

Balancing Body, Mind and Grades: A Study of Physical Activity, Sleep Quality, and Academic Achievement Among School Students

Dr. Vishal Singh Sengar

Department of Physical Education and Sports the Bhopal School of Social Sciences, Bhopal (M.P.)

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ABSTRACT

The quality of sleep and physical activity play a vital role in overall student health and achievement. As the academic pressure, lack of physical activity, and the excessive amount of time spent on screens have increased in recent years, student physical health and sleep quality have been negatively affected. The present study utilizes a correlational research design to study the interrelatedness of physical activity, sleep quality and academic performance among students. The goal of this study is to determine if students who participate in more active types of exercise with subsequent improvements in sleep quality would exhibit higher levels of academic performance than students who do not participate in as much activity or who have trouble falling asleep. Students who voluntarily participated in the study completed a structured questionnaire that included questions regarding their physical activity, sleep activity, and academic achievement. Data were analyzed using descriptive statistics, correlational analysis, and reliability testing. Results of the study indicated a significant positive relationship existed between physical activity, sleep quality and academic achievement. The findings of this study suggest that post-secondary educational institutions should promote healthy lifestyle practices in order to increase student academic performance and overall well-being.

Keywords: Physical Activity, Sleep Quality, Academic Achievement, Student Wellness, Correlation Study, Exercise, Education

INTRODUCTION

In today's fast-paced and technology-driven world, students' academic achievement is influenced not only by intellectual ability but also by various physical, psychological, and lifestyle-related factors. Among these, physical activity and sleep quality play a significant role in shaping students' cognitive performance, emotional well-being, concentration, memory retention, and overall academic success. Regular physical activity helps improve blood circulation, enhances brain functioning, reduces stress, and promotes better focus and discipline, while adequate and quality sleep supports learning, memory consolidation, emotional stability, and mental alertness. However, modern lifestyle patterns such as sedentary behavior, excessive screen time, academic pressure, social media usage, unhealthy routines, and irregular sleeping habits have negatively affected students' health and learning efficiency. Increasing digital distractions and stress levels have contributed to poor sleep quality, reduced physical activity, anxiety, fatigue, and lower classroom participation among students. Previous studies have shown that students who maintain healthy lifestyle behaviors, including regular exercise and proper sleep patterns, tend to perform better academically and experience improved psychological well-being compared to those with unhealthy habits. Additionally, holistic wellness practices involving balanced nutrition, stress management, mindfulness, and controlled use of technology have been found to positively influence students' educational outcomes and overall quality of life. Therefore, understanding the interrelationship between physical activity, sleep quality, mental health, lifestyle behaviors, and academic achievement has become increasingly important in promoting student wellness and enhancing educational performance. This study aims to explore these relationships through a correlational research approach to better understand how physical activity and sleep quality contribute to students' academic achievement and overall well-being.

Multiple factors such as physical, psychological, and even lifestyle choices affect academic achievement. Physical activity and quality of sleep alone can significantly impact student achievement in the classrooms and

in their cognitive functioning. Physical activity increases blood flow, enhances concentration, aids memory retention, and contributes positively to mental well-being; while adequate sleep enhances a student's ability to learn, maintain emotional stability, and perform cognitively. More recently, students have been increasingly living sedentary lifestyles and experiencing high levels of academic stress resulting in reduced physical activity. Furthermore, due to variety of factors that include but are not limited to: late-night screens, inconsistent sleep patterns, and not enough sleep, students struggle with concentration and the ability to learn.

Researchers have found that students who regularly engage in physical activity and sleep well are more likely to achieve better academic success than those who do not. It is believed that physical activity can help improve concentration while good sleep helps retain thoughts and strengthen the ability to process information. A complete understanding of how physical activity and sleep quality are related to academic achievement may help promote students well being as well as increasing educational success. This study will utilize a correlation research design in order to examine how physical activity, sleep quality, and academic achievement affect one another

REVIEW OF LITERATURE

Physical Activity and Academic Achievement

Similarly, research conducted by Charles H. Hillman indicated that physically active students have higher levels of concentration and process information more quickly, as well as have improved problem-solving skills than do their inactive counterparts. In addition, his research indicated that students who engage in aerobic activity benefit from improved executive function and productivity. Furthermore, academic studies on students from elementary through college levels have shown that participation in sports and fitness activities helps to develop better discipline, time management skills, and confidence. Finally, students involved in regular physical activity generally exhibit greater motivation and participation in the classroom, leading to improved academic results.

Sleep Quality and Learning

The quality of one's sleep can greatly affect how successful they are academically as well as the mental state of the student. Research by Jan F. Dewald indicates sleep is necessary for properly consolidating memories, concentrating and functioning cognitively. If one gets poor quality sleep, then it negatively impacts focus, control over emotions, and test scores. Sleep deprivation in students is associated with lesser academic performance, less productivity, and increased stress, fatigue, and difficulty retaining information. Not getting sufficient hours of sleep can also affect a student's ability to make decisions and participation in class.

Students who have irregular sleeping habits tend to have a low motivation level and lower grades. Hannah G. Lund's research indicated that the academic demands placed on college students with prolonged exposure to screens and social media cause these students to have sleep disturbances which greatly affect both student learning efficiency and psychological health and wellness. Additionally, studies have suggested that students who practice good sleep hygiene have an increased emotional stability, better academic attention, and a greater cognitive function.

Physical Activity and Sleep Quality

Several studies support the idea that physical activity has a positive effect on the quality of sleep. Regularly participating in exercise can improve the amount of time spent sleeping, the efficiency of sleep, and decrease stress levels. Individuals who regularly engage in physical activity typically experience deeper, restorative sleep than those who do not.

Research shows that moderate amounts of exercise help to regulate the circadian rhythms of the body, and this regulation helps to alleviate symptoms of anxiety and depression through improved sleep patterns. In addition, moderate amounts of exercise have been shown to reduce insomnia and daytime fatigue among college students.

According to a recent study published in a sleep and wellness research journal, college students who regularly participate in aerobic exercise reported better satisfaction with their sleep and less stress in their daily lives. Additionally, increased physical activity was related to fewer nighttime awakenings and improved sleep consistency. Researchers have identified a link between improving overall fitness and improving mental relaxation, which contributes to increased quality of sleep and ultimately better emotional health.

Lifestyle Behaviors and Student Wellness

A student's wellness and academic success are impacted by their lifestyle choices. Regular exercise, healthy eating, getting enough sleep, managing stress, and reducing screen time all help to improve how healthy a student is and how successful they are in school. Studies show students who lead healthy lifestyles have greater self-esteem, can control their emotions better, and are more motivated to succeed than students with a sedentary lifestyle, poor nutrition, too much time spent on screens, and poor sleeping habits. Several studies about student wellness show how the use of balanced lifestyle choices increases energy levels, productivity, and participation in class for all students. In addition, the use of wellness-based lifestyle choices helps students reduce anxiety level, increase academic performance, and experience less emotional burnout. Finally, new research shows that using holistic methods that combine physical activity, mindfulness, nutrition and sleep hygiene results in a better quality of life for students, and better academic achievement.

Screen Time, Digital Distractions, and Academic Performance

Students are at risk due to too much digital activity in terms of both health and educational achievement. Numerous studies have noted how long hours spent using smartphone or social media create a phenomenon called Digital Fatigue by creating distractions from studying and limiting the ability of students to concentrate and produce work by creating an inability to focus.

A study also found that students who spend too much time on digital devices experience difficulty sleeping because of the blue light emitted from the screens and from using the internet late at night. There is a direct link between high digital exposure and higher levels of anxiety and stress as well as increased procrastination.

Additionally, when studying, researchers have determined that there is a significant negative impact on memory retention as well as learning efficiency when students are distracted by digital activities. Many students engage in multi-tasking with social media during times when they should be studying which reduces a student's ability to concentrate and subsequently perform in the classroom. The combination of using technology in a regulated and balanced fashion and engaging in health behaviors can effectively enhance student's academic success without adversely impacting their overall health and wellness.

Researchers have found that students who spend long hours using digital devices have disrupted sleep patterns due to late-night internet use and blue light emitted from their devices. Additionally, prolonged exposure to digital devices increases the stress and anxiety of the average student, as well as contributing to procrastination. Researchers have also found that using a digital media, while studying significantly reduces the results of memory retention and learning efficiency among students. Students who multitask between social media and academic-related tasks will be less focused and perform poorly in the classroom. However, if students use technology in a controlled and balanced manner, along with good lifestyle behaviors, they can experience academic results without compromising their wellness.

Mental Health, Stress, and Academic Achievement

Mental health matters greatly for a student's ability to do well and feel satisfied in his or her life. For many students, school related stressors such as pressure to perform academically, competition with peers, and an imbalanced lifestyle contribute to feelings of stress, anxiety, and/or emotional exhaustion. Research shows that students who participate in physical activities and have regular sleeping patterns report less stress and more emotional stability than students who don't engage in regular physical activity or do not have good sleep habits. Regular exercise and adequate sleep are each helpful in regulating the hormones that help control stress a mood.

Studies show that students suffering from chronic stress tend to receive lower grades, experience difficulty concentrating, and/or lack motivation compared to students who are not chronically stressed. Students who manage their stress by participating in activities such as yoga or meditation, using mindfulness techniques, and engaging in regular physical activity, typically experience improved mental well-being and success within their education.

Furthermore, students experiencing relatively high levels of psychological well-being, tend to demonstrate greater self-efficacy, better communication and social skills, and higher levels of participation in their classroom settings.

Holistic Wellness and Educational Outcomes

There is a growing trend in contemporary educational research of the correlation between academic achievement and holistic well-being. Holistic well-being includes physical wellness, mental well-being, emotional stability, social connectedness, and healthy living practices. Research has shown that students who practice balanced well-being are more resilient, have greater ability to learn and achieve larger academic outcomes. Institutions of higher education that provides wellness programs, fitness activities, mindfulness sessions, and mental health awareness demonstrate higher student engagement and satisfaction. The integration of wellness oriented educational policies is vital for supporting sustainable academic success and overall development of students.

Objectives of the Study

1. To examine the relationship between physical activity and academic achievement among students.
2. To analyze the relationship between sleep quality and academic achievement.
3. To study the association between physical activity and sleep quality.
4. To identify whether healthy lifestyle behaviors influence students' academic performance.
5. To provide suggestions for improving students' wellness and educational outcomes.

Research Methodology

The present study follows a descriptive and correlational research design to examine the interrelationship between physical activity, sleep quality, and academic achievement among students. The population of the study consists of students from schools, colleges, and universities. A sample size of 200 students was selected using the convenience sampling technique. Both primary and secondary sources of data were used for the study. Primary data were collected through a structured questionnaire based on a 5-point Likert Scale, where respondents expressed their level of agreement ranging from strongly disagree to strongly agree. Secondary data were gathered from journals, books, reports, research articles, and other academic sources related to student wellness and academic performance. For data analysis, various statistical tools were applied, including descriptive statistics to summarize and interpret respondents' opinions, Cronbach's Alpha to test the reliability and internal consistency of the questionnaire, and Pearson Correlation Analysis to examine the relationship between physical activity, sleep quality, and academic achievement among students.

Hypothesis of the Study

- H0: There is no significant relationship between physical activity, sleep quality, and academic achievement.
- H1: There is a significant relationship between physical activity, sleep quality, and academic achievement.

Data Analysis and Interpretation

Reliability Analysis

Construct	Cronbach's Alpha
Physical Activity	0.84
Sleep Quality	0.86
Academic Achievement	0.82

Interpretation

Cronbach's Alpha of 0.84 for the physical activity construct suggests a good reliable index of internal consistency among measures of student physical activity behavior, such as exercise, sports participation, fitness program participation, and how active they are overall. This support for the fact that these physical activity variables consistently measure the same concept. The strong reliability score provides support that the responses collected are reliable, stable, and appropriate for advanced statistical analysis. The sleep quality construct recorded the highest Cronbach's Alpha of all constructs (0.86) and has very good reliability. This provides support for the notion that items measuring how long students sleep, how restful their sleep is, how often they think about their sleeping habits, and how they perceive their sleeping experiences were all very consistent with one another. Therefore, the good reliability of the construct supports the idea that the sleep quality construct effectively measures the construct among students, minimizing measurement error. Therefore, the responses regarding sleep quality can be considered accurate and reliable for use in research analysis.

Descriptive Statistics

Variable	Mean
Physical Activity	4.01
Sleep Quality	3.89
Academic Achievement	4.05

Results indicate that students generally report being active exercising, getting good sleep and achieving good results in their classes. Students' average score on the physical activity scale is 4.01, suggesting that almost all students are exercising or doing something related to fitness. The average score on the sleep quality scale is 3.89, meaning that most students are getting decent amounts of sleep but could be having some trouble getting enough sleep for one reason or another. Students' average score on the academic achievement scale is 4.05, indicating generally that most students are satisfied with their academic performance and their progress toward their degree. In summary, the results indicate that the lifestyle of students are healthy and balanced, which will likely contribute to their overall academic success.

Correlation Analysis

Pearson Correlation

Variables	Physical Activity	Sleep Quality	Academic Achievement
Physical Activity	1	0.62**	0.68**
Sleep Quality	0.62**	1	0.71**
Academic Achievement	0.68**	0.71**	1

Note: $p < 0.01$ indicates that the relationships are statistically significant at the 1% level

Relationship between Physical Activity and Sleep Quality ($r = 0.62$)

A correlation coefficient of 0.62 exists between physical activity and quality of sleep. The correlation indicates a moderate to strong relationship between the two variables; therefore, it appears that those who are physically active tend to sleep better than their fewer active peers. Specifically, consistent participation in exercise, sports, yoga and other forms of fitness may be beneficial in improving how long one sleeps, having deeper and more restful sleep, as well as decreasing one's levels of stress and anxiety. Based on this research, physically active students typically experience healthier patterns of sleep than do inactive students. Given that sleeping sufficiently is essential for the recovery of the body's physical health, mental alertness, emotional well-being, and overall quality of life, these researchers' findings emphasize the need to promote physically active lifestyles to encourage sound sleep and thus, an improved quality of life.

Relationship between Physical Activity and Academic Achievement ($r=0.68$)

The correlation coefficient between physical activity and academic achievement is 0.68, showing a strong positive relationship between these variables. This indicates that students who engage more frequently in physical activities tend to achieve better academic performance. Physical activity may enhance concentration, memory, cognitive functioning, and classroom participation while also reducing stress, fatigue, and mental exhaustion. Students who regularly participate in sports, exercise, fitness programs, or recreational activities are likely to remain more energetic, focused, and motivated in their studies. As a result, students who regularly participate in sports, exercise, fitness programs, or recreational activities are likely to remain more energetic, focused, and motivated in their studies. As a result, they may perform better in examinations, assignments, and overall academic tasks. The finding supports the idea that physical well-being and academic success are closely connected, emphasizing the importance of integrating physical activity into students' daily routines for holistic development.

Relationship between Sleep Quality and Academic Achievement ($r = 0.71$)

The correlation between sleep quality and academic performance was measured using a Pearson product-moment correlation coefficient and found to have a significance of 0.71 (indicating a substantial correlation). This suggests that students who sleep better usually do better academically. Quality sleep helps with memory consolidation, attention span, problem-solving skills, emotion regulation, and how well alert in the classroom, have the ability to store information effectively, and can perform their academic performance and overall student success.

Findings of the Study

The results from this research support the hypothesis that practicing and adhering to a healthy way of living will play an important role in student's achievement academically and their overall development. The data from this research study revealed students who participated in regular physical activities such as sports, exercising, yoga, and fitness routines had increased concentration in their academics, better attention in class and greater participation in class activities. In addition, physical activity not only improved the fitness level of students but it also decreased their levels of stress, anxiety, and mental fatigue; thus, enabling students to increase their focus and ability to accomplish academic tasks. Students who lived an active lifestyle performed at a higher level of energy, motivation and discipline when it came to fulfilling their academic and personal responsibilities.

The study demonstrated the impact of good sleep on the academic success and learning capability of students. Students who got enough quality sleep and did not have their nightly sleep interrupted, were better able to recall what they had learned, to understand what they had been taught, were more effective problem solvers, and were emotionally stable. Quality sleep kept them mentally alert during class and exam time, while students who did not have good sleep habits, were tired, could not concentrate, were not motivated to learn, and performed poorly on tests. The results of this study indicate that sleep plays an important role in physical recovery and is also needed for proper cognitive function, it is a prerequisite for academic success.

Moreover, the study provided evidence demonstrating a considerable positive correlation between physical activity and the quality of sleep, indicating that students who participated in physical activities on a more regular basis experienced superior quality of sleep than those who engaged in less or no physical activity. Regular

exercise is likely to assist in regulating an individual's sleep cycle, decreasing their levels of stress, as well as enhancing their overall state of mental health, which in turn increases their ability to function effectively academically. Sleep quality was determined to be the most significant predictor of an individual's academic success, which indicates how much the quality of sleep an individual receives can have a tremendous impact on how well they perform in school. Thus, this research indicates that even though students may be performing at a high level academically due to increased effort, inadequate amounts of sleep negatively influences both their ability to learn and to perform to their maximum potential.

The main finding of this research is that students are better able to achieve academically when they have good physical and mental health. Good health habits, such as regular exercise and adequate rest, significantly enhance a student's ability to concentrate, perform at a higher level of academic achievement and create emotional stability in their lives. The research also showed there is a need for schools, colleges, parents, and other educational institutions to assist students in living a more balanced life by encouraging them to lead balanced lives, through being physical active, getting adequate amounts of sleep, and participating in social and recreational activities to support their holistic development in order to achieve long term academic success.

SUGGESTIONS

Schools and universities have an opportunity to provide sports and fitness programs that benefit student's full development. To motivate students to engage in physical activity, schools and universities can host sporting events, yoga classes, fitness programs, outdoor games, and other recreational options. Schools and universities should provide appropriate facilities for physical activity such as gymnasiums, playgrounds, and fitness resource to support a healthy and productive environment for their students. In addition to improving physical health, engaging in physical activity will enhance students' ability to concentrate, be mentally alert, be emotionally healthy and be successful in academics. Through the integration of physical education and wellness activities into daily academic life, school and universities can help their students adopt and maintain a healthier, balanced lifestyle.

In addition to supporting students' academic success and their well-being, students should also be encouraged to establish a regular, healthy sleeping pattern. Keeping a consistent sleep and wake routine helps the body's internal clock, leading to better sleep quality. In addition, adequate sleep allows students to be mentally refreshed, emotionally stable and focused when they learn in a classroom. Proper sleep habits enhance memory, concentration and learning, which all positively impact academic success. Parents and educational institutions should help guide students to manage their time effectively so that they can get the appropriate amount of time for studies, recreation, leisure and sleep.

Furthermore, schools and colleges should regularly conduct awareness raising initiative about sleep hygiene and general wellness through workshops, seminars, counselling sessions, and health campaigns. This will enable students to learn about the significance of having a good night's sleep; managing stress; being physically fit; and maintaining emotional wellbeing. Through educational programs regarding the negative consequences of inadequate sleep; poor lifestyles; and excessive academic pressure, students will set themselves up for success by adopting healthy behaviors (for instance, relaxation techniques; healthy routines; and overall emotional health) that promote additional academic success and general health.

Awareness programs on sleep hygiene and wellness should be conducted continuously in schools and colleges. Furthermore, these types of programs will inform students of the negative effects of sleep deprivation, unhealthy living, and too much academic pressure. Additionally, through education about relaxation techniques, establishing and maintaining healthy routines, and improving emotional health, these programs will encourage students to develop good habits that will positively affect academic performance and contribute to overall wellness.

Educational institutions need to do more to support the pursuit of a balanced lifestyle by encouraging students to establish balance between their academic responsibilities, physical activity, recreation and overall health. Holistic development should be a major consideration in educational institutions, as opposed to just promoting exceptional academic performance. Therefore, it is critically important that educational institutions provide

student with adequate counseling resources, extracurricular events, wellness programs, and recreational activities that will assist them in alleviating stress levels and increasing their overall quality of life. The establishment of a balanced lifestyle can enable students to become more disciplined, motivated, productive, and emotionally resilient, resulting in improved academic outcomes and a healthier lifestyle. Students should limit the use of electronic devices before sleeping, as using electronic equipment (such as cell phone, laptops, tablets, and televisions) during night hours can decrease sleep quality and be detrimental to health due to the blue spectrum of light they emit. Students limiting screen time before bed can better fall asleep and sleep longer while being fatigued during the day and having trouble concentrating on academics. For better health and sleep quality, students should be encouraged to practice healthier bedtime habits, like reading, using relaxation methods or other forms of relaxation, instead of using electronic devices before bed. Decreasing the time spent using electronic devices will improve sleep quality and relaxation and subsequently improve academic performance.

CONCLUSION

This paper examines how physical exercise and sleep impact student's success in school and overall well-being. Most of the evidence in this research article shows that students who live an active lifestyle and sleep adequately will achieve better results in the classroom than those who may lead a more sedentary lifestyle and who suffer from poor sleep quality. The benefits to academic performance for these students are derived from several factors associated with regular physical activity including improved concentration, increased mental alertness, greater involvement with classroom activities, and emotional stability. Good sleep quality has also been found to support academic success through improved memory retention, cognitive function, learning and productivity. In addition, this research shows a strong relationship between physical activity and sleep related to academic performance; thus, it appears that students who are physically active to obtain more restorative sleep. The predictive value of quality of sleep has been established to be the most robust predictor of academic success, thus it is evident that having enough good quality sleep is essential to successful learning and educational attainment. The adverse effects of lifestyle behavior such as lack of physical activity, irregular sleep patterns, excessive screen time, and academic pressure can negatively impact student's health, mental wellness, and performance in an academic setting.

Reliability and correlation analysis confirmed that the research data was trustworthy, reliable, and statistically valid. Descriptive findings indicated that students, on average reported high levels of fitness, quality of sleep, and level of education—all positive behaviors which encourage the importance of maintain a well-balanced lifestyle. Academic success depends not just upon intelligence or classroom learning but also as significantly on physical and mental fitness. When students are encouraged to engage in healthy lifestyle choices, they will, in time, experience increased academic success, improved emotional wellness; and develop as holistically trainable individuals over their adult lives.

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