

# Suicide among Major Mental Illnesses with Substance Use Disorders



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## Introduction

Mental disorders are greatly associated with high rates of suicide<sup>[1]</sup>. In fact, suicides and attempted suicides are very rare in the absence of major mental illnesses<sup>[2-8]</sup>. The major risk factor for suicide is mostly an untreated and frequently undiagnosed mental disorder<sup>[9]</sup>. The key predictors of suicide comprises psychiatric risk factors such as an underlying depression, schizophrenia and substance use disorder along with the presence of psychosocial and demographic factors<sup>[2-4]</sup>. Harris and Barraclough<sup>[1]</sup> in their meta-analysis suggest that virtually all mental disorders, except mental retardation and dementia, have an increased risk of suicide. Research suggests the presence of atleast one untreated major mental disorder, mostly major depression (56-87%), Substance Use Disorder (SUD) (26-55%), and schizophrenia (6-13%) in more than 90% of suicide victims and attempters. Unipolar major depression and schizophrenia are the commonest psychiatric illnesses in the background of suicide<sup>[9]</sup>. Co morbid anxiety and personality disorders along with concomitant serious medical disorders are also frequently associated with an increased risk<sup>[2-8,10]</sup>.

Based on data from 1921-1975 and on calculations performed before computerized modelling techniques became available, the lifetime risks of suicide are estimated to be 15% for affective disorder and alcoholism, and 10% for schizophrenia<sup>[11]</sup>. However, a recalculation of suicide risk using contemporary data and modern techniques by Inskip et al<sup>[11]</sup>, estimates the lifetime risk for affective disorder as 6% , 7% for alcohol dependence and 4% for schizophrenia. The authors suggest that the lifetime suicide risk figures often cited in the literature appear to be too high.

## Suicide in Affective Disorders with Substance Use Disorders:

Co morbid substance use disorders increase suicide risk in case of affective disorders. Literature reports suggests that serious suicide attempts are linked with higher rates of substance use disorders [odds ratio = 2.6, 95% confidence interval = 1.6-4.3]<sup>[5]</sup>. Similarly the lethality of suicide attempts increased in individuals with acute alcohol use and mood disorders<sup>[12]</sup>.

Sublette, et al<sup>[13]</sup>, examined previous suicidal behaviour in adults with a major depressive episode in context of bipolar disorder (BD) type I or BD type II, with and without history of substance use disorders (SUD) which revealed that suicide attempts were higher among adults with BD type I disorder associated with SUD. The presence of co-morbid alcohol and drug use disorders multiplied the rates of suicide attempts.

Evidences suggest that the suicide rates were found to be higher among male patients with major depression and co-morbid alcohol abuse and drug dependence. Such risk factors are found to be more common among young suicide victims aged between 18 to 40 years and are more associated with impulsive and aggressive behaviours<sup>[14]</sup>. The association between alcoholism and mood disorders are also well established based on previous epidemiological surveys. Among patients with substance abuse disorders the most common psychiatric comorbidities are bipolar disorders and major depressive disorders. Based on the National Institute of

Mental Health Epidemiologic Catchment Area (ECA) study it is found that the chances of co-occurrence of mania with BD I disorder is 6.2 times more when compared to unipolar depression and alcoholism<sup>[15]</sup>. The life time prevalence rate of suicide in affective disorder is quoted to be between 6 -19%<sup>[16]</sup>.

A study conducted in Northern India examining the severity and association of depression, suicide intent and hopelessness in individuals admitted to hospital emergency department with suicide attempt reported that drug overdose and organ phosphorus consumption was most common and accounted for 75% of psychiatric illness which led to suicide intentions<sup>[17]</sup>.

Substance abuse and development of secondary depression, mania or bipolar disorders are appears to be interlinked as they predispose each other. It is difficult to ascertain whether the presence of substance use disorders is the independent risk factor for suicide in affective disorders. However, it appears that risk of suicide is found to be more in affective disorders with substance abuse disorders. Substance abuse, if present, not only aggravates the existing mental illness, but also possibly makes the individual susceptible to develop suicidal behaviour.

### **Suicide in Schizophrenia Spectrum Disorders with Substance Use Disorders:**

Meta-analysis studies to estimate the risk of suicide in mental disorders, demonstrates that suicide risk among schizophrenic patients is 8.5 times greater than among non-schizophrenics<sup>[1]</sup>. Substance use, abuse or dependence is often co morbid with schizophrenia and psychosis; and, there is an increased risk of suicide in schizophrenics involved in substance abuse<sup>[18-24]</sup>. Numerous studies have highlighted the importance of substance abuse in the suicides of patients with schizophrenia<sup>[21,25-27]</sup>. While drug and alcohol abuse increases the risk of suicide in the general population, the risk is much higher when this behavior is associated with a diagnosis of schizophrenia<sup>[28-33]</sup>. Schizophrenic patients have a higher incidence of alcoholism in comparison with the general population and its presence has shown to differentiate suicide committers from schizophrenic controls in some studies<sup>[34-37]</sup>. Substance abuse further worsens the symptoms and prognosis of the disease condition and is associated with higher relapse rates<sup>[24,37]</sup>.

It has been identified that, patients with co-occurring schizophrenia and substance misuse disorders remain vulnerable to develop poor outcomes and are at greater risk of illness and injury. Stress among young male patients also contributes to the increased risk of substance misuse. However adequate data supporting substance abuse among women with schizophrenia are insufficient<sup>[38]</sup>.

A medline analysis performed to evaluate the risk of violence and disturbed behavior among schizophrenics revealed that male gender, non- adherence to medications, and severe psychotic symptoms were major confounding variables linked with substance abuse which increased the risk of committing violence and crime. In a sample of young male substance abusers, schizophrenics who used substances were found to have more suicide attempts and positive symptoms, especially hallucinations, as compared to patients with the same diagnosis, but without substance use<sup>[33,38]</sup>.

It is well known that suicide attempts are more in females and completed suicides are more in males. However, it is still unknown whether this pattern of suicidal behavior is also

seen in schizophrenia spectrum disorders with substance abuse disorders.

Early age of onset of illness and exposure to substances also predispose to suicidal behavior. Youths who abuse drugs are at increased risk for committing suicide, and drug or alcohol abuse is identified in around 70% of children and adolescents who commit suicide<sup>[39]</sup>. Studies of two American cohort researchers found significantly greater comorbid substance abuse among people with schizophrenia who were suicidal, predominantly among the younger patients<sup>[27,38-40]</sup>.

Studies examining the role of substance abuse among schizophrenics have produced inconsistent results. A comparison of schizophrenics who attempted suicide with those who had not attempted suicide showed that drug abuse did not differ between these groups<sup>[41]</sup>. Similarly, varied results have been reported for the association between suicide and other drug-use disorders<sup>[42]</sup>. While alcohol has been suggested as a specific risk factor in older males with schizophrenia, evidence is lacking<sup>[43]</sup>.

It has been identified that vulnerable factors both environmental and genetic such as social and family influences, early life trauma; reduced frontal lobe functioning also contributes to the development of drug abuse and psychiatric distress. Severity of psychiatric symptoms in substance abuse and schizophrenia are also connected to chronic stress. It is hypothesized that irregularities in the development of hippocampus and frontal cortex decreases the inhibitory control over drug seeking behavior in patients with schizophrenia. It is proposed that almost 70% or more of chronic schizophrenia patients are nicotine dependent. However the exact role of nicotine dependence in such patients is not yet determined<sup>[38]</sup>.

Several animal and human brain imaging studies explains that neurochemical and dopamine mediated pathways predispose schizophrenic patients towards drug abuse. Even though there are several proposed theories explaining the association concerning substance abuse and schizophrenia supportive evidences evaluating its etiopathological significance is scarce<sup>[44]</sup>.

Paradoxically it is seen that, suicide risk is higher in the group of patients with bipolar disorders as compared to schizophrenia spectrum disorders. However, the drug seeking behaviour appears to be more in schizophrenia spectrum disorders. Hence, whether presence of substance abuse increases the suicidal risk in schizophrenia spectrum disorders patients or suicide is an independent outcome of multiple risk factors remains unanswered.

Effectively treating the comorbid depression, substance abuse, affective symptoms such as agitation, sense of hopelessness and worthlessness, improving patient compliance, and careful attention of patients with risk factors are likely to prevent suicide<sup>[44,45]</sup>. Psychosocial interventions such as providing psychoeducation, psychotherapy, psychodynamic therapy and supportive counseling are also found to be effective in reducing suicidal behaviour among patients with schizophrenia spectrum disorders and psychosis<sup>[46]</sup>. Suicide prevention strategies should address not merely the presence of axis 1 disorders but also preventive measures are required for appropriate management of co morbid substance abuse disorders. It is clinically relevant to have a broader approach of risk assessment. However cultural factors also should be taken into account.

## Conclusion

Suicide is a one of the major causes of mortality among patients with major mental disorders. The risk of suicide is further more among patients with substance use disorders. There is possibility that presence of substance use might predate the onset of suicidal behavior in a vulnerable group of patients with major mental illnesses. However, it is difficult to infer that which type of substance abuse disorder predisposes the individual to develop suicidal act and in which category of mental illnesses with substance abuse are vulnerable to develop suicidal behavior. As suicidal and drug seeking behavior are the major concern for the patients with major mental illness as well as general population, there is need for comparative studies to explore which group of patients with substance abuse disorders are more vulnerable for developing suicide in future. Hence, there is need for systematic research, so that appropriate interventions can be developed for specific group of people.

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