

# Sleep and Experiences of Stress on College Campuses: Evaluating Effectiveness of a Sleep Wellness Workshop

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## *Author Note*

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## **Abstract**

Researchers suggest that college students experience especially elevated levels of stress and notoriously poor-quality sleep. To address this, many schools provide wellness workshops designed to increase awareness and educate students on topics such as healthy sleep habits, stress management tips, and ways to avoid burnout. While the aim of these workshops is to improve students' well-being, are they successful, and are students experiencing a measurable benefit from attending? This study assesses whether a sleep-focused wellness workshop improved students' sleep quality and reduced their perceived stress levels. To evaluate the effectiveness of these methods, we hosted a sleep-focused wellness workshop open to all registered students and measured pre- and post-workshop perceived stress, anxiety, and sleep quality. The online pre- and post-surveys contained forty-six questions, consisting of demographics, the Perceived Stress Scale, modified versions of Beck's Anxiety Inventory, and the Sleep Quality Scale. We hypothesized that students who learn about better sleep habits by attending the sleep-focused wellness workshop would experience a reduction in their perceived stress and anxiety along with better overall sleep quality two weeks after participating. We hoped that the methods being taught were effective and that students effectively incorporated what they learned into their daily lives. This study found that attending a wellness workshop reduced students' levels of perceived stress and anxiety but had no effect on sleep quality. These findings provide confirmation that student support initiatives are an effective way of helping students manage stress and anxiety in college, even when the intervention is limited to a one-hour virtual wellness workshop. Future research should assess if offering more robust interventions yields a greater positive effect on students' well-being.

*Keywords:* sleep, sleep quality, perceived stress, wellness.

Starting college is inherently a time of new challenges and stressors. Students face numerous new experiences that are entirely unfamiliar, and

they are expected to perform well in this unfamiliar environment. The most common obstacles students face are schedule creation, time management,

homesickness, academic stress, and forming new social connections (Hako et al., 2023). Unsurprisingly, college students routinely display higher levels of psychological distress than most other groups, which manifests depression, anxiety, stress, and poor sleep quality (Ferrari et al., 2022; Saleh et al., 2017). These issues have only increased in recent years, with current estimates from the World Health Organization's mental health surveys predicting that 35% of full-time students meet the criterion for at least one mental health disorder (Auerbach et al., 2018). Recent research has found that, compared to adults and age-matched peers in the general population, college students are experiencing higher levels of psychological distress, commencing with the first two years at the university garnering the highest reported period of distress (Sharp & Theiler, 2018).

Of these health factors, stress and sleep quality appear to be highly correlated, with a bidirectional relationship where one factor exacerbates the other (Pascoe et al., 2020). Specifically, students report being unable to get good sleep due to being too stressed, or that their poor sleep quality increases their overall level of stress (Shanbhog & Jeevan, 2023). Both elevated levels of stress and poor sleep quality are associated with reduced academic performance (Alotaibi et al., 2020).

Fortunately, research shows that interventions aimed at improving students' sleep are effective, and improving sleep quality has a more significant positive impact on overall academic success than improving other problems typically faced by students (Kaubrys et al., 2021; Hartmann & Prichard, 2018). A lack of good sleep strongly contributes to increased psychological distress (Li, 2023); therefore, teaching students about better sleep habits may positively impact issues that initially appear unrelated to sleep quality. In addition, past studies have confirmed that, on average, most first-year college students have received little to no education about healthy sleep habits. However, students are keenly interested in improving their sleep quality (Hartmann & Prichard, 2018).

These studies bode well for universities and suggest that sleep-targeted learning and interventions may prove effective at combating student distress and improving overall well-being during the early stages of college. Colleges can do much to help their students by providing resources and education on how to improve sleep quality. This study aimed to assess if students can benefit from a wellness-style workshop by comparing before and after workshop self-reported scores of sleep quality and perceived stress. We hypothesized that learning about healthy sleep habits would (1) increase students' overall sleep quality and (2) lower their levels of perceived stress.

## **Method**

### **Participants**

This study consisted of 40 participants with an age range of 18 to 49. Females composed 67% of the sample, and the majority (43%) were White and 33% Asian. The sample was drawn from a mid-size community college located in the Pacific Northwest. All currently enrolled students, including dual-enrolled high school students under the age of 18, were eligible to participate. Institutional Review Board (IRB) approval was obtained before recruiting participants, and the IRB gave special permission to allow dual-enrolled high school students under 18 to participate. These participants were not asked to give their exact age, only to indicate if they were under 18. Participants self-selected into the study by signing up to attend a sleep wellness workshop offered by the college's psychology department. Potential participants were notified of the workshop and study via emails, paper and digital flyers, and in-class announcements by faculty. Incentives were not offered for participating, but several psychology professors independently provided their students with extra course credit in exchange for attending the workshop and participating in the study.

## Materials

The sleep wellness workshop was held virtually on Zoom and offered at two separate times to maximize attendance. The survey was created using the Qualtrics XM platform and distributed to participants via email when they signed up to attend the sleep workshop. Survey questions were taken from the Perceived Stress Scale (Cohen et al., 1983), Beck Anxiety Inventory (Beck et al., 1988), and Sleep Quality Scale (Yi et al., 2006) to assess participants' levels of stress, anxiety, and sleep quality over the last two weeks. Our survey questions utilized both four and five-point scales: Perceived Stress Scale 1 (*Never*) to 5 (*Very Often*), Anxiety Inventory 1 (*Not at all*) to 4 (*Severely – it bothered me a lot*), Sleep Quality Scale 1 (*Rarely*) to 4 (*Almost always*). The survey was comprised of forty-six questions, twenty-one anxiety questions, ten stress questions, six sleep quality questions, and nine demographic questions.

We conducted a pilot study ( $n=22$ ) several months before to test survey questions and flow. The pilot study followed the same structure, with workshop attendees completing a survey of thirty-one questions before and after the sleep wellness workshop.

## Procedure

The surveys were administered between January 20<sup>th</sup> and February 9<sup>th</sup>, 2023. Participants were asked to take the survey as a component of attending the sleep wellness workshop. Those who registered to participate in the workshop were sent a link to the pre-survey the week before and sent the post-survey using the same format two weeks after the event. Informed consent was obtained from all participants at the beginning of the pre- and post-surveys. Participants were shown a consent document in Qualtrics with the option to accept or decline. Only participants who selected "accept" were allowed to proceed with the survey. All participants were told that the survey aimed to assess their stress and anxiety levels and that it would take approximately ten minutes to complete. They received a link via email inviting them to take a

Qualtrics survey using their phone or computer. We instructed participants to take the survey before attending the one-hour virtual Zoom workshop. Only those who completed the pre-survey and attended the entire sleep wellness workshop were invited to take the post-workshop survey. The workshop focused on educating students about healthy sleep and included tips and suggestions for improving their sleep habits and overall sleep quality. Suggestions included limiting screen time before bed, lowering the room's temperature, avoiding large meals before bed, and developing a routine around getting ready to sleep. Approximately two weeks after attending the workshop, we sent participants another email containing the link for the post-survey. The second survey asked the same questions as the first and took approximately the same amount of time to complete.

## Results

We evaluated our hypotheses by computing correlations between pre-workshop sleep and stress scores and post-workshop sleep and stress scores. We then conducted t-tests on pre- and post-workshop stress, pre- and post-workshop anxiety, and pre- and post-workshop sleep scores. Pre-workshop:  $r(57) = -0.48, p < .001$ . Post-workshop:  $r(40) = -0.50, p < .001$ . When comparing pre- and post-scores of perceived stress, anxiety, and sleep quality, we found a statistically significant decrease in perceived stress and anxiety levels after attending the workshop. Stress scores before ( $M = 28.77, SD = 7.41$ ) and after ( $M = 26.50, SD = 7.91$ ) the workshop,  $t(56) = 29.33, p < .001$ , the effect size, measured by Cohen's  $d$ , was  $d = 0.30$ , which indicates a small effect. Anxiety scores before ( $M = 38.07, SD = 11.42$ ) and after ( $M = 35.89, SD = 8.09$ ) the workshop,  $t(55) = 24.94, p < .001$  were significantly decreased (see Figure 1), and the effect size, measured by Cohen's  $d$ , was  $d = 0.22$ , which also indicates a small effect. Finally, there was no statistically significant difference in sleep quality scores after attending the workshop.

## Discussion

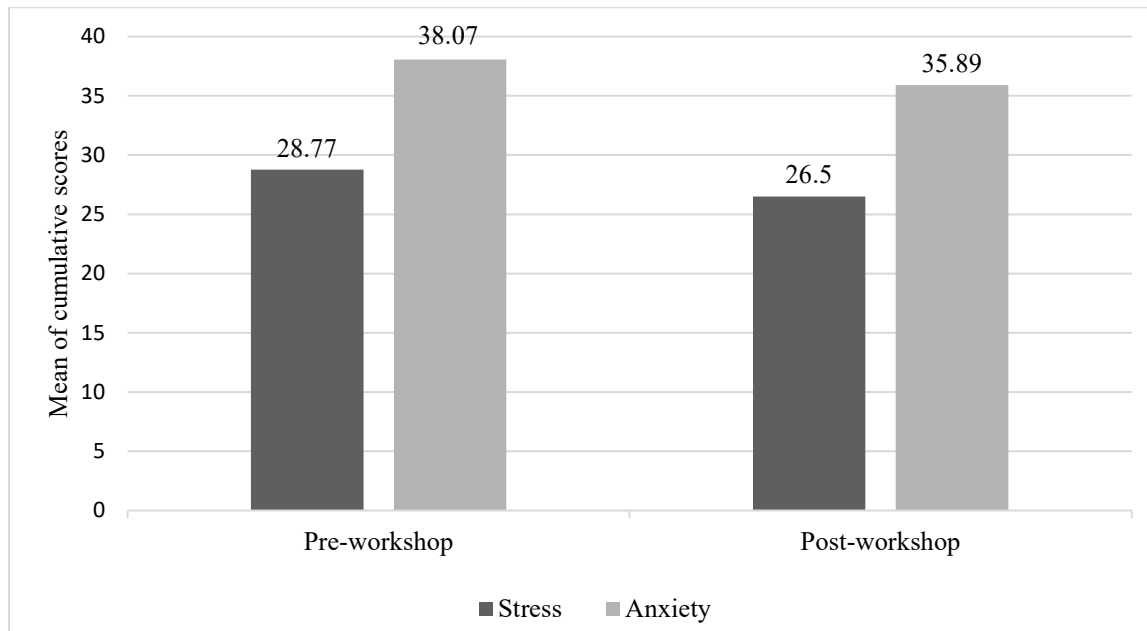
The current study hypothesized that attending a sleep wellness workshop would improve participants' sleep quality and lower their levels of perceived stress. Similar to other studies (Pascoe et al., 2020), we found a moderate negative correlation between sleep quality and stress in pre- and post-workshop data. Our findings indicate that the 1-hour virtual sleep wellness workshop was ineffective at improving college students' overall sleep quality. However, learning about sleep and healthy sleep habits may be an effective way of reducing students' levels of perceived stress and anxiety. These findings contrast other research (Kaubryst et al., 2021; Hartmann & Prichard, 2018), which found that stress was only reduced when there was a measurable improvement in sleep quality and vice versa. These results may have inadvertently been impacted by external factors such as midterm examinations. Midterm exams took place within a few days of collecting post-workshop responses and may have contributed to the lack of statistical significance between pre- and post-sleep scores. Sleep scores showing no significant change may indicate our intervention is working, as students typically report reduced sleep quality during periods of stress such as exams, and we recorded no significant change in sleep quality in either direction. Since this sample was collected from a community college, both the method used for the sleep workshop and the main findings of this study may not be generalizable to other schools, especially traditional four-year institutions.

Additionally, the two-week window between the workshop and post-survey may have been an inadequate amount of time for students to incorporate the new information they learned into their routines. While these findings are interesting, it is

essential to consider how both the sample and statistical analysis may have impacted the results. As highlighted above, our pre- and post-workshop samples had different numbers of participants (pre  $n = 57$ , while post  $n = 40$ ). Although we aimed to maintain equal sample sizes between pre- and post-surveys, several participants unavoidably failed to attend the workshop or take the post-workshop survey. Different sample sizes increase the likelihood of type I errors (false positives) and can significantly reduce statistical power (Rusticus & Lovato, 2014), which may have affected these findings.

Given that college students are facing higher levels of psychological distress than other age-matched groups (Sharp & Theiler, 2018), workshops such as the one utilized in our study may offer colleges a relatively low-effort solution for improving students' well-being by lowering their levels of perceived stress and anxiety. Future research on this topic should assess if using a more robust intervention, in the form of multiple wellness workshops or activities that engage students with the subject over a more extended period, garners a more significant reduction in perceived stress and anxiety levels. Perhaps a more robust intervention implemented at a time when students are not inordinately stressed by external factors would produce greater improvement in sleep quality than we observed. Despite the lack of significant improvement in sleep quality scores, this study found that students are motivated to improve their sleep quality and learning about this topic produced marked reductions in their anxiety and perceived stress levels. Schools should view these findings as a call for more student support programs and confirmation that these efforts are an effective way to improve the well-being of their students.

**Figure 1.** Cumulative Stress and Anxiety Scores



Note: . The bars represent average self-reported stress and anxiety scores for the pre- and post-workshop samples.

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