

Study on Correlation between Psychotic Symptoms and Suicide in a Cohort of Patients with Severe Depression

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ABSTRACT

Background: Suicide has a strong association with mental disorder and contributes to the excess mortality of the mentally ill. Suicidal ideation is prevalent and appears to be a precondition for suicide attempts among psychiatric patients with Major Depressive disorder. Though ideas and attempts may overlap there are studies that show the two are separate clinical entities with unique psycho-socio demographic profile. **Aim:** To study the correlation of psychotic symptoms with suicidal ideation and with suicidal attempt. **Methodology:** Cross sectional study of patients consecutively admitted with major depressive disorder. Severity of suicidal ideations and attempts were rated on validated scales and the sociodemographic and clinical correlates were analyzed. **Results:** There were more suicide attempts in patients without psychotic symptoms than those with psychotic symptoms with various levels of severity. **Conclusion:** There was no correlation between severity of psychotic symptoms and suicidal attempt in the sample.

Keywords: Psychotic symptoms, Severe depression, Suicide

Psychological autopsy studies show that considerable number of patients with mental illness committed suicide. These studies show that 90% of people who committed suicide fulfilled criteria for mental illness. Therefore it is important to identify people at risk for suicide, especially those with mental illness⁽¹⁾⁽²⁾⁽³⁾.

Patients with affective disorders and alcoholism carry the highest risk of suicide. Unipolar depression can present as either with or without psychotic symptoms. Severe depression may or may not be associated with psychotic symptoms, whereas the mild and moderate forms of depression is never associated with psychotic symptoms⁽⁴⁾. Studies predict a prevalence of 0.4% for psychotic symptoms in patients with major depressive disorder.

There have been studies looking at differences between psychotic and non psychotic depression, even beyond the presence of psychotic symptoms^{(5)(6)(7)(8) (9)(10)}. That is they have

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studied differences in heritability, environmental and genetic risk factors, treatment response and mortality. Some studies also say that risk of suicide is higher in patients with psychotic depression than those in non-psychotic depression but there are other studies that refute these findings too⁽¹¹⁾⁽¹²⁾.

Rationale for study

In a register based prospective cohort study on 34,671 patients with severe depression in Danish psychiatry hospitals out of which 12,101 were psychotic depression patients, 755 completed suicide during follow up. But psychotic depression was not found to be an independent risk factor for suicide in severe depression (AOR=0.97 [0.83-1.15]) though other risk factors like older age, male gender, and a previous incident of self-harm were significant risk factors for both groups (psychotic and non-psychotic depression)⁽¹⁾.

But in yet another study which was a prospective case study of records of 61 psychotic depression and 59 non psychotic depression cases analysed for mortality outcomes at 15 years after initial assessment, they found that patients with psychotic depression had a two-fold higher risk of mortality than those with severe depression without psychotic symptoms. But there was no statistically significant difference in the number of patients who had died by suicide between the two groups⁽¹³⁾.

On reviewing literature on Indian studies on the topic, we were not able to come across similar studies looking into risk of suicide in patients with psychotic depression, as compared to non-psychotic depression. Thus we wanted to carry out this study in an Indian population in south India to see if we are able to replicate the findings in the western studies and we wanted to analyse further the correlation between psychotic symptoms and various aspects of suicide such as suicidal idea or attempt and method of suicide.

Aim

Primary aim was to study the correlation of psychotic symptoms with suicidal ideation and with suicidal attempt. Secondary objectives were to study the correlation between the severity of psychotic symptoms and method of suicide and to study the correlation between the content of psychotic symptoms and method of suicide.

METHODOLOGY

This study employed a cross sectional consecutive sampling methodology. Study was conducted in the psychiatry in-patient ward at a private medical college hospital in Coimbatore, Tamil Nadu. Study duration was 1 year (from January 2016 to December 2016) and all the consecutive patients, between the ages of 18 and 65 years, admitted in the psychiatry ward with the diagnosis of major depressive disorder were screened for study inclusion after getting informed consent.

Inclusion criteria consisted of patients whose age was between 18 and 65 yrs and with a diagnosis of major depressive disorder diagnosed by their respective consulting psychiatrist in the department who was blind to the study protocol. The study researcher administered the SCID for DSM IV interview schedule and if the diagnosis was confirmed for Major depressive disorder then the patient was included in the study.

Exclusion criteria consist of patients who refused to give consent and patients who had co morbid mental retardation or neuro-psychiatric co morbidity like dementia. Patients with

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Bipolar depression were excluded from the study as we wanted to study specifically unipolar depressive disorder group of patients. Patients with co morbid physical illness, substance abuse and other psychiatric co morbidities were also excluded from the study. Total sample size for the study was 53.

Instruments:

Once the patient was recruited into the study, the researcher had collected details about the socio demographic and clinical variables by using a semi structured profoma and then administered the Hamilton depression rating scale(HAMD-17) to assess the severity of depression. The researcher then administered the following scales for assessment of severity of suicidal behaviour:

- (i) **Suicide Risk Assessment Form (SRAF)**- a scale that was developed in order to assess the severity of suicide attempts. The scale consists of 15 questions which are scaled from 0-2, which take into account both the logistics of suicide attempt as well as the intent. The scale has high reliability and validity¹⁶.
- (ii) **Modified Scale for Suicidal Ideation(MSSI)**- this scale was developed for assessing severity of suicide ideas. Principal component analysis revealed a bi dimensional structure, with factors corresponding to (1) Desire and Ideation and (2) Plans and Preparations. Each factor displayed acceptable internal consistency and expected patterns of convergent validity via associations with hopelessness, depressive symptoms, impulsivity, and a self-report measure of suicidal behaviors¹⁹.

Statistical analysis

We performed statistical analysis with PASW (SPSS) version 19.0 for Windows. The correlation of socio-demographic variables with suicide ideation and depressive patients who attempted suicide, patient history with suicidal attempts, severity of depression with suicidal ideation and suicide attempt were determined using **chi-square test**. The correlation of suicidal ideation and suicide attempt were determined using **Pearson correlation**. P-value less than 0.05 was considered as statistically significant.

RESULTS

1. Socio-demographic and clinical variables

Majority of the patients belonged to early adulthood age group of 18 to 40 years (47.2%). Both genders were equally represented among the sample. Majority of the patients belonged to middle and low socio economic status (90.6%), were married (75.5%), residing in rural community (69.8%) and were graduates (35.8%) and were living in a nuclear family (71.7%). Majority of the patients did not have family history of suicide (84.9%).

Three-fourth of the patients did not have any past suicide attempts. One patient had attempted suicide three times (1.9%). 12 patients had attempted once (22.6%). 80% of the patients had very severe depressive episode (42/53) as per HAM-D rating scale.

Among 53 recruited depression patients, 35 patients (66%) had suicidal ideas and 13 patients attempted suicide (24.5%). Among the patients who had suicidal ideas (35/53), majority of the patients (41.5%) had severe suicidal ideas as per MSIS scale (total score >20) - table 4.

Poisoning was the commonest method of suicide (11.3%) followed by hanging (5.7%). Electric shock, burns, wrist slash were other methods of suicidal attempts.(Table 1).

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Depressive patients who had attempted suicide before had severe suicidal ideas than patients without previous suicidal attempt which was statistically significant (table 2; p-value- **0.01**) Patients who had past history of suicide attempt had higher intent for current suicide attempt which was statistically highly significant (table 3; p-value-**0.000**)

Table 1: Method of suicide attempt

		FREQUENCY	PERCENTAGE (%)
METHOD OF SUICIDE ATTEMPT	POISON	6	11.3
	ELECTRIC SHOCK	1	1.9
	HANGING	3	5.7
	BURN	1	1.9
	WRIST CUT	1	1.9
	MULTIPLE	1	1.9

Table 2: Correlation of patient history with suicidal ideation

		SUICIDAL IDEATION SEVERITY			P-VALUE
		ABSENT	MILD	SEVERE	
PREVIOUS SUICIDE ATTEMPTS	NO	18 (45.0%)	12 (30.0%)	10 (25.0%)	0.01*
	ONCE	0 (0.0%)	1 (8.3%)	11 (91.7%)	
	MORE THAN ONCE	0 (0.0%)	0 (0.0%)	1 (100.0%)	
FAMILY HISTORY OF SUICIDE	NO	15 (33.3%)	12 (26.7%)	18 (40.0%)	0.686
	YES	3 (37.5%)	1 (12.5%)	4 (50.0%)	

Table 3: Correlation of patient history with suicidal attempts

		SUICIDAL ATTEMPT				P-VALUE
		ABSENT	LOW	MEDIUM	HIGH	
PREVIOUS SUICIDE ATTEMPT	NO	40 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.000*
	ONCE	0 (0.0%)	2 (16.7%)	4 (33.3%)	6 (50.0%)	
	MORE THAN ONCE	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)	
FAMILY HISTORY OF SUICIDE	NO	34 (75.6%)	2 (4.4%)	4 (8.9%)	5 (11.1%)	0.560
	YES	6 (75.0%)	0 (0.0%)	0 (0.0%)	2 (25.0%)	

2. Correlation of severity of depression with suicidal ideas and suicide attempt

The depressive patients in whom the severity of depression was very severe, had higher suicidal ideas, which was statistically significant (table 4; p-value-**0.020**). The severity of depressive symptoms did not correlate with severity of suicide attempt (table 4; p-value-0.608).

Table 4: Correlation of severity of depression with suicidal ideation and attempt

		SUICIDAL IDEATION			P VALUE
		ABSENT	MILD	SEVERE	
SEVERITY OF DEPRESSION	MODERATE	4 (100.0%)	0 (0.0%)	0 (0.0%)	0.020*
	SEVERE	3 (42.9%)	3 (42.9%)	1 (14.3%)	
	VERY SEVERE	11 (26.2%)	10 (23.8%)	21 (23.8%)	

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		SUICIDE ATTEMPT				P - VALUE
		NO ATTEMPT	LOW	MEDIUM	HIGH	
SEVERITY OF DEPRESSION	MODERATE	4 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.608
	SEVERE	7 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	
	VERY SEVERE	29 (69.0%)	2 (4.8%)	4 (9.5%)	7 (16.7%)	

3. Correlation of psychotic symptoms with method of suicide

There were more suicide attempts in patients without psychotic symptoms than those with psychotic symptoms with various levels of severity (Table 5). There was no correlation between severity of psychotic symptoms and suicidal attempt in the sample. Considering the content of psychotic symptoms, we found that one patient who had auditory hallucination, had multiple suicide attempts. Poisoning was the common method of suicide, both in patients with delusions and hallucination (Table 6).

Table 5: Correlation of psychotic symptoms with method of suicide

		METHOD OF SUICIDE						
		NO ATTEMPT	POISON	ELECTRIC SHOCK	HANGING	BURN	WRIST CUT	MULTIPLE
PSYCHOTIC SYMPTOMS	ABSENT	18 (69.2%)	3 (11.5%)	1 (3.8%)	2 (7.7%)	1 (3.8%)	1 (3.8%)	0 (0.0%)
	MILD	7 (87.5%)	1 (12.5%)	0 (0.0%)	0 (0.0%)	0	0	0 (0.0%)
	MODERATE	2 (100%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0	0	0 (0.0%)
	SEVERE	11 (91.7%)	1 (8.3%)	0 (0.0%)	0 (0.0%)	0	0	0 (0.0%)
	INCAPACITATING	2 (40.0%)	1 (20%)	0 (0.0%)	1 (20.0%)	0	0	1 (20%)

Table 6: Correlation of psychotic symptoms with method of suicide

		METHOD OF SUICIDE							
		NO SUICIDE ATTEMPT	NO. OF SUICIDE ATTEMPT PATIENTS	POISON	ELECTRIC SHOCK	HANGING	BURN	WRIST CUT	MULTIPLE
PSYCHOTIC SYMPTOMS	ABSENT	18 (69.2%)	8 (61.5%)	3 (11.5%)	1 (3.8%)	2 (7.7%)	1 (3.8%)	1 (3.8%)	0 (0.0%)
	PARANOID DELUSIONS	7 (87.5%)	1 (7.7%)	1 (12.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	DELUSION OF REFERENCE	2 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	PARANOID AND REFERENTIAL DELUSIONS	11 (91.7%)	1 (7.7%)	1 (8.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	HALLUCINATION	2 (40.0%)	3 (23.0%)	1 (20.0%)	0 (0.0%)	1 (20.0%)	0 (0.0%)	0 (0.0%)	1 (20.0%)

DISCUSSION

From our study we found that majority of the depressive patients had suicidal ideas (66.0%) and one-fourth of the depressive patients had attempted suicide. The above results emphasises the need to address and how common the prevalence of suicide idea and suicide attempts among depressive patients.

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In our study, the suicidal idea was more common in early adulthood age group, which was not found in previous studies⁽¹⁴⁾. In our study, the over-represented groups in the sample with attempted suicide were men of the older age groups, especially men between 45 and 64, and women over 65, who also had more severe suicide attempt in the sample. The severity of suicide ideas was high among low socio-economic status and married group. This is in contrary to previous studies in which suicidal ideas were common among the un-married patients ⁽¹⁵⁾. Further in our sample we found that unemployed and rural inhabitants had more severe suicide ideas. In previous studies, unemployment remained a risk factor, but urban background was also a risk factor. Living in nuclear family was a high risk factor in our sample which is in accordance with previous studies. Also a history of past suicide attempt, remains a risk factor for more severe suicide ideas for current episode.

Presence of psychotic symptoms in depressive patients did not correlate with suicide idea or attempt. All the patients with suicidal attempt in the sample were patients who had very severe depression on HAMD rating scale. Suicidal attempt has been found to be positively correlated with severity of depression in other Indian studies also⁽¹⁶⁾. Also the severity of suicidal ideation was positively correlated with the severity of depression on HAMD rating scale. ($p = 0.020$).

The type of positive symptoms (delusions and hallucinations) did not correlate with method of suicide. Poisoning was the commonest method of suicide in both men and women. Men had attempted more lethal methods for committing suicide such as hanging or electric shock. Almost all women show poisoning as method who attempted suicide. Benzodiazepine poisoning was the most common method used for poisoning by women.

We used validated scales and we stuck to a homogenous sample analyzing subjects with diagnosis of major depressive disorder alone and excluded subjects with substance abuse and other psychiatric co morbidities that could influence suicidal behavior such as personality disorders or adjustment disorder etc. In our sample the patients with severe depression was represented adequately and there were no dropouts, thus were able to assess suicidal behavior true to our study objective.

Some of the limitations of our study are that the researcher may have been biased when assessing the suicidal behavior as the severity rating was also done by the same interviewer. Since it was a cross sectional study we have not analyzed the course of the suicidal behavior in these group of patients and their response to treatment. We have not studied the correlation of the presence of any recent life events with severity of suicidal behavior. Further studies are needed to compare whether the correlations with severity of suicidal behaviour differ in other psychiatric illnesses like schizophrenia, bipolar disorder, personality disorder etc.

CONCLUSION

There was no correlation between severity of psychotic symptoms and suicidal attempt in the sample. The sample was too small to analyse for the correlation of content of psychotic symptoms with suicidal attempt.

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Conflict of Interest

The authors colorfully declare this paper to bear not conflict of interests

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