Perceived stress and Circadian Rhythms among college students between Day-scholars and Hostellers

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ABSTRACT
Stress is an unavoidable part of life, but it may severely impact students' physical health, emotional well-being, and academic success if they do not know how to manage it successfully. College students experience stress as a result of lifestyle changes, greater workloads, new university programs, and interpersonal relationships. Extreme stress can reduce job quality and lead to poor academic performance and attrition. Memory problems (which obviously affect learning), mood swings, weakened immune systems, an increased risk of diabetes, decreased balance, an increased likelihood of blood pressure or heart disease, increased hunger, weight gain, an increased risk of accidents, and difficulty concentrating are the most common symptoms of sleep deprivation. The present study attempts to explore the relationship between sleep quality and perceived stress among day scholars and hostellers. The sample of the study consists of 60 undergraduate students of the age group of 18 to 21 who were selected using a convenient sampling method. The findings were analyzed using a descriptive correlational design with a quantitative approach.
Keywords: Perceived Stress, Circadian rhythm

1. Introduction

Stress is an inherent part of life, yet, unless students know how to manage it effectively, it can have a negative impact on their physical health, emotional well-being, and academic success. College students experience stress due to lifestyle changes, increased workload, new university programs, and interpersonal relationships. Extreme stress can impair job quality and results in poor academic achievement and attrition.

Many college students enroll in courses each semester, which leads to prosperous professions and satisfying lives. During this time, students must deal with a variety of stressors in their academic, personal, and, in some cases, professional life. Students who may not have adequate stress management skills may struggle to balance these duties.

Individuals are affected by stress in both positive and negative ways (Behere et al. 2011; Burnard et al. 2007). Stress has the ability to motivate us to attain our goals (Behereet al. 201). Selye (1976) referred to this effect as "eustress." According to the literature, stress has three types of negative effects: medical symptoms such as headaches and illnesses; psychological manifestations such as anger, low self-esteem, and worry; and behavioral expressions such as weight reduction, smoking, and drinking (Arnold & Boggs 2006).

The most frequent signs of sleep deprivation include memory problems (which affect learning obviously), mood swings, reduced immune systems, an increased risk of diabetes, decreased balance, an increased likelihood of blood pressure or heart disease, increased hunger, weight gain, an increased chance of accidents, and difficulty concentrating. Prolonged durations of sleep deprivation can result in undesirable effects such as hallucinations, poor mental clarity, sickness, or even death (Clifford, 2007).

Sleep deprivation can have substantial consequences for a variety of bodily processes, particularly endocrine, immunologic, metabolic, and cardiovascular functions. The severity of these consequences is determined by the degree of sleep deprivation. Sleep deprivation causes abnormal endocrine responses (increased evening cortisol levels, increased sympathetic activation, decreased thyrotropin activity, and decreased glucose tolerance) and altered secretory patterns of appetite-regulating hormones (decreased leptin and increased ghrelin secretion) in healthy young adults. The

latter consequence is likely to stimulate hunger, potentially leading to excessive weight gain (Banks, 2007).

Reducing REM sleep may be linked to decreased academic performance in students with poor sleep quality. Students who sleep fewer than eight hours every night miss out on some of the final two hours of REM sleep. Those two hours of REM sleep are usually the most crucial for digesting freshly learned information (Buboltz, 2001; Smith, 2001; Smith, 1991). As a result, sleep deprivation (with decreased REM sleep), irregular sleep schedules, or poor sleep quality will limit the rate at which students learn new content (Buboltz, 2001). Even though students sleep eight hours each night, shifting one`s circadian rhythms cycle by two hours may have trouble concentrating (Smith, 2004). The academic performance, tiredness, and irritability of students who fulfill the criteria for delayed sleep phase disorder have all been found to be significantly poorer than those who do not (Smith, 2004).

Chronic shifts in the sleep/wake cycle have also been linked to sadness, decreased affability, and increased irritability. Students who report severe daytime sleepiness also indicate more frequent use of marijuana and alcohol, as well as a possibility of caffeine and nicotine dependence (Voelker, 2004; Smith, 2004).

The main objectives of the study are: 1. To find the difference in sleep patterns among the day scholars and hostellers. 2. To find the difference in perceived stress among the day scholars and hostellers. 3. To find the relationship between sleep quality and perceived stress among day scholars and hostellers.

2. Methodology

A descriptive correlational study with a quantitative approach was employed to study sleep quality and stress among undergraduate students. The population taken for the study is college undergraduate students. The sample of the present study consists of 60 undergraduate students of the age group between 18 to 21 which there were 30 males and 30 females in total. The participants were from Kristu Jyoti College of Management and Technology, Changanassery, Kottayam, Kerala. and were selected using a convenient sampling method. Only undergraduate students of Kristu Jyoti college were included and they were from the ages of 18-21 years. Students who have not enrolled in a regular course in a college were excluded. The informed consent included details of the study – the title of the study, purpose, procedures, conditions, and benefits. The participant was assured that the data collected would be kept strictly confidential and that it would be used only for research purposes.

The questionnaire to assess sleep quality and perceived stress was finalized. The consent of the participant was obtained. Demographic data such as name, age, gender, and designation were taken from the participant. Both questionnaires- The sleep Quality Scale (SQS) and Perceived Stress Scale (PSS) were handed to the participant and the data were collected.

A comprehensive statistical analysis was done using IBM SPSS (version 25). Descriptive statistics is the branch of statistics that intends to describe a big hunk of data (using summary charts and tables, etc.). The inferential statistics methods used in the study are paired t-tests and correlation. Subjects are often tested in a before-after situation or with subjects as alike as possible. Correlation is a statistical device that helps in analyzing the co-variation of two or more variables. If two quantities vary in such a way that movements in one are accompanied by movements in the other, these quantities are correlated.

3. Result and Discussion

3.1 To find the gender difference in sleep quality and perceived stress of undergraduate students.

Table 3.1 indicates the mean rank, U-value, and P-value of the perceived stress scale, and sleep quality scale among the male and females. The mean rank of the perceived stress scale of males is 26.14 and of females is 34.83. The U-value of the perceived stress scale iss 320.000. The P-value of the sleep quality scale is 0.054. The means the rank of the sleep quality scale in males is 26.92 and for females is 34.08. The U value of sleep quality is 342.500. The P-value of sleep quality is.112.

From the table, there is a significant difference in mean rank between males and females in perceived stress and sleep quality. The results of this study suggest that women tend to exhibit higher levels of poor sleep quality than men, which may be related to their daily living habits, academic performance, bad interpersonal interactions, etc. Because of the radically different hormonal makeup of females, stress makes them more emotionally reactive and emotionally draining. There appears to be more to the gender disparity in sleep quality than just psychosocial differences.

Table 3.1 The mean rank, U-value, and P-value of the perceived stress scale, and sleep quality scale among males and females.

Variable	Gender	Mean of rank	Sum of rank	U-value	P-value
Perceived stress scale	Male	26.17	785.00	320.000	0.054
	Female	34.83	1045.00		
Sleep Quality Scale	Male	26.92	807.50	342.500	0.112
	Female	34.08	1022.50		

3.2 To find the relationship between Hostellers and Day- scholars in sleep quality and perceived stress.

Table 3.2 indicates the mean rank, U-value, and P-value of the perceived stress scale, and sleep quality scale Hostellers and Day- scholars. The mean rank of the perceived stress scale of Hostellers is 30.80 and Day scholars is 30.20. The U-value of the perceived stress scale is 441.000. The P-value of the sleep quality scale is 0.894. The means the rank of the sleep quality scale of Hostellers is 32.65 and Day scholars is 28.35. The U value of sleep quality is 385.500. The P-value of sleep quality is.0.340. From the table, it can infer that when compared to day students, the hostellers exhibit more instances of irregular sleep patterns due to perceived stress. Although day students may experience stress, they often have better sleep patterns. There is a connection between stress and poor sleep. For those of college age, both the quantity and quality of their sleep are crucial. Dreams that evolve into nightmares due to sleep issues might lead to further physical and emotional issues. Therefore, the importance of sleep for college students cannot be emphasized. Undoubtedly, students—particularly those in their tenth and twelfth grades and those who were planning to enroll in college—were the most impacted group during the lockdown.

Table 3.2 The mean rank, U-value, and P-value of the perceived stress scale, and sleep quality scale Hostellers and Day- scholars.

Variable	Group	Mean of rank	Sum of rank	U-value	P-value

Perceived stress scale	Hostellers	30.80	924.00	441.000	0.894
	Day scholars	30.20	906.00		
Sleep quality scale	Hostellers	32.65	979.50	385.500	0.340
	Day scholars	28.35	850.50		

3. 3 Correlation in Groups between SQS and PSS

The Spearman's rho correlation values of both sleep quality and perceived stress among hostellers and day scholars show a weak negative correlation between the two variables. A negative correlation indicates that both variables move in the opposite direction. So according to the present study conducted, the higher the score in sleep quality, the more individuals will show a decrease in the quality of sleep and can have acute sleep problems. Similarly, the higher the score in perceived stress shows that the individual is having an increase in perceived stress. In other words, decreased sleep quality in an individual can increase perceived stress.

There can be other possible reasons for sleep quality and perceived stress-related problems among undergraduate students such as loneliness, worry, sadness, poor relationship quality, family related problems.

Table 3.3 Correlation in groups between SQS and PSS

Variable	Correlation Coefficient
Perceived stress scale	-.017
Sleep quality scale	-.124

CONCLUSION

Knowledge of stress management, improving family relationships, good interpersonal communication with close ones, cultivating positive behavioral patterns and adjusting to new academic changes by making curriculum student-friendly and less stressful, and accepting new lifestyle changes to an extent can help. For further help regarding any mental health issues, there are many psychologists, counselors, and mental health groups to help at any time. For this, government, college authorities, family, and friends all should stand together to overcome this difficult situation along with students because social support is a protective factor that can help in the situation of stress. some of the limitations of the study are that an absolute sample generalizability of the study's findings is not possible because of the small sample size. The participants were chosen using a convenient sample approach, therefore there is a potential for sampling bias. Self-report measures were used and hence participants can have a tendency to give socially desirable answers. Suggestions for further research would be that more extensive research on a larger population of students can be conducted with more variables. Questionnaires were used in the present study to collect data from the participants. In further studies, the use of data collection techniques like online surveys can be used which is less time-consuming.

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