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RESEARCH ARTICLE
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ASSESSMENT OF QUALITY OF SLEEP AMONG HEALTHCARE STUDENTS WITH DEPRESSIVE SYMPTOMS

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Abstract
Mental health is a fundamental aspect in ensuring the stable and successful professional life of future physicians. Depressive symptoms can negatively affect the work-life-balance and efficiency at work of medical students. The present study is to investigate the associationbetween sleep characteristics and the outcome of the Beck Depression Inventory-II score. A survey using the Beck Depression Inventory-II, and the Pittsburgh Sleep Quality Index was conducted amongst students at Govt Thiruvarur Medical College. Data analysis was performed with descriptive statistics and binary logistic regression.The Beck Depression Inventory - II questionnaire was administered to a group of 171 MBBS students. Those who scored above 17, indicating borderline depression, were selected for further evaluation using the Pittsburgh Sleep Quality Index questionnaire.The study involved 105 MBBS students, and their demographic data were documented.Sleep quality is poor in 96.20% of students using PSQI scores(indicated by a PSQI total score > 5 points), with a statistically significant p-value of < 0.032.

Keywords: Medical student, Sleep, Depressive symptoms, Mental health

Introduction
Mental health is defined by the World Health Organizationas the “state of well-being in which an individualrealizes his or her own abilities, can cope with thenormal stresses of life, can work productively and is ableto make a contribution to his or her community” [1]. Ittherefore forms a prerequisite for a stable and successfulprofessional life in the medical field. Doctors often faceemotionally stressful situations in their everyday workand carry a great responsibility for their patients. Theyare expected to act professionally, competently, and sensitivelyand to always be able to justify their actions. It isnot uncommon for high levels of self-expectations andthe demanding work environment to impact the mentalhealth of physicians. [2]. Trainee doctors often faceemotionally stressful situations early on in their medicaldegree programs. Numerous studies describe thesechallenges and the physical and mental health of medicalstudents [3, 4]. In addition to anxiety disorders andbehavioral disorders, depression is one manifestationof declining mental health [1]. In recent years, the largehas received more attention [5].

Sleep is crucial for the physical and mental regenerationof the body and therefore of great importance tomental health. A recent meta-analysis revealed that sleepquality is particularly poor amongst medical students, thehighest prevalence of this phenomenon having been seenin students in Europe and America [6]. Poor sleep qualitycorrelates to reduced academic performance [7] andis associated with the onset of anxiety, depression, andstress. A long sleep latency time (the time it takes an individualto fall asleep) may be an indicator of depression[8]. Also, reduced sleep duration has a negative effect onacademic performance [9] and is more frequently associatedwith burnout [10].

Our present study is to explore the possible association ofsleep characteristics with depressive symptoms. The findingsof this study will help to establish targeted interventionsto improve the mental health of medical students.

Methodology

First year medical students of Government Thiruvarur Medical College, Thiruvarur who volunteered forstudy and gavewritten informed consent (n=171) were administered BDI-IIquestionnaires.Those who scored above 17, indicating borderline depression, were selected for further evaluation using the Pittsburgh Sleep Quality Index questionnaire.The study involved 105 MBBS students, and their demographic data were documented.

Inclusion Criteria:

- AGE : (18 - 30 years) , both gender
- Healthcare students having borderline clinical depression with beck depression inventory II questionnaire score of >17 out of 63.
- No past history of mental illness, such as diagnosed depression, anxiety or other mental diseases
- No past history of heart Illness, such as coronary heart disease, arrhythmias, cardiomyopathy.
- No long term smoking or drinking behaviours

Exclusion Criteria:

- Smokers
- History of cardiovascular diseases, currently using medication and being hypertensive
- Known case of psychiatric disorders / Non psychotic illness (Anxiety, depression, stress) on regular medication / counselling

Questionnaire

- Self rated questionnaire which assess sleep quality and disturbances over a 1-month time time interval.
- Nineteen individual items generate seven component scores.
- The score more than 5 indicate poor quality of sleep.
- “5” or more it is suggested to discuss sleep habits with a healthcare provider.

No physical or psychological risk was associated with the study. Institutional Ethical Committee approval was obtained before the study. Informed written consent from the students were obtained prior to collection of data. Confidentiality of data was maintained all through.

Result

Continuous variables were represented as mean ± standard deviation (SD) with the application of a student's t-test, with statistical significance denoted by a P value < 0.05.

Table 1

Statistics	Male	Female	Total
Number of Participants	76	29	105
Mean	11.5658	10.1034	10.8346
Standard deviation	2.59402	4.13474	3.36438

Table 1 shows the sleep quality index of 105 depressive medical students, 76 males and 29 females.The table presents statistics categorized by gender. For males, the mean is 11.57 with a standard deviation of 2.59. Conversely, females have a slightly lower mean of 10.10, accompanied by a higher standard deviation of 4.13. When considering the entire dataset, irrespective of gender, the overall mean is 10.83, with a standard deviation of 3.36.

- Males exhibit a higher central tendency (mean = 11.5658) compared to females (mean = 10.1034). This suggests potential sex-based differences in the underlying phenomenon being measured.
- The greater standard deviation observed in females (SD = 4.13474) compared to males (SD = 2.59402) indicates a wider dispersion of values within the female population. This could be due to a combination of factors, including biological variability and environmental influences.

Figure 1

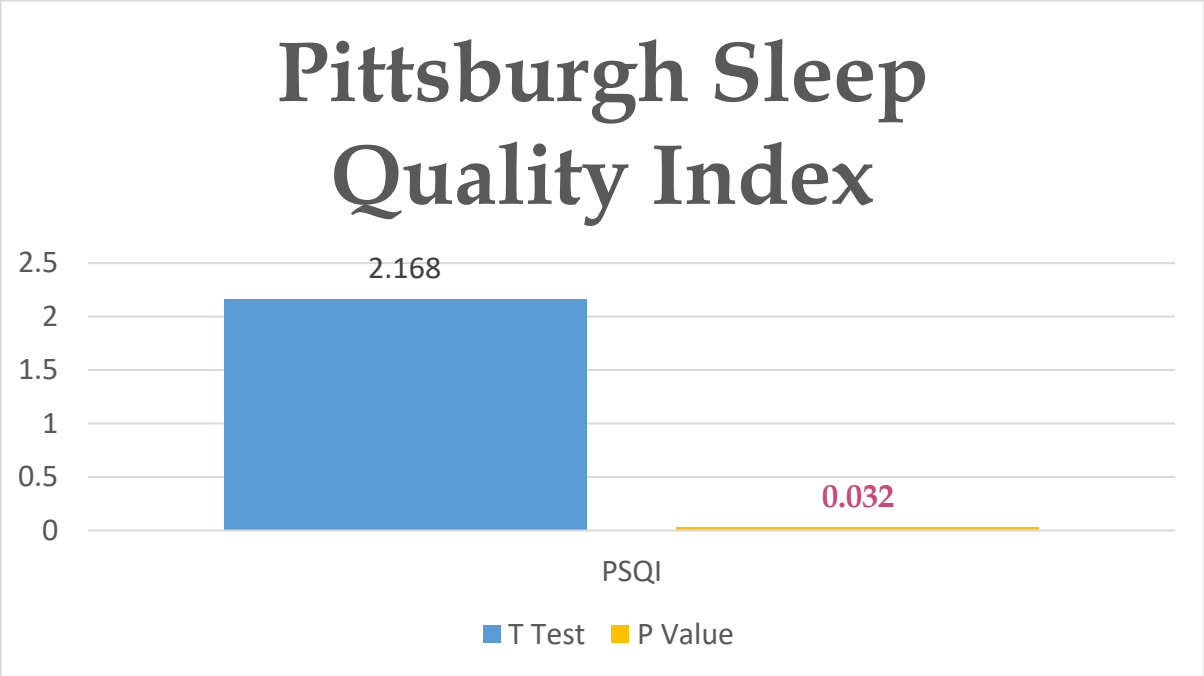

Figure 1 shows that the p-value of 0.032 suggests that there is a statistically significant association between depression and sleep quality with a T Value of 2.168.

Table2

PSQI score 5 and more	Male(%)	Female (%)	Total (%)
No of Participants	74	27	101
Percentage	97.40%	93.10%	96.20%

Sleep quality is poor in 96.20% of students using PSQI scores.

Table 2 shows the study involving 101 participants, segmented by gender, and their respective Pittsburgh Sleep Quality Index (PSQI) scores.

- Among the participants, 74 were identified as male.
- The percentage of males with PSQI scores exceeding 5 stands at 97.40%.
- This signifies that a significant majority (97.40%) of male participants may be grappling with sleep quality concerns.
- The study included 27 female participants.
- The percentage of females with PSQI scores greater than 5 is 93.10%.
- Similarly, a noteworthy majority (93.10%) of female participants displayed PSQI scores indicative of potential sleep quality issues.
- The overall percentage of participants with PSQI scores surpassing 5 is 96.20%.

- This denotes that the combined majority of both male and female participants (96.20%) are experiencing sleep quality challenges, as per the PSQI criteria.
This data suggests a considerable proportion of participants, irrespective of gender, facing sleep quality issues, emphasizing the need for further investigation to discern specific contributing factors and to devise appropriate interventions if deemed necessary.

Discussion
- Abdussalam et al. reported poor sleep quality in 64.38% of participants, with a significant p-value of less than 0.001, based on PSQI scores.(11)
- In comparison, our data indicates a slightly higher prevalence of poor sleep quality, with 96.20% of participants exhibiting PSQI scores above 5.
- Sun et al. found a 27.38% prevalence of sleep problems among Chinese medical students.(12)
- In contrast, our data indicates a much higher overall percentage (96.20%) of participants experiencing poor sleep quality.
- This discrepancy suggests that the sleep quality challenges in our study population might be more pervasive than those observed among Chinese medical students in the study by Sun et al.
- R. Manni et al. reported that 40% of Italian secondary school students experienced poor sleep quality.(13)
- Comparatively, our study's findings (96.20% of participants with PSQI scores above 5) indicate a more substantial prevalence of poor sleep quality.

Limitations
This suggests a high prevalence of poor sleep quality among participants, surpassing the percentages reported in the studies by Abdussalam et al., Sun et al., and R. Manni et al. This data underscores the significance of addressing and understanding the factors contributing to sleep disturbances within our study population. Further research and targeted interventions may be warranted to improve sleep quality and overall well-being among the participants.

Conclusion
High prevalence of poor sleep quality in healthcare students with depressive symptoms.Study suggests potential impacts on overall well-being and academic performance of healthcare students.Ultimate goal is to develop interventions improving sleep quality and enhancing overall mental health in healthcare students.

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ETHICAL CLEARANCE: Taken from Institutional Ethical Committee, Govt Thiruvarur Medical College, Thiruvavur.

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