



Asian Journal of Management and Commerce

E-ISSN: 2708-4523

P-ISSN: 2708-4515

AJMC 2024; 5(1): 274-278

© 2024 AJMC

www.allcommercejournal.com

Received: 20-12-2023

Accepted: 23-01-2024

Dr. Varalakshmi

Undergraduate Students,
Center for Management
Studies, Jain, Deemed to be
University, Bangalore,
Karnataka, India

Dhatri Rathod

Undergraduate Students,
Center for Management
Studies, Jain, Deemed to be
University, Bangalore,
Karnataka, India

Deepam Nirmal Kumar

Undergraduate Students,
Center for Management
Studies, Jain, Deemed to be
University, Bangalore,
Karnataka, India

Dev Sachdeva

Undergraduate Students,
Center for Management
Studies, Jain, Deemed to be
University, Bangalore,
Karnataka, India

Corresponding Author:

Dr. Varalakshmi

Undergraduate Students,
Center for Management
Studies, Jain, Deemed to be
University, Bangalore,
Karnataka, India

Investigating the relationship between sleep patterns and academic performance in college students

Dr. Varalakshmi, Dhatri Rathod, Deepam Nirmal Kumar and Dev Sachdeva

DOI: <https://doi.org/10.22271/27084515.2024.v5.i1d.267>

Abstract

The purpose of this study is to investigate the complex relationship between college students' sleep habits and academic achievement. This study is important because it highlights how important sleep is for people's overall health and cognitive performance when they are pursuing higher education. We carried out a thorough analysis of the body of data on sleep, college students, and academic performance in order to answer this study issue.

The study integrated a number of studies that looked at how college students' academic performance is affected by their sleep duration, quality, regularity, and disruptions. It also took into account the variety of factors that affect students' sleep habits, including their lifestyle choices, extracurricular activities, academic workload, and sociodemographic characteristics.

Initial results show a significant relationship between sleep habits and academic achievement. When compared to their sleep-deprived colleagues, college students who maintain regular sleep schedules, get enough sleep (7-9 hours per night), and have high-quality sleep typically perform better academically. In addition, students who suffer from sleep problems and irregular sleep patterns are more likely to perform less academically and have difficulty with cognitive tasks like problem-solving and memory retention.

Keywords: Puberty, sleep, adolescence, smartphone, development

Introduction

The onset of the pandemic has been associated with a precipitous decline in sleep consistency and sleep quality. Fully 76.8 percent of Indian students' respondents to surveys on reactions to the pandemic report that the coronavirus outbreak has adversely affected their sleep-wake schedules, with 58 percent reporting that they sleep less consistently and have lost at least one hour per night in sleep since the outbreak started. Disturbed dreaming and nightmares are frequent complaints, as is the inability to focus, concentrate, get motivated, or study during the day. Sleep is essential for these very functions.

Matthews (2008). Even small amounts of sleep deprivation significantly degrade these learning-related cognitive functions. Sleep-related learning deficits, furthermore, are exacerbated when the student is challenged with self-paced and self-motivated learning requirements, as is the case in many online learning environments. Sleep measures most tightly associated with learning and memory, and thus academic performance, include sleep consistency (how likely a student is to be awake or asleep at the same time each day), sleep awakenings, disturbed dreaming and overall sleep quality, all measures relatively neglected in the earlier literature.

Among college students, each additional day per week with sleep/dream disturbances increases the probability that students will drop a course by 14 percent and lower GPA (Grade point average) approximately 0.02 points. Sleep consistency, rather than absolute sleep duration, appears to be a particularly potent predictor of academic performance among college students. Studies reported that sleep duration, consistency, and quality for the month and the week before an academic test correlated with better grades and accounted for nearly 25 percent of the variance in academic performance.

Kazim, Anam and Abrar (2011) [8] Studies found that consistent/regular vs irregular sleepers evidence significantly higher GPAs despite reporting similar sleep durations. An increase of 10 points in their sleep consistency scale is associated with an increase of 0.1 in the GPA. Sleep inconsistency is also associated with a greater risk of sleep disorder diagnoses.

Surveys show that up to a third of college students carry sleep disorder diagnoses and that these students are at greater risk for lower GPAs and school drop-out. Sleep disturbances (Inconsistent sleep, frequent awakenings, disturbed dreaming) regardless of sleep disorder diagnosis, are associated with higher drop-out rates and lower GPA in college students.

In addition to sleep consistency, sleep quality is strongly associated with academic performance. The most commonly used measure of sleep quality, the Pittsburgh Sleep Quality Index defines it as optimal sleep-wake schedules, sleep duration, sleep latency, number of arousals, and perceived depth of sleep. Poor sleep quality is frequently reported by college students, with minority and disadvantaged students reporting the most severe and most persistent poor sleep quality. Poor sleep quality in these students significantly predicts decreased academic performance. In summary, sleep is essential for optimal cognitive performance. Sleep consistency and self-report sleep quality are most strongly associated with academic performance.

Review of literature

Puberty

Roth & Bobko (2000) ^[18] the impact of puberty on the link between sleep patterns and academic performance in college students has been the subject of recent research. According to studies, the onset of puberty frequently signals modifications in the architecture of sleep, such as a delayed sleep phase, which causes disturbances in the quantity and quality of teenage sleep. As a result, these changes could have a negative effect on academic results, such as lowered cognitive function, worse memory consolidation, and lower academic achievement all around.

Fredriksen (2004) ^[23] to support college students during this transitional phase, it is essential to comprehend how puberty-related changes in sleep habits interact with academic accomplishment and to apply targeted interventions accordingly.

Sleep

Psychol. Bull (2010). Examining the complex relationship between sleep and academic achievement in college students is essential to comprehending their success and well-being. To measure sleep patterns and quality, researchers use a variety of techniques, such as actigraphy, polysomnography, and self-report surveys. Culpin (2006) ^[25]. According to correlational studies, factors such as reduced attention span, increased daytime sleepiness, and worse cognitive function are associated with lower academic achievement when sleep quality is inadequate. With the ultimate goal of improving students' academic performance and general health, interventional studies investigate tactics including sleep hygiene education, cognitive-behavioural therapy for insomnia, and modifications to academic calendars to maximize sleep quality and length.

Adolescence

Carskadon, (1995) ^[22] in this article, Young people and youthful grown-ups have been characterized by the World Wellbeing Organization as those matured between 10 and 24 a long time. Amid this period of improvement and development, there are several changes taking put, with brain development proceeding all through this period. It is

subsequently not shocking that the science and design of rest contrasts inside this age range. Teenagers are perceived to have a biological delay within the timing of rest onset, which can result in them remaining alert afterward. This can be regularly related with more seasoned young people as demonstrated in a number of studies embraced in this population (Breath, 2010) ^[11].

The reason for usually a alter within the two forms that are included in rest direction; the inborn circadian timing framework and the homeostatic sleep-wake system. A decreased encourage to drop snoozing comes about in young people remaining wakeful afterward; consequently, they have a generally abbreviated rest length. This calculate is especially discernible amid the school a long time, as the time required to rise for the school day remains steady. In any case, the sum of rest required by this populace bunch has not decreased, coming about in a period of relative rest hardship compared with the grown-up populace.

Smartphone

(2010) Today's advanced age, smartphones have gotten to be a necessarily portion of our everyday lives. From communication to amusement, we depend on our smartphones for different exercises all through the day. In any case, the expanding utilize of smartphones has raised concerns approximately its potential effect on rest quality. This writing audit points to investigate the relationship between smartphone utilize and rest quality, drawing on existing investigate and thinks about in this field. Sleep is considered to be a complex condition for human creatures, with the point of guaranteeing physical and mental recuperation. Innovation, counting the cell phone, could be a for young people that guarantees they are continuously accessible to associated, indeed at night.

This considers points to get it the impact of the utilize of smartphones on youthful rest quality. The utilize of electronic hardware plays a vital part in adolescents' lives. There is a negative relationship between the utilize of electronic hardware, such as smartphones, and sleep, for diminishing both the quality and amount of rest. There is moreover a relationship between night-time smartphone utilize, inadequately rest, and mental wellbeing issues.

Physical Development

Recent research on the relationship between college students' sleep habits and academic achievement highlights a dynamic developmental component. Research reveals the ways in which changing sleep patterns during college affect academic performance and cognitive abilities. Developmental trajectories clarify how changes in sleep habits, impacted by social, personal, and environmental factors, affect academic performance. The developmental continuum from adolescent to early adulthood is highlighted by this research, which also highlights the need of sleep for cognitive growth and academic achievement. Comprehending these developmental subtleties facilitates the creation of focused therapies aimed at improving sleep hygiene and academic achievement in college students.

Sleep

The first part of the cycle is non-rem sleep, which is composed of four stages. The first stage comes between being awake and falling asleep. The second is light sleep, when heart rate and breathing regulate and body

temperature drops. The third and fourth stages are deep sleep. Though REM sleep was previously believed to be the most important sleep phase for learning and memory, newer data suggests that non-REM sleep is more important for these tasks, as well as being the more restful and restorative phase of sleep.

As you cycle into REM sleep, the eyes move rapidly behind closed lids, and brain waves are similar to those during wakefulness. Breathe rate increases and the body becomes temporarily paralyzed as we dream.

The cycle then repeats itself, but with each cycle you spend less time in the deeper stages three and four of sleep and more time in REM sleep. On a typical night, you'll cycle through four or five times. Affect Your Sleep Clock Johns Hopkins sleep expert an

Academic performance

Academic performance is important for an institution for the good outcomes that lead to the job performance in the future (Kuncel *et al.* 2005) ^[30]. According to (Hijazi & Naqvi, 2006) ^[31] the academic performance is not affected by age, gender, and place of residence but they also said that those who live near to the university can perform much better than the others who live far from university. Week students, if grouped with good students will do better I academics and it will lead to students graduating on time. Moreover, poor study habits also tend to affect the CGPA of the students.

The academic performance of college students encompasses their ability to meet educational objectives, attain desired grades, and demonstrate proficiency in coursework. It reflects their cognitive abilities, study habits, time management skills, and overall engagement with learning activities, contributing significantly to their future career prospects and personal growth.

Conceptual framework and research hypothesis

The relationship between sleep and academic performance. The conceptual framework for investigating the relationship between sleep and academic performance in college students involves understanding the interplay between sleep quality, sleep quantity, and various academic factors.

Lowry, 2010 Results indicated a significant positive correlation between amount of sleep per night with GPA, and a significant negative correlation between average number of days per week that students obtained less than five hours of sleep and GPA ^[27].

Musshafen *et al.*, 2021 ^[28]. This systematic review and meta-analysis aim to investigate the relationship between sleep and academic performance in students enrolled in secondary education programs in the United States. The study team conducted a literature search of 4 databases-PubMed, Embase, CINAHL, and ERIC-on September 19 and repeated December 17, 2020.

Ahrberg, *et al.* 2016 ^[29]. This study shows that in medical students it is not the generally poor sleepers, who perform worse in the medical board exams. Instead students who will perform worse on their exams seem to be more stressed and suffer from poor sleep quality. However, poor sleep quality may negatively impact test performance as well, creating a vicious circle. Furthermore, the rate of sleep disturbances in medical students should be cause for intervention.

Heather Raley, Jessica Naber, Summer Cross, Michael Perlow Nurs, 2016. The focus of this study was to assess the

student's ability to perform academically in relation to his or her quality of sleep.

This project studied psychological, demographic, educational, and sleep risk factors of decreased academic performance in college undergraduates. Participants (N=867) completed a questionnaire packet and sleep diary.

Methodology

This study aims to find a significant difference between the academic performance of sleep-deprived and the academic performance of those who entered enough sleep. Furthermore, it explored the sleeping patterns and the factors of sleep deprivation and its negative effects.

This exploration was quantitative in nature. In order to collect data, multitudinous hunt on academic databases and journals for applicable papers and studies published have explored the connection between sleep patterns and academics. Scholars with lesser sleep thickness have better academic performance. Scholars with lesser sleep thickness have better academic performance. A morning circadian preference and earlier classes are associated with advanced grades. Latterly high academy launch times may increase sleep duration, but do not constantly increase GPA, but ameliorate mood and well-being. However, screening for a sleep complaint is vital if a pupil is floundering academically bias is under development which may allow scholars to more cover their sleep habits, sleep thickness, chronotype and sleep behaviours. There have been numerous studies that link "unhealthy sleep habits" with dropped cognitive functioning. The current study examined the relationship between grade- point normal (GPA) and sleep, in terms of quality and volume. Aspects included number of nights spent with lower than five hours of sleep during the once week as well as during an average week, number of hours of sleep attained in an average night, as well as the number of "all-nighter's" the scholars had pulled in the once time.

A mixed-methods strategy is commonly used in research methodology to examine the correlation between academic performance and sleep in college students. This approach combines quantitative and qualitative techniques. We have collected all the data and sampling techniques using the questionnaire method. This provided us with the data required to make conclusive decisions regarding the research.

Sampling

Sampling Technique

To guarantee representativeness, random sampling or stratified sampling techniques are frequently used.

Sample Size

Sample sizes can vary based on the requirements for statistical power and the research methodology, but bigger samples are typically recommended to improve generalizability.

Demographics

To control for any confounding variables, participants' age, gender, academic major, and year of study are gathered.

Data collection

Sleeping Habits

Information through questionnaire regarding the quality of

sleep and sleeping habits are recorded.

Academic Performance

Evaluations are based on self-reported academic achievement, standardized test results, GPA, and academic records.

Surveys

Information on variables such as stress levels, lifestyle choices, and time management that affect sleep patterns and academic performance may also be gathered through questionnaires.

Result analysis

Interpretation related to sleep and electronic devices According to the questionnaire survey conducted as the methodology for this research paper, and by cumulating the responses provided, we have come up with a conclusive observation that 68% of students find that electronic devices are the main reason for their lack of sleep which can lead to increased anxiety, impaired driving, and memory problems. Through this, it is also shown that the most used electronic device that leads to lack of sleep in college students is mostly mobile devices. It is proven that most college students tend to use mobile devices at night before falling asleep. This reduces the quality of sleep and their performance in any college related work as well as day to day activities.

Interpretation related to sleep and academic performance/College

After generating 170 responses, the cumulative data collected shows how many students are affected with bad quality of sleep in relation to their academic performance and college stress. 44% of students believe that college stress is the main reason for bad quality or lack of sleep at night and due to this, it is hard to feel well rested and alert during classes as well as study sessions. 52% of these students are also unsatisfied with their current studying habits. However, these students have also shown that they have confidence in their ability to succeed academically regardless of their lack of sleep and college stress. This proves that college students still strive to succeed academically with lack of time and quality of sleep and the stress put on them by college.

Interpretation related to sleep quality and development

The above questionnaire has given us input on how many of the students take naps during the day due to bad quality of sleep at night and how it causes sleep disorders and conditions that may affect the quality of sleep. 36% of the students tend to take naps during the day due to bad quality of sleep at night. This compromises the quality of academic performance of the students that is done during the day. According to the questionnaire however, 41% of the students do not have information on the disorders or conditions that affect the quality of sleep.

Limitations and future scope

There are several restrictions on researching the connection between college students' sleep patterns and their academic achievement. First off, a large portion of the study uses self-reported data, which is prone to bias and subjectivity. Furthermore, because many studies are correlational in

nature, it might be difficult to prove causality and ascertain whether inadequate sleep causes poor academic performance or vice versa. Furthermore, it is difficult to generalize research across a range of student demographics due to individual variations in sleep demands and habits. Finally, unrelated factors like stress, lifestyle choices, and mental health conditions might skew data and make it more difficult to understand how sleep affects academic achievement.

There are a number of reasons why there is great potential for future research on the connection between college students' sleep patterns and their academic achievement. First off, improvements in wearable technology make it possible to track sleep habits more precisely, which gives researchers the ability to collect extensive, real-time data on sleep practices and how they affect academic results. Furthermore, longitudinal studies can provide information on developmental trajectories and possible areas of intervention, as well as the long-term impact of sleep habits on academic attainment.

Furthermore, multidisciplinary methods that combine education, psychology, and neuroscience can improve our comprehension of the fundamental processes relating academic achievement to sleep. Through the clarification of cognitive processes like memory consolidation and attentional mechanisms, specialized interventions catered to the unique requirements of university students can be created by researchers.

Additionally, the value of holistic approaches to students' well-being is becoming increasingly apparent, with sleep serving as a foundation for both academic success and general health. As a result, other studies may examine the larger institutional and cultural elements—such as campus culture, workload, and resource availability—that affect college students' sleep habits.

To promote adequate sleep and improve academic performance among college students, future research on this link should focus on utilizing emerging technology, embracing interdisciplinary approaches, and tackling systemic concerns.

Discussions and Conclusions

Youthful rest misfortune postures a genuine hazard to the physical and passionate wellbeing, scholastic victory, and security of our nation's youth. The predominance and impacts of deficiently rest may be encourage amplified in high-risk youths. Paediatricians have the opportunity to form noteworthy advances into tending to the wellbeing chance that rest misfortune presents through screening and wellbeing instruction endeavours. Numerous of the variables that have been appeared to contribute essentially to the current "epidemic" of inadequately rest in young people, such as electronic media utilize, caffeine utilization, and early school begin times, are possibly modifiable and, as such, are vital intervention points in expectant direction within the clinical setting. On the neighbourhood and national levels, paediatricians have to be for instructive, authoritative, and wellbeing arrangements that advance sound rest and decrease the chance variables for rest misfortune in youths. Rest has an imperative part to play within the wellbeing of young people and young grown-ups, both within the brief and longer term. A number of unfavourable results have been appeared to be related with destitute rest inside this populace. Progressed

acknowledgment of its significance and the evaluation of rest in schedule clinical hone can offer assistance to recognize and oversee issues some time recently longer-term results create. The utilize of basic screening devices can offer assistance and there are a number of online assets that can direct both the clinician and understanding.

In conclusion, our research has shed important light on the connection between college students' sleep habits and their academic achievement. The results point to a strong link between better academic performance and regular, enough sleep. Pupils who make getting enough sleep a priority typically do well in school. This emphasizes how crucial it is to develop sound sleeping practices as a necessary component of a fulfilling college career. Students should strive for a healthy sleep schedule in order to maximize their academic performance. They should understand that getting enough sleep is crucial for both their physical and mental health as well as their academic achievement.

References

1. Lim J, Dinges DF. A meta-analysis of the impact of short-term sleep deprivation on cognitive variables. *Psychol Bull.* 2010 May;136(3):375-89.
2. Surname(s) Initial(s). Advances in medical education and practice. [Journal Abbreviation]. *National Journal of Physiology, Pharmacy and Pharmacology.* Clujul Medical.
3. Mehrunissa Kazim, Anam Abrar. *KUST Medical Journal.* 2011;3(2).
4. Surname(s) Initial(s). *BMC Medical Education.* 2020;12(1):1-6.
5. Wong ML, *et al.* The interplay between sleep and mood in predicting academic functioning, physical health and psychological health: A longitudinal study. *J Psychosom Res.* 2013 Apr;74(4):271-7.
6. Eliasson AH, Lettieri CJ. Early to bed, early to rise! Sleep habits and academic performance in college students. *Sleep Breath.* 2010 Mar;14(1):71-5.
7. Gaultney JF. The prevalence of sleep disorders in college students: Impact on academic performance. *J Am Coll Health.* 2010;59(2):91-7.
8. Rasch B, Born J. About sleep's role in memory. *Physiol Rev.* 2013 Apr;93(2):681-766.
9. Alhola P, Polo-Kantola P. Sleep deprivation: Impact on cognitive performance. *Neuropsychiatr Dis Treat.* 2007;3(5):553-67.
10. Stickgold R, Hobson JA, Fosse R, Fosse M. Sleep, learning, and dreams: off-line memory reprocessing. *Science.* 2001 Nov 2;294(5544):1052-7.
11. Rivas A. Nightmares About Bullying: 36% Of Kids With Sleep Problems Are Victims Of Bullying. Retrieved March 16, 2015, from: <http://www.medicaldaily.com/nightmares-about-bullying-36-kids-sleep-problems-are-victims-bullying-280128>
12. Robbins S, Allen J, Casillas A, Peterson C, Le H. Unravelling the differential effects of motivational and skills, social, and self-management measures from traditional predictors of college outcomes. *J Educ Psychol.* 2006;98:598-616.
13. Roth PL, Bobko P. College grade point average as a personnel selection device: Ethnic group differences and potential adverse impact. *J Appl Psychol.* 2000;85(3):399.
14. Buysse DJ, Hall ML, Strollo PJ, Kamarck TW, Owens J, Lee L, *et al.* Relationships between the Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale (ESS), and clinical/polysomnographic measures in a community sample. *J Clin Sleep Med.* 2008 Dec 15;4(6):563.
15. Chervin RD, Aldrich MS, Pickett R, Christian G. Comparison of the results of the Epworth sleepiness scale and the multiple sleep latency test. *J Psychosom Res.* 1997 Feb;42(2):145-55.
16. Chervin RD, Dillon JE, Archbold KH, Ruzicka DL. Conduct problems and symptoms of sleep disorders in children. *Journal of the American Academy of Child & Adolescent Psychiatry.* 2003;42(2):201-208.
17. Dahl RE, Carskadon MA. Sleep and its disorders in adolescence. In: Ferber R, Kryger MH, eds. *Principles and practice of sleep medicine in the child.* Philadelphia: Saunders; 1995:19-27.
18. Fredriksen K, Rhodes J, Reddy R, Way N. Sleepless in Chicago: Tracking the effects of adolescent sleep loss during the middle school years. *Child development.* 2004;75(1):84-95.
19. Harsh JR, Easley A, LeBourgeois MK. A measure of sleep hygiene. *Sleep.* 2002;25:A316.
20. Ireland JL, Culpin V. The relationship between sleeping problems and aggression, anger, and impulsivity in a population of juvenile and young offenders. *Journal of Adolescent Health.* 2006;38(6):649-655.
21. Jackson TD, Grilo CM, Masheb RM. Teasing history, onset of obesity, current eating disorder psychopathology, body dissatisfaction, and psychological functioning in binge eating disorder. *Obesity Research.* 2000;8(6):451-458.
22. Lowry M, Dean K, Manders K. *Sentience.* 2010;3(2):16-19.
23. Musshafen LA, Tyrone RS, Abdelaziz A, *et al.* *Sleep Medicine.* 2021;83:71-82.
24. Ahrberg K, Dresler M, Niedermaier S, Steiger A, Genzel L. *Madridge J Nurs.* 2016;1(1):11-18.
25. Kuncel NR, Credé M, Thomas LL. The validity of self-reported grade point averages, class ranks, and test scores: A meta-analysis and review of the literature. *Review of educational research.* 2005 Mar;75(1):63-82.
26. Hijazi ST, Naqvi SM. factors affecting students' performance. *Bangladesh E-Journal of Sociology.* 2006 Jan 1;3(1).