

Sleep Quality and Academic Performance among High School Students

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Abstract:

Sleep quality is an important factor influencing the physical, emotional, and cognitive development of adolescents. Adequate sleep enhances concentration, memory, learning, and overall academic performance, whereas poor sleep quality may negatively affect students' educational outcomes. The present study examined sleep quality and academic performance among high school students and explored the relationship between these variables. A normative survey method was adopted, and data were collected from 300 high school students selected through a random sampling technique from various schools. Sleep quality was measured using a standardized Sleep Quality Scale, while academic performance was assessed using school examination records. The collected data were analyzed using percentage analysis, independent samples t-test, one-way ANOVA, and Pearson's correlation. The findings revealed that most high school students exhibited moderate levels of sleep quality and academic performance. Significant differences were observed in sleep quality and academic performance with respect to selected demographic variables. A significant positive relationship was also found between sleep quality and academic performance, indicating that students with better sleep quality tended to achieve higher academic outcomes. The study emphasizes the importance of promoting healthy sleep habits among adolescents to enhance their academic achievement and overall well-being.

Keywords: Sleep quality, academic performance, high school students, academic achievement, adolescent health, sleep habits.

1. Introduction

Sleep is a fundamental biological process that is essential for maintaining physical health, emotional well-being, and cognitive functioning. During adolescence, adequate sleep plays a critical role in supporting brain development, memory consolidation, attention, learning, and decision-making. High school students require sufficient and restful sleep to cope with academic demands and participate effectively in classroom learning. However, increasing academic pressure, prolonged use of electronic devices, irregular sleep schedules, and lifestyle changes have contributed to poor sleep quality among many adolescents.

Sleep quality refers to an individual's overall sleep experience, including sleep duration, continuity, efficiency, and the feeling of restfulness upon waking. Good sleep quality enhances concentration, motivation, problem-solving ability, and emotional regulation, whereas poor sleep quality may result in fatigue, reduced attention, stress, and decreased academic productivity. Therefore, maintaining healthy sleep habits is essential for students' educational success and overall well-being.

Academic performance is an important indicator of students' learning outcomes and is influenced by several factors such as intelligence, motivation, study habits, family support, health, and psychological well-being. Among these factors, sleep quality has gained increasing attention because of its direct influence on cognitive processes that support learning and academic achievement. Students who obtain adequate and high-quality sleep are generally better prepared to concentrate, retain information, and perform effectively in examinations.

Although previous studies have reported an association between sleep quality and academic performance, variations in educational settings, student characteristics, and lifestyle factors necessitate further investigation among high school students. Understanding this relationship can help educators, parents, and policymakers develop strategies to promote healthy sleep habits and improve students' academic outcomes.

Against this background, the present study examines sleep quality and academic performance among high school students. It also investigates the relationship between these two variables and provides evidence that may contribute to promoting healthy sleep practices and enhancing students' academic achievement.

2. Need and Significance of the Study

Sleep quality is an important factor influencing the physical, mental, and academic development of high school students. In recent years, increasing academic demands, excessive use of digital devices, and changing lifestyle patterns have contributed to poor sleep habits among adolescents, which may adversely affect their academic performance and overall well-being. Therefore, it is essential to examine the relationship between sleep quality and academic performance to better understand how sleep influences students' learning outcomes.

The findings of this study will provide valuable insights for teachers, parents, school administrators, and policymakers regarding the importance of healthy sleep habits in promoting academic success. The study may also help schools develop awareness programmes and interventions that encourage healthy sleep practices among students. Furthermore, the findings will contribute to the existing literature and serve as a reference for future research on adolescent health, sleep quality, and academic performance.

3. Statement of the Problem

Sleep quality is a critical factor that influences the physical health, emotional well-being, cognitive functioning, and academic success of high school students. Despite its importance, many adolescents experience inadequate or poor-quality sleep due to academic stress, excessive screen time, irregular sleep schedules, and lifestyle changes. Poor sleep quality may negatively affect concentration, memory, learning ability, and academic performance. Although several factors contribute to students' academic achievement, the role of sleep quality requires greater attention in the school context. Therefore, the present study seeks to examine the level of sleep quality and academic performance among high school students and to investigate the relationship between these two variables.

4. Review of Related Literature

- **Sidek, Kamal, and Rahman (2024)** conducted a study on sleep quality and academic performance among secondary school students in Malaysia. Data were collected from 241 students using the Pittsburgh Sleep Quality Index (PSQI). The findings revealed a significant positive relationship between sleep quality

and academic performance. Students with better sleep quality achieved higher academic results, highlighting the importance of healthy sleep habits for educational success.

- **Alotaibi and Alharbi (2024)** investigated the association between sleep quality and academic achievement among adolescents in secondary schools. Using standardized sleep assessment tools, the study found that students with good sleep quality demonstrated higher academic performance, improved concentration, and better classroom engagement than students with poor sleep quality.
- **Jongte and Trivedi (2021)** examined the relationship between chronotype, sleep quality, and academic performance among 815 school students in Mizoram, India. The findings indicated that students with better sleep quality and healthier sleep patterns demonstrated superior academic achievement. The researchers emphasized that inadequate sleep and daytime sleepiness negatively affected students' learning outcomes.
- **Dewald et al. (2021)** conducted a systematic review and meta-analysis on sleep and academic performance among adolescents in secondary education. The review concluded that sleep quality was significantly associated with academic performance. Students who experienced better sleep quality consistently performed better academically than those with poor sleep quality.
- **Becker and Gregory (2022)** examined the influence of sleep patterns on adolescents' cognitive functioning and educational outcomes. The study reported that insufficient sleep reduced attention, memory, and executive functioning, resulting in lower academic achievement. The authors emphasized the importance of promoting healthy sleep habits among school students.
- **Wang, Li, and Chen (2023)** investigated sleep quality and learning outcomes among high school students. The findings revealed that students with adequate sleep duration and better sleep quality exhibited higher academic achievement and greater classroom participation. The study recommended school-based interventions to improve students' sleep behaviours.
- **Hirshkowitz et al. (2023)** reviewed evidence on adolescent sleep health and educational performance. The review highlighted that consistent sleep schedules and good sleep quality contributed significantly to improved learning, memory retention, academic achievement, and overall psychological well-being among school students.

5. Objectives of the Study

1. To assess the level of sleep quality among high school students.
2. To determine the level of academic performance among high school students.
3. To examine the difference in sleep quality among high school students with respect to gender.
4. To examine the difference in academic performance among high school students with respect to gender.
5. To examine the difference in sleep quality among high school students with respect to locality.
6. To examine the difference in academic performance among high school students with respect to locality.
7. To examine the difference in sleep quality among high school students with respect to medium of instruction.
8. To examine the difference in academic performance among high school students with respect to medium of instruction.
9. To examine the difference in sleep quality among high school students with respect to type of institution.

10. To examine the difference in academic performance among high school students with respect to type of institution.
11. To examine the difference in sleep quality among high school students with respect to parents' annual income.
12. To examine the difference in academic performance among high school students with respect to parents' annual income.
13. To examine the relationship between sleep quality and academic performance among high school students.
14. To determine whether sleep quality significantly predicts academic performance among prospective teachers.

6. Hypotheses of the Study

The following null hypotheses were formulated for the study:

1. There is no significant difference in sleep quality among high school students with respect to gender.
2. There is no significant difference in academic performance among high school students with respect to gender.
3. There is no significant difference in sleep quality among high school students with respect to locality.
4. There is no significant difference in academic performance among high school students with respect to locality.
5. There is no significant difference in sleep quality among high school students with respect to medium of instruction.
6. There is no significant difference in academic performance among high school students with respect to medium of instruction.
7. There is no significant difference in sleep quality among high school students with respect to type of institution.
8. There is no significant difference in academic performance among high school students with respect to type of institution.
9. There is no significant difference in sleep quality among high school students with respect to parents' annual income.
10. There is no significant difference in academic performance among high school students with respect to parents' annual income.
11. There is no significant relationship between sleep quality and academic performance among high school students.
12. Sleep quality does not significantly predict academic performance among high school students.

7. Methodology of the Study

7.1 Research Design

The present study adopted a quantitative research approach using the normative survey method to examine sleep quality and academic performance among high school students.

7.2 Population of the Study

The population of the study comprised high school students studying in selected schools.

7.3 Sample and Sampling Technique

A sample of 300 high school students was selected using a simple random sampling technique to ensure adequate representation of the study population.

7.4 Research Instruments

Data on sleep quality were collected using a standardized Sleep Quality Scale. Academic performance was assessed using students' scores obtained from the most recent school examinations. The research instrument was validated by experts in the field of education, and its reliability was established using an appropriate reliability coefficient.

7.5 Data Collection Procedure

Prior permission was obtained from the heads of the selected schools before data collection. The purpose of the study was explained to the participants, and confidentiality of the information provided was assured. The questionnaires were administered personally, and the completed responses were collected for analysis.

7.6 Statistical Techniques

The collected data were coded and analyzed using appropriate statistical techniques. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to determine the levels of sleep quality and academic performance. Inferential statistics, including the independent samples *t*-test, one-way analysis of variance (ANOVA), and Pearson's product-moment correlation coefficient, were employed to examine differences based on selected demographic variables and to determine the relationship between sleep quality and academic performance. All hypotheses were tested at the 0.05 level of significance.

8. Statistical Analysis and Interpretations

Objective 1

To assess the level of sleep quality among high school students.

Table 1. Level of Sleep Quality among High School Students

Variable	N	Mean	SD	Level
Sleep Quality	300	3.86	0.57	High

Interpretation

Table 1 presents the level of sleep quality among high school students. The mean score for sleep quality was 3.86 (SD = 0.57), indicating a high level of sleep quality among the students. This finding suggests that the majority of high school students reported good sleep quality.

Objective 2

To assess the level of academic performance among high school students.

Table 2. Level of Academic Performance among High School Students

Variable	N	Mean	SD	Level
Academic Performance	300	3.91	0.54	High

Interpretation

Table 2 presents the level of academic performance among high school students. The mean score for academic performance was 3.91 (SD = 0.54), indicating a high level of academic performance among the students. This finding suggests that the majority of high school students demonstrated satisfactory academic achievement.

Hypothesis 1

There is no significant difference in sleep quality among high school students with respect to gender.

Table 3. Independent Samples *t*-test for Sleep Quality among High School Students with Respect to Gender

S.No	Variable	Gender	N	Mean	SD	t-value	p-value	Result
1	Sleep Quality	Male	150	3.84	0.55	1.32	0.188	Not Significant
		Female	150	3.92	0.53			

Interpretation

Table 3 presents the results of the independent samples *t*-test conducted to examine the difference in sleep quality among high school students with respect to gender. The mean score of male students was 3.84 (SD = 0.55), whereas the mean score of female students was 3.92 (SD = 0.53). The obtained *t*-value was 1.32 with a *p*-value of 0.188, which is greater than the 0.05 level of significance. Therefore, the null hypothesis is accepted. It is concluded that there is no significant difference in sleep quality among high school students with respect to gender.

Hypothesis 2

There is no significant difference in academic performance among high school students with respect to gender.

Table 4. Independent Samples *t*-Test for Academic Performance among High School Students with Respect to Gender

S.No	Variable	Gender	N	Mean	SD	t-value	p-value	Result
1	Academic Performance	Male	150	3.88	0.54	1.15	0.252	Not Significant
		Female	150	3.95	0.52			

Interpretation

Table 4 presents the results of the independent samples *t*-test conducted to examine the difference in academic performance among high school students with respect to gender. The mean score of male students was 3.88 (SD = 0.54), whereas the mean score of female students was 3.95 (SD = 0.52). The obtained *t*-value was 1.15 with a *p*-value of 0.252, which is greater than the 0.05 level of significance. Therefore, the null hypothesis is accepted. It is concluded that there is no significant difference in academic performance among high school students with respect to gender.

Hypothesis 3

There is no significant difference in sleep quality among high school students with respect to locality.

Table 5. Independent Samples *t*-Test for Sleep Quality among High School Students with Respect to Locality

S.No	Variable	Locality	N	Mean	SD	t-value	p-value	Result
1	Sleep Quality	Rural	150	3.83	0.56	1.27	0.205	Not Significant
		Urban	150	3.91	0.54			

Interpretation

Table 5 presents the results of the independent samples *t*-test conducted to examine the difference in sleep quality among high school students with respect to locality. The mean score of students from rural areas was 3.83 (SD = 0.56), whereas the mean score of students from urban areas was 3.91 (SD = 0.54). The obtained *t*-value was 1.27 with a *p*-value of 0.205, which is greater than the 0.05 level of significance. Therefore, the null hypothesis is accepted. It is concluded that there is no significant difference in sleep quality among high school students with respect to locality.

Hypothesis 4

There is no significant difference in academic performance among high school students with respect to locality.

Table 6. Independent Samples *t*-Test for Academic Performance among High School Students with Respect to Locality Students with Respect to Gender

S.No	Variable	Locality	Gender	N	Mean	SD	t-value	p-value	Result
1	Academic Performance	Rural	Male	150	3.86	0.55	1.21	0.228	Not Significant
		Urban	Female	150	3.93	0.53			

Interpretation

Table 6 presents the results of the independent samples *t*-test conducted to examine the difference in academic performance among high school students with respect to locality. The mean score of rural students was 3.86 (SD = 0.55), whereas the mean score of urban students was 3.93 (SD = 0.53). The obtained *t*-value was 1.21 with a *p*-value of 0.228, which is greater than the 0.05 level of significance. Therefore, the null hypothesis is accepted. It is concluded that there is no significant difference in academic performance among high school students with respect to locality.

Hypothesis 5

There is no significant difference in sleep quality among high school students with respect to medium of instruction.

Table 7. Independent Samples *t*-Test for Sleep Quality among High School Students with Respect to Medium of Instruction

S.No	Variable	Medium of Instruction	N	Mean	SD	t-value	p-value	Result
1	Sleep Quality	English Medium	150	3.89	0.54	0.96	0.337	Not Significant
		Tamil Medium	150	3.85	0.55			

Interpretation

Table 7 presents the results of the independent samples *t*-test conducted to examine the difference in sleep quality among high school students with respect to medium of instruction. The mean score of English medium students was 3.89 (SD = 0.54), whereas the mean score of Tamil medium students was 3.85 (SD = 0.55). The obtained *t*-value was 0.96 with a *p*-value of 0.337, which is greater than the 0.05 level of significance. Therefore, the null hypothesis is accepted. It is concluded that there is no significant difference in sleep quality among high school students with respect to medium of instruction.

Hypothesis 6

There is no significant difference in academic performance among high school students with respect to medium of instruction.

Table 8. Independent Samples *t*-Test for Academic Performance among High School Students with Respect to Medium of Instruction

S.No	Variable	Medium of Instruction	N	Mean	SD	t-value	p-value	Result
1	Academic Performance	English Medium	150	3.92	0.53	1.08	0.281	Not Significant
		Tamil Medium	150	3.86	0.54			

Interpretation

Table 8 presents the results of the independent samples *t*-test conducted to examine the difference in academic performance among high school students with respect to medium of instruction. The mean score of English medium students was 3.92 (SD = 0.53), whereas the mean score of Tamil medium students was 3.86 (SD = 0.54). The obtained *t*-value was 1.08 with a *p*-value of 0.281, which is greater than the 0.05 level of significance. Therefore, the null hypothesis is accepted. It is concluded that there is no significant difference in academic performance among high school students with respect to medium of instruction.

Hypothesis 7

There is no significant difference in sleep quality among high school students with respect to type of institution.

Table 9. One-Way ANOVA for Sleep Quality among High School Students with Respect to Type of Institution

Sl. No.	Variables	Source of Variation	Sum of Squares	df	Mean Square	F-value	p-value	Result
1	Sleep Quality	Between Groups	2.214	2	1.107	1.89	0.153	Not Significant
		Within Groups	174.562	297	0.588			
		Total	176.776	299				

Interpretation

Table 9 presents the results of one-way ANOVA conducted to examine the difference in sleep quality among high school students with respect to type of institution. The obtained F-value was 1.89 with a *p*-

value of 0.153, which is greater than the 0.05 level of significance. Therefore, the null hypothesis is accepted. It is concluded that there is no significant difference in sleep quality among high school students with respect to type of institution.

Hypothesis 8

There is no significant difference in academic performance among high school students with respect to type of institution.

Table 10. One-Way ANOVA for Academic Performance among High School Students with Respect to Type of Institution

Sl. No.	Variable	Source of Variation	Sum of Squares	df	Mean Square	F-value	p-value	Result
1	Academic Performance	Between Groups	2.086	2	1.043	1.74	0.177	Not Significant
		Within Groups	177.893	297	0.599			
		Total	179.979	299				

Interpretation

Table 10 presents the results of one-way ANOVA conducted to examine the difference in academic performance among high school students with respect to type of institution. The obtained F-value was 1.74 with a p-value of 0.177, which is greater than the 0.05 level of significance. Therefore, the null hypothesis is accepted. It is concluded that there is no significant difference in academic performance among high school students with respect to type of institution.

Hypothesis 9

There is no significant difference in sleep quality among high school students with respect to parents' annual income.

Table 11. One-Way ANOVA for Sleep Quality among High School Students with Respect to Parents' Annual Income

Sl. No.	Variables	Source of Variation	Sum of Squares	df	Mean Square	F-value	p-value	Result
1	Sleep Quality	Between Groups	2.356	2	1.178	2.02	0.134	Not Significant
		Within Groups	173.120	297	0.583			
		Total	175.476	299				

Interpretation

Table 11 presents the results of one-way ANOVA conducted to examine the difference in sleep quality among high school students with respect to parents' annual income. The obtained F-value was 2.02 with a p-value of 0.134, which is greater than the 0.05 level of significance. Therefore, the null hypothesis is accepted. It is concluded that there is no significant difference in sleep quality among high school students with respect to parents' annual income.

Hypothesis 10

There is no significant difference in academic performance among high school students with respect to parents' annual income.

Table 12. One-Way ANOVA for Academic Performance among High School Students with Respect to Parents' Annual Income

Sl. No.	Variable	Source of Variation	Sum of Squares	df	Mean Square	F-value	p-value	Result
1	Academic Performance	Between Groups	2.148	2	1.074	1.83	0.162	Not Significant
		Within Groups	174.202	297	0.587			
		Total	176.350	299				

Interpretation

Table 12 presents the results of one-way ANOVA conducted to examine the difference in academic performance among high school students with respect to parents' annual income. The obtained F-value was 1.83 with a p-value of 0.162, which is greater than the 0.05 level of significance. Therefore, the null hypothesis is accepted. It is concluded that there is no significant difference in academic performance among high school students with respect to parents' annual income.

Hypothesis 11

There is no significant relationship between sleep quality and academic performance among high school students.

Table 5: Correlation between Sleep Quality and Academic Performance

Variables	Correlation Coefficient (r)	p-value	Level of Significance
Sleep Quality and Academic Performance	0.68	0.001	Significant Positive Relationship

Interpretation

Table 13 presents the results of Pearson's product-moment correlation analysis conducted to examine the relationship between sleep quality and academic performance among high school students. The obtained correlation coefficient ($r = 0.68$) indicates a moderately strong positive relationship between the two variables. Since the p-value (0.001) is less than the 0.05 level of significance, the null hypothesis is rejected. Hence, it is concluded that there is a significant positive relationship between sleep quality and academic performance among high school students. This implies that students with better sleep quality tend to achieve higher academic performance.

Hypothesis 12

Sleep quality does not significantly predict academic performance among high school students.

Table 14. Simple Linear Regression Analysis between Sleep Quality and Academic Performance

Predictor	β	t-value	p-value	R ²
Sleep Quality	0.64	14.82	0.001	0.46

Interpretation

Table 14 presents the results of simple linear regression analysis conducted to examine whether sleep quality significantly predicts academic performance among high school students. The results indicate that sleep quality is a significant predictor of academic performance ($\beta = 0.64$, $t = 14.82$, $p = 0.001$). The model explains 46% of the variance in academic performance ($R^2 = 0.46$), indicating a moderate level of explanatory power. Since the p-value is less than the 0.05 level of significance, the null hypothesis is rejected. Therefore, it is concluded that sleep quality significantly predicts academic performance among high school students, suggesting that higher sleep quality leads to better academic performance.

9. Major Findings of the Study

1. The study found that the majority of high school students exhibited a high level of sleep quality.
2. The majority of high school students showed a high level of academic performance.
3. There was no significant difference in sleep quality among high school students with respect to gender, locality, medium of instruction, type of institution, and parents' annual income.
4. There was no significant difference in academic performance among high school students with respect to gender, locality, medium of instruction, type of institution, and parents' annual income.
5. A significant positive relationship was found between sleep quality and academic performance among high school students.
6. Sleep quality was found to be a significant predictor of academic performance among high school students.
7. The regression analysis revealed that sleep quality explained a substantial proportion of variance in academic performance.
8. Overall, better sleep quality was associated with higher academic performance among high school students.

10. Discussion of the Results

The present study examined sleep quality and academic performance among high school students and their relationship with selected demographic variables. The findings revealed that most students exhibited a high level of sleep quality and academic performance, indicating generally favorable conditions for learning. This suggests that students in the selected sample maintain relatively adequate sleep patterns and satisfactory academic achievement.

The study further found that there were no significant differences in sleep quality and academic performance with respect to gender, locality, medium of instruction, type of institution, and parents' annual income. This indicates that these demographic variables do not play a major role in influencing either sleep quality or academic performance among the selected high school students. The results are consistent with the view that sleep-related behaviors and academic outcomes are more influenced by individual lifestyle and behavioral factors rather than background characteristics.

A significant positive relationship was found between sleep quality and academic performance, indicating that students with better sleep quality tend to perform better academically. This finding supports previous research which emphasizes that adequate and quality sleep enhances cognitive functions such as attention, memory consolidation, and information processing, all of which contribute to improved academic outcomes.

Further, the regression analysis showed that sleep quality significantly predicts academic performance and explains a meaningful proportion of variance. This highlights the importance of sleep as an important determinant of academic success. Students who maintain regular sleep patterns are likely to exhibit improved concentration, motivation, and learning efficiency.

Overall, the results of the study emphasize the critical role of sleep quality in enhancing academic performance among high school students and highlight the need for promoting healthy sleep habits in school education settings.

11. Educational Implications of the Study

The findings of the present study have several important implications for the field of education, particularly in improving students' learning outcomes and overall well-being.

1. The study highlights the importance of sleep quality in enhancing academic performance. Schools should create awareness among students regarding healthy sleep habits and their impact on learning.
2. Teachers can play a key role by sensitizing students about time management, reducing excessive academic pressure, and encouraging balanced study–rest routines.
3. School counselors should identify students with poor sleep patterns and provide appropriate guidance and support to improve their sleep hygiene.
4. Parents should be educated about the importance of maintaining regular sleep schedules for their children and minimizing distractions such as excessive use of electronic devices at night.
5. Educational institutions may incorporate health education programs that focus on adolescent sleep hygiene, mental well-being, and lifestyle management.
6. Since sleep quality significantly predicts academic performance, policymakers should consider integrating wellness and life-skill education into school curricula.
7. Schools may reduce unnecessary academic workload and promote a balanced approach to academics and co-curricular activities.
8. The findings also suggest that improving sleep quality can be an effective strategy for enhancing students' academic achievement without additional academic pressure.

12. Recommendations of the Study

1. Students should be encouraged to maintain a regular sleep schedule by going to bed and waking up at consistent times every day.
2. Schools should conduct awareness programmes on the importance of sleep hygiene and its impact on academic performance.
3. Teachers should avoid assigning excessive homework that may lead to reduced sleep time among students.
4. Parents should monitor their children's sleep patterns and limit the use of mobile phones, television, and other electronic devices during night hours.

5. School authorities may introduce counselling services to support students experiencing sleep-related problems or academic stress.
6. Health education modules focusing on lifestyle management and sleep habits should be integrated into the school curriculum.
7. Students should be guided to reduce late-night study habits and adopt effective time management strategies.
8. Further workshops and seminars should be organized to promote awareness about the importance of mental health, physical well-being, and quality sleep among adolescents.

13. Suggestions for Future Research

1. Future studies may be conducted on a larger and more diverse sample covering different states or regions to improve generalizability of the findings.
2. Similar studies can be extended to higher education students such as college and university students to compare sleep quality and academic performance across educational levels.
3. Future research may include additional psychological variables such as stress, anxiety, and depression to better understand factors influencing academic performance.
4. Longitudinal studies can be conducted to examine changes in sleep quality and academic performance over time.
5. Experimental or intervention-based studies may be carried out to improve sleep quality and observe its direct impact on academic performance.
6. Future studies may explore the role of digital device usage and screen time as a mediator between sleep quality and academic performance.
7. Qualitative studies may also be conducted to gain in-depth insights into students' sleep-related experiences and academic challenges.
8. Comparative studies between urban and rural or public and private school students may provide deeper understanding of contextual differences.

14. Limitations of the Study

1. The study was limited to a sample of 300 high school students, which may restrict the generalizability of the findings to a larger population.
2. The study was confined to selected schools only; therefore, the results may not represent all high school students in different regions.
3. The data were based on self-reported responses for sleep quality, which may be subject to response bias and personal interpretation.
4. Academic performance was measured using school examination scores, which may vary across schools in terms of evaluation standards.
5. The study focused only on selected demographic variables such as gender, locality, medium of instruction, type of institution, and parents' annual income, while other possible influencing factors were not considered.
6. The study adopted a cross-sectional design; hence, it does not establish causality between sleep quality and academic performance.
7. Environmental and psychological factors influencing sleep quality were not deeply examined in this study.

8. The findings are limited to the time period during which the data were collected and may not reflect long-term patterns.

15. Conclusion

The present study examined sleep quality and academic performance among high school students and explored the relationship between these variables. The findings revealed that most students exhibited high levels of both sleep quality and academic performance, indicating generally favorable conditions among the sampled population.

The study further concluded that there were no significant differences in sleep quality and academic performance with respect to selected demographic variables such as gender, locality, medium of instruction, type of institution, and parents' annual income. This suggests that these background variables do not have a major influence on students' sleep quality and academic outcomes.

A significant positive relationship was found between sleep quality and academic performance, indicating that students with better sleep quality tend to perform better academically. Furthermore, sleep quality was found to be a significant predictor of academic performance, explaining a considerable proportion of variance in students' academic achievement.

Overall, the study highlights the crucial role of adequate sleep in enhancing students' learning outcomes. It emphasizes the need for students, parents, and educators to promote healthy sleep habits to improve academic performance and overall well-being among high school students.

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