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Opinion on Student's Educational Performance and Sleeping Patterns Using Data Analytics Technique

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Abstract. Sleep deprivation habits are widespread in students and may render them prone to mental illnesses, drug misuse, and decreased educational attainment. Sleep problems including insomnia, parasomnia was notably high among engineering students due to their rigorous academic schedules, exposure to social media, and gaming activity. Sleep postponement of bad sleepers is larger compared to that of healthy sleepers. Sufficient sleep has a significant function in boosting cognitive skills primarily retention of information. Inadequate late night sleep quality and the subsequent midday drowsiness impair the cognitive and behavioral health of students' academic performance. This study aims to examine the link between sleep disorders and educational results for graduates of engineering. Every candidate must be drug-free and non-medicated is considered for this research. We exclude individuals who tend to abuse prescription medicines for non-medical purposes. Using a self-reported assessment, sleeping disorder's impact on student achievement is assessed. After adequate validation, academic performance data was obtained from the participants. The proposed system is deriving the connection between the variables is using statistical approaches.

Keywords: *Sleep, academic performance, graduates, education, health, disorders, achievement.*

1. Introduction

Sleep is a natural condition of rest and a basic physiological necessity of humans according to the Maslow Hierarchy of Needs Model. Sleep is a biological process that is essential for a healthy body. The human sleep cycles are regulated by a cardiovascular system [1]. During sleep, the blood pressure decreases, heartbeat slows down, skin arteries widen, and the diaphragm relaxes [2]. The general metabolism of the body keeps dropping by 10-30 % of healthy sleep. Physiological sleep is the reason for the normal nervous system responsiveness and consistency between different areas of the central nervous system that are regained during sleep [3]. When it comes to maintaining physical and mental health, sleeping patterns play a crucial role. A person has to be subjected to appropriate sensory or other stimuli to be woken up from sleep. To avoid physiological and behavioral exhaustion, sleep is an integral element of the human lifetime [4]. The many kinds of sleep every night, a person alternates between two phases of sleep, where Slow-Wave Sleep (SWS) and Rapid eye movement sleep (REMS) are the two. The brain activity in SWS is extraordinarily slow. Dreaming is defined by uneven breathing and heart rate. The brain is quite busy during REM sleep. As a result, it is impossible for the students to be aware of their environment and consequently alert.

The sleeping pattern determines attentiveness [5], long-term cognitive ability [6, 7], logical reasoning [8], and visual processing among other intellectual capacities. Sleep has a vital role in enhancing a person's cognitive abilities [9]. Youthful hibernation habits leave children susceptible to many forms of sleep disturbances. College students' educational productivity is negatively impacted by these sleeps disruptions [10]. When a human is sleeping, they appear to be peaceful, immobile, and breathing slowly, yet their internal organs and brain are working their finest during the same time. As a result of the neurotransmitter exists inside the neurons of the human brain that switch the process between sleep and waking, thus the sleep processes are managed. The neurons transmit messages to keep the person awake. When a person's sleep cycle is disrupted, the above-mentioned neurotransmitter function suffers and reduces the quality of sleep. This pattern of sleepiness in students will harm their educational performance. As an alternate, extremely extended sleep owing to physical fatigue may have an advantage over the sleep quality of those who are not physically active and do not get enough sleep. When it comes to young people, physical fatigue may either drain them or help them to

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sleep better.

Sleep deprivation may be the starting point for all other hypothermia. A few of them are insomnia, as well as snoring with extended breaks during sleep, which is common among young individuals and elderly people. Good sleep is one where the four phases of sleep are experienced at periodic intervals. It will help to calm the mind and body and allow the brain and other cells to function properly. In the proposed research, the electronic questionnaire is created based on the Pittsburgh Sleep Quality Index (PSQI) [4-6, 10] and the Karolinska Sleepiness Scale (KSS) [8]. This study is focused on the students. As a result of social and emotional pressure among the students living in the residential institution are included in the study. Educational performance [11, 12] and sleep patterns are linked in this study. With the use of various machine learning methods, this proposed research demonstrates the relationship between educational performance and the sleeping patterns of students by discovering their correlation ratios. Mostly in face of sleep deprivation, the desire for sweet tastes was greater than in the healthy controls. Active ghrelin was also greater after sleep deprivation than in the healthy controls. The levels of insulin did not differ between the two groups. With less sleep, calorie consumption increased and was largely obtained through carbs. There was no correlation between the desires of taste receptors, the active hormones, and a number of calories consumed. However, it appears that in healthy young people, chronic sequential sleep deprivation raises taste receptors, and active hormones as well as calorie intake.

2. Literature Review

When it comes to the practical lives of students, wellness and educational attainment play a significant role. Numerous factors influence both, with sleep being one of the relatively lower ones that has a massive effect. The research goal is to determine the relationship between the academic achievement of the student and their sleeping habits. Morning drowsiness and impaired cognition are significantly worse for poor sleepers than for excellent sleepers. The cognitive and psychosocial performance of the students might be affected by lack of sleep and depressive symptoms. The self-reported questionnaires are used to measure the various occurrence of sleep characteristics and, if there is any, its impact on academic performance. The link between sleep problems and academic performance is determined through data analysis and statistical techniques. Hana Mohammad et al. [13] discovered that the mass graduates slept poorly. The Facebook, Instagram, WhatsApp, and Youtube have been the most popular social media sites. Addiction to social media sites was the greatest risk factor for poor sleep quality [4]. As a strong statistical tool, regression analysis permits the study of relationships among several variables such as sleep quality, using social media platforms. Abdullah Murhaf Al-Khani et al. [14] studied medical students with poor sleep patterns. They have greater levels of sadness, anxiety, and stress. However, youngsters with poor sleep habits scored more than their classmates on standardized examinations. The importance of sleep quality and its influence on psychological health must be known to medical students [5]. This data was collected through a questionnaire of the PSQI model. The students with higher sleep quality, length, and consistency have superior academic performance in the class. Sleep measures one night before a test did not connect to improved marks when it comes to testing performance. The duration and quality of sleep increased during the month before and for the week before the test. Sleep measures accounted for over 25% of the variance in academic success.

Using the Chi-square test [9], Henry Jeremy Lawson et al. [15] looked for possible correlations between both the categorical variables collected from the survey. The PSQI Chi-square test evaluates the relationship between sleep quality and performance. Spearman et al. [6] ranking order was used to evaluate the correlation between continuous and ordinal data. No statistically significant relationship was shown between sleep quality and other sleep disorders, as studied. Ganpat Maheshwari et al. [16] examined the seven components of the PSQI with the students. Some students with worse Grade Point Average (GPA) were of extremely poor subjective sleep quality and had 16-30 minutes of sleep and a daily average sleep time of 5-7 hours. Virtually every student once or twice a week experienced sleep issues, was never sleep medicated over the last month, and nearly all the days of the week had a midday condition. PSQI score and GPA were correlated using chi-square. A.J. El Hangouche et al. [17] reported that the correlation between daytime sleepiness and academic success was not quantitatively related. He used bivariate and multivariate statistical analysis to find out if the two characteristics were dependent on each other. PSQI is used to assess the quality of sleep among the students before the commencement of their first test period. PSQI is applied before the first exam period to measure the sleep quality of the students. The student with a PSQI >=5 had low academic performance after the year. Almost 36.6 % of students were excessively sleepy during the day was especially common among females [7]. Zunhammer et al. [18] assessed the quality of sleep among the students before the commencement of their first test period using PSQI. During this test session, PSQI results were combined with course grades. They proposed the concept of higher education institutions have to invest in professional care for students with sleep and other health problems.

M.E. Machado-Duque et al. [2] computed the PSQI questionnaire and the Epworth Sleepiness Scale. There was

also an assessment of cultural, clinic, and educational factors. The academic performance of the student was investigated using Multi-Variate Analysis (MVAs). 59.4% of students with an average age of 21.73.3 years were estimated male. There were 49.8% who met the Excessive Daily Sleepiness (EDS) criterion. In the case of AlFakhri et al. [19], 78% of students believed that their academic performances are adversely affected by inadequate sleep. Sleep deprivation has been cited by 62.2% to 73.7% percent of students, correspondingly. When asked about whether distinct courses on healthy sleep patterns should be included as part of the medical education curriculum, a majority of students said that they were interested in extracurricular activities on healthy sleep patterns. In a study by Mirghani et al. [20] there was a difference between the excellent and pass marks categories of students in their academic performance there is a major impact of hours of sleep each night. Sleep quality, daytime drowsiness, and sleep later than nightfall, sleep latency, and trouble concentrating between good and average groups were significantly different. There were also significant changes in sleep quality. In the case of M. L Zeek et al. [21] reported 54.7 % of medical students slept fewer than 7 hours a night during a regular academic week, and a vast majority of 81.7% of them slept less than 7 hours the night before a test. Daytime drowsiness was experienced by nearly 47.8% of respondents daily. Higher course grades and semester grade points were related to more sleep the night before an exam. Students who slept for less than seven hours were more likely to have poor sleep patterns. There was a significant correlation between the course grades and semester GPAs of the student who is getting enough sleep the night before an exam. All seven PSQI components were matched to the average GPA of L.Ghahramanyan et al. [22]. Many of the students with low GPA sleep quality were very poor, with 16 to 30 minutes of sleep and an average sleep time of 5 to 7 hours. Practically all of these students suffered difficulty with sleep once or twice a week, never used sleep medicine in the month before and almost every week of the year they suffered from midday disorder.

Using the PSQI questionnaire developed by J. AL Zahrani et al. [17], where the medical students were evaluated on their sleeping habits and quality. Finding the cause and effect was done with the help of logistic regression. There are low educational outcomes and poor sleep quality which exist among medical students. Sepehr Rasekhi et al. [23]found through PSQI that 36.6% of individuals had disturbed sleep patterns, with the percentage of women being statistically significantly higher. A connection existed between abnormal PSQI scores and further poorer academic results. PSQI scores were also affected by relationship status, employment, alcoholism, and physical fitness. There was a significant rate of sleep disorders in this area. Research by Dagmara Dimitriou et al. [24] revealed a significant relationship between Total Sleep Time (TST) and weekday sleep habits. The findings of mediation analysis show that the consumption of coffee and the use of digital media before night are unfavorable with the student outcomes through the mediation pathway for sleep deterioration. Even while exercise did not affect any of the sleeping factors, it did have a positive effect on academic performance.

Alsaggaf MA et al. [25] reported that in addition to demographic and psychological variables, students completed the PSQI, Epworth Sleepiness Scale, and Perceived Stress Scale questionnaire. Here, the average sleep duration was 5.8 hours and the average bedtime was 1.53 hours. Approximately 8% of respondents said that they slept during the day instead of at night. A study by Hysing et al. [26] reported the results of the poll that was compared to the objective statistics on school achievement. Here, 30% of students had poor sleep quality, 40% had excessive daytime sleepiness, and 33% had insomnia symptoms. Self-reported sleep measures provided data on sleep time, sleep performance, sleep shortness, and weeks vs. bedtime differences during weekends. In multivariable regression models, stress, poor sleep quality, and EDS were found to have significant correlations. Insomnia symptoms were related to poor academic performance and stress. The connection between sleep difficulties and low academic performance implies that teenagers who are failing in school should have their sleep evaluated. Official administrative records were used to determine GPA. Y. Wang et al. [27] surveyed that 21% of students went to bed after midnight, 78% were up for more than 30 minutes, and a large proportion of 94.4% slept fewer than 8 hours. There was a link between sleep delay and lower personality on educational performance. There was a lower correlation between sleep deprivation and depression across all grade levels. It was shown that elementary school kids who slept less and seniors who slept more were more likely to have behavioral issues than their classmates. This method examined demographics, the PSQI, the Epworth Sleepiness Scale (ESS), the Berlin Questionnaire, and DSM-IV depressive criteria, as well as GPA and drug use. These factors were shown to be associated with each other. There is a strong correlation between a lack of quality sleep, excessive daytime drowsiness, and depressive symptoms in medical student's educational performance [8].

PSQI is used to assess the sleep quality before the first test period, according to P.Russo et al [11]. During this test session, PSQI results were combined with course grades. Academic providers may be encouraged to invest a portion of their social amenities budgets in an expert to help the students experiencing sleep and other healthcare issues. Many researchers have utilized electronic wearable such as the Fitbit activity tracker [6] to collect different data such as

steps done, distance traveled, calories burned, and sleep phases as well as the number of potential sleeping hours [12]. Such data are kept in the structure of a dataset, with each measure functioning like a separate variable inside that dataset. Different machine learning algorithms were employed to analyze the data and calculate its dependence rate. GPA and biometric data [3, 5, 6, 21-23] are gathered together with the academic achievement of the individual. Using biometric data and GPA determine the impact of sleep on adult's educational performance. Linear regression, Chi-square test, Spearman's Rank Test, and other machine learning methods are used to calculate this relationship [10].

Accordingly, in the proposed method, there are two types of sleep questionnaires, the PSQI and KSS studies were conducted on students. As a result of psychological and physical pressure, only students living in hostels are included in the study. Educational performance and sleep patterns followed by young people are shown to be interdependent in this study. With the use of various machine learning methods, this study demonstrates the relationship between young people's educational performance and their sleep patterns by calculating their correlation ratios.

3. Dataset

The requirements were gathered using PSQI and KSS auto questionnaire that was specifically designed for the undergraduate engineering students. Along with sleep quality assessment questionnaires in the form of a digital survey tailored with the PSQI, the survey also includes demographic information such as age, gender, year of study, and so on. Also, the GPA detail of the student is collected. The personalized questionnaire includes questions about a few eating habits, alcohol consumption, and smoking habits as well as how many cups of coffee people drink at night. Also, collected and evaluated the daily intake of bottled drinks. Sleep delay is directly affected by this practice, especially among girls. Using the person's sleep and awakening time, the sleep duration was calculated. Among the student community, this questionnaire is shared via WhatsApp and E-mails. The survey is considered efficient that doesn't need the participant to enter a lot of information in the field. When it comes to answering questions, the Likert scale is used for most of them. This scale is useful for gathering latent variables or opinions. This facilitates the analysis of the data. The connection between sleep, eating, and body weight increase is positive.

4. Proposed Methodology

Anonymously, a graduate's sleep data is collected via customized questionnaires administered using Google forms. The questionnaire data is analyzed and preprocessed. In this stage, the data collection that has been created or constructed is cleaned and reorganized. The null fields are removed from the dataset and replaced with the median value. This is one of the primary drawbacks of using a questionnaire to obtain data. Only a small percentage of people grasp the context of the question and respond properly. Those who don't fill them in reduce algorithmic efficiency and the model's ability to perform. Using a self-reported questionnaire, sleep problems' impact on academic performance is assessed. After adequate validation, academic performance data was obtained from the students. Machine learning techniques are used to determine the relationship between the two. Every question in the questionnaire was accompanied by a reference to a work of literature. To sum it all up, the questionnaire asks for replies to roughly 32 different characteristics. Of the replies received, half were in text format. Therefore, all object data type columns must be converted to an integer or numerical format.

4.1 Preprocessing

The proposed method is based on two approaches for converting category information into numerical information. The approaches are embedded label encoding and one hot encoding technique. The label encoding techniques are more likely to be misinterpreted by the algorithm that operates behind the screen than the other approaches. The machine learning techniques are used on datasets that include multiple labels and one or more fields. This labeling might be in the form of words or numbers, depending on the related information. The training data is typically annotated to make it more comprehensible or user-friendly.

4.1.1 Label Encoding

When labels are encoded, they are converted into machine-readable form by turning them into numeric form. The algorithm uses the machine learning technique to determine the usage of the label. The supervised learning structured dataset is pre-processed in this way. The collected data is converted into machine-readable form, but each class of data is assigned an individual number that begins at 0. The dataset is then used to identify the most important issues for training. The high-value labels may be given a higher priority than lower-value labels.

4.1.2 One Hot Encoding

When category variables are encoded as binary vectors, the result is one-hot encoding. Here first, the categorical data is converted into integers. A binary vector containing all zero values except for the integer's index, which is indicated with a '1' that is used to represent each integer value. When working with datasets, the columns that contain numbers are not sorted in any particular manner. These columns are used to store information about categories or values inside categories, as well as when the data is label encoded. To

prevent this, the data in the column should be encoded using one hot. A column of numerical data is divided into two columns. This refers to dividing the numerical categorical data from a column into multiple columns based on how many categories are in that column. 0 or 1 appears in each column depending on where it was placed.

4.2 Feature Selection

The machine learning algorithms and data analytics are unable to leverage text as a source of information. Their input is expected to be numerical. There is a need for a mechanism to convert input text into relevant numeric features. There are numerous ways to do this, but in this case, natural language processing was employed. Two or three variables are compared using the correlation function and various types of graphs to determine the degree of dependency between them. It is required to extract the relevant characteristics from the dataset and load them into a data frame, which is then utilized for further dependency checking and producing graphs on. In the Jupiter notebook, extracting the relevant data from the dataset and loading it into the data frame is accomplished. There are several reasons for the variables are connected in a dataset. One variable may affect or be impacted by another's values. There are two variables that may depend on one another and depending on a third variable may be an unknown variable. It helps to comprehend the links between variables in data analysis and modeling. The statistical connection between two variables is called the correlation. A correlation may be a positive or negative correlation suggesting that the value of one variable rises, such that the values of the other variables decrease. Correlation may also be neural or nil, indicating disconnected variables. It is positive when both variables are changing in the same way. It is under neutral correlation when there are no variables that have connections. It has a negative correlation when variables in opposite directions change. The multicollinearity of some algorithms is a phenomenon that decomposes the performance by tightly connecting two or more variables. If there is any correlation between inputs and outputs, it is used as a guide in determining which variables should be included while building a model. Some relationships have established structures in linear relationships, whereas others have no notion if there is a link between two variables or what form it may take. Correlation coefficient scores are determined based on the available connection and the range of the variables. There is a statistical link between two random variables or bivariate data when they are correlated. As a statistical relationship in its widest definition, correlation refers to the degree to which pair of variables is linearly connected.

4.3 Data Visualization

A univariate distribution of observations is shown using a distplot. It combines matplotlib hist() function with the seaborn kdeplot() and rugplot() methods to create a new plot. The graph shows the distribution of the values of bedtimes of adults and it is given in Figure 1. Most of them go to bed after 11 p.m., as seen in the graph and Engineers tend to go to bed late in this proposed research.

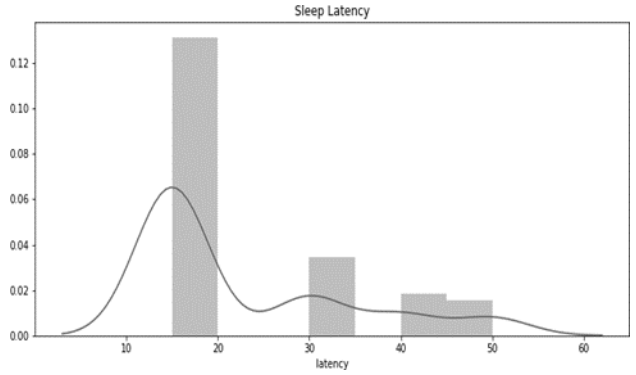

Fig. 1 The details of young adult's bedtime.

According to the graph, young individuals tend to sleep for longer periods. The average sleep duration for young adults is seven hours as shown in Figure 2. There are quite a few people who sleep for 8 hours and a few that sleep for 9 hours. Many people sleep for 6 hours a night, which is less than the prescribed maximum for a young adult.

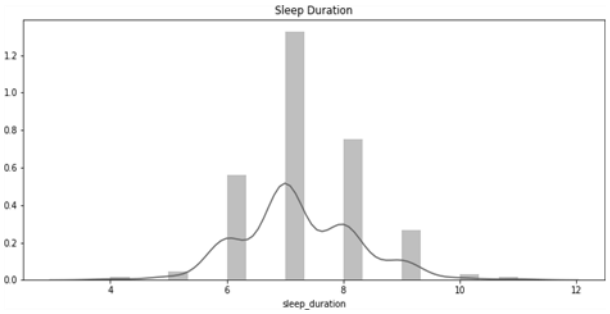

Fig. 2 Sleep duration of young adults.

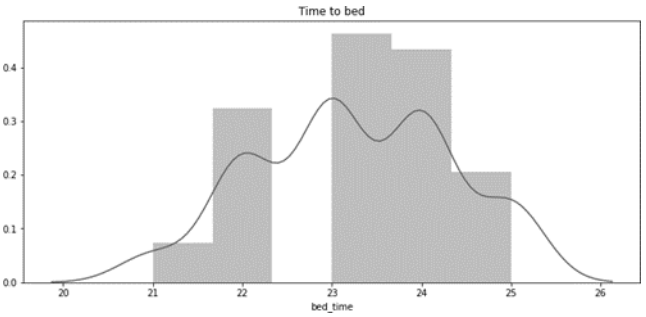

Fig. 3 Sleep latency of young adults.

The time it takes for someone to fall asleep after going to bed is the latency of the person. There is a greater impact on sleep duration and quality due to the long latency time. Meanwhile, younger people use mobile gadgets to cover latency more, which extends latency and eventually delays sleeping frequency and lowers sleep every night. Average students fall asleep within 10 to 20 minutes, according to the graph that is shown in Figure 3.

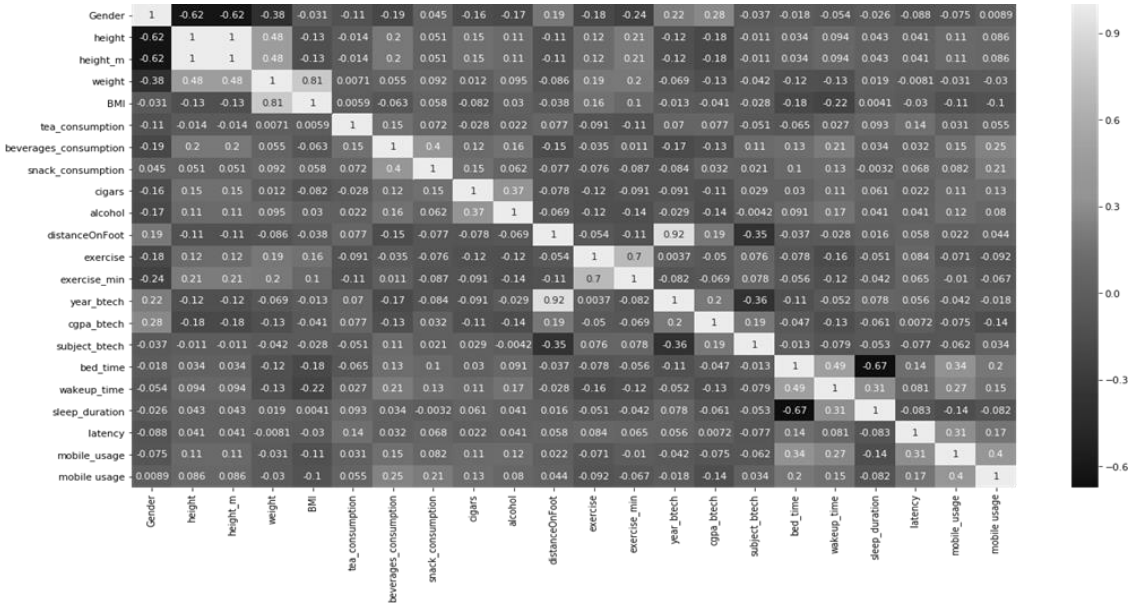

Fig. 4 Heat map of different parameter analyses on the proposed dataset.

As a result, the student's academic performance and sleep quality appear to be unaffected.

5. Experimental Analysis

Heat map refers to the visual representation of data in which the individual values of a matrix are represented as colors and shown in Figure 4. To present an overall perspective of numerical data, rather than to extract a single data point, is extremely useful. To arrange comparable values near one other that probably need to normalize the matrix, pick an appropriate color palette and perform cluster analysis. The rows and columns of the matrices are permuted according to the clustering.

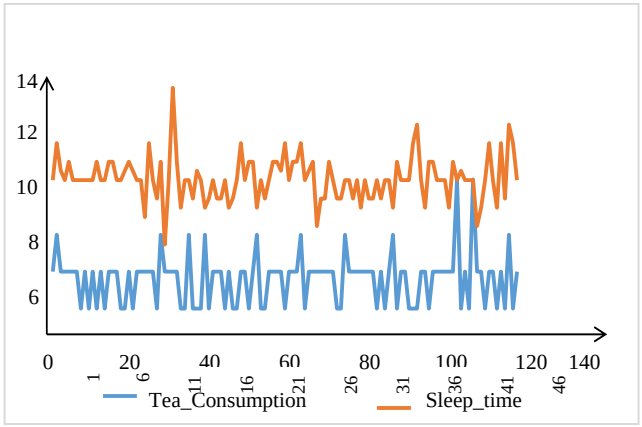

Fig. 5 Individual's circadian sleep rhythm due to tea consumption.

Many graphs have been drawn to show the most relevant elements recorded in a questionnaire related to one another. It is possible to determine the link between bivariate variables and their proportionality from a graph created between them. An individual's

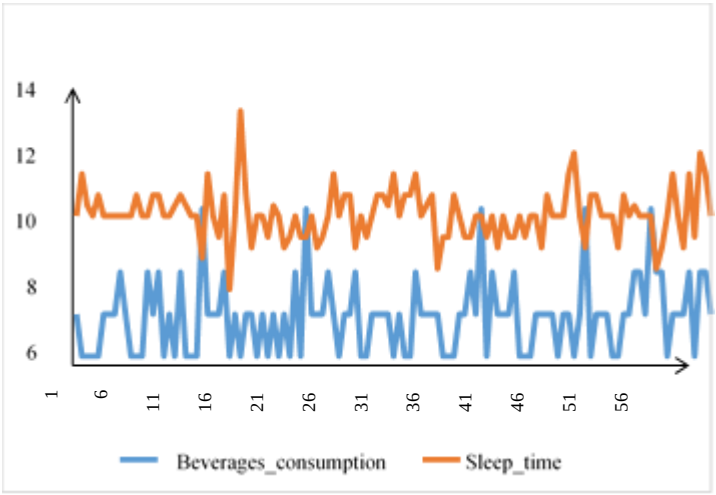

Fig. 6 Individual's circadian sleep rhythm due to beverage consumption.

circadian rhythm may be deduced from this line graph as shown in Figure 5. It shows a link or dependence between tea consumption and sleep time in 24 hours. There is a correlation between sleep time and tea intake, indicating that an increase in tea consumption has an impact on sleep time. The young adult's sleep time rises as tea drinking increases. In addition, the correlation function determines that these variables are positively correlated. Studies have shown a favorable correlation between sleep length, bedtime, and tea intake habits. As shown in Figure 6, an individual's bedtime increases as they consume more tea or caffeinated drinks, increasing the latency of sleeping as well as shortening the duration of their sleep cycle. Consumption of tea as a percentage of sleep time is 0.6888. According to a positive correlation value, a rise in tea intake leads to an increase in sleep time for the subject in general. Tobacco consumption versus sleeping time = -

0.603. Positive correlation values show that an increase in energy drink intake lowers sleep duration for most subjects. The accompanying line graph shows the relationship between a young adult's beverage intake habit and the amount of sleep he or she gets. Drink intake peaks correlate with sleep duration troughs among young individuals enrolled in engineering courses. Using the correlation indicated before, the correlation value obtained was negative. Higher use of energy drinks harms a young adult's sleep time both directly and indirectly. Sleep vs CGPA is -0.062. A low correlation value indicates that a student's CGPA is not greatly impacted by the amount of sleep the student gets. As seen in Figure 7, sleep duration has a significant impact on sleep latency in young adults. This means that both the sleep duration and their CGPA are within a similar range of numbers, as seen by the intersecting line graph series. Due to the different behavior of their peaks and lowest levels for different input values, it produces negative correlations of 0.062. A young adult's CGPA does not rely on how much or how well they sleep. According to Figure 8, sleep latency and waking up time are not strongly correlated with one another. On the other hand, the students' sleep latency varies dramatically among those who took the survey. Time delay persists despite an increase in sleep latency among students.

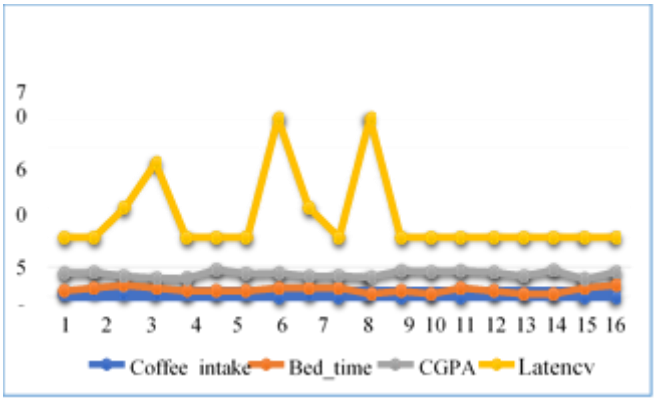

Fig. 7 Impact of sleep latency on young adults.

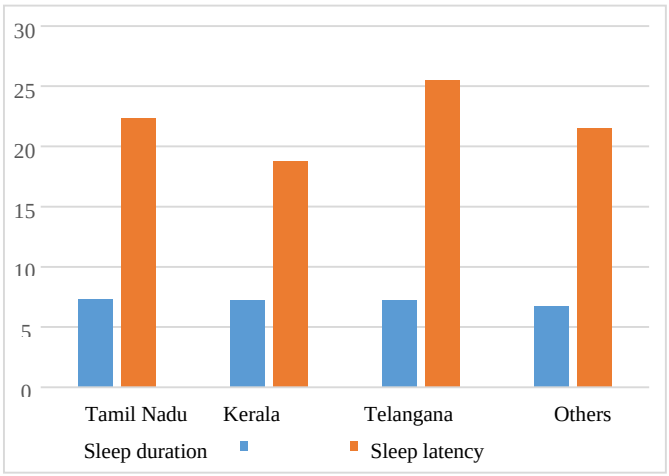

Fig. 8 Correlation between sleep latency and waking-up time.

6. Discussions

There were 32 features collected which included the demographic details of the participants as well. The dependency among the features was determined by finding the basic correlation using the Pearson coefficient method. The outcome of such methods turned out to be negative. The collected data features aren't related to each other to a greater extent. Having this as the base, few unrelated features based on their correlation value or the 'r-value' from the dataset was dropped when including the data for further manipulation. After which there were 18 features. However, there prevailed a greater correlation between BMI and weight. This higher degree correlation didn't anyway improvise the prediction accuracy of the model. A machine learning model was developed to predict the CGPA of young adults using their sleep patterns and the effect of sleep influencers. Four types of regression analysis namely linear regression, polynomial regression, decision tree regression, and polynomial regression with ridge was used to carry out this prediction. The pre-processed dataset was split into the necessary training data and testing data respectively. Following a correlation test of the independent features previously performed, we observed a significant positive relationship between tea consumption and sleep time of the young adult, a positive correlation between the routine and their sleep time, and a relatively smaller correlation between the CGPA collected and the duration of their sleep. Eventually, the models are having these less correlated features yielded fairly less-accuracy producing models. No substantial link between academic performance and sleep time or sleep quality was therefore identified. 211 young individuals participated in the poll, which was distributed by email and WhatsApp. Approximately 50% of males and females took part in the study with their consent and provided information that was utilized to analyze their sleep patterns. In addition, 127 men (59.6%) and 86 women were interviewed (40.4%). 197 answers were received from B.Tech (93.4%) and 14 from M.Tech (6.6%). A total of 68 young adults slept between 11 pm and 12 am, while a large number of persons slept between 12 am to 1am. A large number of young individuals wake up between 7 am and 8 a.m while just a small number of people are early risers, according to research. They also spend at least 30 minutes a day playing online games and their daily mobile usage averages more than 5 hours, according to the research. This is the case for the vast majority of young adults. 67% of people who drank tea or coffee in the evening reported that it helped them fall asleep more quickly. When it comes to workout regimens, male responders had the upper hand over their female counterparts. Because of the lower correlation values between the independent characteristics, the models' performance is also impacted. With a greater correlation value, BMI and weight are the

only two factors that are positively connected.

The criteria determined that 31 of the respondents were underweight, 125 were normal weight, 31 were overweight, and the other 17 were obese, with 31 being underweight. The Spearman order rank test was used to determine the importance of each parameter or feature on the dependent variable, which is the CGPA, utilizing the questionnaire. The independent factors' significant positive and negative association with sleep delay is as follows: Sleep duration (r= 0.08; p=2.08), distance travelled by walk (r=0.08; p<=0.001), alcohol consumption (r=0.04; p<=0.001), cigarette(r=0.02; p<=0.003), BMI (r=0.03; p=0.473), daily exercise (r=0.08; p<=0.001), tea consumption (r=0.14; p<0.0001), and beverage consumption (r=0.031; p<=0.0016). Sleep influencers shown to have a lesser impact on the average sleep latency of young individuals were found to be less significant. The CGPA of the young people was predicted by analyzing their sleep habits and daily activities. Self-reported academic achievement was employed in this proposed study. Some respondents did not understand the actual context of the questions and others were reluctant to provide personal information which resulted in a small number of inadequate or false data being recorded.

7. Conclusions

There is a positive correlation between sleep duration less than a recommended number of hours, excessive daytime drowsiness, tea or caffeinated drinks consumed later in the day, and the consumption of energy or soft drink beverages. While the actual data show that there is no positive reliance, they show that there is a negative dependency rate based on the feedback supplied by the students who choose to participate in the external initiative. It does not matter how long adult sleep, how much more it takes to sleep, or how much tea or coffee drinks it eats at an early age if he or she wakes up in the morning. It was found that sleep patterns, food habits, and exercise routines do not affect academic performance to a significant degree, even though many of the studies that were referenced in the literature survey phase concluded that sleep patterns harmed the academic performance of young adults. Researchers have shown that even the worst sleepers may score well.

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