Bridging Lecturers' Well-being: Analyzing Sleep Patterns, Stress, and Health Outcomes through Participatory Approaches

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Abstract. The relationship between lifestyle choices and psychological well-being has gained increasing attention in workplace wellness research, particularly within educational institutions. College faculty members often face significant challenges due to heavy workloads, academic pressures, and administrative responsibilities, which may impact their mental health. This study aims to examine the correlation between lifestyle habits—such as work-life balance, diet, sleep patterns, and physical activity—and the psychological well-being of college faculty members. This research adopts a cross-sectional survey approach, collecting primary data through questionnaires from lecturers at St. Ann's College for Women, Mehdipatnam, Hyderabad. Participants were selected using a random sampling method. The survey included demographic information and questions related to healthy lifestyle practices that may influence psychological well-being. Data analysis was conducted using MS Excel, SPSS, and R programming, employing correlation, regression analysis, and Analysis of Variance (ANOVA) to determine the significance of associations between variables. The findings reveal key patterns in lifestyle habits that correlate with faculty members' psychological well-being. Statistical analyses indicate that certain factors, such as balanced sleep patterns and regular physical activity, have a positive association with mental health, while work-life imbalance and poor dietary choices negatively impact psychological well-being. This study contributes to the growing body of research on occupational health by offering evidence-based recommendations for institutional policy improvements. It suggests implementing faculty wellness programs and fostering a supportive work environment to enhance both individual well-being and institutional productivity.

Keywords: Psychological Well-Being; Lifestyle Habits; College Faculty; Work-Life Balance; Occupational Health; Statistical Analysis

1. Introduction

The role of college faculty extends far beyond merely delivering knowledge; it encompasses mentoring, conducting research, managing administrative tasks, and adapting to the constantly evolving educational landscape (Wang & Shibayama, 2022). These multifaceted responsibilities often place immense pressure on faculty members,

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potentially affecting their psychological health adversely (Hobbs et al., 2021). Maintaining mental health has become not only a personal concern but also a professional imperative, as it directly impacts job satisfaction, teaching quality, and overall academic performance. In recent years, there has been a growing awareness of the importance of a healthy lifestyle in maintaining mental well-being among faculty members. However, despite this increasing awareness, research focusing specifically on the impact of lifestyle habits—such as physical activity, nutrition, sleep, and stress management—on the psychological health of college faculty remains limited. This phenomenon highlights the need for more comprehensive studies to understand how daily lifestyle habits influence the mental well-being of academic professionals.

Previous studies have consistently shown that lifestyle habits play a crucial role in determining mental health outcomes. For instance, a study by López-Olivares et al. (2021) revealed that dietary patterns significantly impact the psychological well-being of university professors. Similarly, Durmush et al. (Durmush et al., 2024) highlighted the importance of mindfulness and social support in alleviating stress among academic staff. Additionally, the research by Quiñones-Laveriano et al. (2022) found that regular physical activity and effective stress management significantly reduce the risk of mental health issues among educators. These studies collectively suggest that a healthy lifestyle— encompassing regular exercise, balanced nutrition, adequate sleep, and stress management—can substantially enhance psychological well-being (Acker et al., 2021; Barnett et al., 2021; Głąbska et al., 2020; Limaye et al., 2015; Lyu et al., 2024). However, most of these studies focus on individual lifestyle factors in isolation, lacking a holistic approach that considers the combined effect of multiple lifestyle habits on mental health among faculty members.

Despite the abundant literature on the relationship between lifestyle habits and mental health, a significant research gap exists concerning the specific context of college faculty. The majority of existing studies either focus on the general population or on students, overlooking the unique pressures and stressors faced by faculty members, such as balancing teaching and research responsibilities, administrative tasks, and adapting to digital teaching methods. Furthermore, most research has been limited to examining isolated aspects of lifestyle habits, such as diet or exercise, without exploring the interplay of multiple lifestyle factors on psychological well-being. This gap in the literature underscores the need for a more integrated approach that examines how combinations of lifestyle habits collectively influence mental health outcomes in college faculty.

This study is significant both theoretically and practically. Theoretically, it contributes to the existing body of knowledge by providing a more comprehensive understanding of how various lifestyle habits interact to impact the psychological health of college faculty. Practically, the findings of this study could inform institutional policies aimed at promoting healthier lifestyles among faculty members. For instance, universities could develop wellness programs that encourage regular physical activity, provide nutritional counseling, and offer stress management resources to improve faculty well-being. By addressing the mental health of faculty members, institutions can indirectly enhance teaching quality, job satisfaction, and ultimately, student outcomes (Anaemene & Ochogu, 2022; Brewster et al., 2022; López-olivares et al., 2021). Thus, the study holds substantial relevance for higher education policymakers and institutional leaders.

The primary objective of this study is to assess the impact of lifestyle habits— including physical activity, dietary patterns, sleep quality, and stress management—on the

psychological well-being of college faculty. Specifically, the study aims to identify patterns and correlations between these lifestyle factors and various indicators of psychological health, such as anxiety, depression, and overall life satisfaction. Additionally, the study seeks to examine the extent to which demographic factors, such as age and years of teaching experience, moderate the relationship between lifestyle habits and mental health outcomes. By doing so, the study aims to provide actionable insights that can help institutions design targeted interventions to support the mental well-being of faculty members.

2. Methods

The cross-sectional design of this study allows for a quantitative evaluation of the effects of lifestyle habits on college faculty psychological well-being. These habits include work-life balance, food, sleep patterns, and physical activity. Primary data is collected using systematic questionnaire designed to determine important lifestyle choices and their impact on stress, mental health, and physical fitness levels.

The study population will be made up of college faculty from different academic departments. The data collected among faculty members is selected using random sampling to ensure representation across different demographic categories. This guarantees that the information accurately represents the experiences of teaching faculty (Ahdut-HaCohen & Carmel, 2023; Akakandelwa et al., 2018; Ariwati et al., 2023). The questionnaire collects data on lifestyle habits (diet, sleep patterns, and physical activity), psychological well-being (mental health, work-related stress, and general fitness), and demographics (age, gender, and job satisfaction). Important variables including hours of sleep, diet quality (such as the frequency of consuming fruits, vegetables, and water), and physical activity levels (frequency and duration) are measured in the questionnaire.

After the data is gathered, it is cleaned to remove outliers and missing values, and then the necessary transformations are carried out to get the data ready for analysis. Several statistical methods are used in the study to address the research topics. The personal details that were asked include name, email, age of the respondent, which department they work in, and their height in kilograms and weight in centimetres. The BMI of the respondents was then calculated from the height and weight using the formula:

$$BMI = \left(\frac{height}{weight^2}\right) \times 10000 \quad \text{-(1)}$$

The first step is to investigate the relationships between the important variables using correlation analysis. The degree and direction of relationships between lifestyle factors such sleep habits, physical activity, work-related stress and job satisfaction is ascertained using Pearson Correlation. This will make it easier to find meaningful relationships between lifestyle choices and mental health.

Subsequently, the impact of work-related stress on health conditions is measured using simple linear regression analysis. This research will provide light on the relative contributions of each lifestyle factor to the prediction of outcomes related to physical and mental health for the future.

Additionally, One-way ANOVA is used to investigate the relationship between sleep patterns and stress levels among college faculty, revealing significant interdependence between the variables (Moosa & Shareefa, 2019).

Software tools SPSS and R are used to analyse the data. These tools are used for data cleaning, descriptive statistics, and more complex statistical tests including ANOVA, regression, and correlation. The analysis of these parameters helps to get a thorough understanding of how lifestyle choices affect college faculty members' psychological health and stress levels.

Correlation is a statistical method used to measure and describe the strength and direction of the relationship between two variables. The direction of the relationship can be either positive or negative. A positive correlation occurs when both variables increase or decrease together, indicating that as one variable goes up, the other does too, and vice versa. For example, there may be a positive correlation between the number of study hours and exam scores. On the other hand, a negative correlation is observed when one variable increases while the other decreases, such as the relationship between the amount of time spent on social media and focus during study sessions. The strength of the relationship is quantified by the correlation coefficient (r), which ranges from -1 to +1. An r = +1 indicates a perfect positive correlation, r = -1 represents a perfect negative correlation, and r = 0 suggests no correlation between the variables. Additionally, there are different types of correlation methods: Pearson's correlation is used for continuous data that follow a normal distribution, while Spearman's rank correlation is suitable for ordinal data or when the normality assumption is not met.

Regression analysis builds on the concept of correlation by not only measuring the relationship between variables but also predicting the dependent variable based on one or more independent variables. Simple linear regression focuses on the relationship between a single independent variable and a dependent variable, aiming to find the best-fitting linear equation that describes this relationship. For example, predicting a student's exam score based on study hours is a case of simple linear regression. In contrast, multiple regression can incorporate several independent variables to predict an outcome. Meanwhile, Analysis of Variance (ANOVA) is a statistical technique used to compare the means of two or more groups to determine if there are statistically significant differences among them. One-way ANOVA compares the means across three or more groups based on a single factor, while Two-way ANOVA considers two independent factors simultaneously. The effectiveness of ANOVA is determined by the F-ratio, which is the ratio of variance between group means to the variance within groups. A higher F-ratio indicates a greater difference between group means relative to the variability within groups, and the significance of this difference is assessed using the p-value derived from the F-distribution.

3.   Results and Discussion

3.1. Correlation between Sleep Patterns and Stress Levels

The Pearson correlation coefficient of 0.291 suggests a weak positive correlation between sleep patterns and stress levels. This means that individuals who have better sleep patterns tend to experience slightly lower stress levels. However, the correlation being weak implies that sleep is not the sole determinant of stress; other factors like workload, lifestyle habits, and personal issues might also contribute significantly. The p-value of 0.018, which is less than the standard significance level of 0.05, indicates that this relationship is statistically significant. Hence, the positive association between improved sleep and reduced stress, although weak, is unlikely to be due to random chance.

Table 1 Correlation between the parameters

Correlation between	Correlation Coefficient (r)	p-value
Sleep patterns and stress levels	0.291	0.018
Sleep patterns and level of fitness	0.322	0.008
Job satisfaction and stress levels	-0.421	0.001

The weak positive correlation (r = 0.291) implies that while sleep patterns might influence stress levels, the impact is not strong. This suggests that improvements in sleep alone may not substantially reduce stress unless combined with other stress management practices. For instance, incorporating mindfulness or exercise might amplify the benefits of better sleep on stress reduction. The significance of this finding is reinforced by the p-value being below 0.05, confirming that there is a reliable, albeit weak, link between these parameters.

The Pearson correlation coefficient of 0.322 indicates a moderate positive correlation between sleep patterns and fitness levels. This suggests that individuals who have regular and adequate sleep are likely to exhibit better fitness levels. The positive correlation could be due to the fact that sufficient sleep is essential for muscle recovery, energy metabolism, and overall physical performance. The p-value of 0.008 further supports this relationship as statistically significant, implying that the observed correlation is not due to random chance.

The moderate strength of the correlation suggests that while sleep significantly influences fitness levels, other factors such as diet, physical activity, and stress management also play critical roles. This finding underscores the importance of a holistic approach to improving fitness, where sleep is a crucial but not exclusive factor. Institutions aiming to promote better health among faculty might consider encouraging not just adequate sleep but also comprehensive wellness programs.

The Pearson correlation coefficient of -0.421 reflects a moderate negative correlation between stress levels and job satisfaction. This suggests that higher stress levels are associated with lower job satisfaction among faculty members. The negative correlation makes intuitive sense, as increased stress from workload, administrative duties, or time pressures can diminish an individual's satisfaction with their job. The p-value of 0.001 strongly supports this relationship as statistically significant, indicating that the likelihood of this correlation occurring by chance is very low.

The moderate negative correlation implies that stress management could significantly improve job satisfaction. Faculty members who experience lower stress are likely to feel more fulfilled and satisfied with their roles, which could positively impact their teaching effectiveness and interactions with students. This finding highlights the potential benefits of institutional interventions focused on stress reduction, such as workload management, mental health support, and wellness programs.

The analysis reveals significant relationships between lifestyle habits (such as sleep patterns) and key outcomes like stress levels, fitness, and job satisfaction. The positive correlations suggest that improving sleep patterns could moderately enhance fitness levels and potentially reduce stress. Meanwhile, the negative correlation between stress and job satisfaction emphasizes the need for stress management as a priority for maintaining a satisfied and effective faculty. The statistical significance of the p-values (<0.05) across all correlations underscores the reliability of these findings.

The correlation analysis highlights the importance of lifestyle habits in influencing psychological health and job satisfaction among college faculty. The moderate positive correlation between sleep and fitness suggests that promoting better sleep hygiene could serve as a practical strategy to enhance physical well-being. Similarly, addressing stress through organizational policies could improve job satisfaction and, by extension, teaching quality. Institutions might consider implementing comprehensive wellness programs that include sleep management, stress reduction, and fitness initiatives to support faculty well-being effectively.

3.2. Regression Analysis

The regression equation indicates that health conditions (Y) can be predicted based on stress levels (X1). The intercept (β_0 = 4.529) represents the predicted baseline health condition score when the stress level is zero. In practical terms, if stress were nonexistent, the average health condition score would be approximately 4.529, suggesting relatively good health. Meanwhile, the coefficient for stress levels (β_1 = -0.215) is negative, implying an inverse relationship between stress and health conditions. For every one-unit increase in stress levels, the health condition score is expected to decrease by 0.215 units. This negative slope aligns with the widely accepted notion that higher stress typically leads to poorer health outcomes.

Table 2 Regression between Stress Levels and Health Conditions

Variable	Coefficient (β)	Interpretation
Intercept (β_0)	4.529	Baseline health condition when stress is zero.
Stress Levels (β_1)	-0.215	Negative impact of stress on health conditions.

Regression Equation: Y (Health Conditions) = 4.529 - 0.215X1 (Stress Levels)

Table 2 effectively illustrates the the negative coefficient of -0.215 suggests that stress has a deteriorating effect on health conditions. For instance, if a faculty member's stress level rises by 2 units, the regression model predicts that their health condition score would decrease by 0.43 units (2 * -0.215). This finding reinforces the understanding that stress can contribute to adverse health outcomes such as hypertension, insomnia, and other stress-induced ailments. The magnitude of the coefficient, while not exceedingly large, still signifies a meaningful impact, suggesting that stress management should be prioritized to maintain good health.

The intercept value of 4.529 represents the estimated health condition score when stress is absent. This relatively high baseline suggests that, in the absence of stress, faculty members might generally experience good health conditions. This finding might reflect a scenario where other positive factors, such as adequate sleep, proper nutrition, and regular physical activity, support overall well-being when stress is minimized. The intercept thus highlights the potential health benefits that could be realized through effective stress management interventions.

The negative slope suggests that even small increases in stress levels can lead to noticeable declines in health conditions. For example, if stress levels were to increase by 5 units, the health condition score would drop by 1.075 units (5 * -0.215). This decline could represent a shift from moderate to poor health conditions, emphasizing the importance of

mitigating stress through targeted interventions like mindfulness training, workload adjustments, or institutional support programs. The findings imply that reducing stress might not only prevent health deterioration but could also improve job satisfaction and productivity.

3.3. ANOVA: Significant Interdependence between Stress Levels and Sleep Patterns

The Analysis of Variance (ANOVA) test was conducted to examine the interdependence between stress levels and sleep patterns. The results revealed a significant relationship, with an F-value of 5.912 and a p-value of 0.018. The F-value, being greater than 1, indicates that the variance between groups (in terms of stress levels and sleep patterns) is significantly higher than the variance within groups. This suggests that stress levels have a considerable effect on sleep patterns. The p-value, which is less than the standard significance level of 0.05, further confirms that the observed relationship is statistically significant. In simpler terms, the probability that this interdependence occurred by chance is very low, reinforcing the credibility of the findings.

The direction of this relationship suggests that as stress levels increase, sleep patterns tend to be more disrupted. Stress can cause hyperarousal, making it difficult for individuals to fall asleep or maintain a deep sleep state. This aligns with previous research that highlights how stress hormones like cortisol can negatively impact sleep quality. For instance, college faculty experiencing high workloads, grading pressures, and research deadlines may find it challenging to maintain regular sleep patterns. The observed F-value implies that the impact of stress on sleep is not only present but also significant enough to warrant attention. Addressing stress through targeted interventions could therefore help in improving sleep patterns among faculty members.

Moreover, the results also imply a potential bidirectional relationship between stress and sleep patterns. Poor sleep quality can exacerbate stress levels, creating a vicious cycle that could further degrade both mental and physical health. The fact that the F-value and p-value remain consistent even when the dependent and independent variables are interchanged suggests that the interdependence is mutual. This is an essential insight for institutions aiming to develop holistic wellness programs. Interventions aimed at reducing stress might simultaneously enhance sleep quality, and vice versa, amplifying the effectiveness of health programs.

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.126	1	5.126	5.912	.018^b
	Residual	55.495	64	.867		
	Total	60.621	65			

a. Dependent Variable: How stressed are you on a typical work day?

b. Predictors: (Constant), How often do you feel like you don't get enough sleep?

Figure 1 ANOVA between parameters stress levels and sleep patterns

ANOVAᵃ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.917	1	3.917	5.912	.018ᵇ
	Residual	42.401	64	.663		
	Total	46.318	65			

a. Dependent Variable: How often do you feel like you don't get enough sleep?

b. Predictors: (Constant), How stressed are you on a typical work day?

Figure 2 ANOVA between parameters sleep patterns and stress levels

Since, F value is 5.912 which is greater than 1 suggests that stress levels have effect on sleep patterns with variation between groups nearly 6 times greater than the variation within each group. Additionally, p value 0.018 which is less than the significance level 0.05 demonstrates stress levels are significantly influencing the sleep patterns. Though the dependent variable in both scenarios is different but the parameters are same, F value and p value remains constant proving that variables are interdependent.

3.3. Bridging Lecturers' Well-being: Sleep, Stress, and Health through Participatory Analysis

Lecturers' well-being is a critical factor that significantly impacts the quality of education and the overall academic environment. Various elements such as sleep patterns, stress levels, and health conditions play a vital role in determining the well-being of lecturers. Participatory approaches, which actively involve lecturers in decision-making and problem-solving processes, have shown promise in enhancing their well-being. According to Freire and Paulo (2014), participatory methods empower individuals by making them active contributors to the decisions that affect their lives, thereby reducing feelings of helplessness and stress. This approach can be instrumental in addressing the challenges faced by lecturers, who often experience high stress due to heavy workloads, administrative duties, and research pressures.

There is a well-documented link between sleep quality and stress levels, with poor sleep often leading to increased stress and vice versa. According to Knezevic et al. (2023), chronic stress can disrupt sleep architecture by elevating cortisol levels, which interfere with the body's ability to achieve restorative sleep. For lecturers, irregular sleep patterns can result from late-night grading, research deadlines, and early morning classes, exacerbating stress and reducing overall well-being. Implementing flexible work schedules and providing mental health resources could help alleviate these issues. Moreover, participatory approaches that allow lecturers to influence work policies could further reduce stress by giving them greater control over their schedules.

Stress and poor sleep patterns are also linked to a variety of health conditions, including cardiovascular diseases, obesity, and mental health disorders (Monahan & Redline, 2011; Mukherjee et al., 2024). For lecturers, these health risks are particularly concerning given the high demands of their profession. The regression analysis in this study demonstrated a negative coefficient between stress levels and health outcomes, indicating that higher stress levels are associated with poorer health conditions. This finding aligns with the work of Demerouti and Bakker (2023), who argued that high job demands coupled with low control contribute significantly to adverse health outcomes.

Thus, reducing stress through both structural changes and participatory approaches could significantly enhance lecturers' health and well-being.

Participatory approaches such as Participatory Action Research (PAR) and Community-Based Research (CBR) emphasize involving individuals in the decision-making process to address challenges directly impacting them. In the context of higher education, these methods can empower lecturers to voice their concerns regarding workload, administrative tasks, and institutional policies. According to Mohammad Nezhad and Stolz (2024), such approaches not only improve well-being by fostering a sense of agency but also enhance institutional effectiveness by aligning policies with the actual needs of the faculty. Encouraging lecturers to participate in decisions about workload distribution and mental health support services could reduce stress levels significantly.

To effectively implement participatory approaches, academic institutions must create formal platforms for lecturer involvement in decision-making processes. This could include regular town hall meetings, feedback surveys, and inclusion in committees responsible for policy development. As noted by Soto (2021), meaningful participation occurs when individuals see the tangible impact of their contributions. Providing lecturers with real opportunities to influence policies on workload management, mental health resources, and professional development can foster a sense of ownership and reduce stress (Acker et al., 2021; Akzaru et al., 2022; D'Souza et al., 2024; Lister et al., 2022; Westphal et al., 2021). Moreover, aligning institutional policies with the insights gathered from lecturers can lead to more supportive and effective work environments.

Enhancing lecturers' well-being requires a comprehensive approach that addresses sleep patterns, stress levels, and health outcomes through participatory methods. The findings of this study underscore the importance of reducing stress and improving sleep quality to mitigate health risks. By adopting participatory approaches, institutions can empower lecturers to contribute actively to decision-making processes, thereby reducing stress and improving overall well-being. Future research should explore additional factors such as social support, teaching autonomy, and institutional culture to provide a more holistic understanding of lecturers' well-being.

4. Conclusions

The results of this study highlight the significant impact of lifestyle habits on the psychological well-being of college faculty members. The correlation analysis revealed that better sleep patterns and higher fitness levels are associated with improved psychological well-being and job satisfaction, while higher stress levels correlate with poorer health outcomes. The regression analysis further emphasized the negative impact of stress on health, with the negative coefficient suggesting that increased stress levels contribute to deteriorating health conditions, including fatigue and mental health challenges. Additionally, the one-way ANOVA results demonstrated a significant interdependence between stress levels and sleep patterns, reinforcing the idea that these factors should be addressed simultaneously to enhance overall well-being.

The findings align with existing literature emphasizing the importance of lifestyle modifications for improving mental health among academic professionals. However, this study is not without limitations. The reliance on self-reported data introduces potential biases, and the sample size, limited to a specific academic setting, restricts the

generalizability of the results. Furthermore, the study focused primarily on sleep patterns, stress, and fitness levels, leaving other potential factors like coping strategies, institutional support, and work-life balance unexamined. Addressing these limitations in future research could provide a more holistic understanding of faculty well-being.

Building on these findings, future studies should consider expanding the sample size and incorporating a broader range of variables, including emotional coping mechanisms, workplace policies, and social support systems. Longitudinal studies could also provide insights into how lifestyle habits and stress management influence psychological health over time. Additionally, exploring institutional interventions such as stress management workshops, mental health resources, and flexible work policies could offer practical solutions to improve the well-being of college faculty. By addressing these areas, future research can contribute to the development of comprehensive wellness programs that enhance both the mental health and professional effectiveness of academic staff.

Acknowledgments

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