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## **IMPACT OF SLEEP ON MENTAL HEATH AMONG INTERNATIONAL MEDICAL STUDENT IN GSMU IN GOMEL CITY, BELARUS**

### ***Introduction***

Sleep is a fundamental biological process essential for both physical and mental well-being. Poor sleep quality is associated with a range of adverse health outcomes, including impaired cognitive function, mood disturbances, and an increased risk of chronic diseases. This study seeks to explore the relationship between sleep and mental health issues such as stress, anxiety, and depression among medical students, focusing on the prevalence of sleep disturbances, their impact on daily functioning, and overall mental well-being [1].

### ***Goal***

The aim of this study is to investigate the relationship between sleep quality and mental well-being and to identify how sleep patterns influence mental well-being.

### ***Material and methods of research***

In this study a non-random selection approach was used to select participants from a target group of 79 individuals. Inclusion criteria involve international medical students at GSMU aged between 17–30 years old, while exclusion criteria exclude international students from Russia, Ukraine, and Turkmenistan due to similar language and living conditions. This selective inclusion and exclusion strategy ensures a comprehensive understanding of the research topic. Data was collected using two instruments: the “Depression, Anxiety, and Stress Scale (DASS)-21” for measuring mental health variables, and the Sleep Condition Indicator (SCI) for assessing sleep issues [2] [3]. All Data analysis of the study was performed using Microsoft Excel and SPSS, with descriptive statistical analysis and the Pearson correlation coefficient ( $r$ ) to examine the association between mental health and sleep.

### ***The results of the research and their discussion***

This study examined the mental health and sleep conditions of 79 students using the Depression, Anxiety, and Stress Scale (DASS) and the Sleep Condition Indicator (SCI). Among the participants, 44 are female (55.7%) and 35 are male (44.3%). This gender distribution is essential for understanding the nuanced differences in mental health and sleep conditions across genders within the student population. The DASS results reveal significant insights into the levels of depression, anxiety, and stress among the students. Specifically, 32 students (40.5%) experience depression, including 17 females (38.6%) and 15 males (42.9%). Depression is more prevalent among female students aged 21–24 and male students aged 19–20 and 27. Interestingly, no students aged 17-18 reported experiencing depression, highlighting age-related differences in mental health experiences within this population. Anxiety is even more prevalent, affecting 53.2% of the students (42 out of 79). This includes 56.8% of the female students (25 students) and 48.6% of the male students (17 students). Female students aged 19–26 is particularly affected, while anxiety is less common among those aged 17–18. Among males, the highest incidence of anxiety is found in those aged 21–27, with minimal cases among those

aged 17–19. Stress levels are also notable, though affecting a smaller portion of the sample. About 13.9% of the students (11 out of 79) report experiencing stress, with 11.4% being female (5 students) and 17.1% male (6 students). Stress is more prevalent among female students aged 23–25 and male students aged 19–27. Like depression, stress is rare among students aged 17–18, suggesting that younger students might cope better with academic and social pressures. The study also highlighted issues with sleep quality among the students. Poor sleep quality is reported by 34.2% of the students (27 out of 79). This issue affects 18.2% of female students (8 students) and 54.3% of male students (19 students). Poor sleep quality is more prevalent among female students aged 23–26 and male students aged 23–27, indicating a potential link between age, gender, and sleep disturbances.

A comprehensive Spearman's correlation analysis between sleep (independent variable) and mental health issues (depression, anxiety, and stress) revealed significant relationships. Depression and sleep showed a strong negative correlation ( $\rho = -0.600$ ,  $p < 0.001$ ), indicating that better sleep quality is associated with lower depression levels. Anxiety and sleep had a moderate negative correlation ( $\rho = -0.499$ ,  $p < 0.001$ ), suggesting that improved sleep correlates with reduced anxiety levels. The correlation between stress and sleep was moderately negative ( $\rho = -0.541$ ,  $p < 0.001$ ), with higher sleep quality linked to lower stress levels. All correlations are statistically significant at the  $p < 0.001$  level, underscoring the robust evidence for these relationships.

Table 1 – Spearman's rho correlation analysis between sleep and the depression, anxiety, and stress

Dependent	variables	p-value	Strength
Depression	-0.6	0.001	strong
Anxiety	-0.499	0.001	moderate
Stress	-0.541	0.001	moderate

The Mann-Whitney U test was conducted to compare mental health variables (depression, anxiety, and stress) between high and low sleep groups. The median split for sleep was 19.0. The results indicated significant differences: high sleep group median score of 6.41 vs. low sleep group median score of 13.73 for depression ( $U = 343.0$ ,  $p = 0.446$ , medium effect size); high sleep group median score of 7.51 vs. low sleep group median score of 13.6 for anxiety ( $U = 436.0$ ,  $p = 2.432$ , medium effect size); high sleep group median score of 4.08 vs. low sleep group median score of 10.87 for stress ( $U = 345.5$ ,  $p = 6.242$ , medium effect size). These findings, showing significant differences in mental health outcomes between high and low sleep quality groups.

Table 2 – Mann-Whitney U Test Results

Variable	Mann-Whitney U	p-value	Effect size	Effect interpretation	High sleep mean	low sleep mean
Depression	343.0	0.446	0.446	medium	6.41	13.73
Anxiety	436.0	2.432	0.34	medium	7.51	13.6
Stress	345.5	6.242	0.443	medium	8.04	10,87

### Conclusion

The study revealed significant insights into the relationship between sleep quality and mental health among medical students in Gomel, Belarus. The findings underscore the prevalence of depression, anxiety, and stress, with notable differences across gender and age groups. These results emphasize the importance of addressing sleep issues to improve the mental health and wellbeing of medical students. Interventions aimed at enhancing sleep

quality could have a substantial impact on reducing depression, anxiety, and stress levels. In the highlight of this study, it is recommended to find a pathway for students to seek help to address these issues as these parameters have an impact on their academic performance in addition to their general health.

#### LITERATURE

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