



STUDY OF INSOMNIA SEVERITY AND SUICIDAL IDEATION IN PATIENTS WITH MENTAL ILLNESS

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ABSTRACT

Introduction: Patients with mental illness suffering from insomnia are at increased risk for experiencing suicidal ideation. Insomnia severity would be indirectly associated with suicide-related outcomes through psychiatric symptoms. Hence treating insomnia may prevent suicidality.

Aim and objectives: To study the insomnia severity and suicidal ideation in patient with mental illness and their relation.

Methodology: 120 patients attending out-patient and inpatient department of Psychiatry, tertiary care hospital are selected. Socio-Demographic data of the patients are taken and Insomnia Severity index and Modified Scale for Suicidal Ideation are administered. Severity of Insomnia is co-related with the suicidal ideation and the extent of risk of suicidality is compared with insomnia severity. Statistical analysis is done using SPSS software version 22.

Results: Mean MSSSI score is 23.13. Mean ISI score is 17.38. Positive co-relation is found between insomnia severity and suicidal ideation.

Conclusion: The higher the severity of insomnia, the higher the risk of suicidality in mental illness patients.

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INTRODUCTION

Suicide constitutes a global disease burden, which accounts for around one million deaths annually (Krug EG *et al*, 2002). It is a complex, but preventable public health problem, with many personal and social consequences (Krakow B *et al*, 2000). Past research studies have identified biological, psychological, and social factors which confer increased risk for suicide (Fawcett J *et al*, 1990). Evidence suggests that sleep disturbances are one such risk factor, predicting increased risk for suicidal behaviors (Fujino Y *et al*, 2005). The association between suicidal behavior and insomnia has also been linked to neuro-endocrine system with some studies demonstrating that they may both be related to the system involving serotonin (Banki C *et al*, 1983). The rates of suicide have increased in the past two decades and there is need to identify and prevent the causative factors. Insomnia has been identified as one such precipitating factor and their association has been described in many studies. Suicidal thoughts/attempts can be seen as part of mental illnesses like Depression, Schizophrenia, Bipolar affective disorder, Substance use disorders etc. In most of the mental illnesses sleep disturbances particularly insomnia has been seen as associated symptom which can also possibly be responsible for suicidality.

Insomnia is a condition of unsatisfactory quantity and / or quality of sleep, which persists for a considerable period of time (WHO-ICD 10). Insomnia severity would be indirectly or directly associated with suicide-related outcomes through psychiatric symptoms. Hence there is a need to study the severity of insomnia and treat those patients.

Aim of This Study: To study insomnia severity and suicidal ideation in patients with mental illness.

Objectives: To study socio-demographic factors of the patients and to examine the relationship between insomnia severity and suicidal ideas in these patients.

Subjects and methods

Inclusion criteria

1. Age - >18 years and <60 years.
2. Subjects meeting non organic insomnia criteria according to ICD - 10.
3. Patients who gave consent.

Exclusion criteria

Patients with Medical illnesses.

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METHODOLOGY

- **Study design:** - Cross sectional study.
- **Type of sampling:** Convenience sampling method.
- **Period of Study:** 6 months.
- **Place of study:** Psychiatry Tertiary Care Hospital, Hyderabad.

Tools

Insomnia Severity Index

The Insomnia Severity Index (ISI) has been one of the most widely used self - reported assessment tools for insomnia (Morin CM *et al*, 2011). The tool was developed based on the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (APA - DSM IV, 2003), and is a sensitive screening and treatment outcome measure (Morin CM *et al*, 2011). There are established cutoff scores to identify individuals with different degree of insomnia (Morin CM *et al*, 2011). However, the measurement properties of the ISI on insomnia based on the updated diagnostic criteria of the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM - 5) and International Classification of Sleep Disorders, third edition (ICSD - 3) have not been comprehensively assessed. The ISI comprises 7 items, and assesses the individual's insomnia over the previous 2 weeks symptoms on a five - point Likert scale. The total score ranges from 0 to 28, in which a higher score indicates greater symptom severity (Morin CM *et al*, 2011).

Modified scale for Suicidal Index

The MSSSI (Miller IW *et al*, 1986) is an 18-item modified version of Beck *et al.*'s (Clum GA *et al*, 1995) SSI. Responses are scored from 0 to 3, and the total score ranges from 0 to 54 (higher scores represent greater suicidality). The SSI has demonstrated high internal consistency (coefficient α between. 87 and. 94; item - total correlations ranged from. 41 to. 83) and inter-rater reliability (Miller IW *et al*, 1986, Joiner TE *et al* 1997, Clum GA *et al*, 1995) in adult samples. Concurrent and discriminant validity have been adequately supported in adult samples (Miller IW *et al*, 1986, Joiner TE *et al* 1997).

ICD-10 criteria for non-organic insomnia

The following are essential clinical features for a definite diagnosis:

(a) the complaint is either of difficulty falling asleep or maintaining sleep, or of poor quality of sleep;(b) the sleep disturbance has occurred at least three times per week for at least 1 month; (c) there is preoccupation with the sleeplessness and excessive concern over its consequences at night and during the day; (d) the unsatisfactory quantity and / or quality of sleep either causes marked distress or interferes with ordinary activities in daily living (WHO -ICD 10).

Statistical analysis by SPSS version 22

IBM SPSS software is used for statistical analysis version 22.

Procedure

120 patients attending out-patient and in-patient department of Psychiatry tertiary care hospital, Hyderabad participated in the study. Written informed consent has been taken. Socio-Demographic data of the patients are taken and Insomnia Severity index scale is administered in patients who are diagnosed with non-organic insomnia according to ICD

criteria and ISI scores are obtained. Modified Scale for Suicidal Ideation is administered in those patients and MSSSI scores are obtained. Severity of Insomnia is co-related with the suicidal ideation and the extent of risk of suicidality is compared with insomnia severity. Pearson co-relation coefficient is used to co-relate insomnia severity and suicidal ideation.

Statistical analysis: Means and Standard deviations of Total MSSSI scores and Total ISI scores are obtained using SPSS software for statistical analysis version 22 . Pearson co-relation co-efficient is used to co-relate insomnia severity and suicidal ideation.

RESULTS

Our study showed many important findings. Table 1 shows the socio - demographic data of the patients involving various variables like gender, education, socio-economic status based on kuppusswamy scale, marital status, domicile and diagnosis. Males consisted of the highest percentage (65 %) in our study when compared to females. Graduates or Post - Graduates constitute the majority of the people (26. 7 %) in our study.

Table 1 Socio - Demographic data of patients

		Frequency	Percentage
Gender	Males	78	65
	Females	42	35
Education	Professor or honors	10	11.7
	Graduates or Post graduates	32	26.7
	Intermediates or Post high school diploma	28	23.3
	High school certificate	16	13.3
	Middle school certificate	8	6.7
Socioeconomic status	Primary school certificate	4	3.3
	Illiterates	22	18.3
	Upper	10	8.3
	Upper middle	40	33.3
Marital status	Lower middle	36	30
	Upper lower	10	8.3
	Lower	24	20
Domicile	Married	70	58.3
	Unmarried	24	20
Diagnosis	Separated/Divorced	26	21.7
	Urban	78	65
	Rural	42	35
Diagnosis	Schizophrenia	34	28.3
	Bipolar Affective Disorder-mania	30	25
	Bipolar Affective Disorder-depression	2	1.7
	Depression	26	21.7
	Alcoholism	18	15
	Schizoaffective disorder	10	8.3

Many of the subjects belonged to the Upper middle Socio-economic status (33. 3%). Skilled workers comprised of 25% of the study population. The study population constitutes of Married (58. 3%) which is more than unmarried as well as separated / divorced population. Many of the people belong to Urban population (65%), Hindus (55 %). Schizophrenics (28

%) constitute most of the subjects, followed by BPAD- mania patients (25 %).

Table 2 shows the frequency (number of people) of suicidal ideation and insomnia severity. Sub- threshold insomnia was present in 40 patients. 50 patients had moderate insomnia. 30 patients had severe insomnia. Low suicidal ideation is present in 22 patients, Mild to moderate in 34 patients and many of the patients i. e, 64 had severe suicidal ideation.

Table 2 Frequency of Severity of suicidal ideation and insomnia severity.

Insomnia severity	N	Suicidal ideation	N
Sub threshold insomnia	40	Low suicidal ideation	22
Moderate insomnia	50	Mild to moderate	34
Severe insomnia	30	Severe	64

Table 3 shows Means and Standard deviations of Total MSSSI score and ISI scores with significant p-value <0. 01. Table 4 shows the pearson co-relation coefficient scores of 0. 926 for insomnia severity and suicidal ideation with significant p-value.

Table 3 Means and Standard Deviations

	N	Minimum	Maximum	Mean	Standard Deviation
Total MSSSI score	120	0	54	23.13	15.274
Total ISI score	120	8	28	17.38	6.498
Age	120	21	60	38.80	10.216

MSSSI = Modified Scale for Suicidal ideation, ISI = Insomnia Severity Index, N=frequency, p value < 0.01

Table 4 Co-relation between Insomnia severity and Suicidal ideation

Correlations		Total MSSSI score	Total ISI score
Total ISI score	Pearson coefficient	0.926	1
Total MSSSI score		1	0.926
P-value- .000			

ISI = Insomnia Severity Index, MSSSI = Modified Scale for Suicidal ideation.

DISCUSSION

This study showed that severity of insomnia is strongly and positively co-related to the suicidal ideation i. e. , higher the severity of insomnia higher is the suicidal ideation . This study also showed that many of the subjects had severe suicidal ideation scores and are thus at increased risk of suicide or suicide attempts. Many of the patients did not have a past history of suicidal attempts. Hence measures are needed to be taken in these patients and in all those who even have mild to moderate as well as low suicidal ideation, to prevent suicide in these patients.

In a study of 843 patients (Pompili *et. al*, 2013), many of the insomnia patients were BD and depression, but in our study many of the insomnia patients are schizophrenics. In multiple studies (Chellappa *et al*, 2007), (Goodwin *et al*, 2008), (Li *et al*, 2010), (Wojnar *et al*, 2009), majority of the insomnia patients had a previous history and family history of suicides, which is in contrary to our study. Our study showed that insomnia is associated with suicidal ideation and is strongly co - related. Studies done by (Duggan *et al.*, 1992); (Beautrais *et al.*, 1996), also showed association between insomnia and suicidality.

Individuals who have sleep disorders may not only be at risk for suicidal ideation and suicide attempts but may need to be

considered an at risk population for violent suicidal acts and completed suicide. This association may be explained by the neuro-endocrine correlates of suicidal behavior and sleep disturbances, which are both related to serotonergic system (Singareddy R *et al* 2001). Studies conducted by (Banki *et al* 1983), (Asberg *et al* 1976), (Traskman *et al* 1981), found an association between low CSF 5 - HIAA levels and lethality of suicide attempt. These findings suggest that low serotonergic function is found in patients who attempted and / or completed suicide, particularly those who used violent methods to take their own life. Serotonergic dysfunction may be a possible underlying mechanism for both suicidal behavior and sleep disturbances.

Limitations

Small sample size and limited to a single hospital.

CONCLUSION

Insomnia is associated with suicidal thoughts, attempts and suicide. Strong positive co - relation has been found between insomnia severity and suicidal ideation i. e, more the insomnia severity more is the suicidal risk and ideation in patients with mental illness.

Implications

Sleep disturbances, in particular, insomnia has to be corrected as it is a risk factor for suicidal ideation. Sleep disturbances should be considered in the clinical assesment by clinician so that they are identified early and treated.

Future Research

Future research is directed towards finding out the prevalence of insomnia in patients with mental illness who are under remission. Studies measuring sleep objectively, and according to time - of - day in patients with mental illness, are additionally suggested as an important area of future research.

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