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EFFECT OF STRESS, ANXIETY AND DEPRESSION ON SLEEP QUALITY AMONG UNIVERSITY STUDENTS

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Chapter I: Introduction

Sleep is a basic human need. Abraham Maslow showed that sleep as part of your physiological needs in the hierarchy of five basic human needs. According to Stores, sleep categorized into: satisfactory and unsatisfactory. Good sleep is sleep that has satisfactory (sufficient in duration and good quality), while bad sleep is sleep that makes individuals feel unsatisfactory. Unsatisfactory sleep that occurs on a continued that cause × more serious effects like; often feel very tired, uncontrolled emotion, difficult to concentrate, difficult to remembering or thinking clearly, unsatisfactory work, depression, and difficult to solve problems. The long-term effects such as cardiovascular disease, obesity, and cancer.

Students including early adult age groups, so they take time to sleep for 7–8 h per night. But in reality, not all of the students keep their sleep needs optimally. This is because students have a lot of activity and stressors, both academic and non-academic. The condition causes students to have a risk of poor sleep quality

Some research showed that the majority of students had poor sleep quality. Sleep as one of the basic humans need important to restore stamina and function of the body. Quality sleep affects mental health. Sleep is not sufficient to cause increased stress hormones, namely cortisol. And conversely, high levels of stress can interfere with sleep quality individuals.

Poor sleep quality leads to feelings of anxiety, tension, fatigue, decreased intellectual, cognitive disorders, and depression. Many investigations on humans have shown that stress inducing variables can have a substantial effect on the wake sleep cycle in a number of ways, primarily based on the type of stressors and the length of exposure (acute or chronic), as well as on the interindividual variations. However, it is also well established that sleep disturbances can have a significant impact on a number of biochemical pathways, stress reactions and ultimately quality of life. A few days of deprivation or circadian misalignment is sufficient to raise blood pressure, insulin, blood glucose, pro inflammatory cytokines, hunger and calorie intake. Furthermore, according to McEwen and karats oreos (2015), sleep loss modifies the physiological neuroendocrine stress response by raising cortisol and sympathetic tone. This situation can be made worse by ongoing circadian disruption and sleep deprivation, which greatly raises the risk of developing metabolic and cardiovascular diseases.

Temporal dynamics also play a key role in stress reactions. The idea that an animal eventual susceptibility to stress disease may be increased by a relatively short (acute) exposure to a stressor was first put forth several years ago. A new facet of stress temporal dynamics has come to light in recent years, one that may be important in mitigating the impacts of the interaction with sleep. Specifically, research has indicated that early life stress exposure may impact adult sleep quality. Thus, time will be stressed as the key component of the equation in this publication, which aims to review the relationship between stress and sleep. The majority of work-related stress models suggest that somatic, psychological and behavioural strains arise from people's perceptions of work events as well as their

own innate tendencies. Although sleep quality is frequently mentioned in discussions of somatic or psychological strain, researchers have paid little attention to it mostly focusing on how shift work or the physical features of one's workplace affect sleep quality. Stressors of non-physical kind, like workload, perceived role/job uncertainty and interpersonal conflict, have not received as much attention. Given the relationship between sleep quality and cognitive function and job performance, this is a significant problem. Existing research on sleep quality is further limited by the fact that it is frequently viewed as a one-dimensional variable and is typically quantified using one or more items taken from generic surveys of health complaints. Nonetheless, it is believed that there are multiple levels of sleep quality, each with distinct but overlapping determinates. LeBourgeois (2001) for instance, offered a model of sleep that include five behavioral dimensions: getting into bed, falling asleep, staying asleep, waking up and going back to sleep fully awake at the end of the sleep phase.

Sleep is an essential part of human life, typically averaging 7-8 hours per day, which significantly impacts mood, alertness, and cognitive performance. While occasional poor sleep can lead to short-term effects, chronic sleep issues, like insomnia, are associated with more severe physiological and mental health risks. Understanding the underlying mechanisms connecting poor sleep to health outcomes is crucial. Evidence suggests a bidirectional relationship between stress, particularly through the hypothalamic-pituitary-adrenal (HPA) axis, and sleep patterns. The HPA axis, evaluated through cortisol secretion rhythms, plays a vital role in regulating sleep behavior. Dysfunctions in the HPA axis have been consistently linked to adverse physiological and mental health effects, forming a pathway through which poor sleep can impact overall health.

Certainly, sleep quality encompassess the overall effectiveness of your sleep,including how well it restores your body and mind. While sleep satisfaction reflects your personal feelings about your sleep,sleep quality deleves deeper into objective measures of restfulness. It's not solely subjective because it involves various factors that can be quantified.

Chapter II: Review Of Literature

The literature review here represents various studies that has been done earlier related to the variables used in this dissertation

Sleep quality and stress

In an attempt to cope with their workload and demanding atmosphere, medical students often sleep less. This study quantified the frequency of poor sleep quality and the correlation between stress and bad sleep among medical students. A stratified random sample of male and female medical students from King Saud bin Abdulaziz University for Health Sciences in Riyadh, Saudi Arabia, was used for this cross-sectional study. A self-administered questionnaire was given out to evaluate stress levels using the Kessler Psychological Distress Scale and sleep quality using the Pittsburgh Sleep Quality Index. Stress (53%) and poor sleep quality (76%) were found to be quite prevalent, and there was a statistically significant correlation ($p < 0.001$). Based on logistic regression, pupils who are not experiencing. (Almojali et.al., 2017)

Sleep quality and anxiety

The purpose of this research was to assess the degree of anxiety and sleep quality in a sample of workers and to ascertain the association between these two variables and other variables.

This cross-sectional survey included 185 employees on a university campus, or 130 in total. The Pittsburgh Sleep Quality Index, the Beck Anxiety Inventory, and a descriptive questionnaire served as the data gathering tools. Spearman correlation analysis was used to look at the link between the two scales in addition to univariate analysis. 38.9% of the subjects reported having poor-quality sleep. Sleep quality and anxiety have been found to be influenced by a number of factors, including gender, income level, the existence of a chronic illness, regular medication use, and relationships with family and the social environment.An rise in anxiety was correlated with a decline in the quality of sleep.As with the rest of the world, poor sleep quality and high levels of anxiety are prevalent in this nation. Anxiety will be lessened, sleep quality will be improved, and general psychosocial health will be enhanced by socioeconomic interventions and psychosocial assistance to improve the status of people with risk factors, such as chronic disease. To learn more about how anxiety and sleep quality are related, further prospective research including larger sample sizes and diverse participant groups should be carried out. (Teker & Luleci,2018)

Sleep quality and depression

One of the most widespread illnesses in the world and a major factor in problems with emotional health is depression (Sarokhani et al., 2013). Understudies' mental health is a global concern that affects all social orders, established and informal, modern and traditional (Bayram & Bilgel, 2008). Children must deal with a lot of logical fallacies and commitments to achieve during their academic careers, especially in college (Arslan, Ayranci, Unsal & Arslants, 2009). Similarly, undergraduates in college should make an effort to understand novel experiences and shifts in societal perspectives, as well as in behavioural, enthusiastic, academic, and financial contexts (Ginwright & James, 2002). Therefore, it's imperative to understand worries regarding the mental health of students. Understudies' emotional health concerns are typically taught at several instructional levels, such as both university and school (Bayram & Bilgel, 2008). Studies have revealed that understudies had a higher prevalence of psychological well-being problems than the general population, including despondency (Yusoff et al., 2013).

Chapter III: Methodology

Objectives And Hypotheses

The present investigation attempts to study the effect of stress, anxiety and depression on the sleep quality among university students. The following objectives were formulated for present research work:

- To explore the relationship between depression, anxiety, stress and sleep quality among university students.
- To explore the gender differences on depression, anxiety, stress and sleep quality among university students.

Hypothesis

In a scientific setting, a hypothesis (plural: hypotheses) is a testable assertion about the connection between at least two factors or a proposed clarification for some noticed peculiarity. In a scientific trial or review, the hypothesis is a concise summation of the researcher's forecast of the review's discoveries, which might be upheld or not by the outcome. A research hypothesis is a clear, and testable recommendation or prescient explanation about a scientific research review's conceivable result considering a specific populace property like assumed contrasts between bunches on a specific variable or connections between factors. It is a tentative statement determining the research hypotheses

is perhaps of the main move toward arranging a scientific quantitative research study. (Wigmore, 2023) So, the hypothesis for this study variables are;

H1 – It was expected that there exists a positive relationship between sleep quality and stress.

H2 – It was expected that there exists a positive relationship between sleep quality and depression.

H3 – It was expected that there exists a positive relationship between sleep quality and anxiety.

H4 – It was expected that there exists a positive relationship between stress and anxiety.

H5 – It was expected that there exist a positive relationship anxiety and depression.

H6 – it was expected that there exists a positive relationship between stress and depression.

H7 – It was expected that gender differences exists between sleep quality, depression, anxiety, and stress.

Research Design

The study is primarily designed to study the effects of the Stress, Anxiety and Depression on the Sleep Quality among university students. As it is suggested that the researcher conducts a study of 100 students [50male,50female] studying in diverse field as it is hard for the Researchers, given time and financial constraints to gather information. all the participants will be contacted virtually. Participants will be informed about their right of participating in the study. The participant will be assured of confidentiality and a clear choice will be given, if they wish not to participate. After receiving the consent, a questionnaire will be shared in the form of Google form, containing information about the objectives of the study and the basic instructions on how to answer. The contact number of the researcher will also be mentioned for resolving any queries faced by the respondents. The responses of all the participants will be collated and subjected to be descriptive statistics, measures of correlation. The result shall be tabulated and then discussed.

Sample

All that a sample is is a portion of the universe. The difficulty of the researchers to test every member of a particular population gives rise to the idea of a sample. For statistical analysis to be justified, the sample size must be sufficient and it must accurately reflect the population from which it was taken. The sample serves the primary purpose of enabling the researchers to perform their study on members of the population so that conclusions drawn from the data can be applied to the full population. It resembles a process of giving and receiving. The population "gives" the sample; subsequently, it "takes" inferences from the sample's results.

There were 100 people in the sample, the sample was chosen at random. Students from Indian public and private universities were included in the sample Students who self-identified as male or female and who were between the age group 17-25 were taken for the research. Additionally, it was guaranteed that the person is mentally well and can consciously answer each of the statements. The educational sector was choosen since it was thought to have significant effect on the student’s psychological anguish and the environment of their medical care.

Inclusion Criteria

- Adolescents of age ranging from 17-25 years of age.
- Participants must be currently enrolled as full time students in a recognised university in India.
- Include undergraduate or graduate students from various disciplines to capture a diverse sample.

Exclusion Criteria

- Exclude individual with a history of substance abuse (eg alcohol and drug) as substance abuse can interfere with sleep pattern and exacerbate symptoms of stress, anxiety and depression.
- Exclude individual with chronic condition for example cardiovascular diseases etc, that are known to affect sleep pattern, as this condition may confound the relationship between psychological factors.
- Exclude participants with diagnosed sleep disorders such as insomnia to ensure that the observed effects are primarily attribute to depression, anxiety, stress rather than underlying sleep conditions.

Test and Tools

Tools used for the present study are:

- Sleep Quality Scale (SQS)
- Depression Anxiety Stress Scale DASS 21, (Lovibond, S.H. & Lovibond, P.F.; 1995)

Depression Anxiety Stress Scale (DASS 21) (Lovibond, S.H, & and Lovibond, P.F.; 1995)
The Depression Anxiety Stress Scale (DASS 21) is a 21-item measure with three subscales measuring stress, anxiety, and depression symptoms (Lovibond & Lovibond; 1995). There is also a 42-item version of the DASS available. Particularly in therapeutic settings, this scale's ease of use and speedy administration allow for quicker data completion (Brown, Chorpita, Korotitsch, & Barlow, 1997).

The DASS-21 scales are separated into subscales with comparable content and have three subscales, each with seven items. The depression scale measures symptoms such as hopelessness, dysphoria, self-deprecation, devaluation of life, lack of interest or involvement, anhedonia, and inertia (e.g., "felt downhearted and blue," "difficult to work up the motivation to do activities"). The items on the depression scale begin with 3, 5, 10, 13, 16, 17, and 21.

The Anxiety symptoms, skeletal muscle effects, situational anxiety, and subjective experiences of anxious affect arousal (e.g., "felt I was close to panic," "trembling") are all evaluated using the anxiety scale (items 2, 4, 7,9, 15, 19, 20).

The stress scale is sensitive to an individual's levels of persistent nonspecific arousal. It evaluates symptoms (e.g., "hard to wind down," "rather touchy"), nervous arousal, and trouble relaxing. It also looks at being easily upset or agitated, irritable / over-reactive, and impatient.

The Sleep Quality Scale (SQS), created by Yi, Shin, and Shin in 2006, was developed
as a comprehensive tool to assess the quality of sleep-in adults. The sleep quality scale is a tool used to assess various aspects of sleep, such as duration, efficiency, disturbances, and daytime dysfunction. It typically involves self-reporting and rating different components of sleep on a numerical scale to provide an overall assessment of sleep quality. One of the most common sleep quality scales is the Pittsburgh Sleep Quality Index (PSQI), developed by researchers at the University of Pittsburgh. The PSQI is a self-report questionnaire consisting of several components that capture different facets of sleep quality. Each component is scored individually, and the scores are then combined to generate a total score, with higher scores indicating poorer sleep quality.

Statical Analysis

All tests were assessed using the criteria specified in the test scoring annals. The normality of the data was assessed before any statistical analysis were conducted. With consideration for the objectives of the study, the data were examined using descriptive, inferential, and correlation statistics. In this study, correlation analysis and the t-test are employed.

Chapter IV: Results

The primary aim of the present investigation was to study the effect of depression, anxiety, stress on sleep quality of the university going students. Another aim of the study was to investigate the gender differences in sleep quality, depression, anxiety and stress.

The sample comprised of 100 students in the age range of 17-25 out of 100 students,50 males and 50 females. They were randomly selected from various colleges when they have been obtaining any full time degree.

The raw scores were analysed using appropriate statistical analysis viz, descriptives, T-test, and corelation.

Table No: 1 Descriptive Analysis

The table describes the descriptives of the sample. It illustrates the mean and standard deviation. Mean and standard deviation for the total sample of students. (n=100)

S.no.	Variable	Total (n=100)		Male (n=50)	Female (n=50)	
		Mean	SD	Mean SD	Mean	SD
1	Sleep quality	67.180	10.513	65.560 10.351	68.800	10.5249
2	Depression	8.570	5.147	8.080 4.826	9.06	5.4526
3	Anxiety	9.010	4.859	8.280 4.651	9.74	4.9971
4	Stress	9.180	4.267	8.600 4.110	9.76	4.3825

Table 1.1 shows the means and standard deviations for the total sample, male and female on all the variables. The mean and standard deviation of the total sample on sleep quality was 67.180 and 10.513 respectively. For males the mean and standard deviation was 67.560 and 10.351 and for females it was 68.800 and 10.5249 respectively. Mean and standard deviation came out to be 8.080 and 4.826, for females it was 9.060 and 5.452 respectively. For anxiety, the mean and anxiety for the total sample was 9.010 and 4.859, for males the mean and the standard deviation came out to be 8.280 and 4.651, for females 9.740 and 4.997 respectively. Mean and standard deviation for stress, total sample was 9.180 and 4.267, for males it is 8.600 and 4.110 respectively, for females it is 9.760 and 4.382.

Table No: 2 Corelation of Depression, Anxiety, Stress and Sleep Quality.

	Sleep quality	depression	anxiety	Stress
Sleep quality	1	0.330**	0.306**	0.329**
Depression		1	0.823**	0.772**
Anxiety			1	0.813**
Stress				1

** value of correlation significant at 0.01 level.

Table 2 Shows the corelation analysis for the total sample. This table presents the corelation matrix for the total sample, showing the relationship between different variables. The variables included in the analysis are sleep quality, depression, anxiety and stress. Sleep quality shows a moderate corelation with depression as it has ($r = 0.330$, $p< 0.01$). Which indicates that the sleep quality of an individual will deteriorate with the increase in symptoms of depression. Similarly, depression also shows a moderate corelation with stress ($r = 0.772$, $p<0.01$), depicting that with the increase in depression the stress will also increase. Depression also shows a moderate corelation with anxiety ($r = 0.813$, $p<0.01$) showing that when the depression increases the anxiety will also increase. Furthermore, Anxiety shows a corelation with stress ($r = 0.813$, $p<0.01$), depicting that with the increase in anxiety the stress will also increase.

T test

T test analyses are statistical tests used to compare means of two groups and determine if there is a significant difference between them. When examining gender diffetences ,t tests help as certain whether observed variations in scores or measurements are statistically significant between males and females in a sample population.

Table No. 3 The Gender Differences Among the Various Variables.

Sr.No.	Variable	Total (n=100)		Male (n=50)		Female (n=50)		t-Value
		Mean	SD	Mean	SD	Mean	SD	
1	Depression	8.570	5.147	8.0800	4.82697	9.06	5.4526	-0.952
2	Anxiety	9.010	4.859	8.2800	4.65127	9.74	4.9971	-1.512
3	Stress	9.180	4.267	8.6000	4.11071	9.76	4.3825	-1.365
4	Sleep quality	67.180	10.513	65.5600	10.3513	68.8	10.524	-1.55

Table 3 presents the gender differences in sleep quality, depression, anxiety and stress among a total sample of 100 participants, with 50 males and 50 females. Mean scores and standard deviations are provided for each variable. A t – value is calculated to assess the significance of gender differences. No gender differences were found between the variables, since the computed T value is less than the critical value. Therefore, no significant gender differences could be observed.

Chapter V: Discussion

The study intends to investigate the effects of depression, anxiety and stress on sleep quality among university students. A sample of 100 students is drawn in the age group ranging from 17-25 years of age. The effects of depression, anxiety and stress on sleep quality are being examined. As we can see in the correlation table, there exists a moderate correlation between

Sleep and stress ($r = 0.33$ $p < 0.01$). which clearly states that our H1 which is it was expected that there exists a relationship between sleep quality and stress. As observed, in the table there exists a moderate corelation between sleep quality and depression ($r=0.33$, $p <0.01$). Therefore, our H2 which is it was expected that there exists a relationship between sleep quality and depression proves to be true.

According to the study of smit, et al (2019) In a longitudinal study involving 290 participants, we investigated how the covid 19 pandemic impacted people's lives and wellbeing. We focused on the concept of psychological capital, which was measured at the beginning of the lockdown period and assessed indicators of mental health such as depression, anxiety and life satisfaction after two months. This study analysed, using structural equation modelling (SEM) revealed that psycap has a positive impact on life satisfaction and negative effect on depression and anxiety. Importantly stress at the second time point.

In the corelation matrix table, we can observe that there is a positive corelation between sleep quality and anxiety ($r = 0.306$, $p< 0.01$). Therefore, our H3 is proven to be true, suggesting that there is indeed a positive relationship between anxiety and sleep quality. According to Johnson, numerous peer reviewed studies, employing various research method and involve in different population have explored the impact on mental health conditions like depression, anxiety and sleep disorders.

As observed in the correlation table, there exists a positive relationship between stress and anxiety, ($r = 0.813$, $p< 0.01$) which clearly states that our H4 is proved to be true.

In the correlation table, we can observe that there is a slight positive correlation between anxiety and depression $r = 0.823$, $p<0.01$). According to Anderson numerous studies showed significant overlap in anxiety and depression symptoms diagnosed in young individual it's important to note that these two conditions can still be distinguished. Clark and Watson proposed a tripartite model to explain this overlap, suggesting that anxiety and depression share negative emotional aspects but can be separated by low positive emotions associated with depression and heightened physiological arousal linked to anxiety, therefore our H5 came out to be true.

As observed in the corelation, there exists a positive relationship between stress and depression, which means that there exists a positive relationship between stress and depression ($r = 0.772$, $p<0.01$). Thus, H6 came out to be true. According to Smith. et.al (2019). Decades of research have linked perfectionism to depressive symptoms, but inconsistent findings and limited study power have made it unclear whether perfectionism is a cause, a consequence, or both in relation to depressive symptoms. The main goal was to address this uncertainty using meta-analytic structural equation modelling to examine the reciprocal connections between depressive symptoms and two symptoms of perfectionism, perfectionistic concerns and perfectionistic strivings. The study also aimed to explore potential factors that might explain differences in the findings by conducting a meta-analysis. 67 longitudinal studies involving over 20,000 participants from various backgrounds. We found that the relationship between perfectionistic concerns and depressive symptoms was bidirectional, meaning that they influenced each other. In contrast, the connection between perfectionistic strivings and depressive symptoms was one way with, with perfectionistic strivings increasing the risk of depressive symptoms but not the other way round. This has important implications for clinicians, an understanding the reciprocal relationship between perfectionistic concerns and depressive symptoms is crucial for accurate assessment and treatment. Perfectionistic strivings may be distinct from perfectionistic concerns and align more with traditional models of personality vulnerability.

As observed, in the t-test no significant gender differences came out between sleep quality, depression, anxiety and stress, thus H7 is rejected. As no gender differences were found between the variables. A study by Zhang et.al. ,2018 revealed that mental illnesses, such as anxiety and depression are among the top most concerns among college students. Inadequate sleep raises the risk of mental health problems. Nevertheless, it is unclear how college students' mental health issues and poor sleep quality

are related. 242 undergraduate nursing students from a public university in the northeastern United States participated in online surveys. An increased likelihood of anxiety and depression symptoms were linked to poor sleep quality, according to multivariate linear regression models. The relationship between anxiety and depression symptoms were mediated by perceived stress by 85.3% and by anxiety and depression symptoms by 60% respectively. This study proposed that useful strategies to detect specific stressors in nursing students should be used in addition to sleep promotion.

Chapter VI: Conclusion

In conclusion, this predictive study emphasizes a special need for a holistic approach to look into the mental health and sleep challenges faced by university students. By understanding the interplay between stress, anxiety, depression and sleep quality, universities and healthcare providers can better tailor their support systems to promote the wellbeing of students.

The study on how stress, anxiety, and depression affect the sleep quality of university students provides valuable insights into the intricate connections between these psychological factors and their effect on the sleep. Based on the hypotheses and findings, we can derive several key conclusions,

Interconnected Relationships, this research confirms that stress, anxiety and depression are intertwined among university students. There is a positive relationship between stress and anxiety, stress and sleep, stress and depression, anxiety and sleep, anxiety and depression, and sleep and depression. These associations reveal the complex network of mental health challenges affecting students

Bidirectional influences: The study illustrates that these relationships often work in both directions. For instance, stress doesn't just lead to poor sleep quality, it's also affected by anxiety and depression. This bidirectionality implies that addressing one aspect of mental health can have cascading effects on others.

Gender Disparities: The findings may suggest variations in how these factors affect the sleep quality of male and female students, potentially making female students more vulnerable. This has implications for tailoring interventions and support systems accordingly.

Academic Stressors: Academic pressures including exam stress and workload, significantly contribute to higher stress, anxiety and depression levels among university students. These academic factors are closely linked to sleep quality.

Preventive Measures: The study underscores the importance of taking preventive actions and intervening early. By recognizing the predictive nature of these relationships, universities and healthcare providers can identify students at risk and offer support before severe sleep problems or mental health issues.

Cultural Sensitivity: The study emphasizes the need for culturally sensitive approaches when addressing the mental health and sleep challenges faced by university students. Cultural factors can influence how these psychological issues are experienced and expressed.

In summary, this study highlights the intricate and bidirectional connections between stress, anxiety, depression and sleep quality among university students. These findings have significant implications for the development of support systems and interventions aimed at enhancing the overall wellbeing of students. Further research and culturally tailored approaches are essential to comprehensively address these challenges and improve the mental health and sleep quality of university students.

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