Insomnia, dreams, and suicide: Connecting links

Introduction: A growing empirical literature has examined insomnia symptoms as a possible risk factor for a range of suicidal behavior. Not much literature is available in normal adolescent population. Aims: The aim is to find insomnia prevalence, studying various dream factors, and suicidality prevalence among students of various courses. To check if there is a relation between insomnia and suicidal behavior and dreams, particularly nightmares and suicide. Materials and Methods: A total of 400 students of various courses were assessed using Insomnia Severity Index and The Mannheim Dream Questionnaire and Suicide Behaviour Questionnaire. Results: Insomnia was present in 11%, 23%, 19%, and 19% and suicide behavior in 16%, 17%, 12%, and 22%, respectively, in medical, commerce, engineering, and arts students. Statistically significant correlation was found between suicide and insomnia severity and various dream factors. Conclusions: Insomnia and dreams had relation with suicidality in normal adolescent population.

Keywords: Dreams, insomnia, nightmares, suicide

Sleep occupies a third of our lives and is vital to fulfill physiological needs, particularly in terms of cognitive function and mood. Disrupted sleep is very distressing for most individuals and may have a negative impact on their quality of life. Suicidal ideation among students is defined as the wish, thought or desire to take one’s own life violently due to a variety of internal and external causes, such as personality, undesirable emotions, and school life. Suicidal behavior among adolescent students is a matter of great concern due to the tragic loss of prime years of life it entails. The majority of the suicides (37.8%) in India are by those below the age of 30 years. Many studies have been carried out on the factors that explain suicidal behavior. Recent developments have highlighted sleep disturbances as significant risk factors for suicidal ideation and behaviors. The severity of global insomnia has been identified as a significant and modifiable – short-term risk factor for suicide.

Hypersomnia and poor sleep quality have both been predictive of eventual death by suicide. Other sleep disturbances such as lower sleep efficiency, longer sleep latency, and sleep-disordered breathing have also been implicated as potential suicide risk factors. There is evidence that there are higher rates of nightmares in suicidal individuals, especially when suffering from depression. Nightmares have been shown to be associated with suicidal ideation, suicide attempts, and death by suicide. In a study on college students, nightmares were associated with suicidal ideation after controlling for depressive symptoms, anxiety symptoms, and posttraumatic symptoms.

The majority of these studies have been done in patients having psychiatric disorders. Not much literature is available in the normal population and that too in adolescents, and there is a dearth of Indian literature too. Hence, we decided to take up this research to study the presence of insomnia in various groups, to study various dream aspects in these

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groups, to study the presence of suicidal behavior in these groups and to find a correlation of insomnia and various dream factors with suicidal behavior.

**MATERIALS AND METHODS**

**Study design**
Cross-sectional, analytical, and comparative.

**Site**
This study was undertaken in the colleges of various streams.

**Sample**
This study included 400 students (four groups; 100 students each of medicine, commerce, engineering, and arts streams).

**Methods**
Ethics Committee approval was obtained from the Institutional Ethics Committee. Informed consent was obtained in the attached proforma and following data were collected:
1. The demographic profile was collected in the semi-structured proforma
2. They were given a questionnaire containing following scales: Insomnia Severity Index, Suicide Behaviour Questionnaire (SBQ) and The Mannheim Dream questionnaire (MADRE).

**Scales used**

*The Insomnia Severity Index*
It is a 7-item self-report scale that assesses the individual’s subjective report of current (last 2 weeks) insomnia symptoms. Each item is scored on a 0–4 scale, with total scores ranging from 0 to 28. Scores of 0–7 are considered no insomnia, 8–14 are indicative of subthreshold insomnia, 15–21 are considered an indicator of moderate insomnia, and 22–28 are considered to indicate severe insomnia.[21]

*The Suicidal Behaviors Questionnaire*
Revised version from the Suicidal Behaviors Questionnaire (Linehan, 1981) was used. It is a 4-item, self-report measure designed to assess levels of suicidal risk. The SBQ’s four items are summed to create a score ranging from 3 to 18. A cutoff score of 7 for the general population or 8 for psychiatric inpatients may be used to determine clinically significant levels of suicide risk.[22]

*The Mannheim Dream questionnaire*
It comprises 21 questions which include whole range of dream factors such as current dream frequency, lucid dreaming, nightmare frequency both current and childhood, etc. It includes questions regarding various other aspects like how frequently one tell dreams to others, record dreams, daytime mood affected by dreams, etc.[23]

**Statistical analysis**
The data obtained was entered into MS Excel sheet. Data analysis was performed using SPSS Version 20 (SPSS version 20 developed by IBM Corporation). Appropriate tests were applied and score of $P \leq 0.05$ was considered statistically significant.

**RESULTS**
The students were of age range 17–19 years. There were 100 students in all four streams, i.e., medical, commerce, engineering, and arts. The males and females were 49, 51; 36, 64; 75, 25; and 9, 91 in medical, commerce, engineering, and arts streams, respectively. Table 1 shows insomnia prevalence among four groups of students. Clinical insomnia was maximum among commerce students (23%) and least in medical students (11%). No Insomnia was maximum among medical students (40%) and least in commerce students (33%). Table 2a describes various dream aspects such as dream recall frequency, current and childhood nightmare frequency and frequency of lucid dreaming and emotional tone of dreams in all four group of students. Engineering students recalled their dreams more frequently compared to other groups ($P = 0.01$). Arts students had more frequent current nightmares compared to others ($P < 0.01$). Lucid dreaming was more frequent among arts students (46%) and least in medical (36%). The negative tone of dreams were more in medical and arts students (27% each), whereas the positive tone was maximum in engineering students (40%) followed by commerce students (32%) ($P = 0.016$). Table 2b describes other dream aspects like telling others, the effect on daytime mood, recording, etc. Almost equal number of students in each group told their dreams to others. The recording was done more by medical and arts students (21% and 22%, respectively). Arts children

| **Table 1: Presence of Insomnia on Insomnia Severity Index** |
|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| Category                        | Medical (n=100) | Commerce (n=100) | Engineering (n=100) | Arts (n=100) |
| No (0-7)                         | 40             | 33             | 38             | 34             | 5.623, 6, 0.467 (not significant) |
| Sub threshold (8-14)             | 49             | 44             | 43             | 47             |
| Clinical (15-28)                 | 11             | 23             | 19             | 19             |
reported daytime mood effects of dreams more compared to others (66%). Creative dreams were more in engineering students (71%). Dreams helped to solve problems more in arts students (64%). Engineering students had more déjà vu experiences compared to others (92%). Table 3 shows the distribution of various nightmare contents among four groups. It is seen that dreams of self-harm and harm to loved ones were maximum in arts students while those of ghosts in engineering students.

Table 4 shows that suicidal behavior was maximum in arts students (22%) and least in engineering students (12%) \( (P = 0.303) \). Table 5 shows a positive correlation of suicidal behavior with insomnia severity \( (P < 0.01) \), nightmare distress \( (P = 0.004) \), emotional intensity of dreams \( (P = 0.001) \), and daytime mood affected by dreams \( (P < 0.01) \).

**DISCUSSION**

A lot of literature is present depicting relation between sleep problems and suicide. Furthermore, studies have shown a correlation between nightmares and suicide. To the best of our knowledge, this is the first Indian study assessing the relation between various aspects of dreams apart from nightmares and suicide. Furthermore, this is the first Indian study done among students. We have used MADRE dream questionnaire. The majority of the studies in literature had used “The Disturbing Dreams and Nightmare Severity Index” scale for calculating distress about nightmares. Thus, this study has looked into various aspects of dreams and not only nightmares.

Clinical Insomnia was present in 18% of the sample population with the maximum being in commerce students (23%) and
least among medical (11%). Engineering students had a higher frequency of recalling their dreams (68%) and it was least in medicos (41%). Current nightmares and lucid dreaming were more frequent among arts students (58% and 46%, respectively). The dreams had positive tone in 31.75% of sample and negative tone in 20% of the sample.

Suicidal behaviors were present in 16.75% of the sample with maximum in arts (22%) and least in engineering students (12%) although the difference between groups was not statistically significant. The reason for this finding could be the sample included the majority of females in arts group (91%) and majority males in engineering group (75%). The female are known to attempt suicide more than males. Personality traits of the person taking arts stream might also play part.

### Correlations

Positive correlation is seen between suicidal behaviors and insomnia severity ($r = 0.192$, $P < 0.01$). This findings correlated with study done on 1584 adult patients presenting at a community-based private sleep medical center in which they found significantly greater frequency or severity of sleep problems in areas of insomnia, nightmares and other parasomnia behaviors, poor sleep quality, and sleep-related psychophysiological conditioning as well as worse sleep-related impairment and quality of life.[28] Other studies have also demonstrated a link between insomnia and suicidal ideation or completed suicide.[29,27]

In one study, individuals who completed suicide exhibited greater insomnia in the week preceding the suicide than matched controls.[28] Difficulty initiating sleep and difficulty maintaining sleep have been cited as predictors of suicidal ideation and planning, while difficulty maintaining sleep has been shown to be a significant predictor of suicide attempts.[29] There are various theories explaining etiology for insomnia causing suicidal ideations. Psychological mechanisms explain that hopelessness and dysfunctional beliefs and attitudes about sleep are related with suicidal ideations. Insomnia impacts cognitive functions by impaired decision making and can lead to suicidal behavior. In biological mechanisms, serotonin plays a connecting link. Reduced serotonin levels are seen in both insomnia patients and those attempting suicide. Furthermore, serotonin plays a role in executive function of the prefrontal cortex. Similarly, role of Hypothalamo pituitary axis (HPA) is claimed to play in insomnia and suicide.[30]

Positive correlation is seen between nightmare distress and suicidal severity ($r = 0.142$, $P = 0.004$). Nightmares were related to high suicidality scores in individuals who had made a medically serious suicide attempt in a study.[20] Even in 2 years follow-up study stronger associations between persistent insomnia and nightmare difficulties and suicide were found.[31] The results of this study are consistent with the previous literature demonstrating that nightmares are associated with suicide risk independent of symptoms of psychopathology.[7,19] The possible reasons for it can be that nightmares are distressing, not easily controllable and unpredictable leading to hopelessness. The presence of nightmares may add distress above and beyond symptoms of insomnia, depression, anxiety, and posttraumatic stress disorder and the additional distress may result in higher suicidal ideation. Nightmares may also be a by-product of rapid eye movement disruption, which has been shown to be related to suicidal behavior in depressed individuals.[13]

### Limitations

1. Cross-sectional nature of the study cannot strongly prove the hypothesis that insomnia and dreams lead to suicidality
2. Formal psychiatric diagnosis, coping skills, and personality characteristics of study groups were not looked into
3. SBQ questions about lifetime suicidal ideation and behavior. Hence, it may be less sensitive than other measures to check recent changes in suicide risk. However, the SBQ-revised is a commonly used, validated measure of suicide risk
4. College population was study sample, so their findings cannot be generalized to the whole population which differs in terms of education and age structure. Furthermore, there were more females in arts group which can be one factor which could have affected the results.

### Conclusions

Thus, we have shown that there exist a relationship between insomnia and various dream factors with suicidal behaviors.
Treating them can be one of the preventable options in controlling suicide rates.

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Conflicts of interest
There are no conflicts of interest.

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