINAL ARTICLE

Is There a Relationship between Dissociative Symptoms and Severity of Positive and Negative Symptoms in Patients with Schizophrenia?

Raj K. Sahu^{a,b}*Department of Psychiatry, ^aInstitute of Mental Health and Hospital, Agra, Uttar Pradesh; ^bInstitute of Human Behaviour and Allied Sciences, New Delhi, India.***Correspondence to Raj K. Sahu, Department of Psychiatry, Institute of Mental Health and Hospital, Agra, Uttar Pradesh, New Delhi, India.***E-mail: doctor.rajsahu@gmail.com*

Background	Five phenomena constitute the primary clinical components of dissociative psychopathology: amnesia, depersonalization, derealization, identity confusion, and identity alteration. There is high degree of phenomenological overlap and functional interplay among schizophrenic syndromes, posttraumatic conditions, and dissociative disorders. The present study aimed to see if there is any association between adult dissociative symptoms and general psychopathology in patients with schizophrenia.
Subjects and Methods	The study had a cross-sectional design with purposive sampling with a sample size of 60 patients with schizophrenia who were assessed by Dissociative Experiences Scale (DES-II) and Positive and Negative Syndrome Scale (PANSS) for schizophrenia.
Results	The mean DES score was 14.67, with a SD of 9.90. Overall, 8.3% of patients reported high dissociation (mean DES score ≥ 30). There was a significant positive correlation between dissociative symptoms (measured by mean DES score) and psychopathology (measured by PANSS positive symptoms and total PANSS score) in patients with schizophrenia.
Conclusions	The concept of dissociation or dissociative symptomatology is widely associated with psychotic symptoms. The present study emphasizes the importance of assessing dissociative symptoms in patients with schizophrenia to ensure that the most appropriate and effective interventions are provided to this patient group.
Keywords	Dissociative Experiences Scale, Dissociative symptoms, Psychopathology, Schizophrenia.

INTRODUCTION

The central feature of dissociation is disruption to one or more mental functions. Such disruption may affect not only consciousness, memory, and/or identity but also thinking, emotions, sensorimotor functioning, and/or behavior. Five phenomena constitute the primary clinical components of dissociative psychopathology: amnesia, depersonalization, derealization, identity confusion, and identity alteration. They are usually accompanied by secondary symptoms of dissociation, which may have positive (e.g. hallucinations and Schneiderian experiences) or negative (e.g. somatosensory deficits) characteristics (American Psychiatric Association A, 2013).

Based on the commonness of trauma and its putative aftermath, dissociation, in schizophrenia, Ross and

Keyes (2004) have introduced a theory of dissociative schizophrenia, which has been demonstrated by subsequent studies as well. These patients have symptoms of dissociative identity disorder (DID) and schizophrenia concurrently.

Bleuler's description of the clinical symptoms in schizophrenia includes explicit and detailed phenomenology that matches that of Diagnostic and Statistical Manual of Mental Disorders Text Revision of the fourth edition's DID. Bleuler repeatedly refers to a splitting of the personality, switching of executive control, amnesia between personality states, conflict between personality states, different ego states with different names and ages, and changes in voice, facial expression, manner,

and cognition which match the different ages and sexes of the personality states. He provides a rich description of somatic symptoms and other comorbidity typical DID (Putnam, 1989).

Dissociation in patients with schizophrenia might signify a poorer outcome of schizophrenia in some patients, who may be treated more effectively if dissociation did not go unnoticed for conceptual reasons. Most of the evidence linking adult dissociative symptoms and general psychopathology in patients with schizophrenia has been derived from studies in Western cultures. The present study aimed to see if there is any association between adult dissociative symptoms and general psychopathology in patients with schizophrenia.

SUBJECTS AND METHODS

Null hypothesis

There is no relationship between dissociative symptoms and psychopathology of schizophrenia.

Study patients

The study was conducted at a government hospital. Patients were taken up for the study from the outpatient and inpatient departments. This was a cross-sectional, hospital-based study. A total of 60 patients with diagnosis of schizophrenia were included in the study using the purposive sampling method. All patients were diagnosed as a case of schizophrenia as per the criteria laid by ICD-10 Diagnostic Criteria for Research (DCR). The study was approved by the Scientific and Ethical Committee of Institute of Mental Health and Hospital, Agra, India, with the need to obtain signed informed consent from the study patients.

Inclusion criteria

The following were the inclusion criteria:

- (1) Diagnosis of schizophrenia according to ICD-10 (DCR).
- (2) Patients aged between 18 and 50 years.
- (3) Patients giving written informed consent.
- (4) Minimum education of up to 10th class.

Exclusion criteria

The following were the exclusion criteria:

- (1) Mental retardation.
- (2) Significant head injury resulting in loss of consciousness.

(3) History of major physical and neurological diseases.

(4) Patients not willing to give written informed consent.

(5) Clinical states leading to potential risks in the case of participation (e.g. persisting acute suicidality, severe positive or negative symptoms such that the patient is inattentive/uncooperative, and patients with increased psychomotor activity).

Tools for data collection

The following tools were used for data collection:

(1) **Semi-structured Proforma for Socio-Demographic and Clinical Details:** it includes information like age, sex, education, and marital status. The clinical data sheet includes information like duration of illness, past history, and treatment history.

(2) **Positive and Negative Syndrome Scale (PANSS) for schizophrenia:** PANSS is a 30-item, seven-point (1–7) rating instrument for assessing positive, negative, and other symptoms in schizophrenia. The component scales are operationalized by provisions of detailed definitions for each symptom at all levels of severity. Of the 30 items included in the PANSS, seven constitute a positive scale, seven a negative scale, and the remaining 16 a general psychopathology scale (Kay *et al.*, 1987). The PANSS has high inter-rater reliabilities (0.80). The split half reliability of the general psychopathology subscale is 0.80. The scale has also demonstrated excellent criterion-related validity and construct validity (Kay *et al.*, 1988).

(3) **Dissociative Experiences Scale (DES-II):** it is used to assess dissociative symptomatology (Carlson and Putnam, 1993). The scale consists of 28 items and provides both a total score and scores for each of three subscales (Dubester and Braun, 1995):

Dissociative amnesia: items 3, 4, 5, 8, 25 and 26.

Absorption and imaginative involvement: items 2, 14, 15, 17, 18 and 20.

Depersonalization/derealization: items 7, 11, 12, 13, 27 and 28.

In the DES-II, the items are answered on a percentage scale that measures the frequency with which each of the symptoms described in the items on the scale occurs in daily life. The respondent scores 0% if what is described has never happened to him or her and 100% if it occurs very frequently. The sum of the 28 items was divided by

28 to form a mean DES score for each individual. There is no cutoff point, indicating pathology because the scale is oriented toward the quantitative measurement of dissociative symptoms. However, researchers can calculate the percentage of patients who score 30 or higher on the DES. A score of 30 provides an empirically derived breakpoint for dividing a sample into high and low dissociators (Carlson and Putnam, 1993). The DES-T is a subset of eight items (items 3, 5, 7, 8, 12, 13, 22 and 27) on the DES that are inherently pathological. Taxometric analysis of these items yields a high probability that an individual is in one of two discrete categories: normal or suffering from pathological dissociation. Individuals with pathological dissociation are said to be in the dissociative taxon (Waller and Ross, 1997). With respect to psychometric properties, the scale has high test-retest reliability (range, 0.78–0.96) and high internal consistency (Cronbach's $\alpha=0.95$). It also has good construct validity and high sensitivity and specificity to appropriately identify individuals with dissociative symptomatology and exclude those with no dissociative symptoms (74 and 80%, respectively) (Dubester and Braun, 1995).

Statistical analysis

The statistical analysis of data was performed using the Statistical Package for the Social Sciences software, version 24.0 for Windows (SPSS, Chicago, Illinois, USA). Differences between groups were considered significant if p values were smaller than 0.05. Descriptive statistics were used to define sample characteristics. Pearson's correlation test was used to explore the association between dissociative symptoms and psychopathology of patients with schizophrenia.

RESULTS

This was a cross-sectional study of 60 patients with schizophrenia (as per ICD-10 DCR). Table 1 shows sociodemographic characteristics of 60 patients with schizophrenia. All participants who had an education level of minimum 10th class and belonging to the age group of 18–50 years were included. A total of 33 (55%) patients were in the age group of 18–34 years and 27 (45%) patients were in the age group of 35–50 years. Males and females were equally represented, with 30 (50%) patients each. A total of 27 (45%) patients were single, 30 (50%) were married, whereas 3 (5%) patients comprised others (separated/divorced). Overall, 58 (96.7%) patients were Hindu and 2 (3.3%) belonged to others (Muslim/Christian/Sikh etc.). Twenty one (35%) patients are educated up to 10th class (as minimum education of 10th class is taken as inclusion criteria), 20 (33.3%) are educated up to 12th class, 19 (31.7%) are graduates or of higher education. Nineteen (31.7%) patients are employed while 41 (68.3%) are unemployed. A total of 30 (50%) patients belonged to lower

SES, 26 (43.3%) patients belonged to middle SES, and four (6.7%) patients belonged to upper SES. Moreover, 24 (40%) patients belonged to nuclear families and 36 (60%) belong to joint families. In addition, 18 (30%) patients were living in rural areas, whereas 42 (70%) were living in urban areas. Family history of mental illness was found in 27 (45%) patients and was absent in 33 (55%) patients.

Table 2 shows the descriptive analysis of the DES-II in 60 patients with schizophrenia. A total of 60 patients filled this self-reported instrument, and scores were obtained for each of the three subscales. The absorption and imaginative involvement subscale had a mean of 12 and SD of 8.79. The amnesia subscale had a mean of 8.70 and SD of 7.47. The depersonalization/derealization subscale had a mean of 5.49 and SD of 6.60. The taxon items of DES-II had a mean of 11.10 and SD of 8.68. The mean DES score, which is an average of all 28 items, had a mean of 14.67 and SD of 9.90.

Table 3 shows that the 60 sample patients were divided according to the mean DES scores into two groups. A minimum mean DES score of 30 represented 'high dissociators' and a mean DES score of less than 30 represented 'low dissociators'. A total of 55 (91.7%) patients were found to be 'low dissociators' and five (8.3%) patients were found to be 'high dissociators'.

As shown in (Table 4), PANSS was applied on 60 patients with schizophrenia, and the mean and SD on each of the subscales – positive symptoms, negative symptoms, general psychopathology, and total PANSS score – have been mentioned. It was found that PANSS (positive symptoms) had a mean of 13.63 and SD of 5.39. PANSS (negative symptoms) had a mean of 15.31 and SD of 6.62. PANSS (general psychopathology) had a mean of 25.41 and SD of 6.50. The total PANSS score, which is obtained by addition of the aforementioned three scores, had a mean of 54.20 and SD of 13.39.

As shown in (Table 5), a significant positive correlation was found between mean DES score and PANSS (positive symptoms and total PANSS score) in patients with schizophrenia. In our study, we found a p value of less than 0.05 on correlating mean DES score with PANSS positive symptoms and mean DES score with PANSS total score. However, PANSS negative symptoms and PANSS general psychopathology did not correlate significantly with the mean DES score. A significant positive correlation was also found between the following:

(1) 'Absorption and imaginative involvement' subscale of DES and PANSS (positive symptoms) ($r=0.332$, $p<0.05$), PANSS (negative symptoms) ($r=0.272$, $p<0.05$),

PANSS (general psychopathology) ($r=0.258, p<0.05$), and PANSS (total score) ($r=0.397, p<0.05$).

(2) ‘Amnesia’ subscale of DES and PANSS (positive symptoms) ($r=0.32, p<0.05$).

(3) ‘Depersonalization/derealization’ subscale of DES and PANSS (positive symptoms) ($r=0.361, p<0.05$).

(4) Taxon items on DES and PANSS (positive symptoms) ($r=0.422, p=0.01$) and PANSS (total score) ($r=0.257, p<0.05$).

Table 1: Sociodemographic profile of the study sample (patients with schizophrenia)

Variables	n (%)
Age (in years)	
18–34	33 (55)
35–50	27 (45)
Sex	
Male	30 (50)
Female	30 (50)
Marital status	
Single	27 (45)
Married	30 (50)
Others	3 (5)
Religion	
Hindu	58 (96.7)
Others	2(3.3)
Education	
High school	21 (35)
Intermediate	20(33.3)
Graduate and above	19 (31.7)
Occupation	
Employed	19 (31.7)
Unemployed	41 (68.3)
Socioeconomic status	
Lower	30 (50)
Middle	26 (43.3)
Upper	04(6.7)
Family structure	
Nuclear	24 (40)
Joint	36 (60)
Residence	
Rural	18 (30)
Urban	42 (70)
Family history	
Absent	33 (55)
Present	27 (45)

Table 2: Descriptive statistics of Dissociative Experiences Scale II in 60 patients with schizophrenia

DES variables	Mean±SD
Absorption and imaginative involvement	12.0±8.79
Amnesia	8.70±7.47
Depersonalization/derealization	5.49±6.60
Taxon	11.10±8.68
Mean DES score	14.67±9.90

DES; Dissociative Experiences Scale.

Table 3: Descriptive statistics involving bifurcation of mean Dissociative Experiences Scale scores

	n (%)
Low dissociators	55 (91.7)
High dissociators	05 (08.3)

Table 4: Descriptive statistics of Positive and Negative Syndrome Scale in 60 patients with schizophrenia

PANSS	Mean±SD
Positive symptoms	13.63±5.39
Negative symptoms	15.31±6.62
General psychopathology	25.41±6.50
PANSS total score	54.20±13.39

PANSS; Positive and Negative Syndrome Scale.

Table 5: Pearson’s correlation between Dissociative Experiences Scale and Positive and Negative Syndrome Scale in 60 patients with schizophrenia

PANSS items DES subscales	Positive symptoms	Negative symptoms	General psychopathology	Total PANSS
Absorption and imaginative involvement	0.332*	0.272*	0.258*	0.397*
Amnesia	0.320*	0.041	0.046	0.171
Depersonalization/ derealization	0.361*	0.006	0.90	0.194
Taxon	0.422*	0.16	0.157	0.257*
Mean DES score	0.481*	0.176	0.219	0.389*

DES; Dissociative Experiences Scale; PANSS; Positive and Negative Syndrome Scale; * p value less than 0.05.

DISCUSSION

The higher rate of unemployment found in this study may be owing to the nature of disorder itself, social isolation, psychopathology, poor drug compliance, and social discrimination. Minimum education was kept till 10th class as items in the DES questionnaire include complex statements and require patients to have a basic education (Table 1). Of 60 patients, 30 were male and 30 were female. Table 2 shows the mean DES score has a mean of 14.67 and SD of 9.90. This finding concurs with

the findings of other studies that report mean DES score range from 11.9 to 21 points (Schäfer *et al.*, 2006; Vogel *et al.*, 2009a, 2009b).

Some authors have also documented the existence of a dissociative subgroup among patients with schizophrenia (Sar *et al.*, 2010). As depicted in (Table 3), in the present study, 8.3% of patients were found to be ‘high dissociators,’ that is, a mean DES score of greater than or equal to 30. This result was consistent with the findings of another study in which DES score was found to be above 30 in 13% of the patients with schizophrenia (Ghoreishi and Shajari, 2014).

As depicted in Table 5, a significant positive correlation was found between mean DES score and PANSS-positive symptoms ($r=0.481$, $p<0.05$) and total PANSS score ($r=0.389$, $p<0.05$) in patients with schizophrenia in our study. This finding is consistent with other studies (Spitzer *et al.*, 1997; Ross and Keyes, 2004; Schroeder *et al.*, 2016). No significant association could be found between mean DES score and negative symptoms of PANSS. This result is consistent with the findings of some authors (Ghoreishi and Shajari, 2014). Some studies have found that there was a more proximal relationship between schizophrenia and dissociation. It was found that dissociative symptoms are associated with an increased severity of positive and negative symptoms in patients with schizophrenia. These findings are consistent with the hypothesis that a dissociative pathway to psychosis could induce core symptoms of schizophrenia in a subgroup of patients diagnosed with schizophrenia. The study revealed that those with high dissociation were also confronted with a more severe episode of schizophrenia than those with trauma (Vogel *et al.*, 2009a, 2009b; Sar *et al.*, 2010).

Research suggests a high degree of phenomenological overlap and functional interplay between schizophrenic syndromes, posttraumatic conditions, and dissociative disorders (Van der Hart *et al.*, 2006; Jessop *et al.*, 2008). Not only does this pose the question of differential diagnosis and comorbidity, it may also be accounted for by shared risk factors, fuzzy boundaries between the overlapping diagnoses, or a mutual effect on the respective vulnerability. Accordingly, some authors propose a duality (interaction) model to explain the complex co-existence of two qualitatively distinct but interactive, concurrent, or subsequent psychopathologies as a possibility (Moskowitz *et al.*, 2011).

A significant positive correlation was also found between ‘absorption and imaginative involvement’ subscale of DES and PANSS (positive symptoms, negative symptoms, general psychopathology, and PANSS total score). A significant positive correlation was found between ‘amnesia’ subscale of DES and PANSS (positive

symptoms). A significant positive correlation was found between ‘depersonalization/derealization’ subscale of DES and PANSS (positive symptoms). This finding is consistent with other studies, where it was found that this subscale of DES and positive symptoms of PANSS have a consistent relationship (Spitzer *et al.*, 1997; Kilcommons and Morrison, 2005). A significant positive correlation was also found between taxon items on DES and PANSS (positive symptoms and PANSS total score). A possible explanation for the relationship between psychotic and dissociative symptoms is an interaction between both types of psychopathology. It has been suggested that severe dissociation or symptoms of PTSD may produce psychotic symptoms or could be a mediating factor in their development (Steingard and Frankel, 1985; Braakman *et al.*, 2009). Some authors have emphasized the special role of dissociative detachment in this context. They suggested that dissociative detachment ‘undermines the individual’s grounding in the outer world, thereby hampering reality-testing and rendering the individual with posttraumatic symptoms vulnerable to the nightmarish inner world’ (Allen *et al.*, 1997). Other authors suggest an inverse relationship. They proposed that dissociation might arise as a defense against the ‘disorganizing pressure of abnormal affect’ in patients with psychotic mood disorders or that psychotic symptoms might lower the threshold for the expression of dissociation in patients predisposed to this phenomenon because of early trauma (Giese *et al.*, 1997). They referred to cases where even severe dissociative symptoms, such as alternate personalities and amnesic episodes, disappeared when the psychotic disorder was successfully treated. Finally, both psychotic and dissociative manifestations could be an independent result of reactivated traumatic memories in some patients.

Study limitations

The readers are cautioned against overinterpreting the study results because this study has one major limitation:

(1) The sampling strategy involved recruitment of stable patients with schizophrenia, and many had only moderately severe psychotic syndromes. The inclusion of more severely ill patients might have led to different findings.

CONCLUSION

The study of dissociation in a population having schizophrenia is relevant because of the high rate of traumatic experience that occurs in the severely mentally ill. The concept of dissociation or dissociative symptomatology is widely associated with psychotic symptoms. A natural, protective response to overwhelming traumatic experiences, dissociation can become an automatic response to stress. This can impair functioning and increase susceptibility to serious psychopathology.

The present study emphasizes the importance of assessing dissociative symptoms in patients with schizophrenia to ensure that the most appropriate and effective interventions are provided to this patient group.

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CONFLICTS OF INTEREST

There are no conflicts of interest.

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