

THE INTERPLAY BETWEEN SLEEP QUALITY AND DEPRESSIVE SYMPTOMS AMONG WORKING WOMEN IN HIGHER EDUCATION

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ABSTRACT: The study analyses the interaction between the quality of sleep and depressive symptoms in working women in higher education with special attention to the understanding of the relation between “sleep patterns and mental health”, professional stress, and psychological well-being. The study adopted a quantitative design, which utilized descriptive and correlational research design, involving direct data collection involving 300 female faculty members at Bangalore, India, using a structured questionnaire founded on standardized questionnaires including the “Pittsburgh Sleep Quality Index (PSQI) and Beck Depression Inventory (BDI)”. The SPSS and the MS Excel were used to analyse the data, and the statistics were applied, such as “means, standard deviation, correlation, and regression analysis”. The findings show that there is a strong association between sleep quality and depressive symptoms ($r = .382$, $p < 0.01$), which implies that sleep deprivation correlates with higher levels of psychological distress. The results indicate that poor sleep is associated with increased stress and depression, and a superior quality of sleep is linked to improved emotional stability and well-being. The study discovers that sleep quality as an important determinant of mental health among higher education working women, and the elements that should be implemented in the institution to enhance well-being and productivity.

Keywords: Sleep Quality, Depressive Symptoms, Occupational Stress, Psychological Well-being, Working Women, Higher Education

INTRODUCTION:

The connection between depressive symptoms and sleep quality has been the subject of a significant research interest in recent psychological and occupational health studies because sleep is typically accepted as a primary factor affecting physical and mental health. Sleep quality has several aspects, such as duration, continuity, and depth and subjective satisfaction, all of which are involved in optimal cognitive and emotional performance (Song et al., 2022). The quality of sleep (insomnia, frequent awakenings, or lack of rest) has been closely associated with the development and maintenance of depressive symptoms (O'Callaghan et al., 2021). The study shows that people having shorter sleep time and inferior sleep quality have an enormous prevalence of depressive symptoms, and individuals that are getting sufficient and high-quality sleep experience less psychological distress (Frangopoulos et al., 2021). This connection underscores the importance of sleep as not only a restorative mechanism but also the primary mood and emotional stability regulator, which is why this connection is quite timely in the context of mental health outcomes in professional populations (Nguyen et al., 2022).

In the context of working female educators in the university, the importance of such a relationship is even more acute. This population tends to work in very challenging settings that pose a necessity to balance teaching roles, research output, administration, and lifelong learning (Alnazly et al., 2023). Besides these work-related demands, most women have to work alongside their family responsibilities, care giving tasks, as well as social expectations, which has come to be occasionally referred to as role overload. These cumulative necessities may interfere with normal sleeping patterns, leading to late sleep onset, shortened sleep duration, and poor sleep quality (Kumar, et al.,

2021). In the long run, these upheavals can add up and lead to long-term fatigue and emotional stress. The results of the study in question imply that sleep deprivation, specifically below seven hours per night, is correlated with a higher risk of experiencing depressive symptoms, which proves that occupational stress can indirectly make mental health problems worse by affecting the sleep behavior (Hwang and Yu 2021).

Moreover, the interdependence between the sleep quality and symptoms of depression is a complex and bilateral one, with mutual effects that support each other over time. A deficit of sleep quality may hinder the brain to control its emotions adequately, increasing irritability, poor concentration, and making stress more prone (Song et al., 2022). These, in their turn, provide a psychological setting in which the depressive symptoms are likely to form. On the other hand, patients with depression complain of sleeping disorders, including problems with falling asleep, frequent nocturnal awakenings, or excessive daytime drowsiness (Yasugaki et al., 2025). The study supports this dynamic interplay by showing that people that have good quality of sleep are much less likely to experience depressive symptoms than people with poor quality of sleep. This bidirectional relationship indicates that therapies focused on sleep or depression can potentially mutually benefit as a result of one another, which is why the concept of interdisciplinary mental health is crucial (Marino et al., 2022).

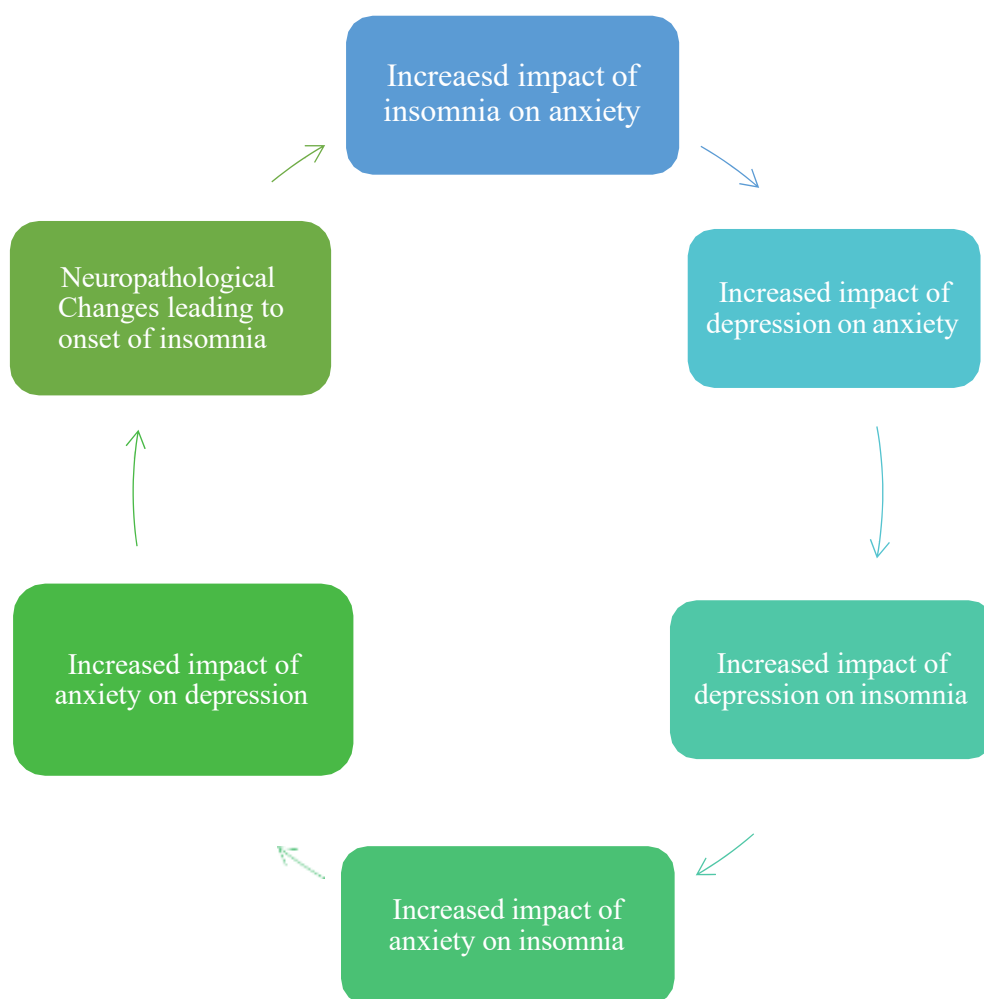


Figure 1: The bidirectional relationship between insomnia, depression, and anxiety.

Source: (Ratajczak et al., 2024)

Besides behavioral, various physiological and neurobiological processes exist behind the relation between sleep and depression. The sleep disturbances have also been related to the dysregulation of the circadian rhythms, hormonal imbalance, and changes of neurotransmitter systems, such as serotonin and dopamine, which plays a fundamental role in the regulation of moods (Hyndych et al., 2025). The quality of sleep may also increase the stress hormones, including cortisol, which leads to a higher anxiety level and emotional instability (Riemann et al., 2020). The presence of these physiological reactions in working women in higher education who report prolonged exposure to work-related stress and lack of sleep can worsen these reactions, resulting in burnout and psychological

fatigue (Xie et al., 2024). Besides, chronic sleep deprivation has been associated with the decline of cognitive performance, decision-making, and academic productivity, which only exacerbates the level of stress and exposes the patient to depressive symptoms (Palagini et al., 2022).

The relationship between sleep quality and depressive symptoms among working women in higher education is complicated, and it is multidimensional because it touches on behavioral, psychological, and physiological levels (Ramos et al., 2023). The lack of sleep quality and the lack of sleep duration can be considered as a major risk factor in developing depression, whereas, on the contrary, sufficient and restorative sleep can be viewed as a safeguarding predictor that strengthens emotional resilience and improves overall well-being (Gao et al., 2022). Considering the stressful character of the academic careers, as well as the extra roles taken by women in the society, sleep hygiene needs to be considered first, awareness of mental health problems should be raised, and supportive institutional policies should be established (Williams et al., 2020). Workload management, flexible working arrangements, stress management training, counselling services are some of the strategies that may be instrumental in enhancing sleep patterns and alleviating depression symptoms. In the end, the consideration of this interaction is critical to the health of individuals and to the creation of a more productive and healthier academic environment (Alotaibi et al., 2020).

The study analyses how sleep quality interacts with symptoms of depression in higher education working women and the study will focus on addressing how differences in sleep patterns are associated with mental health consequences. It aims to determine the levels of inadequate quality of sleep and the lack of enough length of sleep that leads to the occurrence of depressive symptoms in these people. The study has further addressed the two-way relationship between sleep disturbances and depression, as well as the contribution of occupational stress and multiple responsibilities to the development of sleep behavior, and finally it offers an insight into enhancing the well-being and mental health of working women.

1. Empirical Studies

Theme 1: Bidirectional Relationship between Sleep Quality and Depressive Symptoms

The interplay between “sleep quality and symptoms of depression” has been long understood as a two-way phenomenon in that, the disturbances in one field could have a substantial impact on the other. As an example, Plante (2021) examined the changing relationship between sleep and depression and highlighted that insomnia is not a symptom but also a risk factor that can be altered in relation to depression. Equally, Yasugaki et al. (2025) described that depressed patients commonly have sleeping patterns in which there are anomalies in REM cycles that further complicate mental illnesses. Finding which supports this school of thought, Joo et al. (2022) were able to show that low quality of sleep is a strong predictor of depressive symptoms in large-population samples. Moreover, Li et al. (2020) discovered that not only the low sleep duration but also the quality of sleep is largely linked to the increased levels of depression in university students, which further supports the role of sleep in the psychological functioning. Additional evidence indicates that this association is achieved by employing the mechanisms of continuous interaction over time whereby sleep disturbances and depression enhance each other. Using longitudinal analysis, Vazsonyi et al. (2022) found that depressive symptoms and sleep quality changes are interrelated and that the link between them is reciprocal. Likewise, Han et al. (2023) emphasized that depression might become an intervening variable between the quality of sleep and other health outcomes, which reinforces the cyclic character of the given relationship. It was also found that the low quality of sleep leads to depressive mood, which, in turn, has a more general psychosocial impact on the social support (Xu et al., 2021). These results designate that there is a dynamic nature of the relation between depression and sleep, and that it changes over time and context.

In addition, the intricacy of this two-way relationship is also justified by studies analyzing psychological and behavioral pathways. Xiao et al. (2023) established that depressive symptoms mediate the correlation between the quality of sleep and cognitive functioning, meaning that depression as a result of poor sleep could indirectly impact the mental functioning. Similarly, the findings of Dias and Figueiredo (2021) also revealed that sleep issues and depression symptoms are interrelated even in maternity and developmental settings, which once again confirms the universality of this relationship. In another study, Williams et al. (2020) also noted that insomnia is a major risk factor of moderate to severe depression, especially in young adults. Taken together, these studies emphasize the fact that the sleep quality and the symptoms of depression are closely interrelated and require combined methods of comprehension and treatment.

Theme 2: Sleep Quality as a Predictor of Psychological Well-being and Mental Health

Sleep quality has been selected as a basic predictor of psychological well-being, which impacts on the emotional stability, cognitive functioning, and the overall life satisfaction. Zhu et al. (2023) analyzed this correlation and discovered that the quality of sleep is significant to lower subjective well-being, which is mainly due to the correlation of sleep quality with anxiety and depression. On the same note, Simone et al. (2020) pointed out that

the quality of sleep is strongly correlated with well-being, but in most cases this correlation is mediated by stress that is a significant determinant of the mental health outcome. In line with these results, Li et al. (2020) emphasized that people who have a high-quality of sleep indicate lower levels of depressive symptoms, which leads to enhanced psychological functioning. Plante (2021) also pointed out that sleep disturbances may impair emotional regulation which has adverse impact on mental health and well-being.

Additionally, studies claim that the role of sleep quality in well-being is not only direct but also acted through various mediating factors. Xu et al. (2021) discovered that the sleep quality is a positive predictor of perceived social support, and the depressive mood mediates between the two variables. Equally, Xiao et al. (2023) showed that sleep quality is mediated by anxiety and depressive symptoms on cognitive outcomes, which means that poor sleep has an adverse indirect impact on well-being, demonstrated by emotional disruptions. This point of view was also supported by Han et al. (2023), who concluded that depression is one of the factors that mediate the correlation between sleep and physical health outcomes. All of these findings designate that sleep quality is a focal point in determining psychological well-being in complex and interconnected mechanisms.

Moreover, the significance of sleep quality in sustaining mental health is supported by study on heterogeneous groups of people. Joo et al. (2022) discovered that people with low sleep quality had a high tendency of reporting depressive symptoms, which consequently influenced their overall welfare. On the same note, Williams et al. (2020) also emphasized that insomnia and other sleep disorders are linked to increased depression and poor daytime functioning. Vazsonyi et al. (2022) also proved the association of change in sleep quality with the decrease in the number of internalizing problems (depression and anxiety). The results highlight that sleep quality is an important psychological resource and the one that contributes to well-being and resilience, and thus, it should be considered as a central aspect of mental health research and intervention.

Theme 3: Occupational Stress, Lifestyle Factors, and Sleep Disturbances

Sleep quality has been determined to be highly dependent on occupational stress and lifestyle especially in working populations. Freitas et al. (2020) examined the effects of psychosocial conditions at work and confirmed that high job demands and insufficient time off lead to a high level of poor sleep quality among the professors of the university. On the same note, Ntumi et al. (2025) emphasized that workload and teaching demands are critical factors that promote burnout, and sleeping disorders are a mediating variable. Iram et al. (2025) also added that the point of poor sleep quality among working women is high because of stress, lifestyle, and health conditions. These results indicate that workplaces are the significant factors that influence sleep and mental health outcomes.

Along with the occupational stress, lifestyle-related behaviours also have a significant impact on the quality of sleep and its connection with mental health. Li et al. (2020) established that a lack of sleep time and poor sleep behaviours are correlated with an increase in depressive symptoms and in particular, in young adults. Likewise, Joo et al. (2022) noted that smoking, alcohol intake, and physical inactivity are some of the behavioral causes that might worsen the sleeping disturbances and predispose someone to depression. Williams et al. (2020) also pointed out the fact that behaviourally induced insufficient sleep syndrome is one of the most common ones among the students and it correlates with more depressive symptoms. These works imply that lifestyle changes can be crucial in enhancing the quality of sleep and minimizing the risk of mental health issues.

Additionally, the relationship between sleep and mental health is further complicated by the interaction between occupational stress with the biological mechanisms. Palagini et al. (2022) described that sleep disturbances have the potential to trigger stress systems and neuroinflammatory pathways, which result in poor psychological outcomes. Equally, Manosso et al. (2024) emphasized that the existence of disturbances in circadian rhythms and biological functions is strongly associated with depressive disorders. Simione et al. (2020) also highlighted that stress is one of the most important mediators between sleep disturbances and poor well-being. Collectively, the data shows that sleep disturbances are conditioned by a complex of external stressors and internal physiological events, which emphasize the importance of holistic approaches that can ensure the implementation of both occupational and lifestyle factors to enhance the outcomes of mental health.

2. Research Methodology

Research methodology is the systematic approach taken by a researcher to be able to carry out a study. It consists of the methods, approaches, and tools of data collection and analysis. A research methodology is intended to make the study systematic, valid and reliable. A clear methodology assists people in the realization of how the study was conducted and help them be able to replicate or assess the study efficiently (Arora 2025).

2.1 Research Design and Approach

The study was quantitative in nature as it took a systematic study of the relationship between “sleep quality and mental health” outcomes in women who are in high education and are engaged in the workforce. The descriptive and correlational research design was used to identify the existence of association and predictive relationships among variables. The study was carried out in Bangalore, India, targeting female workers as higher education faculty members. The study used primary data collection, where the data collected through a structured questionnaire

among the respondents. The sampling method is stratified random to represent various academic ranks. The sample size is 300 respondents all in all, which makes the findings more trustworthy and relevant in the specific group of people chosen.

2.2 Variables, Instruments, and Statistical Analysis

To assess the sleep quality and signs of depression, the study involved the use of standardized measures, such as the “Pittsburgh Sleep Quality Index (PSQI) and the Beck Depression Inventory” (BDI). The independent variable was the sleep quality and the dependent variables were depressive symptoms, occupational Stress and psychological well-being. The information was obtained using a structured questionnaire. The SPSS and MS Excel were used to analyse the data and apply descriptive statistics (mean, standard deviation) and inferential statistics (correlation, regression).

2.3 Research Hypothesis

H1: There is a significant relationship between sleep quality and depressive symptoms among working women in higher education.

H2: Sleep quality has a significant impact on occupational stress among working women in higher education.

H3: Sleep quality significantly predicts psychological well-being among working women in higher education.

3. Conceptual Framework

A conceptual framework is a graphical or textual output that displays the primary aspects, concepts, or variables in study and the assumed connections among them (Singh and Singh 2025).

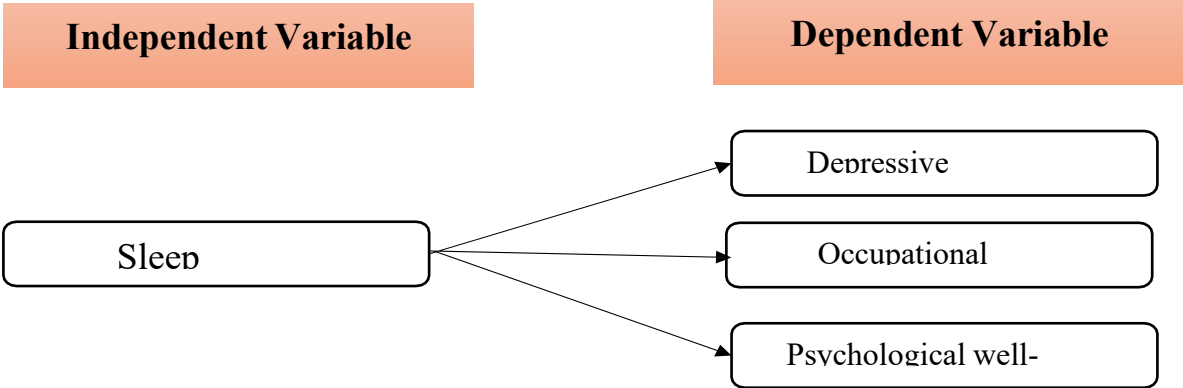


Figure 2: Conceptual Model Source: Author’s own compilation

4. Data Analysis and Interpretation

Table 1: Demographic Characteristics of respondents

S.NO.	Demographic Characteristics		N	%
1	Age Group	21–30 years	62	20.70%
		31–40 years	65	21.70%
		41–50 years	65	21.70%
		51–60 years	56	18.70%
		Above 60 years	52	17.30%
		Single	71	23.70%

2	Marital Status	Married	75	25%
		Divorced	66	22%
		Widowed	88	29.30%
3	Educational Qualification	Master's Degree	88	29.30%
		M.Phil.	103	34.30%
		Ph.D.	109	36.30%
4	Designation	Assistant Professor	77	25.70%
		Associate Professor	77	25.70%
		Professor	74	24.70%
		Guest/Ad-hoc Faculty	72	24%
5	Sleep Duration	Less than 5 hours	68	22.70%
		5–6 hours	67	22.30%
		6–7 hours	51	17%
		7–8 hours	52	17.30%
		More than 8 hours	62	20.70%
6	Sleep Quality	Very Poor	57	19%
		Poor	61	20.30%
		Average	56	18.70%
		Good	68	22.70%
		Very Good	58	19.30%

The demographics of the sample show that it is relatively balanced, in terms of age categories, with the largest

population in the 31-40 years, and 41-50 years age skills (21.7 and 21.7 respectively), which can be interpreted that the sample consists mostly of middle-career professionals. Regarding marital status, a higher percentage of the respondents are widowed (29.3) and married (25) indicating various life conditions on an individual level, which might affect sleep and mental health. Regarding educational levels, it can be seen that the majority of respondents have achieved high degrees, with 36.3% having a Ph.D. and 34.3% an M.Phil., which means that the academic population is highly qualified. The distribution of the title is fairly balanced among Assistant Professors and Associate professors, professors and Guest/Ad- hoc faculty, so that there is a balance between the various levels of Academic rank. On sleep patterns, a significant percentage of the respondents report that they have shorter sleep duration, with 22.7 percent having a sleep extent of less than 5 hours and 22.3 percent having sleep duration of 5 to 6 hours, which is indicative of sleep deprivation. Accordingly, there is a difference in the quality of sleep among the respondents with a significant percentage of poor sleep quality (20.3%), very poor sleep quality (19%), and good sleep quality (22.7%). On the whole, the data indicate that though academically successful, a large proportion of the respondents undergo poor sleep patterns which can potentially impact on their mental health and well-being.

4.1 Results based on objectives

Obj. 1: To examine the relationship between sleep quality and depressive symptoms among working women in higher education.

Table 2: Descriptive Statistics Table

Descriptive Statistics			
	Mean	Std. Deviation	N
Sleep Quality	11.0000	2.58242	300
Depressive Symptoms	10.3333	2.54239	300

According to the descriptive statistics, the mean of the sleep quality of the respondents is 11.00 and the SD of the respondents is 2.58 indicating a moderate degree of variation in the sleep habits of working women in higher education. The same way, the average of depressive symptoms has a mean score of 10.33 and a SD of 2.54 meaning that there is not much variation in the distribution of depressive tendencies within the sample. The fact that the standard deviations of the two variables are quite close indicates that the data are relatively homogenous, and the majority of respondents have reported the same levels of sleep quality and the presence of depressive symptoms. These results designate that there are variations but a important percentage of the respondents can be getting moderate sleep disturbances and observable measures of depressive symptoms which presents a possible point of concern in terms of mental health and well-being.

Table 3: Correlations Table

Correlations		
	Sleep Quality	Depressive Symptoms

Sleep Quality	Pearson Correlation	1	.382**
	Sig. (2-tailed)		.000
	N	300	300
Depressive Symptoms	Pearson Correlation	.382**	1
	Sig. (2-tailed)	.000	
	N	300	300
**. Correlation is significant at the 0.01 level (2-tailed).			

The correlation analysis shows that there is a moderate and statistically significant correlation between sleep quality and depressive symptoms ($r = .382$, $p < .01$). This hints at the fact that the difference in sleep quality can be an intentionally significant contributor to the changes in the depressive symptoms in the participants. In particular, having worse sleep quality is likely to be associated with more depressive symptoms. The importance level ($p = .000$) is an assurance that this correlation is not just a chance occurrence, and the size of the sample ($N = 300$) further increases the credibility of the results. Altogether, the findings designate that sleep quality is a significant variable in terms of mental health and, in particular, the impact of depressive symptoms.

Obj. 2: To determine the impact of sleep quality on occupational stress among working women in higher education.

Table 4: Model Summary Table

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.144 ^a	.021	.017	2.99641
a. Predictors: (Constant), Sleep Quality				

The model summary demonstrates that the explanatory power of the quality of sleep on the dependent variable is rather low, yet it is statistically important. The CC ($R = 0.144$) indicates that there is a weak or positive relationship between the sleeping quality and the outcome variable. R square of 0.021 is used to suggest that only 2.1 percent of the dependent variable variance is explained by sleep quality which means that the relationship is not only there but also limited in strength since other variables can contribute a greater contribution. This weak explanatory power is also supported by the adjusted R Square (0.017) after the model complexity and sample size had been considered. Also, “Standard error of the estimate” (2.99641) indicates the mean disparity between observed values and the estimated values indicating a moderate degree of estimate error. Generally, this model shows that sleep quality would be a statistically significant albeit weak predictive variable, which indicates that other variables should also be brought into consideration in order to provide a holistic explanation.

Table 5: ANOVA^a Table

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56.618	1	56.618	6.306	.013 ^b
	Residual	2675.579	298	8.978		
	Total	2732.197	299			
a. Dependent Variable: Occupational Stress						
b. Predictors: (Constant), Sleep Quality						

The obtained results of the ANOVA demonstrate that the level of “occupational stress in the regression analysis” that focuses on the influence of sleep quality has a statistically significant model. The F-value 6.306 and the level of significance of $p = 0.013$ ($p < 0.05$) indicate that the model fits well than the model without predictors hence proving that sleep quality significantly influences occupational stress. The regression sum of squares (56.618) represents the amount of variation in the OS that is accounted by the quality of sleep, whereas the residual sum of squares (2675.579) represents the amount of variance that is not accounted. Although the explained variance is low, the statistical significance indicates that sleep quality would play a important role in the estimate of occupational stress in working women in higher education.

Table 6: Coefficients^a Table

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.743	.758		10.213	.000
	Sleep Quality	.169	.067	.144	2.511	.013
a. Dependent Variable: Occupational Stress						

The table shows that the sleep quality significantly influences occupational stress among higher education working women. The non-standardized coefficient ($B = 0.169$) implies that with a one-unit rise in sleep quality score, occupational stress rises by 0.169 units, which is a optimistic relationship between the variables. The standardized coefficient ($Beta = 0.144$) indicates a low but significant value of sleep quality in occupational stress prediction. Moreover, the t-value (2.511) and the significance level ($p = 0.013$, $p < 0.05$) prove that the relationship is statistically significant. The value of 7.743 is a constant that illustrates the occupational stress at the base level given that sleep quality is maintained constant.

Obj. 3: To assess whether sleep quality predicts psychological well-being among working women in higher education.

Table 7: Model Summary Table

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.390 ^a	.152	.149	2.28063
a. Predictors: (Constant), Sleep Quality				

The summary of the model depicts that there exists a medium association between the variable sleep quality and the DV. The CC ($R = 0.390$) indicates a positive, but weak, relationship between sleep quality and the outcome variable. The value of R square (0.152) shows that the DV variance is largely determined by other factors not in the model that explain a large percentage (84.8) of the variance and there is only a small percentage (15.2) that is explained by the sleep quality alone. The difference between the Adjusted R Square (0.149) and the R Square value is very marginal which indicates that the model fits very much and it was not overfit significantly. Also, the standard error of the estimate (2.28063) shows the mean discrepancy between the observed values and the expected values which shows that there is an intermediate degree of accuracy in prediction.

Table 8: ANOVA^a Table

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	277.601	1	277.601	53.371	.000 ^b
	Residual	1549.986	298	5.201		
	Total	1827.587	299			
a. Dependent Variable: Psychological Well-being						
b. Predictors: (Constant), Sleep Quality						

The ANOVA results show that the regression model of predicting psychological well-being on the basis of sleep quality is statistically significant. The value of F ($F = 53.371$) is also rather large, and the significance value (Sig. = .000) is smaller than the standard level (0.05), which proves the overall significance of the model is very high. It implies that the quality of the usual sleep is one of the main contributors to the occurrence of differences in the psychological well-being. The sum of squares of regression (277.601) is the variation which the model can explain, and the residual sum of squares (1549.986) is the variation that is not explained by the model. Because the explained variance is statistically significant, one can make an inference that sleep quality is a significant predictor of psychological well-being. Nonetheless, the fact that the remaining variance is rather high also indicates that other variables other than sleep quality determine the psychological well-being.

Table 9: Coefficients^a Table

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.502	.577		9.536	.000
	Sleep Quality	.373	.051	.390	7.306	.000
a. Dependent Variable: Psychological Well-being						

The table of coefficients indicates that the quality of sleep is a strong positive predictor of psychological well-being. The unstandardized coefficient on the quality of sleep ($B = 0.373$) implies that a one-unit change in the quality of sleep results in the enhancement of psychological well-being by 0.373 units, other things being constant. The standardized coefficient ($Beta = 0.390$) indicates that sleep quality has a moderate effect size, which implies that the quality of sleep has a significant effect on the psychological health. The t-value ($t = 7.306$) is not very low, and the level of significance ($Sig. = .000$) is significantly lower than 0.05, which proves that this correlation is statistically significant. Also, the constant ($B = 5.502$) indicates the level of psychological well-being at the zero level of sleep quality.

5. Discussion

The correlation between the quality of sleep and depressive symptoms is a highly studied area of research in previous studies, and several researchers have emphasized that the correlation is significant and two-way. O'Callaghan et al. (2021) examined the relationship between subjective sleep patterns and depressive symptoms and reported that poor sleep quality places one at a high risk of depression. On a similar note, Nguyen et al. (2022) proved that sleep disturbances are one of the major mechanisms that connect depression and anxiety in the long run. Similarly, Joo et al. (2022) found that people with low sleep quality have a significantly higher risk of depressive symptoms among various groups of people. In line with these findings, Palagini et al. (2022) highlighted that insomnia and sleep loss are factors that lead to neurobiological dysregulation, which makes one susceptible to mood disorders. Moreover, Yasugaki et al. (2025) noted a two-way directionality between sleep and depression, and that these conditions support each other by engaging in complicated physiological and psychological mechanisms. Also, proves reduced sleep duration and poor sleep quality to be related to an increased rate of depressive symptoms, and good sleep quality serves as a preventive measure. All of these studies reaffirm that the quality of sleep is a key factor in determining mental health and that it is a major factor in the emergence and maintenance of depressive symptoms, especially in working women who are subject to high levels of occupational and personal stress.

In addition to depression symptoms, the literature highlights the significance of sleep quality in determining occupational stress and psychological well-being. Simone et al. (2020) examined a mediating effect of stress and discovered that the quality of poor sleep increases the level of stress, which in turn impacts the observed well-being. Equally, Zhu et al. (2023) have shown that sleep quality is closely linked to subjective well-being, and its impact is mostly mediated by the use of depression and anxiety. Freitas et al. (2020) also investigated the professionals of higher learning and found out that the poor psychosocial working environments greatly affect the quality of sleep thus exposing stress and emotional exhaustion. Along this, Williams et al. (2020) found out that inadequate sleep and insomnia are directly correlated with the experience of poor psychological consequence, such as lower well-being, and depressive dispositions. Furthermore, Hyndych et al. (2025) described that neurobiological alterations like hormonal imbalance and disruption of circadian rhythms are related to sleep disturbances, negatively influencing emotional management and mental health. Also, highlights that higher sleep quality is related to healthier mental health and lower levels of depressive symptoms. Combined, these research underscore the fact that the quality of sleep is not only a predictor of depression but also a highly significant variable in the mechanism of occupational stress and mental health, therefore, adding to the significance of sleep in the overall mental health of working women in higher education.

6. Conclusion

The study concludes that sleep quality is central to the process of determining the mental health outcomes of

working women in institutions of higher learning, especially as far as depressive symptoms, work-related stress, and psychological well-being are concerned. The results reveal that depressive symptoms are strongly related to the quality of sleep, which suggests that the worse sleep quality is, the more psychological distress. It is warranted by the moderate positive correlation between the quality of sleep and depressive symptoms as it indicates that sleep patterns disorders can have a significant influence on the stability of emotions. In addition, the study confirms that the quality of sleep significantly affects occupational stress and thus, poor sleepers are more prone to develop higher levels of stresses in stressful academic setups. These results can be compared to the available literature that highlights the rigid and reciprocal nature of sleep disruptions and mental health issues. The cumulative effect of work-related activities and personal life demands (highlighted in the context of working women in HE) only exacerbates the relationship, and the quality of sleep becomes one of the most essential determinants of well-being.

Moreover, the study also offers good evidence that sleep quality is a good predictor of psychological well-being based on the relatively larger explanatory power of the regression model ($R^2 = 0.152$). This could mean that a positive change in sleep quality can result in a significant development in mental health and satisfaction with life. Although the effect of sleep quality on work stress is not very significant, the statistical significance of this effect proves the necessity to regard sleep as one of the factors that contribute to occupational stress. All findings point to the fact that good and sufficient sleep is an insurance against depressive symptoms and a buffer against depressed moods and improves psychological adaptability. Thus, the study arrives at the conclusion that the use of interventions that would help to enhance sleep hygiene, workload management, and work-life balance could help in supporting the mental health of working women in the HE sector. Solving problems related to sleep not only contributes to the well-being of an individual but also to a better working performance and a healthier academic environment in general.

8.1 Research Implication

The study point to the importance of the quality of sleep in determining depressive symptoms, work stress, and psychological well-being in working women in higher education. The practical implications of these findings on academic institutions and policymakers are significant, as they imply the necessity to introduce wellness programs and stress management interventions, as well as sleep hygiene awareness campaigns in the workplace. Flexible working schedules, alleviating the excessive working burden and having mental health support services will help institutions improve overall well-being. Moreover, the study adds to the current body of literature because it highlights the importance of sleep as a primary predictor of mental health, thus promoting the importance of implementing sleep as a health intervention in organizational health programs and employee assistance programs.

8.2 Research Limitation

The study has its limitations which should be mentioned in spite of its contributions. First, the cross-sectional research design does not allow the determination of causality between sleep quality and mental health outcomes. Second, self-reported questionnaires were used to gather the data, and this method is prone to response biases or errors. Third, the study was limited to working females in institutes of higher learning in Bangalore, which could limit the generalizability of the study to other areas or groups. Also, the other possible confounding variables like personality and lifestyle behaviors and medical illnesses were not taken into account and this could have influenced the outcome.

8.3 Research Future Research Direction

Further investigation can be built, based on this study on the longitudinal or experimental research design to efficiently prove the “cause-and-effect relationship between sleep quality and mental health” outcomes. It is also possible to conduct a study with a more diverse sample in different regions, professions, and demographics to improve generalizability. Moreover, the role of intermediate and moderating factors, including the “work-life balance, coping strategies, and social support, in the relationship between sleep and depression”, can be examined in the future. The use of objective measures of sleep, i.e., wearable sleep tracking devices, should be incorporated to enhance the accuracy of data. More studies regarding the intervention strategy can also assist in creating effective solutions to enhance sleep and mental health.

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