

SLEEPING CHALLENGES IN COLLEGE STUDENTS

Thesis submitted to the faculty at Stanbridge University in partial fulfillment of the requirements for the degree of Master of Science in Occupational Therapy

by

Hanoak Amanios, Julia Hazen, and Michael Verdoza

Thesis advisor: Enjoli Filemu, OTD, OTR/L, CPAM

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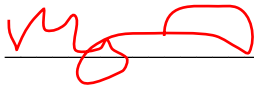
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I certify that I have read *Sleeping Challenges in College Students* by Hanoak Amanios, Julia Hazen, and Michael Verdoza in my opinion this work meets the criteria for approving a thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Occupational Therapy at Stanbridge University.



Enjoli Filemu, OTD, OTR/L, CPAM
Instructor of Occupational Therapy

ACCEPTED



Myka Persson, OTD, OTR/L

Program Director, Master of Science in Occupational Therapy

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Abstract

Sleep is an essential component of an individual's day-to-day routine. It affects our quality of life, functionality, and motivation in occupations. Not getting enough sleep can lead to various health problems such as increased risk of stroke, heart disease, depression, and other chronic health problems (National Heart, Lung, & Blood Institute, 2022). With this, there is a lack of research done on adults between the ages of 20-34, particularly the college student population. Since this age group makes up most of the workforce, more research is needed to determine the factors affecting sleep in this population. This study was directed toward determining what factors affect sleep in college students. We recruited Stanbridge University students by email. We designed and circulated a survey via Google Forms that consisted of a Likert scale and open-ended questions that followed trends seen in our literature review to be common factors affecting sleep in adults. After completion of the survey, study findings showed that increased stress, high technology use, and studying/college assignments were the main themes that were seen to negatively affect participants' quality and duration of sleep.

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Sleeping Challenges in College Students

Sleep is essential because it affects our wellness, quality of life, functionality, and participation in occupations. It is important for both mental and physical health. Not getting enough sleep can immediately cause memory issues, a weakened immune system, mood changes, trouble concentrating, and an increased risk of accidents (Newsom & Singh, 2023). Furthermore, if an individual is consistently not getting enough sleep it can cause health problems later in life such as increased risk of stroke, heart disease, depression, and other chronic health problems (National Heart, Lung, & Blood Institute, 2022). Despite this, few studies have been done on adults who range between the ages of 20 to 34 years old, particularly college students. The studies that have been conducted show a lack of sleep duration and sleep quality among this population. According to Chang et al. (2021), approximately fifty to seventy million adults in the United States have a sleeping disorder or report some sort of sleep challenge, yet studies are primarily focused on individuals above the age of 40. This has created a gap in research where we do not know what factors are negatively affecting sleep in the young adult population, and therefore we have few strategies addressing sleep deficiencies.

Statement of Problem

When we examined the research, most studies did not examine or discuss methods that are being done to assess sleeping challenges that are affecting occupations and the overall health of college students. The U.S. Bureau of Labor Statistics (2022) estimated that 81.9% of individuals aged 25 to 34 are part of the civilian labor force. An article by Smallfield and Molitor (2018) states that factors such as chronic health conditions, overall health status, and daytime activity levels affect sleep quality in the

older adult population. The purpose of this research was to help determine what factors affect sleep in college students because there is still much unknown about the possible negative health outcomes that may arise because of sleep deprivation. There is a need for Occupational Therapy Practitioners (OTPs) to address this problem in order to help create assessments and interventions that create better habits in improving sleep hygiene and routines. An OTP can help address the lack of motivation and engagement to participate in occupations as sleep deprivation affects physical and mental health in college students. Translational research can be an essential implication to examine the effectiveness of Occupational Therapy (OT) interventions. An OTP can then help to create evidence-based practices that address sleeping challenges in college students. Evidence-based practice can also determine the effects of those suffering from inadequate sleep duration to promote positive change. The outcome of our study was to identify the main reasons why college students are not getting enough sleep. A survey can help paint a picture of what underlying conditions lead to a decrease in sleep duration and quality. The goal was to address risk factors for sleep deprivation among college students and strategies to improve their quality of sleep.

Literature Review

Sleep deficiency can lead to mental health problems, poor health, and loss of productivity (National Heart, Lung, & Blood Institute, 2022). Sleeping challenges occur across all ages and contribute to a great deal of emotional and physical obstacles.

According to a study by Kolip et al. (2022), 26.2% of women between the ages of 18 to 31 years old reported struggling with sleep, as opposed to only 13.3% of men.

Throughout the literature, some similarities contribute to sleep disturbances resulting in poorer quality of life and engagement in occupations.

Environmental Factors

There are a multitude of environmental factors that may contribute to adults struggling to receive quality sleep. Environmental factors can range from noise, temperature, tactical senses, housing location, and interpersonal relations. According to Ramar et al. (2021), it is recommended that individuals get at least 7 hours of sleep per night on a regular basis. However, more than one-third of Americans report less than 7 hours of sleep (Liu et al., 2016). When the sleep cycle is disturbed, it can impact one's mood, mental health, physical health, and functioning. A study by Liu et al. (2016) reported that participants in their study could not get enough sleep because they felt unsafe in their environment. Within the population of adults, those who report living in low socioeconomic neighborhoods experienced sleep disturbance because they felt unsafe when hearing violent noises outside. Noises are one major aspect that contributes to disrupted sleep. Studies have shown that individuals who experience high noise exposure are twice as likely to have challenges sleeping. Studies document that "inopportune light exposure, vehicular traffic noise (including air, road, and rail) temperature and humidity which can limit sleep opportunity" (Johnson et al., 2018, p. 3). Environmental factors such as temperature, noise, and housing could also be factors that affect an individual's quality of sleep. According to Yildirim et al. (2020), when an individual has more than four people living in the household, they experience more sleep issues. It was stated by Yildirim et al. that a college student should have between 7-9 hours of sleep a night but because of these environmental factors, their sleep time could

be decreased to 4-6 hours. When environmental factors affect sleep, then daytime dysfunction occurs-which ultimately impacts the individual's quality of occupations. The literature supports the idea that the environment can have a negative influence on adults' sleep cycle, in addition to their mental and physical health.

Work-Life Balance

According to Liu et al. (2016), more than one-third of the U.S. adult population reported less than seven hours of sleep, leading to stressors in their day-to-day routine that will lead to them feeling impaired during activities. When trying to balance stressors, many college students will use exercise to manage their stress. However, it is difficult to manage education, work, personal care, and family matters. A study conducted by Li (2022) examined the impact of aerobic exercise on sleep quality and quantity in college students, as exercise has been proven to “improve cognition and basic quality of life” for an individual (p. 2). Aerobic exercise was shown to improve the mental health of some college students, but the results of their study showed negative impacts on time to sleep, sleep efficiency, and daytime dysfunction. This study demonstrated that an individual who does aerobic exercise before sleep will experience an increased number of sleep disturbances as well as higher sensitivity to their environment. College students who participated in a survey reported that being unemployed caused financial stress and resulted in having a lower sleep duration and an unhealthy sleep schedule (Liu et al., 2016).

A study showed that individuals in a lower socioeconomic class who work night shifts and have financial stress have increased disturbed sleep and fatigue (Härmä et al., 2018, p. 394). As stated by Härmä et al. (2018), it is common for those who work the

night shifts to report issues adjusting to the time difference. Night shifts often require the individual to work late hours ranging from 10 p.m. to past midnight. Adjusting schedules becomes challenging for night-shift workers due to other early morning responsibilities, ultimately leading to sleep deprivation. In a study by Voinescu (2018), 488 adults worked shifts from the hours of 4 p.m. to 7 a.m. and each week, their night shift hours would change causing disturbances in their routines. It was concluded that working the night shift resulted in a mean sleep debt of 2.4 hours. Mental stress is common among night shift workers, which can exacerbate sleep deprivation. This problem is exacerbated by adopting a different sleep schedule when an individual does not have work.

Stress

A large contributing factor to the quality and quantity of sleep a young adult receives is the amount of perceived stress. When under high levels of stress, the body releases stress hormones, particularly cortisol which increases feelings of alertness and increases blood pressure (Zerbini et al., 2020). According to the American Psychological Association (2013), stress can make it harder for an individual to fall asleep and contribute to irregular sleep patterns. A lack of sleep also contributes to feeling agitated and increasing stress, creating a harmful cycle. Young adults are under a lot of pressure as they are learning to be independent and have many new responsibilities, which contribute to feeling stressed. They are entering the workforce, which causes stress and usually causes a shorter sleep duration due to these new responsibilities (Hong et al., 2021). This is demonstrated by the fact that more than one-third of Millennials say they do not sleep at least eight hours a night because they have too many things to do and do not have enough time (American Psychological Association, 2013). College students

receiving less than 8 hours of sleep consistently report sleep deprivation and uncontrolled daytime sleepiness, which results in inferior academic performance, depressed mood, and a decrease in overall health (Drazdowski et al., 2021).

As a result of these factors, college students are actively looking for numerous methods to help with their sleep problems and stress. One method that has conflicting evidence behind its potential sleep aid benefits is the use of marijuana (Drazdowski et al., 2021). Across college campuses nationwide, 2 in 5 students report using marijuana over the past year (Drazdowski et al., 2021). With college students' difficult class schedules, they may be more inclined to use these substances. In a study conducted by Drazdowski et al. (2021), using marijuana to aid in sleep was connected to inadequate sleep efficiency. Moreover, sleep problems associated with daily routines were seen to lead to increased marijuana use. This shows that even if marijuana is temporarily relieving stress for college students, the ability to do daily tasks might be compromised by an irregular sleep schedule that is exacerbated by drug use, leading to added stress and poor sleep quality.

Technology

The use of technology right before sleep contributes to feelings of stress and wakefulness through the emission of blue light. According to Zerbini et al. (2020), blue light emission disrupts the body's production of melatonin and increases cortisol in the body. In addition to causing chemical changes in the body that increase arousal, technology use before bedtime can lead to distractions from sleep (Zerbini et al., 2020). In other words, when trying to fall asleep, many college students get distracted by what they are watching and push their bedtime back further leading to decreased sleep

duration. A study by Ranasinghe et al. (2018) found that a little over 34% of participants listed technology use as a factor leading to sleep deprivation. In addition, 38% of participants felt they lost sleep because of time spent on the internet. Furthermore, another study by Kadian et al. (2019) demonstrated that high-frequency mobile phone users had a decreased quality of sleep, in addition to increased daytime sleepiness when compared to medium and low-frequency phone users. This shows that smartphone dependence and health-related behaviors are associated with sleep quality.

Nutrition

Studies on the relationship between nutrition and sleep demonstrate a correlation between the two. In a study conducted by Wang et al. (2019), improving health-related behaviors such as nutritional behavior, self-actualization, interpersonal support, and stress management behavior can promote improvement in sleep quality. Sleep quality was found to be strongly associated with other poor dietary habits, such as skipping breakfast and eating irregularly (St-Onge et al., 2016). Nutrition may be a contributing factor to the inadequate sleep young adults are receiving in both quality and duration of sleep.

In a systematic review conducted by St-Onge et al. (2016), it was shown that certain foods can affect the quality of sleep both negatively and positively, but little control studies have been done to determine the effects of diets. A review article by Sanlier and Sabuncular (2020) showed that certain diets can improve the quality of sleep and certain foods can negatively impact the individual's sleep patterns. Additionally, while nutrition plays a role in healthy sleep, sleep quality also has an impact on nutrition. Saniler and Sabuncular (2020) also showed that not getting enough sleep results in individuals eating more calories related to fats and carbohydrates.

Gaps in the Research

Based on the research, there seems to be more of a focus on sleep problems concerning the adolescent population and the elderly population. Inadequate levels of research have examined common sleep problems found in the young adult population. This means specific circumstances that affect young adults are not being taken into consideration such as brain development, technology use, learning to be independent, and finding a work-life balance (Paterson et al., 2019). In addition, young adults often must learn how to manage school and work simultaneously. Moreover, studies on this population tend to focus on individuals between the ages of 16-25, among whom there is a large gap in brain development (Luciana, 2013). Future studies may want to consider comparing different age groups to note any differences. The study conducted by Härmä et al. (2018) on the effects of working late-night shifts failed to consider the socioeconomic status of the different members of the population in question. More research is needed into the effects of job placement and other extenuating circumstances that require night shifts on financial status.

Research has also yet to identify the onset time for the long-term effects of sleep deficiency to take hold. Furthermore, many of the studies focus solely on improving sleep quantity and do not take into consideration how to improve the quality of sleep into consideration. According to Paterson et al. (2019), young adults would rather learn how to sleep more effectively than increase the duration of sleep so they can keep up with the demand of their daily lives. Strategies for improving sleep quality were not used such as learning new coping strategies and relaxation techniques. In many of the studies alcohol

use, which can impact sleep, was not taken into consideration. Alcohol use is prevalent in this age group and should be examined (Paterson et al., 2019).

Statement of Purpose, Hypothesis, and Research Question

The primary objective of our study was to explore the sleeping challenges college-aged adults face and determine the prevalence of such challenges. Our research aimed to identify the factors that contribute to poor sleep quality and to help fill the gaps in research. Our research identified several psychological, physical, environmental, lifestyle habits, and technological factors that affect sleep. We sought to gain a comprehensive understanding of the sleeping challenges that adults face and the factors that contribute to poor sleep outcomes. Once we determined these factors, we aimed to investigate potential differences within our target population of college-aged young adults to develop interventions that will address their unique needs and promote better sleep hygiene. Poor sleep quality can result in a decrease in participation in occupations, cognitive function, health, and an increased risk for chronic disease. By identifying factors that contribute to poor sleep quantity and quality, we can help determine what areas must be addressed to better improve sleep and promote overall health. The population we examined was college students who face sleep challenges. Our central research question was therefore “what are the most common contributing factors that lead to sleep challenges in adults?” Using an online survey, we helped determine the specific factors contributing to this population compared to youth and older adults. After analyzing the data, we were able to shed light on factors so that future interventions can then look at what areas must be focused on. This research aimed to provide valuable

insights into sleeping challenges in adults and will then inform researchers to develop effective interventions to improve sleep quantity, quality, and overall health.

Ethical and Legal Considerations

To ensure participant anonymity, identifiable data such as names were not collected. Our participants were assigned informed consent before filling out the survey. In terms of participant safety and feasibility, recruitment was done online via email. The research took extensive measures to maintain participant information and kept data well protected within our tools and documents. Within our study, we also ensured that all documents, files, and data analytic tools were password protected through an approved email platform. In addition, the results were accessible only to researchers. The materials that were needed by participants to take the survey were a link to the survey, internet access, and a device to take the survey on. The data will be stored for the remainder of our program and deleted on June 28th, 2024, until the findings of the study have been determined and statistical analysis has been run. All personal information was de-identified and a numerical system was used instead when the results were reported. All participants who had access to the survey received access via a mass email from Stanbridge University student services. The questions within our survey aimed to target our specific population of college students and are reflective of the responses we have seen throughout other studies. As a result, participation within this population was voluntary and participants were freely given ample amounts of time to answer questions that were indicative of their experiences related to challenges in their sleep. Before completing the survey, participants were given a choice to click the “I agree” or “I do not agree” button to determine participation in the sleep survey. At the beginning of the

survey, there was a statement given to disclose the sole purpose of the study and the results that will help researchers better understand themes they see within sleep challenges in this population.

Theoretical Framework

We have selected the Person-Environment-Occupation-Performance (PEOP) model and the Model of Human Occupation (MOHO) to further analyze the sleeping challenges that persist within the college student population. The PEOP model looks at the relationship of the person, occupation, and environment (Brown, 2018). These three aspects have a direct influence on the individual's occupational performance. Occupational performance cannot be acknowledged outside of the context or environment. The individual's environment to performance, and in this context the environment can be several factors, such as physical, cultural, and social. The environment in our case are barriers to sleep performance, which are temperature, external noises, unsafe environment, and uncomfortable bedding. We, therefore, created survey questions to examine if such environmental factors did affect the individual quality of life and sleep. The PEOP model consists of measures that are identifiable behaviors and tasks that serve a common purpose with the activity, which lead to occupations that are goal-directed over an individual's time. Due to the lack of sleep quality, an individual's participation in other occupations is affected, and there seems to be a direct correlation between poor sleep quantity and performance.

An individual's occupational performance is a constantly changing variable. Unfortunately, when sleep quality is affected, it is harder for the individual to build new routines and habits to better increase participation in occupational performance activities

related to sleep. The MOHO model is applicable to individuals with a wide array of physical, cognitive, and mental impairments that affect sleep quality (Brown, 2018). MOHO looks at the characteristics of the individual and how their environment is associated while engaging in their occupation. The premise of this model is what motivates the individual patterns in their performance and if they can maintain their skills in their occupation. With the implementation of our survey, we hope individuals can reflect on the results to engage in better sleep hygiene. As an overall concept, MOHO contains 3 main elements that are deciding factors for the individual: volition, habituation, and performance capacity (Brown, 2018). Concerning volition, we are looking at the individual motivation towards wanting to participate in activities that cater to better overall sleep. Moreover, with habituation, the organization of their sleep patterns and routines will be analyzed in our study. In terms of performance capacity, with a decrease in sleep quality and quantity, the individual's mental and physical abilities can negatively impact their daily occupations. The MOHO and PEOP models helped with the structuring of our survey and provided insight into the purposeful activities and engagement in sleep performance within our population of college students.

Methodology

The goal of our study was to determine what factors are affecting sleep quality and quantity in college students at Stanbridge University in California. We developed a survey to see if there is a common trend in sleep challenges among college students so that OTPs in the future can implement new interventions to address these sleep issues. Using an online survey, we were able to determine which factors are most affecting college students' sleep duration and quality. The survey consisted of open-ended and

Likert scale questions that follow trends seen in the literature review to be common factors affecting sleep in adults. The first step in our study was to contact Stanbridge University campuses located in Los Angeles, Riverside, and Irvine and ask them to send out our survey via email and the QR code attached. The next step was for the participants to open the survey so they could view the screening/disclosure statement at the beginning of the survey. The criteria to participate in the survey were clearly stated and if individuals did not fall within the met criteria, they were unable to participate in said survey. Students who were eligible to participate in the survey had their results analyzed via Google Forms and Google Sheets.

We were also able to use Google Sheets to determine how many participants fell within the inclusion criteria to take into account the data that would be examined. We set up password protection for the applications that were used to measure the data. With Google Sheets and Excel, we were able to easily interpret our results by showcasing pie charts. The pie charts were able to give a visual representation of data corresponding to questions that illustrated the recurring themes we saw. We inputted data into the applications to run statistical analyses to calculate the trends in the data that we are seeing with sleep problems. Once we were able to compile the data from Google Sheets and Excel, we were able to compare and analyze the leading causes of sleep challenges in the college student population. We were able to analyze the questions on Google Forms and determine the percentages of participants who responded to the Likert scale questions.

Initially, we aimed to get at least 50 college students from the three Stanbridge University campuses located in Irvine, Los Angeles, and Riverside to participate. After sending out the survey, we were able to receive 103 responses. We then contacted the

university's Institutional Review Board to request permission to modify our sample size of participants to $n=100$. According to the inclusion and exclusion criteria, we were able to use $n=65$. We were able to reference the data through Google Sheets and Google Forms to examine the responses according to the inclusion criteria. We closely examined the responses and determined the new numbers in which the sample size represented the Likert scale questions.

Participants

Our population was those that may face sleep challenges and have a lifestyle that impacts the duration of sleep. Our inclusion criteria included students who were between the ages of 20-34, college students at Stanbridge University, reside in California, and have sleep problems. We chose these criteria based on the gaps seen in research for this age group, and the feasibility of access to fellow Stanbridge University students. In addition, participants were excluded if they have been diagnosed with a sleep disorder, are on medication that affects their sleep, were not full-time students, and were under the age of 20 years old and older than 34 years of age. Students who were to fall within the exclusion criteria would not provide an accurate representation of the gaps seen in sleeping challenges for college students. We gained access to this population through the Stanbridge University Media and Communications Department.

Design

We created a survey on Google Forms catered towards college students facing sleep challenges. We chose this format for cost-effectiveness and convenient applications. For us to receive access to participants in the study we used Stanbridge University student services to assist us in sending a mass email across all three campuses.

Access to our survey was available to participants between the dates of May 31st to June 13th, 2023. After June 15th, 2023, we decided to close the study as the participant number was met. Several advantages of the selected methodology included the flexibility of time for the students to take the survey, access to a larger sample size, and ease of use for participants as well as researchers. It also allowed for the confidentiality of the participants, so they felt more comfortable providing honest feedback. This style of research posed a minimal risk and allowed the participants to not provide their name, email, and identify if they participate in drug use. Lastly, it allowed us to be more selective of who participates in the survey so they can reach the target population.

The demographic questions consisted of age, sex, and whether they have a job in addition to school. We made questions screened for exclusion criteria, as well as questions that asked about the different possible factors found in the literature review that are influencing sleep in young adults. This included stress, technology, nutrition, environment, health, substance use, and work-life balance. Environmental factors included room temperature, noise, comfort, and a feeling of safety. In addition, we asked participants about their current sleep schedule and if they are experiencing any impairments related to decreased sleep such as difficulty concentrating or drowsiness.

The Google Form was able to provide an organized and detailed summary view of results in pie chart form. There were 40 questions of which the first eight consisted of open-ended demographic questions and 15 five-point Likert scale questions, and 17 frequency questions. The questions were Likert scale in design with the participants able to respond with “1-strongly agree,” “2-agree,” “3-neutral,” “4-disagree,” or “5-strongly disagree.” The demographic questions consisted of age, sex, full-time student status, job,

and sleep diagnosis. Participants were able to respond with an open answer or yes/no response.

Data Analysis

After examining the results on Google Forms and Google Sheets we analyzed each question on our survey. Likert scale and frequency questions were represented in a pie chart format in Google Forms. With the survey being open for two weeks, we analyzed all the data until June 25th, 2023, to determine the results of the study. Based on the results of our survey we were able to identify the common trends and factors within our sample size that are affecting sleep in the Stanbridge University college student population. To get a true representation of individual data, we retained the exact percentages figured on the pie charts we generated to examine how many participants responded to each question.

Results

To examine if the study's sample showcased a full representation of the common trends seen in sleeping challenges for Stanbridge University college students, a survey consisting of Likert scale and frequency questions was employed. The survey had a total of 100 responses however, from those responses, 35 of the participants did not meet our inclusion criteria. In total we were able to gather 65 participants for our study. Of those 65 participants, when asked "Which of the following do you feel is the main factor that is negatively affecting your sleep?", 35.4% selected stress, 30.8% selected studying/college assignments, and 27.7% selected technology use (Figure 1). When asked "How many hours on average the participant sleeps each night?", 16.9% reported 5 hours, 7.7%

reported 4 hours, 33.8% reported 6 hours, 38.5% reported 7 hours, and 3.1% reported 8 hours of sleep (Figure 2).

Demographic Questions

Further analysis through Google Forms and Google Sheets and with inclusion and exclusion criteria of our 65 participants, (n=65, 100%) full-time students, (n=54, 83%) females, (n=11, 17%) males. All our participants fell between the ages of 20-34 which represents the population that we sought to examine.

Likert Scale: Stress Theme

Of those participants whom we considered for our study, the majority identified stress as a main factor that was negatively affecting sleep. Data from our survey showed n=23 for stress being an overarching theme seen throughout the data analysis. In our survey, question 18 relates to the theme of stress which states “At night I feel as though I have a hard time getting my thoughts to stop racing so I can sleep.” Results from this question showed that the actual combined n=49 responded either “Strongly Agree” n=22 or “Agree” n=27 for stress being a negative factor in affecting sleep. Question 20 also relates to the theme of stress which states “In the past month I have often felt stressed and anxious.” Results from this question showed that the actual combined n=58 responded either “Strongly Agree” n=32 or “Agree” n=26 for often being stressed and anxious in the past month.

Frequency Scale: Technology Theme

Another theme that we came across that is negatively affecting sleep for college students is technology. With our frequency questions, we examined two questions that relate to technology with responses that stated “Always” or “Often” as supported

arguments for technology negatively affecting sleep for college students. For question 25, which states “I use technology (phone, tablet, computer) within one hour of trying to fall asleep.” Results from this question showed combined n=53 responded “Always” n=36 or “Often” n=17. From this data, we analyzed those students using technology within one hour of bedtime lost upwards of four hours of sleep, making them fall short of the recommended eight hours. Question 28 states, “I use technology (phone, tablet, computer) for 4 or more hours per day.” Results from this question showed that n=53 responded either “Always” n=36 responded or “Often” n=17. We determined that our two frequency questions examined high personal usage of technology still resulting in sleep deprivation, which results in fluctuating sleep patterns. As a result, these fluctuating sleeping patterns affect the overall mental and physical health of the college student population.

Studying/College Assignments Theme

The next common theme that we came across that was negatively affecting college students’ sleep was studying/college assignments. Question 11 relates to the theme of studying/college assignments and states “I feel as though I have too much to get done to prioritize sleep.” Results from this question showed that n=41 responded either “Strongly Agree” n=20 or “Agree” n=21. We conclude that within this population, school workload harms sleep and overwhelms the students with a heavy quantity of assignments and studying for exams. Based on these Likert scale questions, we see the themes of stress and studying/college assignments have impacted the sleep quantity of this population with n=63 reporting less than eight hours of sleep.

Discussion

This research study aimed to identify the factors that lead to sleeping challenges for college students through the application of a survey consisting of Likert scale and frequency questions. The data from this study provided information about common themes that are causing sleeping challenges in the college student population and how OTPs can apply certain interventions to help aid in combating these common themes. With prior research lacking in the college student population regarding sleeping challenges, this study emphasizes the importance of OTPs focusing more on sleeping challenges which contributes to further issues found in a typical college student's activities of daily living.

Based on the survey results, 65 participants who qualified for our study identified stress, technology use, and studying/college assignments as the key factors leading to poor sleep quality and duration. Twenty-three participants identified stress, 18 identified technology use, and 20 identified studying/college assignments. After further analyses of our data, 96.9% of participants on average reported less than eight hours of sleep. This set of data shows that the themes of increased stress, high technology use, and overload of school assignments may lead to decreased hours of sleep the average college student receives on a daily level. Furthermore, we created this study to help identify common themes affecting sleep in college students in hopes that it might help OTPs be aware of areas that need to be targeted in addressing sleep. This is due to poor sleep habits and routines that can negatively affect the individual's daily occupations. We have seen in literature that when daily occupations are affected it may also lead to the individual's

mental and physical health to be likewise affected, causing other medical conditions to arise.

When we analyzed the results from the study, we see that school workload has a correlation with college student's sleep quality being affected and as a result high levels of stress arise in this population. We can conclude there is the possibility that the increased workload of school and work-life balance can have the individual worrying about tasks that need to be completed. Based on our survey, this is supported by 61% of the participants stating that "I feel as though I have too much to get done to prioritize sleep." This shows that this is an area that OTPs can help address with such strategies as cognitive behavioral Therapy and energy conservation. In addition, an OTP can apply the MOHO model when it comes to guiding interventions that cater to sleep challenges for college students. According to Brown (2018), the MOHO model contains 3 main elements: volition, habituation, and performance capacity. With volition, OTPs can help determine a student's motivation for wanting to create a better sleep hygiene routine. For habituation, interventions based on analyzing the poor habits that lead to increased technology usage before going to sleep can be applied to students. With performance capacity, OTPs want to help the students prevent any negative effects that affect daily routines, then create tailored interventions to prevent work overload and burnout.

A study conducted by Tester and Foss (2018) stated that common interventions to tackle sleep were the use of cognitive behavioral therapy, physical activity interventions, modifications of the environment, and pacing strategies. Although these are common interventions used to help those with sleep challenges, there is still a lack of evidence that helps measure the effectiveness of these interventions for college students. It is important

to help create a standard measurement to help assess these challenges and become more of a standardized practice for OT. This study aimed to create more awareness of the severity of these factors affecting sleep so that OTPs can incorporate sleep-related interventions. By identifying factors affecting this population we hope in the future OTPs see the need to address sleep to enhance participation and improve the overall quality of college student lives.

Limitations

Some limitations of our study are that Stanbridge University's demographic information shows that 65% of the student population is female meaning that there will be a lower representation of male students. Based on our results, 83% of our research population were female, further supporting that the male population may not have been fully represented. This may limit how we can interpret the data between different genders. In addition, all research is being conducted with Stanbridge University students at the three campuses, all of which are in Southern California. The study's sample is not a full representation of the college student population. This means that participants in the study may not be a full representation of findings to support concrete evidence of sleeping challenges in the 20-34 age range of college students across California or on a national level. Furthermore, our survey was composed of forty questions, which could potentially create survey fatigue among our participants. This fatigue could increase the possibility of inaccurate responses on the survey. Errors in response occur when participants click random answers as opposed to responses that reflect their true feelings. One error that we detected in our open-ended questions was that participants could input contradictory or inaccurate information. One example we saw was one of the survey

questions stating, “Have you been diagnosed with a sleeping disorder?” and another question stated, “Are you on any prescription medications to help aid in sleep?” One participant answered yes to taking medication, but no to being diagnosed with a sleeping disorder. Although the individual may be taking medication to help aid in sleep without a known diagnosed sleep disorder, we could not gain the necessary information due to the nature of our study design. This entry doesn’t provide an accurate representation of the total participants that accounted for the inclusion/exclusion criteria. As a result, there are fewer data entries that we could consider, which decreases the participant numbers.

Another limitation of our study is that it was not done with a preexisting survey, but instead with a self-designed survey. This leads to the survey having less reliability, less validity, and is not peer-reviewed. The survey does not examine sleep now compared to the amount of sleep students got before enrollment in their respective programs. Moreover, there were no questions that asked if sleep deprivation was always a challenge. We designed the survey and compared numerous factors affecting sleep, which made it difficult to identify an accurate statistical test to run to get values to support our data. In addition, the survey was self-administered by the participants leading to reduced control over the study. Some elements that were out of our control included the environment and the ability to clarify questions with the participants. Finally, out of the 100 participants that were surveyed, 65 met our inclusion criteria leading to fewer participants. This created a smaller sample size leading to a decreased representation of the population out of the 100 that initially answered the survey.

Conclusion

Summary

Our study demonstrated that the main factors negatively influencing sleep in college students are stress, technology usage, and school assignments. College students feel an abundance of pressure both external and internal that can lead to toxic stress. This can have negative implications on both mental and physical health. Long-term stress has been linked to an increased risk of heart disease, a weakened immune system, and a greater risk of developing cancer (American Psychological Association, 2013). Students feeling stressed and needing to unwind or distract themselves before bed feeds into the increase in technology use which as previously stated affects the body at a chemical level and negatively impacts sleep. Using a phone, specifically scrolling on a phone releases dopamine which can affect the person's mood based on certain dopamine feedback having them feel less stressed (Haynes & Clements, 2021). However, it was further examined by Haynes and Clements (2021), that dopamine receptors make the individual happy, and spending hours on the phone at night can lead to sleep deprivation. Lastly, students have an abundance of assignments and long lecture hours which both negatively impact sleep and learning. Sitting still and trying to maintain attention on one task requires a lot of energy from students. This leaves students mentally exhausted by the time they get home which can prevent them from working on assignments or feeling too drained to start assignments until late at night which can further impact sleep. In addition, the number of assignments leads to stress which further feeds into this unhealthy cycle.

Recommendations

To eliminate stress and school assignments as the main factors that are negatively affecting sleep, our education system needs to change. The United States has demonstrated a pattern of prioritizing using the education system to form good workers, not good thinkers. Students are taught that it is expected for them to continue working even when it is supposed to be their time to explore interests, engage in social participation, practice self-care, and sleep. This is not a way for people to learn effectively, and nationwide change is necessary to address this problem. For more effective learning, students should have little to no at-home assignments and shorter hours in school.

This is demonstrated to be effective based on Finland's education system where they are ranked higher in education than the U.S. (Jackson, 2016). In Finland, students' overall happiness, well-being, and participation in desired occupations are prioritized. Finland takes a holistic approach to education where they have no standardized tests, promote cooperation between students, and have schools with shorter hours with more breaks (Colagrossi, 2018). To promote sleep and a healthy work-life balance, students start later in the day compared to students in the U.S. and they are given little to no at-home assignments to encourage students to explore their interests and engage in social participation. Moreover, there are increased requirements for teachers where they must have a master's degree and are paid a higher salary than teachers in the U.S. (Colagrossi, 2018). Students are provided additional services and the school provides psychological counseling, individualized guidance to meet each student's needs, free meals to each

student, and access to healthcare. After graduating students have the opportunity to attend a three-year program for vocational training or college for free (Colagrossi, 2018).

Until there is a change in the education system, healthcare professionals like OTPs can help students with strategies to minimize the impact of stress, technology, and school assignments on sleep. Research has found that our perspective of stress can change its impact on the body (Crum & Crum, 2018). Essentially, studies have shown that if stress is perceived as a positive then the body will accept it. The body will then reduce or even eliminate the negative effect of stress, including improving the quality and quantity of sleep. Perceiving stress as a way for the body to motivate or prepare you can also decrease procrastination which could help reduce the stress brought on by unfinished assignments. Healthcare professionals could help students practice this method of changing stress into a positive. Moreover, a therapist could help a student build a schedule to help decrease procrastination and promote work-life balance. OTPs could also help the client create a sleep routine to follow to help signal the body when it is time to sleep so that melatonin is released at the same time each day and the body's circadian rhythm is regulated (Pacheco & Tal, 2023). Lastly, OTPs could recommend that their client limit technology use one to two hours before bed to help decrease the adverse effects of blue light. The therapist could suggest instead that the client read a book, listen to music, or work on a quiet activity like a puzzle or a craft.

Implications for OT

Sleep challenges exist in various age groups in society today and are associated with several poor health outcomes: obesity, diabetes, stroke, heart attacks, and high blood pressure (Johnson et al., 2018). Magnifying sleep research is vital in not only finding out

the core issues of sleep challenges but decreasing the public health burden as well. OT has the potential to carve out an important role in improving sleep for adults (Smallfield & Molitor, 2018). Researchers need to pursue the evidence base for interventions geared towards improving sleep outcomes. In addition, research regarding these interventions and the correlation between the improvement of sleep and activities of daily living is vital in supporting OTPs role in sleep challenges for adults. According to a study conducted by Smallfield and Molitor (2018), an intervention that can be part of customary OT services to adults with sleep challenges includes one-to-one single-element cognitive behavioral interventions such as cognitive computer training or educational sessions. These cognitive behavioral interventions included relaxation techniques, health education, sleep hygiene education, and sleep disorders. Improved sleep quality, latency, and increased sleep efficiency resulted from these interventions. OTPs can integrate these interventions into daily self-care when adults' involvement in activities of daily living is diminished due to sleep challenges.

References

- American Psychological Association. (2013). *Stress and sleep*.
<https://www.apa.org/news/press/releases/stress/2013/sleep>
- Brown, C. (2018). Ecological models in occupational therapy. In B. A. Schell & G. Gillen (Eds.), *Willard and Spackman's Occupational Therapy* (13th ed., pp. 622-632). Wolters Kluwer.
- Chang, A. K., Lee, K. H., Chang, C. M., & Choi, J. Y. (2021). Factors affecting the quality of sleep in young adults. *Journal of Korean Academy of Community Health Nursing*, 32(4), 497–506. <https://doi.org/10.12799/jkachn.2021.32.4.497>
- Colagrossi, M. (2018). *10 reasons why Finland's education system is the best in the world*. World Economic Forum. <https://www.weforum.org/agenda/2018/09/10-reasons-why-finlands-education-system-is-the-best-in-the-world>
- Crum, A., & Crum, T. (2018). *Stress can be a good thing if you know how to use it*. Harvard Business Review. <https://hbr.org/2015/09/stress-can-be-a-good-thing-if-you-know-how-to-use-it>
- Drazdowski, T. K., Kilewer, W. L., & Marzell, M. (2021). College students using marijuana to sleep relates to frequency, problematic use, and sleep problems. *Journal of American College Health*, 69(1), 103-112.
<https://doi.org/10.1080/07448481.2019.1656634>
- Härmä, M., Karhula, K., Ropponen, A., Puttonen, S., Koskinen, A., Ojajarvi, A., Hakola, T., Pentti, J., Oksanen, T., Vahtera, J., & Kivimaki, M. (2018). Association of changes in work shifts and shift intensity with change in fatigue and disturbed

sleep: A within-subject study. *Scandinavian Journal of Work, Environment & Health*, 44(4), 394-402. <https://doi.org/10.5271/sjweh.3730>

Haynes, T., & Clements, R. (2021). *Dopamine, smartphones & you: A battle for your time*. Harvard University. <https://sitn.hms.harvard.edu/flash/2018/dopamine-smartphones-battle-time/>

Hong, K. J. & Cho, S.-H. (2021), Effort–reward imbalance and its effects on satisfaction with working conditions and sleep-related problems: Comparison of nurses and other occupations. *Journal of Nursing Scholarship*, 53, 595-603. <https://doi.org/10.1111/jnu.12666>

Jackson, A. (2016). *Finland has one of the best education systems in the world - here are 4 things it does better than the US*. Business Insider. <https://www.businessinsider.com/how-finland-beats-america-on-education-2016-11#:~:text=While%20Finland's%20ranking%20dropped%20to,the%20US%20ranking%20of%2036.>

Johnson, D. A., Billings, M. E., & Hale, L. (2018). Environmental determinants of insufficient sleep and sleep disorders: Implications for population health. *Current Epidemiology Reports*, 5(2), 61–69. <https://doi.org/10.1007/s40471-018-0139-y>

Kadian, A., Mittal, R., & Gupta, M. C. (2019). Mobile phone use and its effect on quality of sleep in medical undergraduate students at a tertiary care hospital. *Open Journal of Psychiatry & Allied Sciences*, 10(2), 129–131. <https://doi.org/10.5958/2394-2061.2019.00028.4>

- Kolip, P., Kuhnert, R., & Sab, A. C. (2022). Social, health-related, and environmental factors influencing sleep problems of children, adolescents, and young adults. *Journal of Health Monitoring*, 7(Suppl 2), 2-19. <https://doi.org/10.25646/9879>
- Li, L. (2022). Effects of aerobic exercise on sleep quality and mental health of college students. *Occupational Therapy International*, 2022, 1-9. <https://doi.org/10.1155/2022/8366857>
- Liu, Y., Wheaton, A. G., Chapman, D. P., Cunningham, T. J., Lu, H., & Croft, J. B. (2016). Prevalence of healthy sleep duration among adults – United States, 2014. *MMWR Morbidity Mortality Weekly Report*, 65(6), 137-141. <http://doi.org/10.15585/mmwr.mm6506a1>
- Luciana, M. (2013). Adolescent brain development in normality and psychopathology. *Development and Psychopathology*, 25(4pt2), 1325-1345. <https://doi.org/10.1017/S0954579413000643>
- National Heart, Lung, and Blood Institute. (2022). *What are sleep deprivation and deficiency?* U.S. Department of Health and Human Services. <https://www.nhlbi.nih.gov/health/sleep-deprivation#:~:text=Sleep%20deficiency%20is%20linked%20to,adults%2C%20teens%2C%20and%20children.>
- Newsom, R., & Singh, A. (2023). *Effects of sleep deprivation*. Sleep Foundation. <https://www.sleepfoundation.org/sleep-deprivation/effects-of-sleep-deprivation>
- Pacheco, D., & Tal, J. (2023). *Can you change your circadian rhythm?* Sleep Foundation. <https://www.sleepfoundation.org/circadian-rhythm/can-you-change-your-circadian->

[rhythm#:~:text=Wake%20up%20every%20day%20at,adjust%20to%20the%20e](#)
[w%20rhythm.](#)

Paterson, J., Reynolds, A., Duncan, M., Vandelanotte, C., & Ferguson, S. A. (2019).

Barriers and enablers to modifying sleep behavior in adolescents and young adults: A qualitative investigation. *Behavioral Sleep Medicine, 17*(1), 1–11.

<https://doi.org/10.1080/15402002.2016.1266489>

Ramar, K., Malhotra, R. K., Carden, K. A., Martin, J. L., Feinberg-Abbasi, F., Aurora, R.

N., Kapur, V. K., Olson, E. J., Rosen, C. L., Rowley, J. A., Shelgikar, A. V., &

Trotti, L. M (2021). Sleep is essential to health: An American Academy of Sleep Medicine position statement. *Journal of Clinical Sleep Medicine, 17*(10), 2115-

2119. <https://doi.org/10.5664/jcsm.9476>

Ranasinghe, A. N., Gayathri, R., & Vishnu Priya, V. (2018). Awareness of effects of

sleep deprivation among college students. *Drug Invention Today, 10*(9), 1806–1809.

Sanlier, N., & Sabuncular, G. (2020). Relationship between nutrition and sleep quality,

focusing on the melatonin biosynthesis. *Sleep and Biological Rhythms, 18*(2), 89–

99. <https://doi.org/10.1007/s41105-020-00256-y>

Smallfield, S., & Molitor, W. L. (2018). Occupational therapy interventions addressing

sleep for community-dwelling older adults: A systematic review. *American Journal of Occupational Therapy, 72*(4), 1-9.

<https://doi.org/10.5014/ajot.2018.031211>

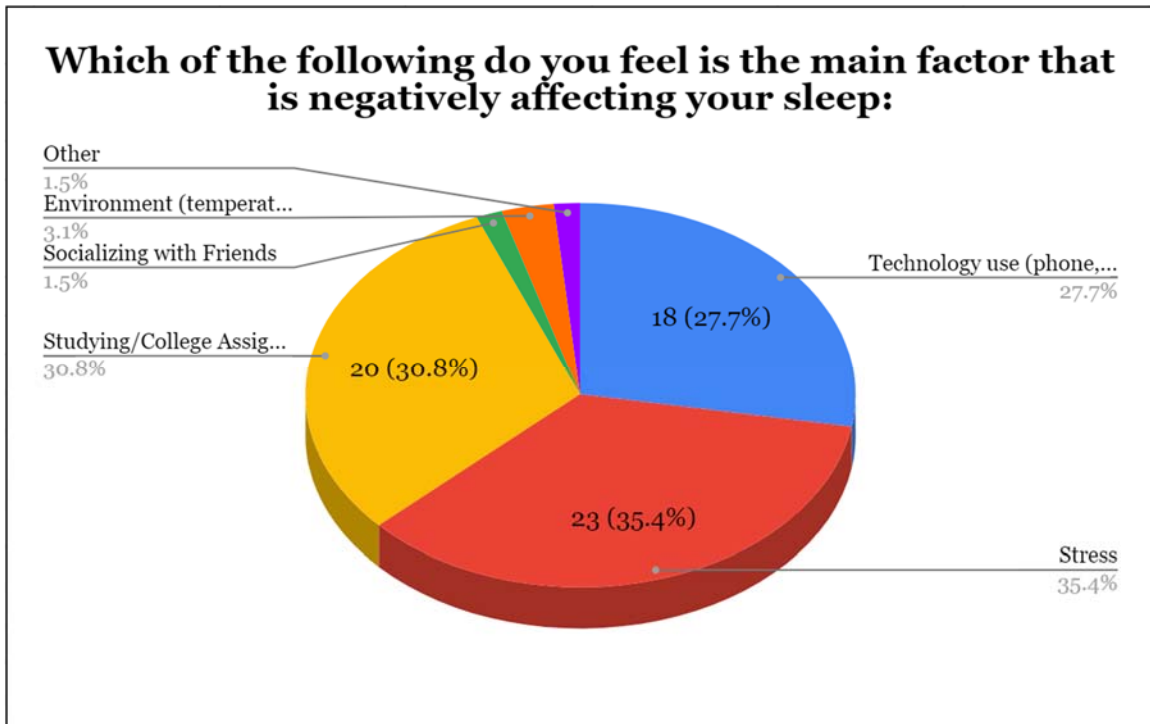
St-Onge, M. P., Mikic, A., & Pietrolungo, C. E. (2016). Effects of diet on sleep quality.

Advances in Nutrition, 7(5), 938–949. <https://doi.org/10.3945/an.116.012336>

- Tester, N. J., & Foss, J. J. (2018). The issue is-sleep as an occupational need. *American Journal of Occupational Therapy, 72*(1), 1-9.
<https://doi.org/10.5014/ajot.2018.020651>
- U.S. Bureau of Labor Statistics. (2022). *Civilian labor force participation rate by age, sex, race, and ethnicity*. U.S. Department of Labor.
<https://www.bls.gov/emp/tables/civilian-labor-force-participation-rate.htm>
- Voinescu, B. I. (2018). Common sleep, psychiatric, and somatic problems according to work schedule: An internet survey in an Eastern European country. *International Journal of Behavioral Medicine, 25*, 456-464. <https://doi.org/10.1007/s12529-018-9719-y>
- Wang, P. Y., Chen, K. L., Yang, S. Y., & Lin, P. H. (2019). Relationship of sleep quality, smartphone dependence, and health-related behaviors in female junior college students. *PLoS ONE, 14*(4) 1-12. <https://doi.org/10.1371/journal.pone.0214769>
- Yildirim, S., Ekitli, G. B., Onder, N., & Avci, A. G. (2020). Examination of sleep quality and factors affecting sleep quality of a group of university students. *International Journal of Caring Sciences, 13*(2), 1431-1439.
http://www.internationaljournalofcaringsciences.org/docs/69_1_serapyildirim_original_13_2.pdf
- Zerbini, G., Kantermann, T., & Meroz, M. (2020). Strategies to decrease social jetlag: Reducing evening blue light advances sleep and melatonin. *The European Journal of Neuroscience, 51*(12), 2355–2366. <https://doi.org/10.1111/ejn.14293>

Figure 1

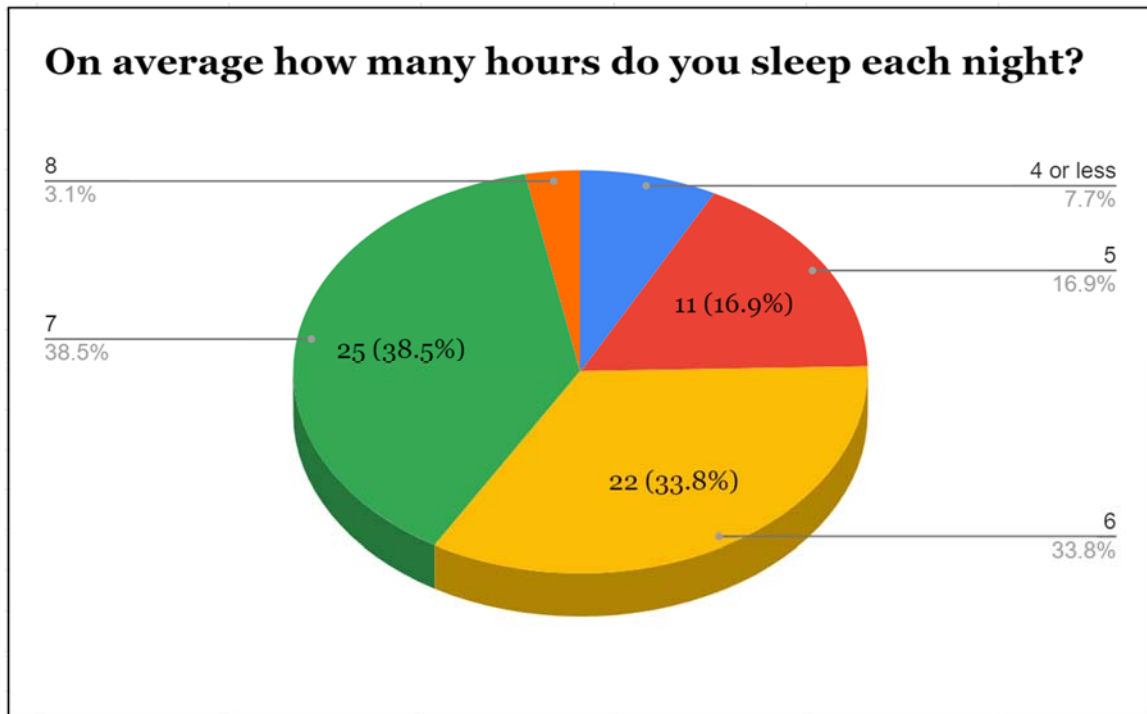
Which of the following do you feel is the main factor that is negatively affecting your sleep?



Note. N= 65. For stress N= 23(35.4%), For Technology use, N=18 (27.7%), Studying/College Assignments N= 20 (30.8%), Socializing with Friends N=1 (1.5%), Environment (temperature, noise, not feeling safe, uncomfortable bed, etc) N=2 (3.1%), Other N=1 (1.5%).

Figure 2

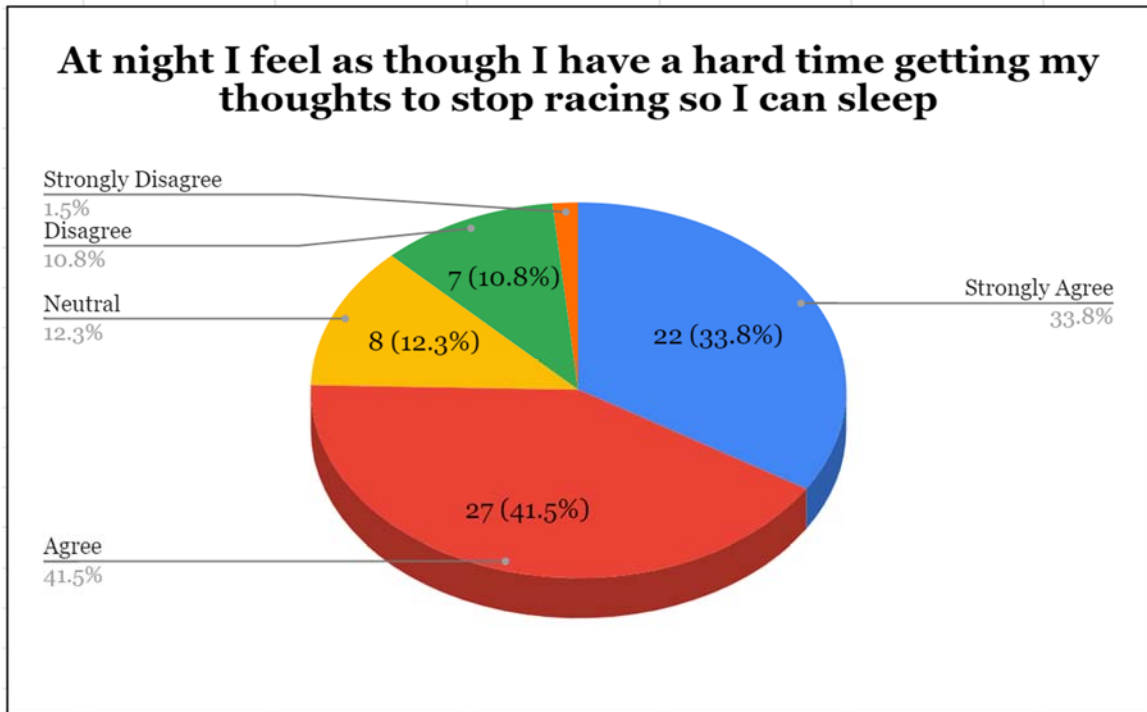
On average how many hours do you sleep each night?



Note. 4 or less hours, N=5 (7.7%), 5 hours N=11 (16.9%), 6 hours N=22 (33.8%), 7 hours N=25 (38.5%), 8 hours N=2 (3.1%).

Figure 3

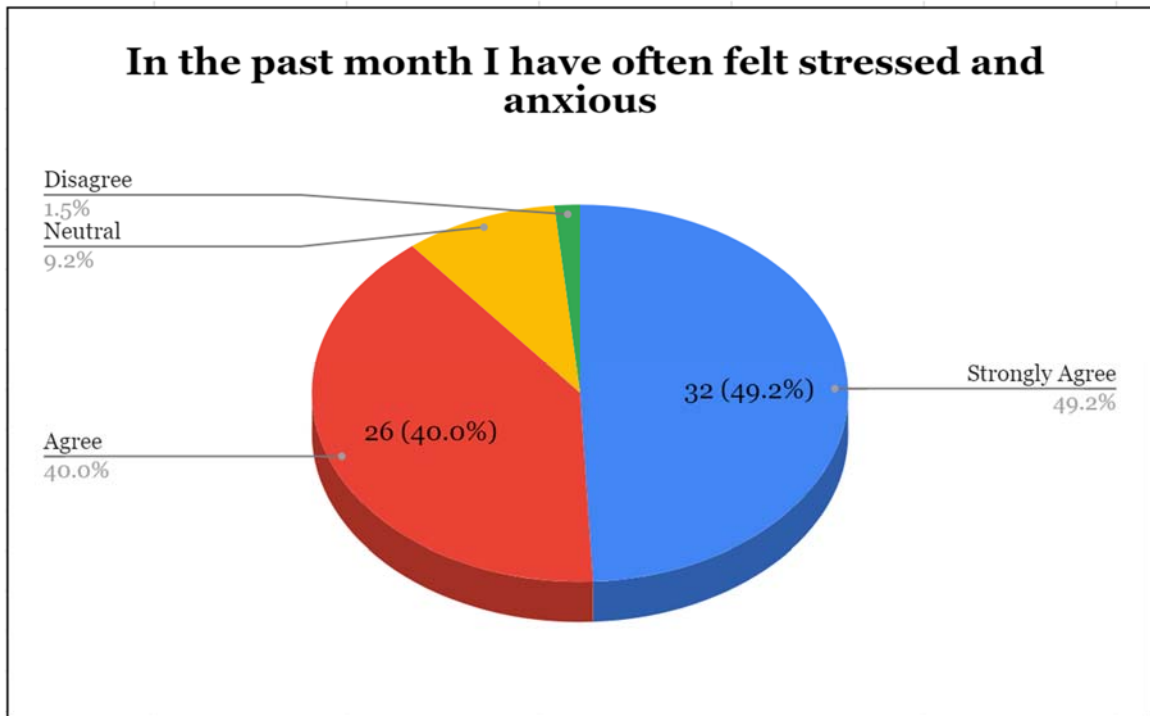
At night I feel as though I have a hard time getting my thoughts to stop racing so I can sleep



Note. Strongly Agree N=22 (33.8%), Agree N= 27 (41.5%), Neutral N=8 (12.8%), Disagree N=7 (10.8%), Strongly Disagree N=1 (1.5%).

Figure 4

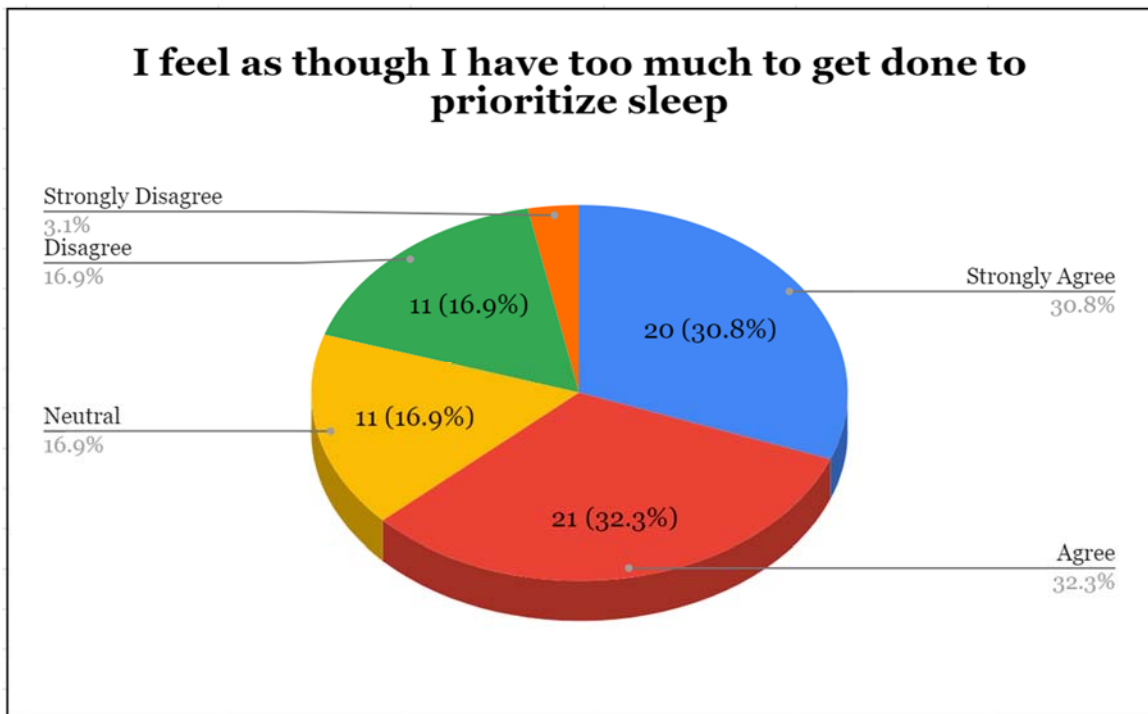
In the past month, I have often felt stressed and anxious



Note. Strongly Agree N=32 (49.2%), Agree N=26 (40%), Neutral N= 6 (9.2%), Disagree N=1 (1.5%).

Figure 5

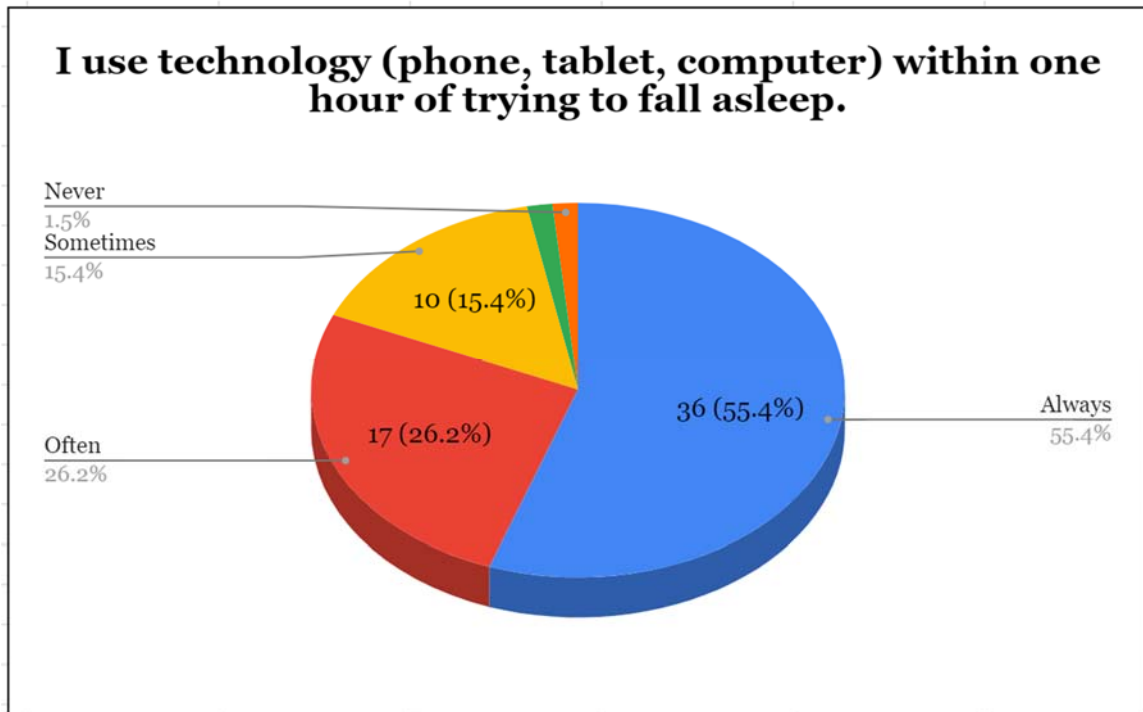
I feel as though I have too much to get done to prioritize sleep



Note. Strongly Agree N=20 (30.8%), Agree N=21 (32.3%), Neutral N=11 (16.9%), Disagree N=11 (16.9%), Strongly Disagree N=2 (3.1%).

Figure 6

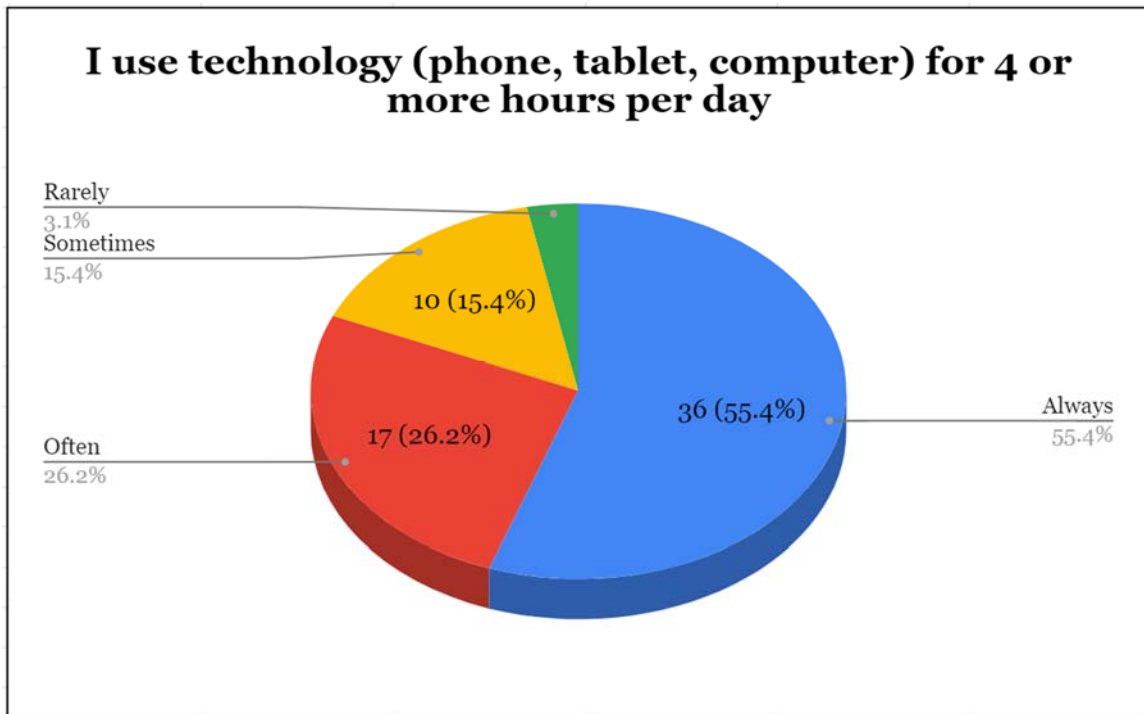
I use technology (phone, tablet, computer) within one hour of trying to fall asleep



Note. Always N=36 (55.4%), Often N=17 (26.2%), Sometimes N=10 (15.4%), Rarely N=1 (1.5%), Never N=1 (1.5%).

Figure 7

I use technology (phone, tablet, computer) for 4 or more hours per day



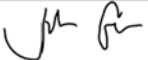
Note. Always N=36 (55.4%), Often N=17 (26.2%), Sometimes N=10 (15.4%), Rarely N=2 (3.1%).

Appendix A

Institutional Review Board Approval

Dear Dr. Enjoli Filemu and Students,

The Stanbridge University Institutional Review Board has completed the review of your application entitled "Sleep Challenges in College Students." Your application (#02MSOTRS001) is approved and categorized as Expedited.

IRB Application Number	#02MSOTRS001
Date	04/19/2023
Level of Review	Expedited
Application Approved	X
Conditional Approval	
Disapproved	
Comments	The requested Minor changes have been reviewed and confirmed as completed by the IRB. (04/19/2023)
Signature of IRB Chair	

Please note that any anticipated changes to this approved protocol requires submission of an IRB Modification application with IRB approval confirmed prior to their implementation.

Sincerely,
Julie Grace, M.S., M.A.
IRB Chair

Appendix B
Site Approval Forms

Research Site Agreement Form
Stanbridge University
AGREEMENT
Research Site: ___Stanbridge University Irvine, Riverside, and Los Angeles Campuses
Research Site Address: ___2041 Business Center Dr, Irvine, CA 92612.
1325 Spruce St Suite 500, Riverside, CA 92507.
2215 W Mission Road Alhambra, CA 91803
Title of Proposed Research: ___Sleep Challenges in College Students___
RESEARCH STUDY INFORMATION
Student Investigator(s) Name(s):
1. ___Michael Verdoza___
2. ___Hanoak Amanios___
3. ___Julia Hazen___
4. ___
Principle Student Investigator Name: ___Michael Verdoza___
Email address: ___michael.verdoza@my.stanbridge.edu___ Phone Number: ___714-365-4610___
Duration of the study: ___May 1st 2023 to July 31st, 2023___
Authorization Effective Date: _____ Authorization Expiration Date:

Allowed Number of Contact Hours: ___N/A___ The study will be completed by (date): ___July
31st, 2023___
STANBRIDGE UNIVERSITY
Research Site Agreement 1 of 4
Research Site Agreement v1.1.docx

Research Site Agreement Form Stanbridge University

Description of Research: Researchers will conduct a questionnaire study using self-made research questions likert style questions, and demographic questions to determine sleep challenges college students face.

Intellectual Property Statement:

Stanbridge University reserves the right to use, publish, and disseminate the results of the research findings. The University shall provide the research site with a copy of the final research product at the earliest practicable time.

Thesis Advisor Contact Information:

Name: _Dr. Enjoli Filemu_____

Email address: __efilemu@stanbridge.edu_____ Phone Number: _____

RECRUITMENT PLAN

Means by which the researcher(s) will contact and/or recruit participants: Researchers will use Stanbridge University resources to help reach out to students prior to completing the survey. An email will be sent out to the students through the University asking them to participate in the study. In addition, there will be flyers with a QR code linked to the survey on all 3 campuses. We plan to recruit at 3 university sites to attain at least 50 participants(i.e. N>50 from Stanbridge University Campuses). Participants must meet inclusion and exclusion criteria to be eligible to participate in the study.

Research Site Agreement Form
Stanbridge University

SITE REPRESENTATIVE AGREEMENT

I agree to the recruitment and data collection methods to be used in this study, and I authorize the investigator to conduct research at:

Facility Name/Research Site Name: Stanbridge University

Representative authorizing agreement: Kelly Hamilton

Title: Vice President of Instruction

Kelly Hamilton
Digitally signed by Kelly Hamilton
DN: cn=Kelly Hamilton, o=SU,
email=khamilton@stanbridge.edu, c=US
Date: 2023.04.14 10:14:40 -0700

Signature

Date

Stanbridge University Agreement Signatures

I/We accept the terms of this agreement.

Student Investigator 1: Michael Verdoza Title: Student Investigator

 4/11/23
Signature Date

Student Investigator 2: Julia Hazen Title: Student Investigator

 4/11/23
Signature Date



Research Site Agreement Form
Stanbridge University

Student Investigator 3: Hanoak Amanios Title: Student Investigator

 4/11/23
Signature Date

Faculty Thesis Advisor: Enjoli Filemu Title: Thesis Advisor

 4/11/23
Signature Date

Program Director: Myka Persson Title: Program Director

Signature Date
 4/17/23

Dr. Kelly Hamilton
Vice President of Instruction, Stanbridge University

Kelly Hamilton Digitally signed by Kelly Hamilton
DN: cn=Kelly Hamilton, o=SU,
email=k.hamilton@stanbridge.edu, c=US
Date: 2023.04.18 10:15:18 -0700
Signature Date

