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Lifetime suicide intent, executive function and insight in schizophrenia and schizoaffective disorders

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ABSTRACT

Objectives: Lack of insight and neurocognitive deficits are often seen in schizophrenia patients. While there are several studies investigating the relationship between suicidal ideation, executive function and insight, there are relatively fewer investigating the triangular relationship between suicide intent, insight and cognitive competence in schizophrenia. The aim of our study was to address this issue.
Methods: One hundred seventy five subjects with DSM-IV TR diagnoses of schizophrenia or schizoaffective disorder were enrolled and the diagnosis was established using the Hindi version of the Diagnostic Interview for Genetic Studies and other available information in consultation with a Board certified senior Psychiatrist. All the subjects were interviewed on Beck's cognitive insight scale and tested on the Trail Making Test. All the subjects who had lifetime history of suicide attempt were interviewed on Pierce's suicide intent scale.
Results: Ever attempters scored significantly higher on Beck's cognitive insight scale ($p = 0.012$) and outperformed non-attempters on Trail Making Test A and B ($p = 0.026$ and $p = 0.012$ respectively), indicating better executive functions in the former. However among ever attempters, significant relationship was not found between executive functions, insight and severity of suicide intent.
Conclusion: Our study suggests that good insight and better executive functioning may be significantly correlated with suicide attempts at some time during the course of illness. Patients with schizophrenia should be evaluated for potential suicidality once denial, neurocognitive deficits and other factors associated with poor insight abate.

1. Introduction

Suicide, one of the major causes of premature deaths in schizophrenia (Palmer et al. 2005) more frequently occurs in younger patients, often during the early course of illness (Barraclough et al., 1974). Factors such as age, severity of depressive symptoms and impulsive aggressive traits are associated with increased risk of suicide (Barak et al., 2008). Suicidal intent is the seriousness or intensity of a person's wish to terminate his or her life (Beck, Schuyler, & Herman, 1974). 'Level of suicidal intent' defined as the intensity of death wish (Hjelmeland et al., 2002) is an essential component of suicide and suicidal behavior (Sisask et al., 2009).

Cognitive deficits are seen in up to 75% patients of schizophrenia but suicide attempters outperformed non attempters across all areas of executive functioning (Nangle et al., 2006). Schizophrenia patients with suicidal ideation may perform better on tests of cognitive functions (Kim et al., 2003; Nangle et al., 2006; Delaney et al., 2012). Preservation of higher cognitive functioning in attempters may influence their ability to initiate and plan suicidal behavior. (Nangle et al., 2006). Others suggested that suicide intent in patients with schizophrenia and schizoaffective disorder was not correlated with cognition and may be a separate domain worthy of investigation and intervention (Delaney et al., 2012; Palmer et al., 2005; Kim et al., 2003; Potkin et al., 2003). The association between suicide attempts and better cognition was explained in terms of both goal directed behavior and better insight, which itself is associated with better cognitive functioning (Crumlish et al., 2005; Donohoe et al., 2009).

As cognitive function is prognostic of social and occupational function in schizophrenia (Green et al., 2004), the improvement of cognitive function is a core aim of most rehabilitation programs. Although this may favor a better social and occupational outcome, our study suggests that preservation of cognitive function may also carry an increased psychological burden for patients.

Insight is an awareness of one's mental disorder, an awareness of the social consequences of that disorder, and an awareness of the need for treatment (Schwartz, 1998). Its relationship to suicide risk may be unfavorable and has been linked to significant negative effects on patients with schizophrenia. Poor insight is thought to result from cognitive deficit (Amador et al., 1994); others consider it to result from denial, a

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psychological defense mechanism. Better insight may increase medication compliance, which in turn could improve depressive symptoms and reduce the risk of suicide in patients with schizophrenia (Smith et al., 1999; Siris, 2001). Diminished insight in schizophrenia has been associated with poor outcome and noncompliance with treatment, both of which are risk factors for suicide (Drake et al., 1985). However, insight itself has been associated with suicide in schizophrenia. Some studies have suggested that patients with schizophrenia who have more insight are at greater risk for suicidal behavior (Amador et al., 1994; Drake et al., 1985).

Identifying the characteristics of patients who make suicide attempts or complete suicide is of great importance for determining who is most at risk and should receive intensive treatment to minimize the possibility of an attempt (Caldwell and Gottesman, 1992; Drake et al., 1985). While there are several studies investigating the relationship between suicidal ideation, cognition and insight, there are relatively fewer investigating the triangular relationship between suicide intent, insight and cognitive competence in schizophrenia. The present study tries to address this issue.

2. Method

The study was conducted in the Department of Psychiatry and Deaddiction of the Post Graduate Institute of Medical Education and Research –Dr. Ram Manohar Lohia Hospital (PGIMER- DR. RMLH), New Delhi from 1st November 2013 to 31st March 2015.

Subjects of either sex, aged between 18 years – 50 years, attending for either first consultation or follow up at RMLH and diagnosed as Schizophrenia/schizoaffective disorder on DSM-IV TR were included. Those with history of significant co-morbid substance dependence or severe medical/neurological illnesses, mental retardation or history of serious head injury were excluded.

2.1. Instruments used

2.1.1. Hindi version of diagnostic interview for genetic studies (DIGS) (Deshpande et al., 1998)

All subjects were interviewed using the Hindi version of the DIGS, and available treatment and medical records, information from a caregiver where available were obtained. Diagnosis was confirmed in research review meetings headed by a board certified Psychiatrist. The DIGS has as its part Global Assessment of Functioning Scale as well as Scale for Assessment of Positive Symptoms (SAPS) and Scale for Assessment of Negative symptoms (SANS). As part of psychosis pattern of systems is rated in DIGS.

2.1.2. Pierce suicide intent scale (PSIS)(Pierce, 1981)

Developed to assess the severity of suicide attempts, this scale consists of 12 questions about the logistics and intent of the suicide attempt. The scale has high reliability and validity. Repeat attempts receive higher scores than those who only attempted suicide once.

2.1.3. Trail making test

It assesses visual attention and task switching and provides information about visual search speed, scanning, speed of processing, mental flexibility, as well as executive functioning. It has two parts. Part A is used primarily to examine cognitive processing speed and part B is used to examine executive functioning. Indian norms for the TMT have been published (Bhatia et al., 2007).

2.1.4. Beck's cognitive insight scale (BCIS) (Beck et al., 2004)

BCIS was developed to evaluate patients' self-reflectiveness and confidence in interpretations of their experiences. It is a 15-item self-report questionnaire which has a 9-item self-reflectiveness subscale and a 6-item self-certainty subscale. The self-reflectiveness subscale measures the respondent's capacity and willingness to observe their mental productions and to consider alternative explanations whereas the self-certainty subscale measures their confidence in the validity of their beliefs. A composite index of the BCIS reflecting cognitive insight can be calculated by subtracting the score for the self-certainty scale from score on self-reflectiveness scale.

3. Translation and reliability

Two measures (DIGS and TMT) have been tested and validated in India (Deshpande et al., 1998; Bhatia et al., 2007) For the PSIS and BCIS, experienced mental health professionals translated the scales into Hindi. Another group, who were not aware of the original scale, re-translated the Hindi version into English. The two versions were reconciled during joint meetings. The translated scales were then used by experienced Residents on patients attending the department to test for accuracy and assessment of the ease of understanding. Necessary corrections if required (such as providing further explanations, using even simpler but accurate words) were made and the final translated version was used for the study.

4. Assessment procedure

After receiving approval from Institutional Ethics Committee of PGIMER- Dr. RMLH, all subjects diagnosed with schizophrenia/Schizoaffective disorder (DSM IV TR) reporting to Department of Psychiatry, PGIMER-Dr. RML hospital who met the inclusion and exclusion criteria and were willing to participate in the study, were explained in detail regarding all aspects of participation by the treating psychiatrist. If they agreed, they were referred to the investigator who again explained the study. Most subjects were accompanied by at least one family member and their cooperation was encouraged. Written informed consent was obtained. All consenting subjects were interviewed using the DIGS, usually in the presence of a relative/caregiver. The diagnosis of schizophrenia in the interviewed subjects was established using the Hindi version of the Diagnostic Interview for Genetic Studies and other available information in consultation with a Board certified senior Psychiatrist. All the subjects were interviewed on Beck's cognitive insight scale and tested on the Trail Making Test. All the subjects who had history of suicide attempt were interviewed on Pierce's suicide intent scale.

5. Sample size

Sample size was calculated on the basis of a study by Nangle et al. (2006). They compared cognitive differences between suicide attempters and non attempters among subjects of schizophrenia/schizoaffective disorder. From mean of attempters and nonattempters, effect size was calculated as 0.66. Considering the prevalence of suicide attempters in India as 30% in schizophrenia/schizoaffective disorders (Bhatia et al., 2006), sample size was calculated using G power (http://www.surveysystem.com/sscalc.htm), by taking alpha = 0.05 and power = 90%. The method was used for *t*-test (Means: Wilcoxon-Mann-Whitney Test, two groups). The sample size was 173 (rounded off to 175).

6. Statistical analysis

SPSS (version 20) (IBM Corp, 2011) was used for statistical analysis. ANOVA, Unpaired t-test and Chi-square were used. The level of significance for ANOVA was two sided and for rest all tests, it is one tailed. While performing ANOVA, the variables TMT A, TMT B, BCIS (self-reflectiveness) score, BCIS (self-certainty) score, composite were taken as dependent variables and groups (mild, Moderate, Severe) were independent variables. Corrections for multiple testing were not required and hence they were not carried out.

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