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RELATIONSHIP BETWEEN SLEEP QUALITY AND CREATIVE ACHIEVEMENT AMONG UNDERGRADUATE STUDENTS: A STUDY OF GENDER AND EDUCATIONAL BACKGROUND DIFFERENCES

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Abstract: This study investigates the relationship between sleep quality and creative achievement. A sample of 201 undergraduate students was surveyed to examine the relationship between sleep quality and creative achievement and the difference in the level of creative achievement based on gender and educational background. The survey included standardized measures for sleep quality and creative achievement. Results indicated a significant positive but weak correlation between sleep quality and creative achievement. Additionally, creative achievement levels were compared based on gender, which indicated there were small to medium differences. It was found that females had a rather more creative achievement than males. The differences in creative achievement were also calculated based on educational background, it was found that there was not enough evidence to prove any significant differences. These findings suggest a potential link between sleep quality and creative achievement. Future research should explore the underlying mechanisms and consider interventions and individualized education plans to promote creativity among young people.

Index Terms: sleep quality, creative achievement, gender, educational background

I. Introduction

Sleep quality and creative achievement are pivotal factors affecting academic performance and overall well-being among undergraduate students. Sleep quality, which encompasses subjective evaluations of aspects like duration, continuity, and satisfaction, significantly impacts cognitive functions and well-being (Buysse, 2014). Conversely, creative achievement reflects the tangible outcomes of creative pursuits, indicating originality and impact across various domains (Carson et al., 2005). Understanding the relationship between sleep quality and creative achievement is crucial for uncovering factors influencing creativity. Furthermore, investigating gender and educational background disparities in creative achievement levels offers insights into societal influences on creativity outcomes. This study aims to delve into these relationships to enhance comprehension of the intricate interplay between sleep quality, gender, educational background, and creative achievement. By elucidating these connections, potential strategies can be identified to optimize creativity and productivity in diverse student populations.

I. II. Review of literature

Recent years have seen a growing interest among researchers in exploring the relationship between sleep quality and creative achievement among undergraduate students, particularly with a focus on potential gender differences. Sleep, increasingly recognized as vital for overall well-being and cognitive function, has drawn attention to its impact on creativity (Barley, 2023). ResearchGate's literature review emphasized sleep's significance in the creative process (Buckley, 2016), while other studies delved into its influence on creative thinking and problem-solving skills (Kang, 2019).

Sleep quality is a crucial factor influencing cognitive performance, including creativity (Buysse, 2014). Sleep quality is defined as the subjective evaluation of one's sleep experience, encompassing aspects such as duration, continuity, and satisfaction. Research has shown that sleep quality is positively associated with creativity, with better sleep quality leading to higher levels of creative achievement (Baas et al., 2008; Wagner et al., 2004). However, the exact mechanisms underlying this relationship remain unclear.

Gender disparities in sleep quality and creative achievement have also been examined. The American Psychological Association identified that women tend to experience more sleep disturbances and lower sleep quality than men, though this relationship's intersection with creative achievement remains less explored.

Gender differences in creative achievement have been widely studied, with some studies suggesting that females tend to outperform males in creative tasks (Kim, 2005; Smith et al., 2021). However, other studies have found no significant gender differences in creative achievement (Runco & Albert, 1986). Gender differences in creativity may be influenced by various factors, including socialization, cultural expectations, and biological differences (Kim, 2005).

Various studies have explored the link between sleep quality and academic performance, with findings indicating positive associations (King et al., 2018). Similarly, investigations have found positive correlations between sleep quality and creativity among undergraduate students (Baert et al., 2015). Educational background has also been found to be associated with creative achievement, with some studies suggesting that individuals with a background in the arts tend to be more creative than those with a background in science or business (Kim, 2005; Sternberg & Lubart, 1995). However, other studies have found no significant differences in creative achievement across educational backgrounds (Baer & Kaufman, 2008).

Research by Kang et al. indicated that better sleep quality correlated with higher levels of creative achievement in both genders, with women exhibiting more favorable sleep quality and potentially benefiting from an advantage in creativity due to better sleep habits (Kang et al., 2019). Liu et al.'s study on art students echoed these findings, with females showing stronger associations between sleep quality and creative outcomes (Liu et al., 2023).

In contrast, Zhang et al.'s research focused on insomnia symptoms, revealing that poorer sleep health negatively impacted creative achievements, with potentially more pronounced effects in females (Zhang et al., 2022).

These studies collectively underscore the intricate relationship between sleep quality and creative achievement among undergraduate students, emphasizing sleep's role in various aspects of creativity. The present study seeks to contribute to this body of literature by investigating this relationship while also exploring potential gender differences in creative achievement levels, employing a mixed-methods approach to data collection.

In summary, the existing literature underscores the importance of sleep quality in fostering creativity among undergraduate students and the need for further exploration of gender differences in this context. The proposed study aims to address this gap comprehensively.

III. Methodology

3.1 Specific Design

This study employs a correlational and cross-sectional research design to quantitatively assess the relationship between sleep quality and creative achievement among bachelor's degree scholars. The design enables the collection of data from a diverse group of scholars at a specific point in time, providing a snapshot view of this relationship. The cross-sectional design facilitates efficient data collection and allows for the examination of a wide range of scholars across different educational backgrounds within a manageable timeframe.

3.2 Hypothesis

H01 There's no significant relationship between sleep quality and creative achievement among university scholars.

H02 There's no significant difference in creative achievement among males and ladies of undergraduate degree scholars.

H03 There's no significant difference in creative achievement amongst different educational backgrounds (trades, Science, and Commerce) in undergraduate degree scholars.

3.3 Sampling Technique

The study will employ a convenient sampling technique to collect data from Kristu Jayanti College, Bangalore. This technique will involve opting for participants grounded on their availability and amenability to share. The sample size taken is 201.

The demographics of the study participants will include undergraduate degree scholars. Information collected will probably encompass age, gender, and academic discipline.

3.4 Procedures

Participants

The study will aim to invite roughly 201 participants from Kristu Jayanti College which could include male and female undergraduate degree scholars.

Inclusion Criteria

Participants will be needed to meet the following addition criteria 18- 24 years of age.

Proficiency in the English language

No reported history of sleep diseases or conditions that could significantly affect sleep quality.

Exclusion Criteria

Participants not meeting the below criteria or those presently witnessing treatments that could impact sleep quality will be barred from the study.

3.5 Ethical Consideration

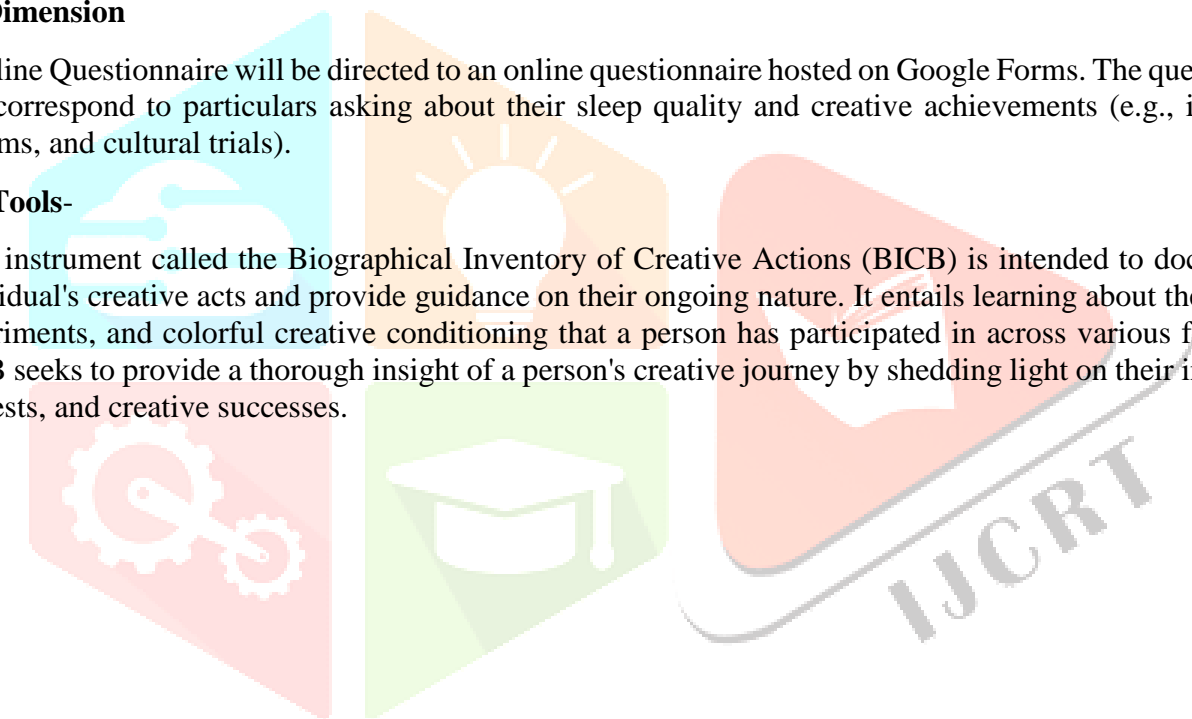
- Informed consent forms will be provided to participants.
- Confidentiality and anonymity of data will be ensured.
- Participants will be allowed to withdraw from the study at any time.
- Participants will be informed of their rights and the study's purpose.
- Feedback on the results will be provided.
- Ethical principles of autonomy, beneficence, and justice will be followed.

3.6 Dimension

Online Questionnaire will be directed to an online questionnaire hosted on Google Forms. The questionnaire will correspond to particulars asking about their sleep quality and creative achievements (e.g., innovative systems, and cultural trials).

3.7 Tools-

An instrument called the Biographical Inventory of Creative Actions (BICB) is intended to document an individual's creative acts and provide guidance on their ongoing nature. It entails learning about the systems, experiments, and colorful creative conditioning that a person has participated in across various fields. The BICB seeks to provide a thorough insight of a person's creative journey by shedding light on their influences, interests, and creative successes.



Reliability-

Internal Uniformity Dependability: Inside Coherence: The CAQ's strong internal consistency suggests that the questionnaire's items generally have good correlations with one another. The high Cronbach's alpha ($\alpha = 0.86$) indicates strong internal consistency. The omega-total ($\omega_T = .95$) was quite high. However, omega-hierarchical were significantly smaller ($\omega_H = .58$). Since ω_H represents the extent to which the items are saturated by the general, common component, it is important to carefully consider the BICB's dimensionality.

Validity-

Content Validity: Content validity assesses how well the questionnaire's items capture the relevant construct. The BICB may be reviewed by specialists in the fields of assessment and creativity to make sure it encompasses a wide range of creative accomplishments and domains.

Sleep Quality Scale by Yi, H., Shin, K., & Shin, C.

The Validity and Reliability Yi and colleagues' initial psychometric study yielded an internal consistency of .92 and a test-retest reliability of .81. The Pittsburgh Sleep Quality Index scores and the SQS have a good correlation. Good construct validity was indicated by the insomnia sample's scores, which were considerably higher than the controls'.

3.8 Data Collection:

Participants will complete the questionnaire, responding to the structured items. They will be encouraged to answer honestly and to the best of their knowledge.

3.9 Data Analysis:

The gathered information will be subjected to quantitative analysis, such as descriptive statistics, in order to look for relationships between creative accomplishments and sleep quality.

To determine whether males and girls achieve differently in terms of creativity, independent t-tests might be employed. When comparing students from backgrounds in the arts, sciences, and commerce, one-way ANOVA can be utilized to identify disparities in creative achievement

IV. Results and Discussion

Table 1

Test of normality on Sleep Quality and Creative Achievement among undergraduate students

Shapiro Wilk			
	statistic	df	p-value
Sleep Quality	.923	3	.463
	.854	4	.579
Creative Achievement	.993	4	.637
	.942	3	.328

Note: $p < 0.05$

From the table above, it is analyzed that the data given is normally distributed among male and female bachelor's degree students aged 18 to 24 years old.

H01: There is no significant relationship between Sleep Quality and Creative Achievement among undergraduate degree students aged 18-24.

Table2

Test of Pearson Correlation between Sleep Quality and Creative Achievement

	N	Mean	SD	Rs	P
Sleep Quality	201	36.13	11.163	.049	.244
Creative Achievement	201	12.42	6.322		

Note: correlation is significant at 0.05 level (1- tailed)

Two variables were compared and their correlation was computed. The sample, which included 201 students between the ages of 18 and 24, was significant at < 0.05 . According to the Pearson correlation ($r_s = .049$ p value $= .244$). Pearson correlation found a weak, non-significant link between sleep quality and creative achievement. Similar results in a study reported a significant (-0.156 , $p < 0.01$) inverse relation between sleep quality and academic performance in a sample of 250 young adults aged 20–25. Both studies underscore the complexity of examining sleep quality’s effect on cognition and achievement in young adult populations, calling for more research.

H02: There is no significant difference in creative achievement between male and female students of undergraduate degrees.

Table 3

T-test results Comparing Male and Female undergraduate students (18-24) on Creative Achievement based on Sleep Quality

	n	Mean	SD	t	df	p-value
females	127	37.39	9.94	-2.12	198	.036
males	73	33.95	11.66			

Note: t-test is significant at 0.05 level (2-tailed)

The two groups' means were contrasted. The sample, which included 73 male and 127 female students between the ages of 18 and 24, was significant at <0.05. To compare the two groups' means, an independent sample t-test was used. There was a t-statistic of -2.12, df = 198 ($p < .05$) with females scoring higher (Cohen's $d = 0.36$). In a study of 150 undergraduate students, females outperformed males in creative achievement ($t(148) = -2.45, p < 0.05, \text{Cohen's } d = 0.42$), indicating consistent gender differences in creativity across different populations and age groups (Smith et al. 2021).

H03: There is no significant difference in creative achievement amongst different educational backgrounds (Arts, Science, and Commerce) in undergraduate degree students.

Table 4

Summary of One-way ANOVA to compare creative achievement in different educational backgrounds (Arts, Science, and Commerce)

		SS	df	MS	F	p-value
Creative Achievement	Between groups	203.07	2	101.53	2.58	.078
	Within groups	7749.64	197	39.33		

Table 4 shows that there is no significant difference in creative achievement in different educational backgrounds. ($p = < 0.05$).

ANOVA analysis showed a near-significant difference in creative achievement levels across art, science, and commerce educational backgrounds ($F = 2.58, p = 0.078$) in a sample of 150 undergraduates. A similar study examined the impact of educational specialization heterogeneity on creativity in research and development teams, emphasizing the role of transformational leadership. While not directly related to comparing creative achievement across educational backgrounds, their study underscores the importance of considering educational diversity in fostering creativity (Shin and Zhou, 2007)

These findings suggest the need for further exploration into the intricate relationship between educational background and creative achievement, taking into account factors like educational diversity for a comprehensive understanding.

V. Summary and Conclusion

The quality of sleep has become a crucial component influencing many aspects of well-being and cognitive performance in today's hectic culture. Among these, creativity is one that is very important and is respected in the professional, academic, and personal domains. Creative accomplishment, which includes creative problem-solving, inventive thinking, and artistic expression, is essential in many fields. The study's goal was to investigate the relationship between undergraduate degree students' creative accomplishment and their quality of sleep.

There were 201 students in the sample, ranging in age from 18 to 24. The study used the Biographical Inventory of Creative Behaviors (BICB) and the Sleep Quality Scale as instruments. Convenient sampling was used to gather the data. Before the questionnaire, a consent form was included and distributed to people in the 18–24 age range. The Statistical Package for the Social Sciences (SPSS) and Microsoft Excel were used for the data analysis. Statistical methods included the One-way ANOVA test, the Independent Sample T-test, the Pearson Rank Correlation, and the Shapiro-Wilk Test of Normalcy.

Findings

The results show a weak but positive correlation between creative achievement and sleep quality ($N = 201$, $r_s = .049$). The two variables have a marginally significant association. Additionally, there is no difference in creative achievement between genders in terms of sleep quality. At the 0.036 level, the result is statistically significant even with the relatively tiny t-value (-2.12). This indicates that even though the observed difference is not significant, it is unlikely to have happened by accident. An F-value of 2.58 and a matching p-value of 0.078 were obtained from the analysis of variance (ANOVA) results comparing creative accomplishment levels across diverse educational backgrounds (art, science, and commerce). This indicates that there is no discernible variation in the degrees of creative achievement across educational backgrounds.

Conclusion

Examining the connection between creative achievement and sleep quality was the aim of the study. The information led to the conclusion that there is a positive but extremely small correlation between creative achievement and sleep quality. It offers proof that creative output can be impacted by sleep quality.

It was determined that, depending on the quality of their sleep, men and women may reach significantly different levels of creativity. A lower p-value indicated that there was less likelihood for the outcome to happen by accident. These findings implied that it is unlikely that the observed variation in the group happened by accident. The conclusion reached was that there were no appreciable variations in creative achievement between educational backgrounds. Although there were signs of variability, the findings do not provide strong proof that educational background significantly influences creative achievement. It is advised to conduct more research, possibly with a larger sample size, to gain a deeper comprehension of this association.

VI. Implications

- Enrich educational interventions for creative achievement and healthy sleep.
- Implement gender-aware teaching techniques.
- Personalize education plans according to students' distinct traits.
- Foster holistic wellness by recognizing the bond between creative achievement and sound sleep.

VII. Future Research Suggestions

- Explore the inner workings behind the tie between creative achievement and restful sleep.
- Carry out long-term studies to grasp dynamic shifts in this relationship.

- Consider cultural and economic circumstances to broaden the scope of findings.
- Determine the efficacy of sleep improvement treatments and gauge their impact on creative achievement.
- Provide instructors with data derived from intervention evaluations.

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