



Honors College Theses

2024

Sleep Quantity and Quality: Impact on Nursing Students' GPA at Georgia Southern University

Jennifer K. Arlow
Georgia Southern University

Follow this and additional works at: <https://digitalcommons.georgiasouthern.edu/honors-theses>



Part of the [Other Nursing Commons](#)

Recommended Citation

Arlow, Jennifer K., "Sleep Quantity and Quality: Impact on Nursing Students' GPA at Georgia Southern University" (2024). *Honors College Theses*. 1004.
<https://digitalcommons.georgiasouthern.edu/honors-theses/1004>

This thesis (open access) is brought to you for free and open access by Georgia Southern Commons. It has been accepted for inclusion in Honors College Theses by an authorized administrator of Georgia Southern Commons. For more information, please contact digitalcommons@georgiasouthern.edu.

**Sleep Quantity and Quality: Impact on Nursing Students' GPA at
Georgia Southern University**

An Honors Thesis submitted in partial fulfillment of the requirements for Honors
at *Georgia Southern University*

November 2024

Jennifer Arlow

Mentor: *Dr. Estelle Bester*

Abstract

Introduction: Nursing school is a physically and mentally challenging commitment that can result in students sacrificing sleep and compromised sleep quality.

Methodology: A cross-sectional mixed methodology research study of Georgia Southern University's nursing students was conducted to gauge students' self-perceived sleep habits and current and past academic performance quantified by GPA. Five respondents (whose results were excluded from the data analysis) confirmed the questions were clear and relevant.

Results and Discussion: Thirty-two (n=32) questionnaires were received, of which four were excluded from the final analysis as some questions were not answered. More than 50% of respondents said their GPA decreased since they started nursing school. Almost all the respondents reported poor sleep habits on the Pittsburgh Sleep Quality Index (PSQI). Qualitative remarks supported clinical learning, numerous tests, and the need to maintain an external job as reasons for less sleep.

Recommendations: While a limited sample size, the findings support recommendations to include more attention to the importance of sleep quality and quantity in promoting the academic performance of nursing students. Course instructors are encouraged to engage in conversation with students to explore ways in which sleep can be enhanced while keeping up with the rigorous requirements of the nursing program.

Keywords: sleep quality, academic performance; sleep patterns; nursing students

Table of Contents

Abstract	2
Acknowledgment	6
Research question	9
Research problem	9
Objectives	10
Literature Review	10
Importance of sleep	10
Academic impact	11
Measurement tools	13
Factors Impacting Sleep	13
Methods	13
Research design	14
Population and Sampling	14
Permission to conduct the study	16
Data-collection	17
Pilot study	17
Data-analysis	17
Results	18
Demographical data	18
<i>Table 1: Semester of Study (N=28)</i>	19
Sleep score	19
<i>Figure 1: PQSI Scores</i>	19
Sleep duration	20
Table 2: Time going to bed	22
Table 3: Number of hours of sleep	23
Sleep Quality	23
Figure 2: Quality of sleep	24
Academic Performance	24
Table 4: GPA before and after Nursing School	25
Figure 3: Importance of sleep to maintain GPA	25
Table 5: Quality of sleep and GPA	25
Discussion	26
Limitations	27
Recommendations	27
References	29
Appendices:	32

Appendix A: Permission to use PQSI	32
Appendix B: PQSI Tool and Scoring Method	33
Appendix C: Questionnaire	39
Appendix D: Institutional Review Board Approval	44

Acknowledgment

- Firstly, I would like to express my gratitude to Georgia Southern's Honors College and School of Nursing for providing me with ample resources, helpful staff, and various opportunities to better myself as a person and student during my time here.
- Furthermore, I want to thank all the wonderful faculty of the School of Nursing. From day one up until now, I have learned far more than I ever thought possible all thanks to the many wonderful educators I had guiding me along the way.
- I would also like to thank the best mentor and educator I have ever had the privilege of learning from, Dr. Estelle Bester, for all her help along the way. Through every moment of creating this project, she was behind me offering support, encouragement, and guidance. It is through her patience and wisdom that this thesis was able to come to life.
- I want to thank all my family, near and far. Thank you, Mom and Dad, for always doing whatever it takes to support me in my dreams. Thank you, Jacques, for being the best brother I could ask for. I would not be where I am or who I am without you guys.
- A special thanks to my ouma, Professor Amanda Lochner, who inspires me with her brilliance and dedication to her research.
- I also want to thank the Brooksher family for being my second family. You guys are some of the greatest people and all your support makes me feel extremely blessed.

- To Truett, thank you for being my best buddy.
- To Asya, thank you for being my unofficial sister.
- Lastly, thank you Krista, Lily, Grace, Ava P., Ava W., and all my other amazing friends for being guiding lights in my life.

Sleep Quantity and Quality: Impact on Nursing Students' GPA at Georgia Southern University

Completing a university degree, especially in nursing, is often a busy and difficult road to travel. Bachelor's degrees in nursing include two years of pre-requisite courses, completion of a standardized entrance exam, and an application for acceptance into a highly competitive program. Once accepted into the Nursing Program, students must complete a two-year track that includes completing a minimum number of clinical hours and maintaining a minimum grade point average (GPA) to keep their placement in the program.

Nursing school is a journey in which students must repeatedly and consistently prove their competency. This requires utmost effort and energy, no place for failure or time for anything else. Nursing students often get extremely anxious with each test and exam to ensure their GPA is still acceptable (since most scholarships are directly linked to the good standing in their GPA).

Nursing students find themselves employed to generate income and some students have families to provide for at home. Clinical sites are often at least an hour away with a day of clinical mostly lasting more than nine hours. After a long day of clinical experience, students must complete post-clinical activities, study, and prepare for the next day's class. This intense time commitment can be hard to meet, and lead to stress and anxiety, which in turn results in poor sleep quality and quantity. It almost becomes inevitable for nursing students to neglect sleep to create more time to complete tasks. Nursing students may realize their GPA is

decreasing, and they may be tired, but it seems if nursing students want to maintain a high GPA they will sleep little and poorly.

Research question

I have always been intrigued by how the quality and quantity of my sleep impact my academic performance. As a nursing student, I often find myself in the dilemma of choosing between sleep and study. I looked into all the different resources the University and School of Nursing gave us to help our time-management, study, and problem-solving skills, where to go if we need mental support services, and nowhere could I find any reference to the importance of sleep, or how to improve my sleep quality.

Initially, I was exploring other lifestyle factors that could significantly affect academic performance. However, after discussions with my peers, I narrowed the research topic to focus on sleep behavior in nursing students and its effect on GPA. The choice for my topic was further strengthened by the indirect observation of my fellow students during classes. I noticed how many peers would fall asleep during classes and indicated they did not know what the class was about as a result of inadequate sleep the previous night. Many of my fellow peers who actively exercised before, now don't exercise anymore, as they are too tired.

Research problem

Student nurses have a demanding study program. Sleep is often compromised to meet clinical requirements. However, do students experience a decrease in Grade Point Average (GPA) if they sleep less? Further exploring the

literature led to the framing of the primary research question: How *do sleep quantity and quality affect nursing students' perceived and actual academic success in the nursing program as reflected in their GPA?*

Objectives

Within the framework of the research question, the objectives were to:

- Explore sleeping habits from the students' perspective;
- Identify similarities or differences in perception of sleep quality and quantity and impact on academic performance across different study semesters; and
- Make recommendations for improving the sleep quantity and quality of students.

Literature Review

The first step in understanding the research problem was to examine the literature. Keywords included “sleep quality, sleep quantity, nursing students, academic performance, and lifestyle”. Scholarly, peer-reviewed articles, published in English, with full-online text availability, were identified from *CINAHL*, *PubMed*, and *ProQuest* electronic databases.

The purpose of the review was to explore previous studies. Initially, the literature focused on students in higher education and then drilled down to identify the challenges and findings applicable to nursing students. Common themes, similarities, and differences in studies and research tools helped to shape the current study.

Importance of sleep

Silva et al., (2016, p.1000), emphasize that sleep is important, and without adequate sleep complications such as “increased morbidity from autonomic dysfunction, psychiatric disorders, lower academic performance...” are an increased risk. Silva et al., (2016, p.1000) explain that poor sleep is a regular occurrence due to the demands of attending class and nursing clinical rotations. In a study by Gómez et al., (2021, p.1) evaluating the impact of sleep on nursing students’ academic performance, they found that “short sleep pattern” and “bad sleep habits” were “independently associated with a higher risk of poor academic performance”. Benjamin et al., (2024) also support this viewpoint in a study of Saudi Arabian nursing students’ performance. Benjamin et al., (2024) mention that lack of sleep has “pronounced negative effects on different cognitive processes such as attention, memory, and problem solving” and “factors such as late-night study sessions, irregular sleep schedules, stress” related to clinical/nursing school demands can disrupt sleep patterns.

Academic impact

Gómez et al., (2021) studied the sleep habits of a cohort of nursing students and the effect on their academic performance. Students completed a questionnaire on their sleep habits, routines, study schedules, and “napping” (Gómez et al., 2021, p. 3). Scores were measured on a numeric scale from 11-44, with 44 being the worst possible sleep habit score. A significantly high number of students had scores closer to 44.

A shortened version of the Horne and Östberg Morningness-Eveningness Questionnaire (rMEQ) was also used to assess students’ sleep-wake cycle

schedule preferences. The academic performance factor of the research was measured via the individual student's ratio of failed exams to passed exams. A significant percentage ($p < 0.001$) of students with poor sleep habits had poor academic results (Gómez et al., 2021, p. 4). Students with the worst academic results indicated they stayed up late to study because they thought it would give them better results and preferred to study for exams the night before such an exam (Gómez et al., 2021, p. 4).

Many studies address the impact of sleep on academic performance in higher education students. Nursing students have additional demands impacting their academic performance. This was confirmed by Zabihi et al. (2020). Zabihi et al., (2020, p.1) mention, "...studies show that most students consider working in clinical centers stressful, which affects the learning process and its outcomes".

As the study under discussion focuses on the effect of sleep on students' GPA and the importance of GPA for most students, the study of Creswell et al. (2023) was important as it reported the correlation between the number of hours of sleep and the GPA at the end of the semester. One of the main findings of this research was that "every hour of lost total average nightly sleep was associated with a 0.07 reduction in end-of-term GPA" (Creswell et al., 2023, p. 1). They found the cutoff point where the GPA seems to start decreasing, is when the student reports getting less than six hours of sleep per night. Creswell et al. (2023, p. 2) explain that even "...when controlling for factors known to predict end-of-term GPA, including previous-term GPA, daytime sleep, and overall academic load lower average nightly sleep still typically resulted in lower end of

term GPAs” (Creswell et al., 2023, p. 1). Hershner (2020, p. 1) makes a similar statement “.....shorter sleep duration is associated with lower GPAs... among university students those with a GPA <3.0 had the shortest sleep duration” (Hershner, 2020, p. 1)

While the research was on the effect of sleep on nursing students’ academic performance, some authors emphasize other consequences associated with lack of sleep, such as behavioral and emotional problems (Yilmaz et al., 2017).

Measurement tools

The Östberg Morningness-Eveningness Questionnaire (rMEQ) and the Pittsburgh Sleep Quality Index (PSQI) are two well-known tools used in studies on sleep quantity and quality.

The rMEQ analyzes sleep-wake cycles and uses circadian rhythm patterns to determine sleep quality (Gomez et al., 2021). The rMEQ explores what times of day participants felt most alert to identify if the participant was a morning or evening type of person. In comparison, the PSQI focuses on seven aspects of the respondents’ sleep patterns and quality.

Factors impacting sleep

Some research studies focused on the effect of lifestyle and behavioral measures on sleep quality. Ye et al., (2022) present a questionnaire evaluating sleep being administered to 1,006 college students to identify if there was a correlation between physical exercise and sleep quality in students and how mindfulness and physical exercise can affect sleep. Ye et al., (2022) found that

students who lack physical exercise tend to have more negative thoughts that negatively impact their sleep. They encourage teachers to emphasize the benefits of physical exercise for improved sleep quality. Sejbuk et al., (2022) explain that nutrition is important to improve sleep. “High consumption of noodles, sweets, and sugary drinks, as well as the omission of breakfast and irregular meals, are associated with poor sleep...[but]... a diet that is rich in fish, seafood, and vegetables contributes to good sleep” (Sejbuk et al., 2022). While moderate caffeine intake is encouraged and can relieve fatigue, the relatively high half-life time of caffeine may lead to a build-up of caffeine hours after being consumed (Sejbuk et al., 2022).

Methods

The research methods refer to the broad framework within which the research occurs. It provides a blueprint for the research, helps the researcher stay on track, and ensures that every step is rigorously followed.

Research design

A non-experimental, descriptive study was conducted. Students from each of the four study semesters were invited to participate. This allowed for a snapshot of how students within the BSN program perceive their sleep habits, and whether the study semester makes a difference. Open-ended questions are included. These questions provide qualitative data to support or differ from quantitative data.

Population and Sampling

Students registered in a Bachelor of Science in Nursing (BSN) program at Georgia Southern University who met the inclusion criteria, and were willing to participate, were included in the study. Non-random, convenience sampling limits generalizing of the results. The research aimed to identify broad trends in the sleep behavior of nursing students to direct future research and interventions to help nursing students improve their sleep habits. Students 18 years and older during Spring 2024, and enrolled in any semester of the BSN program, were eligible to participate in this study.

Tools

Originally described in 1989, The Pittsburgh Sleep Quality Index (PQSI), is a validated tool to measure sleep behavior in higher education institutions, similar to those in this research study. The score has a high sensitivity and specificity index of more than 80% at a 99% significance level (The Pittsburgh Sleep Quality Index, 1989). The PSQI tool is more commonly used in studies to provide a reliable standardized measure of sleep, differentiate what makes sleep good or not, and is easy to use and interpret. Written permission was obtained from the authors (Appendix A). Consent was given to use this tool within an educational context and for non-commercial purposes. For all purposes, the PSQI tool will be cited as *The Pittsburgh Sleep Quality Index: A New Instrument for Psychiatric Practice and Research*. © the University of Pittsburg 1989, as per agreement with the authors. The authors shared the tool and the scoring instructions (Appendix B).

The tool has 19- questions clustered in seven (7) components. The seven sections of the PSQI score cover subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbance, use of sleep medication, and daytime dysfunction. Questions included asking respondents *“During the past month, how long (in minutes) has it usually taken you to fall asleep each night?”* and *“During the past month, how would you rate your sleep quality overall?”*. Responses were measured on a four-point Likert scale, “very good, fairly good, fairly bad, very bad”. The tool includes two open-ended questions to describe other reasons if the listed responses were not descriptive of the respondents’ views and describe any restlessness they might experience during sleep such as snoring. (Appendix B).

The seven (7) component scores are calculated to yield one score. The total score, known as the global PSQI score, indicates good sleep quality (0-4), and poor sleep quality (5-21).

Questions added to the questionnaire included questions on academic performance as reflected in GPA scores. As mentioned in the literature study, other factors can also affect academic performance including nutrition and lifestyle, and thus questions were added on these aspects. Limited open-ended questions were added. The questions in the PSQI tool were transferred into *Qualtrics*, a survey software program, as this allowed respondents to complete it electronically (Appendix C).

Permission to conduct the study

Georgia Southern University's Institutional Review Board (IRB) granted an exemption from full board approval of the research (Appendix D). Informed consent was implied if the student continued with the survey.

Data-collection

Students received an anonymous link to a Qualtrics survey via the online undergraduate nursing student's Learning Management System during Spring 2024. No IP addresses were gathered and no identifying information was requested. The first question in the survey explained the purpose of the research, eligibility, and the right to withdraw at any time without any repercussions. There were no incentives to participate and students did not benefit directly from the study. Four (4) weeks were allowed for completion of the questionnaire. A one-time reminder was posted as an announcement.

Pilot study

Before administering the questionnaire, five respondents (not being part of the main study) were given the questionnaire to review questions. No changes were made to the questionnaire.

Data-analysis

After data collection was completed, questionnaires were reviewed. Four (4) questionnaires were removed from the data as some questions were incomplete. Quantitative data was analyzed through descriptive statistics and presented as tables and graphs. PQSI scores were calculated according to the tool's guidelines. Chi-square analysis presents the correlation between the PQSI composite score and the student's GPA score.

While qualitative data could have strengthened the quantitative findings, no qualitative comments added value to the data. This was an expected finding, as the open-ended questions were not generally completed.

Results

Analyzed data are described and presented as graphs, tables, and narrative descriptions. Figures and tables, where applicable, are identified according to the specific question it addressed.

Demographical data

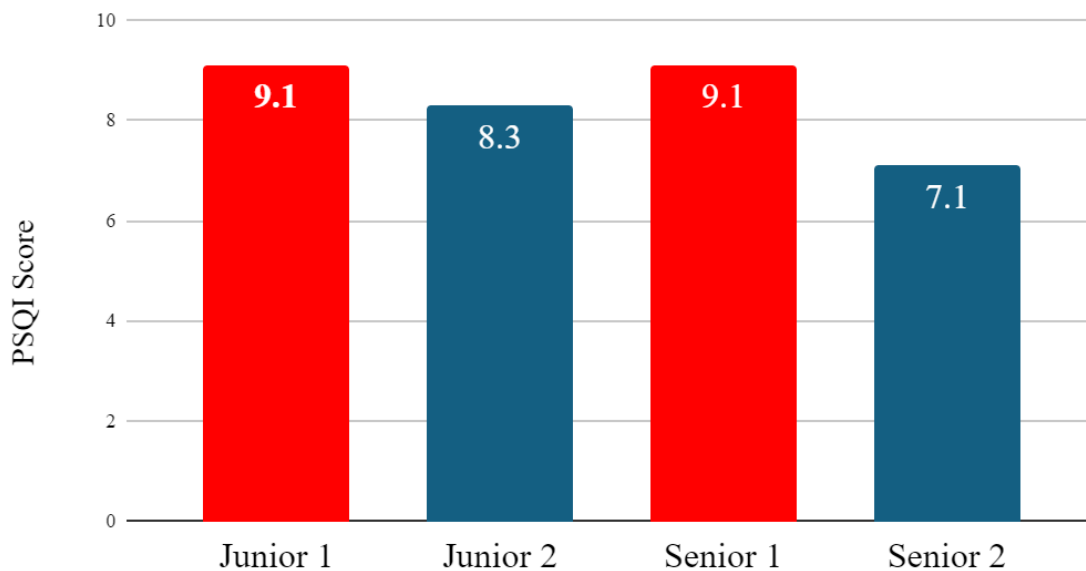
Initially, the researcher wanted to explore whether there were any differences between study semesters, sleep habits, and academic performance. Table 1 shows the respondents' distribution across the course semesters. The author was surprised that most of the students were Junior 1s. The assumption was that students in their last semester, referred to as senior 2 students, have more clinical hours, and a more rigorous academic program than junior 1 students. A potential explanation is that this study population, being new to the program, was willing to participate as the topic, and the impact of sleep quality on academic performance was important to them.

Table 1: *Semester of study* (N=28)

Study semester	Frequency (f)	Percentage (%)
Junior 1 (first semester)	8	28.6
Junior 2 (second semester)	6	21.4
Senior 1 (third semester)	7	25
Senior 2 (third semester)	7	25
Total	N = 28	100%

Sleep score

The PSQI scoring scale indicates that any score above a 4 (on the 0-21 scale) is considered a poor sleep score. The average sleep score among all respondents was 8.5.

Figure 1: PQSI scores

Students in all four semesters had sleep scores higher than the cutoff point of 4 with Junior 1s and Senior 1s having the poorest PQSI scores. Junior 1 students are usually very concerned with their course grades, as they often within the State of Georgia, depend on the *HOPE* Scholarship program. This program requires them to maintain a certain GPA.

Three (10.7%) of respondents had a satisfactory PSQI score, thus lower than 4. An explanation for the Senior 1s poor sleep scores may be that the course offerings were changed in Fall 2023. The number of course credit hours and clinical hours required to complete the course is now the highest compared to all other semesters.

Nine (32.1%) said sleep was extremely important, very important, or slightly important. One respondent said sleep was not at all important. Four students gave additional comments. Comments were:

- Cannot sleep without melatonin supplements (one respondent);
- Stress, anxiety, and emotional situations negatively impact on my sleep (two respondents);
- "...the number of assignments and exams and clinical hours makes it difficult to get enough sleep..".

These findings support the study of Benjamin et al.,(2024) investigating the academic performance of Saudi Arabia's nursing students. Better sleep scores were associated with better academic performance and higher GPAs.

Sleep duration

Fifteen (53.6%) of respondents said they only went to bed at midnight or

later. None of the students indicated that they go to bed before 9 pm. There was a significant relationship between the time going to bed and the number of hours they slept ($p < 0.05$). Furthermore, some students travel more than 100 miles to get to their assigned clinical site and start as early as 06:30 am.

Table 2: Time going to bed

Time	Frequency (n)	Percentage (%)
09 - 9:59 pm	2	7.1
10 - 10:59 pm	1	3.6
11 - 11:59 pm	10	35.7
Midnight	5	17.9
12 - 12:59 am	3	10.9
1 - 01:59 am	5	17.9
2 - 02:59 am	1	3.6
3 - 03:59 am	1	3.6
Total	N=28	100%

* This was an open-ended question. If respondents indicated for example between midnight and 2 am, it was recorded in the category 2-2.59 am.

Table 3 shows the number of hours of sleep the respondents reported. They were informed the number of hours of sleep may be different than the number of hours they spent in bed, recognizing sometimes it may take a person longer to fall asleep, reducing the hours of sleep they get even more. On the question: During *the past month, how often did you take longer than 30 minutes to fall asleep?* sixteen (57.1%) of the respondents indicated that it took them more than 30 minutes to fall asleep.

Table 3: Number of hours of sleep

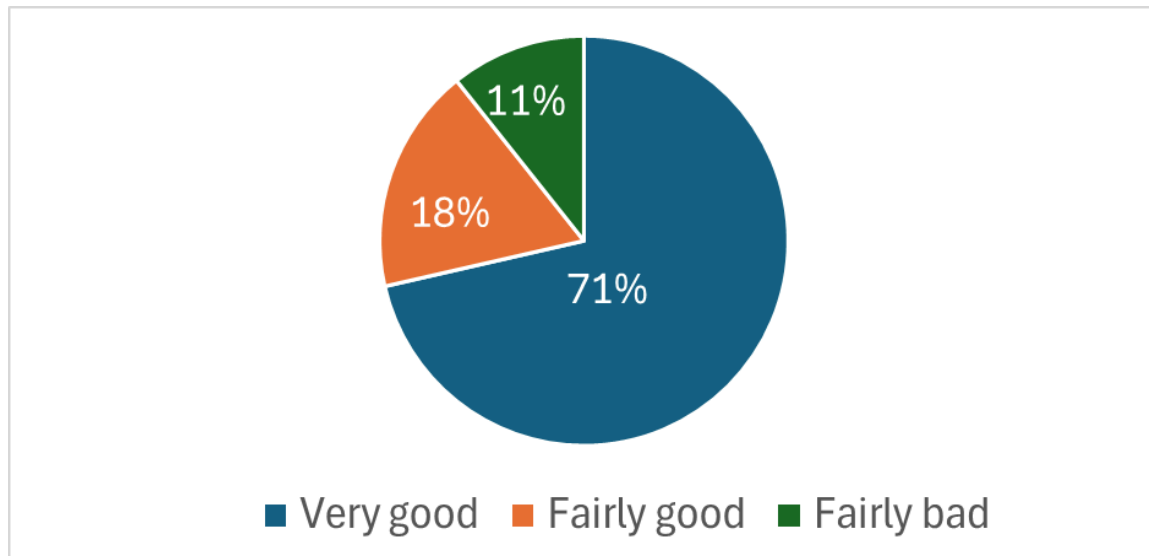
Time (hours) *	Frequency (n)	Percentage (%)
4-5	6	21.4
5-6	7	32.1
6-7	9	14.3
7-8	4	25
8-9	1	3.6
9-10	1	3.6
Total	N=28	100%

* This was an open-ended question. Where respondents indicate an overlapping period,

for example, 5 to 7 hours, it was documented in the higher category, that is 6 to 7 hours.

Sleep Quality

Questions within the PQSI asked about how comfortable the respondent feels when sleeping, including snoring, environmental temperature, pain, and coughing. None of these factors seems to have been a problem for the respondents. Respondents were asked to give an overall rating of their quality of sleep (Figure 3). While there were five options on the Likert scale, respondents selected either *very good*, *fairly good*, and *fairly bad*. When combining the *very good and fairly good* categories, 82% of respondents considered their sleep to be of good quality. It seems the bigger issue for nursing students is not the quality of sleep but rather the amount of sleep they get.

Figure 2: Quality of Sleep

When asking respondents *During the past month how often do you wake up in the middle of the night or early morning?* fifteen (n=15) of the respondents (53.6%) said this often happened.

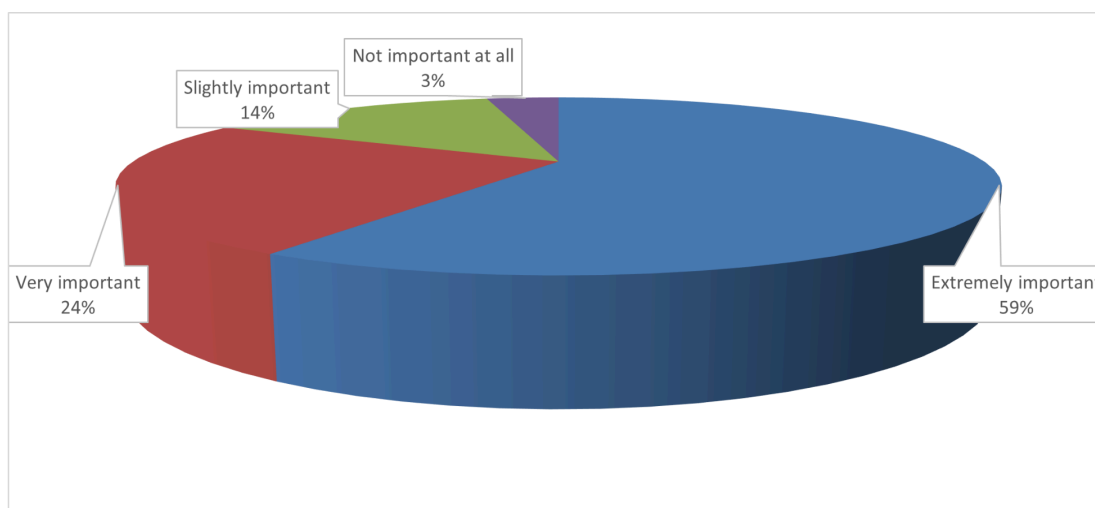
Questions focused on whether the respondent had a bed partner or roommate, whether the roommate's behavior, for example, excessive snoring made it more difficult to sleep, and whether they were experiencing restless leg syndrome. None of these factors could be identified as contributing factors to students' low sleep scores and quality of care.

Grade Point Average (GPA)

Table 2 represents the students' GPA scores. A significant number of students (though statistical significance was not calculated due to the small sample size), had a drop in their GPA, with 67.9% having a GPA of less than 3.5, compared to 25% who had a GPA lower than 3.5 at the beginning of the program.

Table 4: GPA (School) and GPA now (N=28)

GPA	3.0 - 3.4	3.5-3.9	4 and more
Before Nursing School	7	20	1
Current	19	09	0

Figure 3 Importance of sleep to maintain GPA

Given the suggested minimum of six hours before the GPA decreases to 0.7 (Creswell et al., 2023) it is noted that 13 of the respondents (53.5%) had less than six hours of sleep. Further analysis indicated that 11 of these 13 respondents (84.6%) said their GPA decreased since they started nursing school.

Table 4 compares the students' perceptions of sleep quality and their GPA. More students perceived their sleep quality as *fairly good*, compared to *fairly bad*. The number of hours of sleep was more important to students compared to the quality of sleep.

Table 5: Quality of Sleep and GPA (N=28)

	Very Good	Fairly Good	Fairly Bad
3.0-3.4	0	8	5
3.5-3.9	4	9	2
4.0 and above	0	0	0

While the focus was on sleep quantity and sleep quality and the effect on the GPA, as mentioned in the research problem statement, nutrition and exercise may be equally important as non-academic factors affecting students' performance, as reflected in their GPA. This study supports students who consider these as *very important*. Twenty-three (83.1%) respondents considered nutrition and physical exercise as *extremely* or very important.

Discussion

Most students (n=25; 89.3%) who participated in this survey had poor sleep scores. There were no statistically significant differences between cohorts. This finding is similar to a finding by Aung et al. (2016) in their study of 105 college students in Malaysia and the effects of sleep quality on their academic performance... “.... poor sleep quality among the participants was higher than the good sleep quality [and]the majority of college students experienced poor sleep quality” (Aung et al., 2016, p. 146). Aung et al. (2016, p. 148) concluded “poor sleep quality was associated with lower academic performances... [and], students in the lower GPA category reported having poor sleep quality”. Seventeen of the respondents (63%) said their GPA has decreased since the beginning of their nursing school journey. While not a statistical difference, respondents with better PQSI scores had higher GPA scores.

Limitations

The small sample size implies no findings can be generalized. While some results may look significant, because of a big numerical difference between the two responses, the researcher did not attempt to do any correlational statistics or explore differences between the student's semester and the quality of sleep. However, the findings confirmed the literature, supported the research problem, and explored the impact of sleep scores on academic performance. The important impact sleep has on performance supported two of the original research objectives which were to explore sleeping habits from the students' perspective and identify any trends or differences in perception of sleep quality and quantity and academic performance altogether and across different study semesters.

Self-reports of GPA may not be accurately reflected resulting in possible over or under-reporting of their GPA due to factors unknown to the researcher.

Recommendations

Based on this research, this study should be repeated with a larger study sample. This may allow for better exploration of differences between semesters of study.

Questions could be added to reflect on the role of nutrition and physical exercise, as respondents considered it important.

Future questionnaires should include questions on which strategies students may consider to be successful in improving sleep, and what role faculty

can play in optimizing sleep quality and sleep quantity while optimizing academic performance.

References

- Aung, K. T., Nurumal, M., & Zainal, S. N. (2016, November). *Sleep Quality and Academic Performance of Nursing Students*. researchgate.net.
https://www.researchgate.net/publication/311297156_Sleep_Quality_and_Academic_Performance_of_Nursing_Students
- Benjamin, L. S., Pasay-an, E., Pangket, P., Alqarni, A., Gonzales, F., Sacgaca, L., Mahmoud, D. A., Mohsen, M., Ali Hamdi, Y. S., & Shanmugam, S. R. (2024). Impact of sleep and psychological well-being on the academic and clinical performance of nursing students in Saudi Arabia. *Psychology Research and Behavior Management*, 17, 1355-1364.
<https://doi.org/10.2147/prbm.s453685>
- Chen, W., & Chen, J. (2019). Consequences of inadequate sleep during the college years: Sleep deprivation, grade point average, and college graduation. *Preventive Medicine*, 124, 23-28.
<https://doi.org/10.1016/j.ypmed.2019.04.017>
- Creswell, J. D., Tumminia, M. J., Price, S., Sefidgar, Y., Cohen, S., Ren, Y., Brown, J., Dey, A. K., Dutcher, J. M., Villalba, D., Mankoff, J., Xu, X., Creswell, K., Doryab, A., Mattingly, S., Striegel, A., Hachen, D., Martinez, G., & Lovett, M. C. (2023). Nightly sleep duration predicts grade point average in the first year of college. *Proceedings of the National Academy of Sciences*, 120(8). <https://doi.org/10.1073/pnas.2209123120>
- El-Nagger, N. S., & Bayoumi, O. R. (2019). Fostering the sleep instructional guidelines for nursing students regarding their sleep quality, academic

- performance, and psychosocial behavior. *Journal of Nursing Education and Practice*, 10(1), 43. <https://doi.org/10.5430/jnep.v10n1p43>
- Gallego-Gómez, J. I., González-Moro, M. T., González-Moro, J. M., Vera-Catalán, T., Balanza, S., Simonelli-Muñoz, A. J., & Rivera-Caravaca, J. M. (2021). Relationship between sleep habits and academic performance in university nursing students. *BMC Nursing*, 20(1). <https://doi.org/10.1186/s12912-021-00635-x>
- Hershner, S. (2020). Sleep and academic performance: Measuring the impact of sleep. *Current Opinion in Behavioral Sciences*, 33, 51-56. <https://doi.org/10.1016/j.cobeha.2019.11.009>
- Ruiz-Zaldibar, C., Gal-Iglesias, B., Azpeleta-Noriega, C., Ruiz-López, M., & Pérez-Manchón, D. (2022). The effect of a sleep intervention on sleep quality in nursing students: Study protocol for a randomized controlled trial. *International Journal of Environmental Research and Public Health*, 19(21), 13886. <https://doi.org/10.3390/ijerph192113886>
- The Pittsburgh Sleep Quality Index: A New Instrument for Psychiatric Practice and Research (Authors Daniel J. Buysse, Charles F. Reynolds III, Timothy H. Monk, Susan R. Berman, and David J Kupfer, © University of Pittsburgh 1989)
- Sejbuk, M., Mirończuk-Chodakowska, I., & Witkowska, A. M. (2022). Sleep quality: A narrative review on nutrition, stimulants, and physical activity as important factors. *Nutrients*, 14(9), 1912. <https://doi.org/10.3390/nu14091912>

- Silva, M., Chaves, C., Duarte, J., Amaral, O., & Ferreira, M. (2016). Sleep quality determinants among nursing students. *Procedia - Social and Behavioral Sciences*, 217, 999-1007. <https://doi.org/10.1016/j.sbspro.2016.02.090>
- Ye, J., Jai, X., Zhang, J., & Guo, K. (2022, September 25). Effect of physical exercise on sleep quality of college students: Chain intermediary effect of mindfulness and ruminative thinking. *Frontiers*.
<https://doi.org/10.3389/fpsyg.2022.987537>
- Yilmaz, D., Tanrikulu, F., & Dikmen, Y. (2017). Research on Sleep Quality and the Factors Affecting the Sleep Quality of the Nursing Students. *Current Health Sciences Journal*, 43(1), 20–24.
<https://doi.org/10.12865/CHSJ.43.01.03>
- Zabihi, A., Jafarian-Amiri, S., & Qalehsari, M. (2020). The challenges of supporting nursing students in clinical education. *Journal of Education and Health Promotion*, 9(1), 216. https://doi.org/10.4103/jehp.jehp_13_20
- Zhang, H., & Wang, S. (2024). Impact of sleep and psychological well-being on the academic and clinical performance of nursing students in Saudi Arabia [Letter]. *Psychology Research and Behavior Management*, 17, 1803-1804.
<https://doi.org/10.2147/prbm.s474828>

Appendix A

Permission to use the tool

----- Forwarded message -----

From: **Gasiorowski, Mary** <GasiorowskiMJ@upmc.edu>

Date: Fri, Oct 6, 2023, 1:26 AM

Subject: [External] RE: Sleep Measures Request Form (PSQI)

To: Mbester@georgiasouthern.edu <Mbester@georgiasouthern.edu>

Sent on behalf of Carolyn Weber

Research use of the PSQI:

Dear Dr. Bester,

Thank you for your interest in our PSQI instrument. I can give you permission to use the PSQI **only** in non-commercially funded research or education or the product or service you are testing is not a commercial product or is in development by a commercial entity. It cannot be used for patient care either.

Appendix B

Tool and scoring instructions

EXHIBIT A

Page 1 of 4

Subject's Initials _____ ID# _____ Date _____ Time _____ AM
PM

PITTSBURGH SLEEP QUALITY INDEX

INSTRUCTIONS:

The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all questions.

1. During the past month, what time have you usually gone to bed at night?
BED TIME _____
2. During the past month, how long (in minutes) has it usually taken you to fall asleep each night?
NUMBER OF MINUTES _____
3. During the past month, what time have you usually gotten up in the morning?
GETTING UP TIME _____
4. During the past month, how many hours of actual sleep did you get at night? (This may be different than the number of hours you spent in bed.)
HOURS OF SLEEP PER NIGHT _____

For each of the remaining questions, check the one best response. Please answer all questions.

5. During the past month, how often have you had trouble sleeping because you . . .
 - a) Cannot get to sleep within 30 minutes

Not during the past month _____	Less than once a week _____	Once or twice a week _____	Three or more times a week _____
------------------------------------	--------------------------------	-------------------------------	-------------------------------------
 - b) Wake up in the middle of the night or early morning

Not during the past month _____	Less than once a week _____	Once or twice a week _____	Three or more times a week _____
------------------------------------	--------------------------------	-------------------------------	-------------------------------------
 - c) Have to get up to use the bathroom

Not during the past month _____	Less than once a week _____	Once or twice a week _____	Three or more times a week _____
------------------------------------	--------------------------------	-------------------------------	-------------------------------------

EXHIBIT A

Page 2 of 4

d) Cannot breathe comfortably

Not during the past month_____	Less than once a week_____	Once or twice a week_____	Three or more times a week_____
-----------------------------------	-------------------------------	------------------------------	------------------------------------

e) Cough or snore loudly

Not during the past month_____	Less than once a week_____	Once or twice a week_____	Three or more times a week_____
-----------------------------------	-------------------------------	------------------------------	------------------------------------

f) Feel too cold

Not during the past month_____	Less than once a week_____	Once or twice a week_____	Three or more times a week_____
-----------------------------------	-------------------------------	------------------------------	------------------------------------

g) Feel too hot

Not during the past month_____	Less than once a week_____	Once or twice a week_____	Three or more times a week_____
-----------------------------------	-------------------------------	------------------------------	------------------------------------

h) Had bad dreams

Not during the past month_____	Less than once a week_____	Once or twice a week_____	Three or more times a week_____
-----------------------------------	-------------------------------	------------------------------	------------------------------------

i) Have pain

Not during the past month_____	Less than once a week_____	Once or twice a week_____	Three or more times a week_____
-----------------------------------	-------------------------------	------------------------------	------------------------------------

j) Other reason(s), please describe_____

How often during the past month have you had trouble sleeping because of this?

Not during the past month_____	Less than once a week_____	Once or twice a week_____	Three or more times a week_____
-----------------------------------	-------------------------------	------------------------------	------------------------------------

6. During the past month, how would you rate your sleep quality overall?

Very good _____

Fairly good _____

Fairly bad _____

Very bad _____

EXHIBIT A

Page 3 of 4

7. During the past month, how often have you taken medicine to help you sleep (prescribed or "over the counter")?

Not during the past month_____	Less than once a week_____	Once or twice a week_____	Three or more times a week_____
-----------------------------------	-------------------------------	------------------------------	------------------------------------

8. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?

Not during the past month_____	Less than once a week_____	Once or twice a week_____	Three or more times a week_____
-----------------------------------	-------------------------------	------------------------------	------------------------------------

9. During the past month, how much of a problem has it been for you to keep up enough enthusiasm to get things done?

No problem at all	_____
Only a very slight problem	_____
Somewhat of a problem	_____
A very big problem	_____

10. Do you have a bed partner or room mate?

No bed partner or room mate	_____
Partner/room mate in other room	_____
Partner in same room, but not same bed	_____
Partner in same bed	_____

If you have a room mate or bed partner, ask him/her how often in the past month you have had . . .

- a) Loud snoring

Not during the past month_____	Less than once a week_____	Once or twice a week_____	Three or more times a week_____
-----------------------------------	-------------------------------	------------------------------	------------------------------------

- b) Long pauses between breaths while asleep

Not during the past month_____	Less than once a week_____	Once or twice a week_____	Three or more times a week_____
-----------------------------------	-------------------------------	------------------------------	------------------------------------

- c) Legs twitching or jerking while you sleep

Not during the past month_____	Less than once a week_____	Once or twice a week_____	Three or more times a week_____
-----------------------------------	-------------------------------	------------------------------	------------------------------------

EXHIBIT A

Page 4 of 4

d) Episodes of disorientation or confusion during sleep

Not during the past month _____	Less than once a week _____	Once or twice a week _____	Three or more times a week _____
------------------------------------	--------------------------------	-------------------------------	-------------------------------------

e) Other restlessness while you sleep; please describe _____

Not during the past month _____	Less than once a week _____	Once or twice a week _____	Three or more times a week _____
------------------------------------	--------------------------------	-------------------------------	-------------------------------------

This form may only be used for non-commercial education and research purposes. If you would like to use this instrument for commercial purposes or for commercially sponsored research, please contact the Innovation Institute at the University of Pittsburgh at 412-383-7670 for licensing information.

Copyright 1989 and 2010, University of Pittsburgh. All rights reserved. Developed by Buysse, D.J., Reynolds, C.F., Monk, T.H., Berman, S.R., and Kupfer, D.J. of the University of Pittsburgh using National Institute of Mental Health Funding.

Buysse DJ, Reynolds CF, Monk TH, Berman SR, Kupfer DJ: *Psychiatry Research*, 28:193-213, 1989.

EXHIBIT A

Pittsburgh Sleep Quality Index (PSQI)**Form Administration Instructions, References, and Scoring****Form Administration Instructions**

The range of values for questions 5 through 10 are all 0 to 3.

Questions 1 through 9 are not allowed to be missing except as noted below. If these questions are missing then any scores calculated using missing questions are also missing. Thus it is important to make sure that all questions 1 through 9 have been answered.

In the event that a range is given for an answer (for example, '30 to 60' is written as the answer to Q2, minutes to fall asleep), split the difference and enter 45.

Reference

Buyse DJ, Reynolds CF, Monk TH, Berman SR, Kupfer DJ: The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. *Psychiatry Research* 28:193-213, 1989.

Scores – reportable in publications

On May 20, 2005, on the instruction of Dr. Daniel J. Buysse, the scoring of the PSQI was changed to set the score for Q5J to 0 if either the comment or the value was missing. This may reduce the DISTB score by 1 point and the PSQI Total Score by 1 point.

PSQIDURAT**DURATION OF SLEEP**

IF Q4 \geq 7, THEN set value to 0

IF Q4 $<$ 7 and \geq 6, THEN set value to 1

IF Q4 $<$ 6 and \geq 5, THEN set value to 2

IF Q4 $<$ 5, THEN set value to 3

Minimum Score = 0 (better); Maximum Score = 3 (worse)

PSQIDISTB**SLEEP DISTURBANCE**

IF Q5b + Q5c + Q5d + Q5e + Q5f + Q5g + Q5h + Q5i + Q5j (IF Q5JCOM is null or Q5j is null, set the value of Q5j to 0) = 0, THEN set value to 0

IF Q5b + Q5c + Q5d + Q5e + Q5f + Q5g + Q5h + Q5i + Q5j (IF Q5JCOM is null or Q5j is null, set the value of Q5j to 0) \geq 1 and \leq 9, THEN set value to 1

IF Q5b + Q5c + Q5d + Q5e + Q5f + Q5g + Q5h + Q5i + Q5j (IF Q5JCOM is null or Q5j is null, set the value of Q5j to 0) $>$ 9 and \leq 18, THEN set value to 2

IF Q5b + Q5c + Q5d + Q5e + Q5f + Q5g + Q5h + Q5i + Q5j (IF Q5JCOM is null or Q5j is null, set the value of Q5j to 0) $>$ 18, THEN set value to 3

Minimum Score = 0 (better); Maximum Score = 3 (worse)

PSQILATEN**SLEEP LATENCY**

First, recode Q2 into Q2new thusly:

IF Q2 \geq 0 and \leq 15, THEN set value of Q2new to 0

IF Q2 $>$ 15 and \leq 30, THEN set value of Q2new to 1

IF Q2 $>$ 30 and \leq 60, THEN set value of Q2new to 2

IF Q2 $>$ 60, THEN set value of Q2new to 3

EXHIBIT A

Next

IF Q5a + Q2new = 0, THEN set value to 0
 IF Q5a + Q2new ≥ 1 and ≤ 2 , THEN set value to 1
 IF Q5a + Q2new ≥ 3 and ≤ 4 , THEN set value to 2
 IF Q5a + Q2new ≥ 5 and ≤ 6 , THEN set value to 3

Minimum Score = 0 (better); Maximum Score = 3 (worse)

PSQIDAYDYS**DAY DYSFUNCTION DUE TO SLEEPINESS**

IF Q8 + Q9 = 0, THEN set value to 0
 IF Q8 + Q9 ≥ 1 and ≤ 2 , THEN set value to 1
 IF Q8 + Q9 ≥ 3 and ≤ 4 , THEN set value to 2
 IF Q8 + Q9 ≥ 5 and ≤ 6 , THEN set value to 3
 Minimum Score = 0 (better); Maximum Score = 3 (worse)

PSQIHSE**SLEEP EFFICIENCY**

Diffsec = Diffsec = Difference in seconds between times for Bed Time (Q1) and Getting Up Time (Q3).
 Diffhour = Absolute value of diffsec / 3600
 newtib = IF diffhour > 24, then newtib = diffhour - 24
 IF diffhour ≤ 24 , THEN newtib = diffhour
 (NOTE, THE ABOVE JUST CALCULATES THE HOURS BETWEEN BED TIME (Q1) AND GETTING UP TIME (Q3))
 tmphse = (Q4 / newtib) * 100

IF tmphse ≥ 85 , THEN set value to 0
 IF tmphse < 85 and ≥ 75 , THEN set value to 1
 IF tmphse < 75 and ≥ 65 , THEN set value to 2
 IF tmphse < 65, THEN set value to 3
 Minimum Score = 0 (better); Maximum Score = 3 (worse)

PSQISLPQUAL**OVERALL SLEEP QUALITY**

Q6
 Minimum Score = 0 (better); Maximum Score = 3 (worse)

PSQIMEDS**NEED MEDS TO SLEEP**

Q7
 Minimum Score = 0 (better); Maximum Score = 3 (worse)

PSQI**TOTAL**

DURAT + DISTB + LATEN + DAYDYS + HSE + SLPQUAL + MEDS Minimum Score = 0 (better); Maximum Score = 21 (worse)
 Interpretation: TOTAL ≤ 5 associated with good sleep quality
 TOTAL > 5 associated with poor sleep quality

Appendix C

Questionnaire

1/29/24, 11:15 AM

Qualtrics Survey Software

Default Question Block

Dear fellow students,
My name is Jennifer Arlow. I am a Senior I student in the BSN Program and a student in the Honors College. As part of the Honors Program, I am conducting a research study with the title "Sleep quantity and quality: impact on nursing students' GPA at Georgia Southern University". The research study has been approved by the IRB of Georgia Southern University, #IRB

If you are 18 years or older, and entered the Nursing Program in the Spring 2023, Fall 2023, or Spring 2024, you are invited to participate in this research. I will ask you to complete a questionnaire sharing information about the quality and quantity of your sleep, your grade point average (GPA), and how you think your sleep patterns influenced your GPA.

The survey takes approximately 15 minutes to complete. You can stop participating in the survey at any time. The questionnaire is completed via Qualtrics (the database). We do not collect your IP addresses and the researcher will code the data so no other identities are associated with the survey. You will not be identified by name in any of the data reports using information obtained from this study. Your name is not required at any stage of the questionnaire. There is minimal risk associated with participating in this research. Like any survey, some questions asked may create potential discomfort, if you feel uncomfortable at any time, you may skip a question or stop participating at all.

You have the right to ask questions and have those questions answered.
If you have questions about this study, please contact Jennifer Arlow at ja19396@georgiasouthern.edu or by phone at (912) 704-6254.

There may be discomfort associated with sharing information about sleep habits and grade point averages. However, this information will remain confidential. Further, you are encouraged to discontinue the survey if at any point you feel uncomfortable. You are also encouraged to contact the researcher with any comments/questions/concerns.

While there are no direct benefits to you for participating in the study, your responses and sharing of information may help future students as it can give us a better understanding of how sleep impacts your academic performance.

If you would like, please print this page to have a record of the consent document.

If you would like more information, you can contact:
Jennifer Arlow: ja19396@georgiasouthern.edu (Primary Investigator)
Dr. Estelle Bester (research advisor) mbester@georgiasouthern.edu
For all other questions concerning your rights as a research participant, contact Georgia Southern University Office of Research Services and Sponsored Programs at (912) 478-5465.

After reading the consent, if you wish to continue, you may continue to the survey. You will be asked to choose the answer(s) most applicable to you or to type your opinion.

Thank you for your willingness to participate in this research.

Jennifer Arlow

Do you consent to participate in this survey?

☐ Yes

☐ No

What is your current cohort?

- ☐ Junior 1
- ☐ Junior 2
- ☐ Senior 1
- ☐ Senior 2

What was your GPA when you started nursing school?

- ☐ 2.5-2.9
- ☐ 3.0-3.4
- ☐ 3.5-3.9
- ☐ 4.0 and above

What is your current overall GPA?

- ☐ 2.5-2.9
- ☐ 3.0-3.4
- ☐ 3.5-3.9
- ☐ 4.0 and above

During the past month, what time have you usually gone to bed at night?

During the past month, how long (in minutes) has it usually taken you to fall asleep each night?

During the past month, what time have you usually gotten up in the morning? (if the past month was during vacation/school recess, think of a month before the vacation/school recess)

During the past month, how many hours of actual sleep did you get at night? (This may be different than the number of hours you spent in bed.)

During the past month how often did you...

1/29/24, 11:15 AM

Qualtrics Survey Software

	Not during the past month	Less than once a week	Once or twice a week	Three or more times a week
take you take longer than 30 minutes to fall asleep	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
have trouble sleeping because you cannot breathe comfortably	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
have trouble sleeping because you cough or snore loudly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
have trouble sleeping because you felt too cold	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
have trouble sleeping because you felt too hot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
have trouble sleeping because you have pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
have trouble sleeping because you had bad dreams	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
take medicine to help you sleep (prescribed or "over the counter")	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
have trouble staying awake while driving, eating meals, or engaging in social activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other reason(s), please describe:

How often during the past month have you had trouble sleeping because of this?

- ☐ Not during the past month
☐ Less than once a week
☐ Once or twice a week
☐ Three or more times a week

During the past month, how would you rate your sleep quality overall?

- ☐ Very good
☐ Fairly good
☐ Fairly bad
☐ Very bad

During the past month,

	Never	Not during the past month	Less than once a week	Once or twice a week	Three or more times a week	Almost every night
How often did you wake up in the middle of the night or early morning?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often have you had trouble sleeping because you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

1/29/24, 11:15 AM

Qualtrics Survey Software

	Never	Not during the past month	Less than once a week	Once or twice a week	Three or more times a week	Almost every night
have to get up to use the bathroom?						

During the past month, how much of a problem has it been for you to keep up enough enthusiasm to get things done?

- ☐ No problem at all
- ☐ Only a very slight problem
- ☐ Somewhat of a problem
- ☐ A very big problem

Do you have a bed partner or room mate?

- ☐ No bed partner or room mate
- ☐ Partner/room mate in other room
- ☐ Partner in same room, but not same bed
- ☐ Partner in same bed

If you have a room mate or bed partner, ask him/her how often in the past month you have had . . .

	Not during the past month	Less than once a week	Once or twice a week	Three or more times a week
Loud snoring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Long pauses between breaths while asleep	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Legs twitching or jerking while you sleep	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Episodes of disorientation or confusion while asleep	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other restlessness while you sleep	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please describe other restlessness stated above if applicable:

How often does restlessness described above occur?

- ☐ Not during the past month
- ☐ Less than once a week
- ☐ Once or twice a week
- ☐ Three or more times a week

How would you say sleep influenced your GPA?

- ☐ No influence on my GPA
- ☐ My GPA is lower than when I started nursing
- ☐ My GPA is higher than when I started nursing

How important (would you rate sleep, diet, and exercise academic performance in nursing school?

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Sleep	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exercise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix D



RESEARCH INTEGRITY

Institutional Review Board (IRB)
 PO Box 8005 • STATESBORO, GA 30460
 Phone: 912-478-5465
 Fax: 912-478-0719
 IRB@GeorgiaSouthern.edu

To: Arlow, Jennifer

From: Georgia Southern Institutional Review Board

Approval Date: February 2, 2024

Subject: Institutional Review Board Exemption Determination - Limited Review

The following protocol involves activities that do not require full approval by the Institutional Review Board (IRB) according to federal guidelines.

Protocol #: H24165
Title: Sleep Quantity and Quality: Impact on Nursing Students' GPA at Georgia Southern University

As authorized in the Federal Policy for the Protection of Human Subjects, your research protocol is determined to be exempt from full review under the following exemption category(s):

Review Type: Exemption 2: Research involving only the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, if: Information obtained is recorded in such a manner that human participants cannot be identified, directly or through identifiers linked to them. Please visit our FAQ's for more information on anonymous survey platforms; Any disclosure of the human participant's responses outside the research could not reasonably place the participant at risk of criminal or civil liability or be damaging to the participant's financial standing, employ-ability or reputation; Survey or interview research does not involve children; The research project does not include any form of intervention.

Therefore, as authorized in the Federal Policy for the Protection of Human Subjects, I am pleased to notify you that the Institutional Review Board has approved your proposed research **with the understanding that you will abide by the following conditions:**

Incentives: No monetary incentives are approved for this protocol.

Special Conditions: None.

No COVID Safety Plan No in person procedures were included in this protocol.

Any alteration in the terms or conditions of your involvement may alter this approval. Therefore, as authorized in the Federal Policy for the Protection of Human Subjects, I am pleased to notify you that your research, as submitted, is exempt from IRB Review. No further action or IRB oversight is required, as long as the project remains the same. If you alter the project, it is your responsibility to notify the IRB and acquire a new determination of exemption. Because this project was determined to be exempt from further IRB oversight, this project does not require an expiration date.