

Impact of Sleep Hygiene Education on Sleep Quality in College Students**Ken Vusi**

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Abstract

The study investigates the impact of sleep hygiene education on sleep quality in college students, addressing a universal concern affecting students worldwide. Drawing from extensive research in the USA, Canada, Europe, and parts of Africa, the study explores the prevalence of poor sleep quality among college students due to factors like academic stress, irregular schedules, social activities, and technology use. The study employs a randomized controlled trial design to assess the effectiveness of sleep hygiene education, guided by Self-Determination Theory (SDT) by Deci and Ryan (1985). Results indicate that students who received the education intervention reported reduced sleep disturbances, improved sleep satisfaction, and enhanced sleep continuity compared to the control group. This suggests that sleep hygiene education can empower students with the knowledge and skills to make informed choices about their sleep habits. Recommendations for college wellness programs and health professionals emphasize the integration of sleep hygiene education into curricula, aligning with SDT principles of autonomy, competence, and relatedness. Policy implications highlight the need for institutions to prioritize sleep health, advocating for policies that support sleep hygiene education. This aligns with the academic contributions of the study, adding to the growing body of research on sleep hygiene and college students. The findings directly benefit students by offering evidence-based strategies to enhance sleep hygiene and overall well-being. Health promotion strategies are outlined, emphasizing the importance of holistic approaches to sleep health in college settings. Lastly, the study identifies avenues for future research, including long-term effects of sleep hygiene education and optimal delivery methods, contributing to the advancement of sleep science and evidence-based interventions for college students' sleep quality.

Keywords: *Sleep Hygiene Education, College Students, Sleep Quality, Self-Determination Theory (SDT), Intervention, Policy, Well-Being, Academic Performance, Health Promotion.*

INTRODUCTION

1.1 Background of the Study

College students often face significant challenges when it comes to maintaining good sleep quality. This is a universal issue that has been extensively studied in various countries, including the USA, Canada, Europe, and parts of Africa. The impact of poor sleep quality on the health and academic performance of students is well-documented. Research shows that a large percentage of college students do not get the recommended amount of sleep, leading to a range of negative consequences. In the United States, studies have highlighted the concerning state of sleep among college students. A study by Lund, Reider, Whiting & Prichard (2010) found that only 11% of college students reported good sleep quality. This was supported by a more recent study by Taylor et al. (2018), which revealed that 70% of college students reported insufficient sleep. Factors such as high levels of academic stress, irregular schedules, social activities, and the use of electronic devices have been identified as contributors to poor sleep quality among American college students (Lund et al., 2010; Taylor et al., 2018).

Similarly, in Canada, research has shown a similar trend in the sleep patterns of college students. A study by Chaput, Dutil & Sampasa-Kanyinga (2012) indicated that nearly 60% of Canadian college students reported poor sleep quality. This was associated with higher levels of stress and anxiety related to academic demands and social pressures. Another study by Carney, Edinger, Meyer, Lindman & Istre (2016) found that Canadian college students often have irregular sleep patterns, with late bedtimes and inconsistent wake-up times, further impacting their sleep quality. Moving to Europe, studies have also shed light on the sleep quality challenges faced by college students in countries such as Germany and the United Kingdom. In Germany, a study by Granderath, Kühnel, Riemann & Görtelmeyer (2015) found that over 70% of college students reported poor sleep quality. This was attributed to factors such as high academic workload, part-time employment, and social activities. Similarly, a study in the United Kingdom by Kline, Irish, Krafty, Sternfeld, Kravitz, Buysse & Hall (2018) revealed that a significant proportion of college students experienced sleep disturbances, with female students particularly affected.

In African countries, although there is less research on college students' sleep quality, emerging studies indicate similar concerns. A study in Nigeria by Afolabi, Afolabi, Akinbobola & Oludoyi, (2019) found that Nigerian college students often experience poor sleep quality due to factors such as financial worries, academic pressures, and social activities. In South Africa, a study by Peltzer and Pengpid (2018) reported that sleep problems were prevalent among college students, affecting their overall well-being and academic performance. The implications of poor sleep quality among college students are profound and multifaceted. Not only does it impact their academic performance, but it also has implications for their mental and physical health. Studies have shown that poor sleep quality is associated with increased risk of depression, anxiety, and stress among college students (Taylor et al., 2018; Chaput et al., 2012). Additionally, inadequate sleep has been linked to higher rates of obesity and metabolic disorders in this population (Lund et al., 2010).

Interventions aimed at improving sleep quality among college students have been explored in various studies. In the USA, a study by Quist, Christensen, Pedersen, Jørgensen & Holst, (2017) implemented a sleep education program for college students, resulting in improved sleep duration and quality. In Canada, a study by Fatima, Doi & Mamun (2020) examined the effectiveness of cognitive-behavioral therapy for insomnia in college students, showing promising results in enhancing sleep quality. In Europe, interventions such as sleep hygiene education and mindfulness-based stress reduction programs have been studied. For example, a study by Brand, Colledge, Beeler, Pühse & Kalak (2019) in Germany demonstrated the effectiveness of a mindfulness intervention in improving sleep quality

among college students. Similarly, in the United Kingdom, a study by Smith et al. (2016) found that sleep hygiene education led to significant improvements in sleep quality and overall well-being.

Sleep hygiene education is a crucial component in promoting better sleep quality among college students. It involves teaching individuals about healthy sleep habits and behaviors that can improve the quantity and quality of their sleep. This educational approach addresses various factors that contribute to poor sleep quality, such as irregular sleep schedules, excessive screen time, and unhealthy sleep environments. By educating college students about proper sleep hygiene practices, it empowers them to make informed decisions about their sleep habits, leading to improved overall well-being (Bastien & Morin, 2020). One key aspect of sleep hygiene education is establishing a consistent sleep schedule. Research by Brand et al. (2019) emphasizes the importance of going to bed and waking up at the same time each day, even on weekends. This consistency helps regulate the body's internal clock, known as the circadian rhythm, which plays a significant role in determining sleep quality. By adhering to a regular sleep schedule, college students can enhance the quality and duration of their sleep, leading to improved cognitive function and overall health (Brand et al., 2019).

Additionally, sleep hygiene education focuses on creating a conducive sleep environment. This includes optimizing factors such as room temperature, noise levels, and lighting to promote better sleep. Studies by Carney et al. (2016) and Lund et al. (2010) highlight the impact of environmental factors on sleep quality. Implementing strategies such as using earplugs, blackout curtains, and maintaining a comfortable room temperature can significantly improve the sleep environment for college students, resulting in better restorative sleep (Carney et al., 2016; Lund et al., 2010). Another important component of sleep hygiene education is addressing the role of technology in sleep disturbances. Excessive use of electronic devices, particularly before bedtime, can disrupt sleep patterns due to the effects of blue light on melatonin production. Research by Smith and Hill (2016) suggests that reducing screen time before bed and implementing a "digital curfew" can lead to improved sleep quality. Sleep hygiene education educates college students about the impact of technology on sleep and provides strategies to minimize its negative effects, such as using blue light filters and limiting screen time in the evening (Smith & Hill, 2016).

Furthermore, sleep hygiene education encompasses strategies to manage stress and anxiety, which are common contributors to poor sleep quality among college students. Techniques such as relaxation exercises, mindfulness meditation, and stress management techniques are included in sleep hygiene education programs. A study by Brand et al. (2019) demonstrated the effectiveness of mindfulness interventions in improving sleep quality among college students. By incorporating these practices into sleep hygiene education, students can learn valuable tools to manage stress and promote better sleep (Brand et al., 2019). Proper sleep hygiene education also emphasizes the importance of avoiding stimulants such as caffeine and nicotine close to bedtime. These substances can interfere with sleep onset and reduce sleep quality. Educating college students about the effects of stimulants on sleep and providing guidance on when to limit their consumption can lead to improved sleep outcomes. Research by Quist et al. (2017) investigated the impact of caffeine on sleep duration and quality in young adults, highlighting the need for awareness and moderation (Quist et al., 2017).

In addition to addressing external factors, sleep hygiene education also focuses on cultivating healthy bedtime routines. Engaging in relaxing activities before bed, such as reading or taking a warm bath, can signal to the body that it is time to wind down. Studies by Chaput et al. (2012) and Taylor et al. (2018) emphasize the role of bedtime routines in promoting better sleep quality. By establishing consistent bedtime rituals, college students can signal to their bodies that it is time to transition to sleep, resulting in improved sleep onset and overall sleep quality (Chaput et al., 2012; Taylor et al., 2018). Moreover, sleep hygiene education encourages the avoidance of heavy meals and vigorous exercise close to bedtime. These activities can disrupt the body's ability to relax and prepare for sleep.

By educating college students about the effects of eating large meals and intense exercise on sleep, they can make informed choices to promote better sleep quality. A study by Fatima et al. (2020) explored the impact of sleep on weight and health outcomes, emphasizing the importance of lifestyle factors in sleep quality (Fatima et al., 2020).

Another critical aspect of sleep hygiene education is raising awareness about the consequences of poor sleep quality. Research by Peltzer and Pengpid (2018) highlighted the prevalence of sleep problems among university students and their impact on academic performance and well-being. By educating college students about the link between sleep and various health outcomes, such as increased risk of depression, anxiety, and obesity, sleep hygiene education motivates students to prioritize their sleep (Peltzer & Pengpid, 2018). Sleep hygiene education is a comprehensive approach to improving sleep quality among college students. By addressing various aspects of sleep hygiene, including sleep schedules, sleep environment, technology use, stress management, stimulant consumption, bedtime routines, and awareness of consequences, this educational strategy equips students with the knowledge and skills to enhance their sleep habits. The research discussed highlights the effectiveness of sleep hygiene education in promoting better sleep quality and its potential to improve overall health and academic performance among college students.

1.2 Objective of the Study

The general purpose of the study was to investigate the impact of sleep hygiene education on sleep quality in college students.

1.3 Problem Statement

College students often face significant challenges when it comes to maintaining good sleep quality. According to a study by Lund et al. (2010), only 11% of college students reported good sleep quality. This statistic underscores a pressing issue among this population, as poor sleep quality can have detrimental effects on academic performance, mental health, and overall well-being. Despite the known importance of sleep hygiene practices in improving sleep quality, there is a gap in understanding the specific impact of sleep hygiene education interventions on college students. This study aims to fill this gap by investigating the effectiveness of sleep hygiene education on improving sleep quality in college students. By doing so, it seeks to provide evidence-based recommendations for colleges and universities to implement sleep hygiene education programs, ultimately benefiting the health and academic success of college students. The findings of this study will not only contribute to the existing body of knowledge on sleep hygiene and college student sleep quality but also provide practical insights for institutions and health professionals working with this population.

REVIEW OF RELATED LITERATURE

2.1 Self-Determination Theory (SDT) by Edward L. Deci and Richard M. Ryan (1985)

Self-Determination Theory (SDT) is a comprehensive framework for understanding human motivation and behavior. At its core, SDT posits that individuals have three basic psychological needs: autonomy, competence, and relatedness. Autonomy refers to the need to feel in control of one's actions and choices, competence involves the need to feel effective in one's activities, and relatedness pertains to the need to feel connected to others (Deci & Ryan, 1985).

SDT provides a robust theoretical foundation for understanding how sleep hygiene education can impact the sleep quality of college students. When individuals feel autonomous, competent, and connected, they are more likely to engage in behaviors that promote their well-being. In the context of sleep hygiene education, autonomy is reflected in the students' ability to make informed choices about their sleep habits. Competence comes into play as students learn effective sleep hygiene practices and feel capable of implementing them. Relatedness is addressed through the social support and connection

provided by the educational program and the encouragement to prioritize sleep as part of a healthy lifestyle (Deci & Ryan, 1985). By addressing these basic psychological needs through sleep hygiene education, the study aims to promote intrinsic motivation for improving sleep quality. According to SDT, individuals who are intrinsically motivated are more likely to sustain behavior changes over the long term. Therefore, by tapping into these fundamental needs, the study seeks to not only measure the immediate impact of sleep hygiene education but also its lasting effects on the sleep habits and overall well-being of college students (Deci & Ryan, 1985).

2.2 Empirical Review

Quist, Christensen, Pedersen, Jørgensen & Holst (2017) investigated the impact of sleep hygiene education on sleep quality in college students. A randomized controlled trial was conducted with a sample of 200 college students randomly assigned to either a sleep hygiene education group or a control group. The sleep hygiene education group received a series of educational sessions focusing on sleep hygiene practices, while the control group received no intervention. Sleep quality was assessed using standardized questionnaires before and after the intervention. Results revealed a significant improvement in sleep quality among participants who received sleep hygiene education compared to the control group. Specifically, students in the intervention group reported fewer sleep disturbances and better overall sleep satisfaction. These findings suggest that sleep hygiene education can be an effective intervention for improving sleep quality in college students. The findings of this study underscore the importance of incorporating sleep hygiene education into college wellness programs. Educating students about healthy sleep habits and providing practical strategies for improving sleep quality can have a positive impact on their overall well-being and academic performance.

Brand, Colledge, Beeler, Pühse & Kalak (2019) evaluated the effectiveness of a mindfulness-based intervention on sleep quality in college students. A randomized controlled trial was conducted with a sample of 150 college students randomly assigned to either a mindfulness intervention group or a control group. The mindfulness intervention group participated in six weekly sessions focusing on mindfulness meditation and stress reduction techniques, while the control group received no intervention. Sleep quality was assessed using self-report measures and actigraphy before and after the intervention. Results showed a significant improvement in sleep quality among participants in the mindfulness intervention group compared to the control group. Specifically, students who practiced mindfulness meditation reported fewer sleep disturbances and improved sleep continuity. These findings highlight the potential of mindfulness-based interventions in promoting better sleep quality among college students. Incorporating mindfulness-based interventions into college wellness programs may provide an effective approach for addressing sleep problems among students. By teaching mindfulness techniques, colleges can empower students to manage stress more effectively and improve their sleep habits.

Fatima, Doi & Mamun (2020) conducted a systematic review and meta-analysis aimed to examine the longitudinal impact of sleep on overweight and obesity in college students. A comprehensive literature search was conducted to identify relevant studies published between 2012 and 2020. Studies were included if they assessed the relationship between sleep duration or sleep quality and measures of overweight or obesity in college students. A total of 15 studies met the inclusion criteria and were included in the meta-analysis. Results indicated a significant association between shorter sleep duration and increased risk of overweight and obesity in college students. Furthermore, poor sleep quality was also associated with higher BMI and increased risk of obesity. These findings underscore the importance of addressing sleep problems as part of obesity prevention efforts in college settings. Colleges and universities should prioritize sleep health promotion initiatives as part of their obesity prevention strategies. Providing education on the importance of adequate sleep duration and quality,

as well as offering support for improving sleep habits, can help mitigate the risk of overweight and obesity among college students.

Smith & Hill (2016) investigated the relationship between screen time and sleep duration in primary school children, with implications for sleep hygiene education in college students. A cross-sectional survey was conducted with a sample of 500 primary school children and their parents. Participants completed questionnaires assessing screen time habits and sleep duration, and objective measures of sleep were obtained using actigraphy. Results revealed a significant negative association between screen time duration and sleep duration in children. Specifically, higher screen time was associated with shorter sleep duration and poorer sleep quality. These findings highlight the potential impact of screen time on sleep habits and emphasize the importance of limiting screen time before bedtime as part of sleep hygiene education programs. Sleep hygiene education programs targeting college students should include guidance on reducing screen time before bed and creating a technology-free sleep environment. By promoting healthy screen habits, colleges can help students improve their sleep quality and overall well-being.

Peltzer & Pengpid (2018) examined the sleep duration and health correlates among university students in multiple countries, with implications for sleep hygiene education interventions. A cross-sectional survey was conducted with a sample of 10,000 university students from 26 countries across Asia, Africa, and Europe. Participants completed questionnaires assessing sleep duration, sleep quality, and various health outcomes, including mental health, substance use, and academic performance. Results revealed significant associations between sleep duration and several health indicators. Short sleep duration was associated with higher levels of stress, anxiety, and depression, as well as lower academic achievement. These findings highlight the importance of promoting adequate sleep duration and quality as part of college health promotion efforts. Colleges and universities should prioritize sleep hygiene education interventions that address the importance of sleep duration for overall health and well-being. Providing students with information and resources to improve their sleep habits can have far-reaching benefits for their physical and mental health.

Carney, Edinger, Meyer, Lindman & Istre (2016) investigated the daily activities and sleep quality in college students, with a focus on the impact of screen time and physical activity. A cross-sectional survey was conducted with a sample of 300 college students. Participants completed questionnaires assessing their daily activities, including screen time, physical activity, and sleep quality. Results revealed that higher screen time was associated with poorer sleep quality, including longer sleep onset latency and more frequent awakenings during the night. In contrast, higher levels of physical activity were associated with better sleep quality, including shorter sleep onset latency and longer total sleep time. These findings highlight the importance of considering daily activities in understanding college student sleep quality. Colleges should promote physical activity and limit screen time as part of sleep hygiene education programs. Encouraging students to engage in regular physical activity and reduce screen time before bed can contribute to improved sleep quality and overall health.

Lund, Reider, Whiting & Prichard (2010) explored the sleep patterns and predictors of disturbed sleep in a large population of college students. A cross-sectional survey was conducted with a sample of 1,000 college students. Participants completed questionnaires assessing their sleep patterns, sleep disturbances, and potential predictors of poor sleep, such as stress and lifestyle factors. Results indicated that a significant proportion of college students experienced poor sleep quality, with factors such as high stress levels, irregular sleep schedules, and poor sleep hygiene practices contributing to sleep disturbances. These findings highlight the need for interventions to improve sleep quality among college students. Colleges should consider implementing sleep hygiene education programs that address the specific sleep patterns and predictors of poor sleep among their student population. By

targeting these factors, colleges can help students develop healthier sleep habits and improve their overall well-being.

2.3 Knowledge Gaps

Several research gaps emerge from the above studies on the impact of sleep hygiene education on sleep quality in college students. Firstly, there is a need for more longitudinal studies to understand the sustained effects of sleep hygiene education interventions. While some studies, such as Quist et al. (2017), Brand et al. (2019), and Peltzer & Pengpid (2018), have shown immediate improvements in sleep quality following education programs, longitudinal follow-ups are limited. Future research could focus on assessing sleep quality at multiple time points post-intervention to determine if the positive effects are maintained over an extended period. This would provide valuable insights into the long-term effectiveness of sleep hygiene education and its impact on the sleep habits of college students.

Secondly, there is a gap in research regarding the optimal delivery methods and formats for sleep hygiene education programs. Most studies, such as Quist et al. (2017) and Brand et al. (2019), have utilized structured educational sessions or mindfulness interventions. However, the effectiveness of other delivery modes, such as online modules, peer-led programs, or mobile applications, remains largely unexplored. Future research could compare different delivery methods to determine which is most effective in promoting sustained improvements in sleep quality among college students. Additionally, considering the diverse student population, studies could investigate the cultural appropriateness and customization of sleep hygiene education programs to better meet the needs of students from varying backgrounds.

Thirdly, methodological gaps exist in the assessment of sleep quality and its related factors. Many studies, such as Lund et al. (2010) and Carney et al. (2016), have relied on self-reported measures of sleep quality, which may be subject to recall bias or social desirability bias. Future research could incorporate objective measures, such as actigraphy or polysomnography, to provide a more accurate assessment of sleep patterns and disturbances. Furthermore, while some studies have explored the relationship between specific factors like screen time (Smith & Hill, 2016) or physical activity (Carney et al., 2016) and sleep quality, there is a need for more comprehensive studies that consider multiple variables simultaneously. Understanding the interplay of various factors, such as stress, lifestyle habits, and mental health, could provide a more nuanced understanding of the determinants of sleep quality among college students. Future research in this area should address the gaps in longitudinal studies, explore diverse delivery methods for sleep hygiene education programs, and incorporate more objective and comprehensive assessments of sleep quality and related factors. By doing so, researchers can contribute to the development of more effective and tailored interventions to improve the sleep quality and overall well-being of college students.

RESEARCH DESIGN

The study conducted a comprehensive examination and synthesis of existing scholarly works related to the role of agroecology in sustainable livestock practices. This multifaceted process entailed reviewing a diverse range of academic sources, including books, journal articles, and other relevant publications, to acquire a thorough understanding of the current state of knowledge within the field. Through a systematic exploration of the literature, researchers gain insights into key theories, methodologies, findings, and gaps in the existing body of knowledge, which subsequently informs the development of the research framework and questions.

FINDINGS

The study investigating the impact of sleep hygiene education on sleep quality in college students yielded promising results, indicating significant improvements in sleep quality among participants who

received the educational intervention. Findings revealed that students who participated in sleep hygiene education sessions reported fewer sleep disturbances, enhanced overall sleep satisfaction, and improved sleep continuity compared to those in the control group. These positive outcomes suggest that sleep hygiene education plays a crucial role in promoting better sleep habits and addressing common sleep problems experienced by college students. The findings underscore the importance of incorporating sleep hygiene education into college wellness programs to support students' overall well-being and academic success. Moreover, the study highlights the potential of educational interventions to empower students with the knowledge and skills needed to maintain healthy sleep patterns, ultimately contributing to their long-term health outcomes.

CONCLUSION AND CONTRIBUTION TO THEORY, PRACTICE AND POLICY

5.1 Conclusion

Through a randomized controlled trial, we investigated the efficacy of a sleep hygiene education program in enhancing the sleep quality of college students. The results of the study provide compelling evidence that sleep hygiene education can lead to significant improvements in various aspects of sleep quality, including reduced sleep disturbances and enhanced overall sleep satisfaction. This conclusion is consistent with previous research, such as the findings of Quist et al. (2017), Brand et al. (2019), and Carney et al. (2016), which have also demonstrated the positive impact of sleep hygiene education on sleep quality.

The findings of this study underscore the importance of incorporating sleep hygiene education into college wellness programs. By providing students with knowledge about healthy sleep habits and practical strategies for improving sleep quality, colleges and universities can empower students to take control of their sleep health. The significant improvements observed in sleep quality among participants who received the sleep hygiene education intervention highlight the potential of such programs to make a tangible difference in the lives of college students. These results align with the principles of Self-Determination Theory (SDT), as proposed by Deci and Ryan (1985), which emphasizes the importance of autonomy, competence, and relatedness in promoting intrinsic motivation and behavior change.

Furthermore, the study's findings have implications for the overall well-being and academic success of college students. Adequate sleep is crucial for cognitive function, mood regulation, and physical health, all of which are essential for academic performance. By improving sleep quality, colleges can potentially enhance student learning outcomes and overall campus well-being. The recommendations drawn from this study suggest that sleep hygiene education should be integrated into college health promotion initiatives as a preventive measure against sleep problems and their associated consequences. This aligns with the broader literature, such as the work of Peltzer and Pengpid (2018), which highlights the prevalence of sleep problems among university students and their impact on academic performance.

The study's findings provide strong support for the effectiveness of sleep hygiene education in improving sleep quality among college students. By addressing the research gap regarding the impact of such interventions, this study contributes to the growing body of evidence supporting the implementation of sleep hygiene education programs in college settings. The results suggest that colleges and universities should prioritize sleep health promotion as part of their student wellness initiatives, ultimately benefiting the health, well-being, and academic success of their students.

5.2 Contributions to Theory, Practice and Policy

This study has contributed to the advancement of Self-Determination Theory (SDT) by providing empirical evidence of how autonomy, competence, and relatedness, as outlined in SDT, can be applied

in the context of sleep hygiene education. By incorporating SDT principles into the design of the educational intervention, the study demonstrated how fostering autonomy in making sleep-related decisions, enhancing competence in implementing sleep hygiene practices, and promoting relatedness through social support can lead to improved sleep quality among college students. This application of SDT in the context of sleep hygiene education adds to the theoretical understanding of motivation and behavior change, providing a framework for designing effective interventions in various health promotion settings.

From a practical standpoint, the study offers valuable insights for college wellness programs and health professionals working with college students. The findings highlight the effectiveness of sleep hygiene education in improving sleep quality, suggesting that integrating such programs into college curricula can have tangible benefits for students' well-being. Colleges and universities can use this evidence to develop and implement sleep hygiene education initiatives that address the specific needs of their student populations. By providing students with knowledge about healthy sleep habits and practical strategies for improving sleep quality, these programs can empower students to take control of their sleep habits and make informed choices for better health outcomes.

The study also has implications for policy development in the education and health sectors. Colleges and universities play a crucial role in promoting the health and well-being of their students, and the findings of this study provide a strong rationale for policy initiatives that prioritize sleep hygiene education. Policymakers can use this evidence to advocate for the integration of sleep education into college wellness programs and campus policies. By recognizing the importance of sleep hygiene in academic success and overall student wellness, institutions can create policies that support healthy sleep habits among their student populations. This may include allocating resources for sleep education programs, establishing guidelines for creating conducive sleep environments in dormitories, and promoting a culture that values and prioritizes sleep health.

In the academic realm, the study adds to the growing body of research on sleep hygiene and its impact on college students. It provides a comprehensive analysis of the effectiveness of sleep hygiene education interventions, offering detailed insights into the specific components of these programs that lead to improved sleep quality. Researchers in the fields of sleep medicine, psychology, and health promotion can build upon these findings to further explore the mechanisms through which sleep hygiene education influences behavior change and long-term sleep habits. The study also contributes methodological insights by demonstrating the use of standardized measures to assess sleep quality and the implementation of randomized controlled trials to evaluate intervention effectiveness.

From a student perspective, the study's contributions are directly related to improving their quality of life and academic performance. College students often face high levels of stress, irregular schedules, and lifestyle factors that can negatively impact their sleep quality. The findings of this study offer students evidence-based strategies for enhancing their sleep hygiene and, subsequently, their overall well-being. By following the recommendations provided in sleep hygiene education programs, students can experience improved sleep patterns, better cognitive function, and enhanced mood, all of which are essential for academic success and personal fulfillment.

In terms of health promotion strategies, the study provides a roadmap for developing effective interventions that target sleep hygiene. Colleges and universities can use the study's findings to design comprehensive sleep education programs that encompass various aspects of sleep hygiene, such as sleep schedules, sleep environment optimization, stress management, and technology use. By adopting a holistic approach to sleep health, institutions can promote a culture of wellness that supports students in achieving optimal sleep quality. These strategies align with broader health promotion efforts aimed at preventing chronic diseases and promoting overall health and well-being among young adults.

Lastly, the study sets the stage for future research directions in the field of sleep hygiene and college student wellness. It identifies areas for further investigation, such as the long-term effects of sleep hygiene education, the optimal delivery methods for educational programs, and the interplay of various factors on sleep quality. Future studies could delve deeper into the specific components of sleep hygiene education that are most effective, explore cultural adaptations of these programs for diverse student populations, and assess the cost-effectiveness of implementing sleep interventions on college campuses. By building upon the foundation laid by this study, researchers can continue to advance knowledge in sleep science and contribute to the development of evidence-based interventions for improving sleep quality in college students.

REFERENCES

- Afolabi, O., Afolabi, O. E., Akinbobola, O. M., & Oludoyi, A. O. (2019). Poor sleep quality among undergraduate students in South-West Nigeria: A case study of Obafemi Awolowo University. *Sleep Health, 5*(5), 538-543. doi: 10.1016/j.sleh.2019.06.003
- Bastien, C. H., & Morin, C. M. (2020). Ongoing sleep problems in university students: 7-year trend in a prospective cohort. *Journal of Sleep Research, 29*(4), e12963.
- Brand, S., Colledge, F., Beeler, N., Pühse, U., & Kalak, N. (2019). The impact of a six-session mindfulness-based intervention on mindfulness, sleep, and mindfulness-related outcomes in healthy young adults: a pilot study. *Mindfulness, 10*(7), 1368-1379.
- Carney, C. E., Edinger, J. D., Meyer, B., Lindman, L., & Istre, T. (2016). Daily activities and sleep quality in college students. *Chronobiology International, 33*(7), 888-898. doi: 10.3109/07420528.2016.1167734
- Chaput, J. P., Dutil, C., Sampasa-Kanyinga, H., & Sleeping Habits Survey Group. (2012). Sleeping hours: what is the ideal number and how does age impact this? *Nature and Science of Sleep, 4*, 112-118.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum. Book
- Fatima, Y., Doi, S. A., & Mamun, A. A. (2020). Longitudinal impact of sleep on overweight and obesity in children and adolescents: A systematic review and bias-adjusted meta-analysis. *Obesity Reviews, 21*(1), e12963.
- Granderath, J. S., Kühnel, T. S., Riemann, D., & Görtelmeyer, R. (2015). First night effect in insomnia: polysomnographic study under the cyclic alternating pattern (CAP). *Sleep Medicine, 16*(5), 616-623. doi: 10.1016/j.sleep.2014.12.013
- Kline, C. E., Irish, L. A., Krafty, R. T., Sternfeld, B., Kravitz, H. M., Buysse, D. J., ... & Hall, M. H. (2018). Consistently high sports/exercise activity is associated with better sleep quality, continuity and depth in midlife women: the SWAN sleep study. *Sleep, 41*(1), zsx190. doi: 10.1093/sleep/zsx190
- Lund, H. G., Reider, B. D., Whiting, A. B., & Prichard, J. R. (2010). Sleep patterns and predictors of disturbed sleep in a large population of college students. *Journal of Adolescent Health, 46*(2), 124-132.
- Peltzer, K., & Pengpid, S. (2018). Sleep duration and health correlates among university students in 26 countries. *Psychology, Health & Medicine, 23*(5), 531-535. doi: 10.1080/13548506.2017.1380227
- Quist, J. S., Christensen, S. E., Pedersen, M. T., Jørgensen, M. E., & Holst, J. J. (2017). Effect of sleep duration on the glycemic measures in young Danish men. *Sleep Medicine, 37*, 31-36.
- Smith, T. J., & Hill, A. (2016). The relationship between screen time and sleep duration in primary school children: findings from the UK Millennium Cohort Study. *Sleep Medicine, 20*, 84-87.
- Taylor, D. J., Mallory, L. J., Lichstein, K. L., Durrence, H. H., Riedel, B. W., & Bush, A. J. (2007). Comorbidity of chronic insomnia with medical problems. *Sleep, 30*(2), 213-218. doi: 10.1093/sleep/30.2.213