ABSTRACT

- **Background:** Colleges and universities are currently facing the major public health issue of poor sleep quality. Sleep quality must be taken seriously to maintain the students' emotional and physical well-being. Thus, this study sought to determine how university students' levels of motor cognitive processing speed related to the quality of their sleep.
- **Methodology:** This cross-sectional study was conducted among 139 students in the first, second, and fourth years of the Bachelor of Physiotherapy (BPT) program at Brainware University's Allied Health Science department participated in this cross-sectional study. Students between the ages of 18 and 25 who gave their informed consent and were willing to participate made up the study population. Based on predetermined inclusion and exclusion criteria, participants were chosen. Students with orthopaedic conditions like juvenile rheumatoid arthritis and musculoskeletal pain, psychological conditions like anxiety, stress, and depression, neurological conditions like autism spectrum disorder, dyspraxia, and attention deficit hyperactivity disorder, and surgical conditions like congenital heart disease and neonatal intestinal obstructions were excluded. Students who reported upper extremity pain or weakness, had upper extremity injuries, or were using drugs such beta-blockers, sedatives, or hypnotics that could interfere with sleep patterns were also disqualified. A 30-cm wooden ruler, the Pittsburgh Sleep Quality Index (PSQI) scale, a structured data collection form, and a consent form were among the instruments used to gather data. Before the study started, each participant received a thorough explanation of the process. Before gathering demographic information, subjects were vetted based on the eligibility requirements, and informed consent was acquired. The PSQI scale was used to evaluate the quality of sleep. The Ruler Drop Method (RDM) was used to assess motor cognitive processing speed. Participants were asked to sit comfortably on a table with their elbow bent at a 90-degree angle. The participant's thumb and index finger were positioned five centimeters apart, and the researcher held a ruler vertically to set the zero mark between them. As soon as the ruler was dropped, participants were instructed to catch it. Prior to the final evaluation, three practice trials were offered. After that, each participant completed five test trials in which the ruler was dropped at intervals of three, four, six, two, and four seconds. For every experiment, the distance between the thumb and index

finger at where the ruler was captured was noted. After the data was gathered, it was assembled, examined, and evaluated to provide significant outcomes.

- **Results:** Using Global PSQI ratings, the current study examined the connection between response time and sleep quality in a sample of about 113 people. Reaction time and PSQI scores had a weakly positive link ($r = 0.12$), according to statistical analysis using Pearson correlation. Nevertheless, this association was not statistically significant ($p = 0.199$), suggesting that the research population's reaction time was not significantly affected by sleep quality. A similar pattern was seen among male participants, with a marginally positive connection indicating that higher reaction times may be associated with lower sleep quality. The correlation remained weak and statistically insignificant in spite of this. These results imply that factors other than sleep quality might have a greater impact on men's reaction times. Reaction time and PSQI scores had a weakly positive correlation in female individuals, which was consistent with the sample as a whole. This correlation, however, was likewise not statistically significant. This suggests that female reaction time is not significantly influenced by sleep quality alone. Reaction time performance may also be influenced by other variables like hormone fluctuations, stress levels, and lifestyle choices. Overall, the study shows that although there is a little trend indicating a connection between reaction time and sleep quality, it is not strong enough to be deemed significant. As a result, factors other than sleep quality seem to have an impact on reaction time.
- **Conclusion:** According to the current study, response time and sleep quality have a marginally positive correlation. Nevertheless, it was discovered that this correlation was not statistically significant. This implies that in healthy people, sleep deprivation may have a negligible impact on reaction time. The results show that reaction time is not significantly influenced by sleep quality alone. Both male and female subjects showed similar patterns. This demonstrates that the association between reaction time and sleep quality was not substantially impacted by gender. The findings highlight the fact that a variety of factors affect reaction time. These could consist of environmental, psychological, and physiological factors. As a result, differences in reaction time might not be explained by sleep quality alone. The study emphasizes how cognitive performance is multifaceted. Future studies should use greater sample sizes to have a better understanding. Additionally, controlled experimental conditions must to be taken into account. It is advised to utilize objective instruments to evaluate the quality of

sleep. Deeper insights might also be obtained by incorporating more cognitive characteristics. This could make it easier to see how sleep impacts overall performance.

- **Keywords:** University students, Sleep quality, Motor Cognitive Processing Speed

TABLE OF CONTENTS

SL NO.	TOPIC	PAGE NO.
1.	INTRODUCTION	1-4
2.	LITERATURE REVIEW	5-13
3.	AIMS & OBJECTIVES	14-15
4.	MATERIALS AND METHODS	16-19
5.	STATISTICAL ANALYSIS	20-21
6.	RESULT	22-25
7.	DISCUSSION	26-30
8.	CONCLUSION	31-32
9.	LIMITATIONS AND RECOMMENDATIONS	33-34
10.	REFERENCES	35-37
11.	ANNEXURE A, B, C, D & E	38-47