

# **Nature and the Mental Health of College Students**

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### **Writer's Statement**

I was drawn to Michigan Tech in part because of the natural scenery of the area. I enjoy many outdoor activities such as skiing and mountain biking. While I was interested in an engineering career, I wanted to go to college somewhere where I could find a balance between my academic interests and my personal hobbies. As a result, this topic came to mind when I had to do research papers for composition. I was worried that I would find little, and consequently was unsure what questions to ask. My initial drafts ended up being very disconnected and scatterbrained, and the revision process during and after the class was difficult for me and took more time than I intended. However, in the end, I feel relatively proud of how my final journal article turned out, and am pleased to share with you my findings on nature and its effects on the mental health of college students.

College is an important transitional period of life for many people. Independence allows students to discover themselves, make new friends with similar interests, and learn to be adults in addition to learning the curriculum of their classes. However, students also have a greater number of responsibilities, and spend a long time away from their families and the friends they made in high school. This increases the prevalence of mental health disorders like anxiety and depression in colleges. In the 2022 American College Health Assessment, it was discovered that 34.6% of students have been diagnosed with anxiety disorder. (American College Health Association, 2022). An estimated 41% of students also suffer from depression according to the 2022-2023 Healthy Minds Study (Murphy & Bell, 2022).

While counseling can be an effective method for dealing with mental health, many students still do not get the help they need due to the inequity in the number of students struggling with mental health compared to those working in mental health services. Many students also avoid these services due to the stigma around getting mental health support. Additionally, students' everyday activities and environment also have a great impact on their mental health. Growing research suggests that nature can be a strong antidote for mental health issues, with effects ranging from relieving everyday stressors to helping soothe long term depression and anxiety. Nature should be used to combat the mental health crisis in colleges both because of its ability to reduce stress and improve mood, and due to the numerous proven methods to help connect students to nature and its mental health benefits.

### **Stress Reduction Due to Time in Nature**

Spending time in nature has been proven to improve mental health through multiple aspects, one of which is decreasing overall stress. Natural environments are beneficial to stress reduction because of attention restoration. Modern life can often demand a high degree of voluntary attention that can produce an unhealthy degree of stress, and college students are no exception. For example, a student usually focuses for three or more hours of lectures and often has to do homework to reinforce the material afterwards. Taking breaks for exercise or reading are recommended to de-stress because they engage the mind with a different task and promote other parts of your well-being simultaneously. However, if these activities are done in nature, an additional benefit is provided. Nature enables indirect attention to allow your direct attention to recharge (Ohly et al., 2016). Essentially, nature provides distractions that draw your attention rather than requiring you to pay attention through aesthetic appeal and movements such as leaves rustling in the wind or animals, preventing stressful thoughts from recurring.

Multiple studies that have analyzed the effectiveness of time in nature found evidence to support these effects. A group of Cornell researchers found that students demonstrated more evidence of decreased stress in natural environments compared to urban environments. This included physiological evidence such as lower heart rates, cortisol levels, and blood pressures, as well as psychological evidence such as self-reported feelings of comfort. (Meredith et al., 2020). The study proves that nature's stress relief can be used as an effective way to boost mental health, alongside exercise and other strategies. The researchers also found that spending 10–20 minutes in nature is enough to provide these effects to a significant degree for the majority of college students and continues to increase with the amount of time spent in nature up to 50 minutes (Meredith et al., 2020). This affirms that the impacts of nature on stress reduction are significant, and that budgeting time in nature into any college student's schedule is feasible.

### **Nature's Effect on Emotional Health**

Decreased stress is not the only mental health benefit of spending time in natural environments; they have also been proven to greatly improve emotional health. Multiple factors are believed to contribute to these benefits. Nature provides free, open spaces, which encourages exercise (Jimenez, 2021). Exercise in turn improves blood circulation in the brain and therefore improves mood. The biophilia hypothesis is another possible source of these benefits. According to this theory, all humans have an innate psychological connection to nature due to surviving in natural environments for millions of years, and as a result, our self-preservation instincts remain. Various stimuli, such as the chemicals released by leaves, views of natural scenery, noises of animals, and the sound of running water, cause releases in serotonin to the brain. This is the hormone responsible for improving mood as a reward system for the brain. Contrarily, urban scenery and noises cause stress responses in the amygdala, the part of our brain responsible for our fight or flight responses. (Mantler & Logan, 2015). While these mechanisms are not completely understood yet, multiple case studies support that nature provides significant emotional health benefits.

An article published on *Frontiers of Psychology* discussed a study on college students, and states that: "nature experiences of between 10 and 20 minutes have been shown to improve mood an average of 86% among student participants." (Ibes & Rakow, 2022). This proves that nature does not only relieve stressors; its scope of mental health effects extends to emotional health to a significant degree.

Spending time in nature has additionally been proven to aid in relieving more severe emotional health disorders such as depression, even to the extent of reversing long-term symptoms of depressive disorder such as cognition. For example, a study done by researchers from Stanford, the University of Michigan, and the Rotman Research Institute focused on comparing the effect of nature on mental health of volunteers with major depressive disorder by having each walk for 50 minutes through either city streets and through a park near campus and switching the following week. Before and after the walk, participants were surveyed for mood (measured as 'positive affect' and 'negative affect'), which is the main indicator of the disorder. They were also tested for their working memory (also called short term memory) through a backwards digit test, as difficulty with memory is a common symptom of major depressive disorder. On average, the participants had both a much better memory and a better mood after walking in nature than in an urban center or not at all (Berman et al., 2012). Evidently, spending time in nature significantly boosts mental health through multiple aspects, which means that getting students struggling with a wide range or multiple mental health issues could benefit greatly from setting aside time to spend outdoors.

## **Greenspace on College Campuses**

Though promoting student involvement in outdoor activities helps to improve student mental health, students still must spend a large portion of their time on campus. This does not, however, mean that they cannot receive some mental health benefits of nature. Small doses of 'greenspace', or aspects of natural environments in non-natural areas such as parks in cities or even trees in someone's backyard can provide most of the mental health benefits that 'true nature', such as forests, provide (Callaghan et al., 2020). Many universities could benefit from using their campus greenspace more effectively. An article by Ibes and Rakow introduces a program called Campus Rx that is being used at over 50 universities nationwide. The article explains several methods already being used to promote nature on college campuses. Some universities have undergone large projects under this program, including California State University Monterey Bay, which got students involved in planning future campus development through a Research Methods class (Ibes & Rakow, 2022). However, these types of more extreme changes are often not cost-effective or applicable to most schools. Others such as William & Mary and Cornell University have gotten students involved in small changes in infrastructure such as building outdoor furniture in less utilized areas or creating both indoor and outdoor gardens. Some schools have also explored passive methods such as including outdoor eating or studying spaces on campus maps to encourage students to use underutilized green spaces on campus. (Ibes & Rakow, 2022). Not every school is capable of transforming its greenspaces to the same degree. However, there are various cost-effective approaches that can be easily organized by students and faculty to promote mental health on their campus and possibilities for long term changes in infrastructure that prioritize mental health.

Many schools and programs promoting greenspace on campuses are still in their early phase, so little data is available on the impacts of these programs. However, a case study between 45 different Chinese Universities already suggests that colleges with better greenspace have greater mental health benefits. In the study, the schools were compared through student ratings on four aspects of their campus' green space: comfort, reasonable layout, beautiful scenery, and diverse plants, then ranked by students on a scale of one (poor) to five (excellent). Their mental health was assessed through a similar survey rating five indicators of their emotional health from one (poor) to six (excellent), in addition to their GPA to see if either the green spaces had improved their grades or if the grades had an effect on their mental health. While the participants were in varying mental health states, it was found that there was a three- way positive correlation between better greenspaces, academic success, and mental health, and that "green spaces had an important effect on college students' mental health, and the degree of this effect had exceeded that of academic achievement" (Liu et al., 2022). This study not only affirms that improving greenspaces on college campuses would have a significant effect on mental health, it also proves that available greenspaces can foster academic success, relieving many of the stressors that cause anxiety in colleges at the source. A study done on the effect of greenspace on mental health at Furman University proved that the students who take advantage of campus greenspace reported several positive mental health indicators. Of the students who utilized green space for over 15 minutes, 35.3% claimed that they felt a higher quality of life,

39.4% perceived low stress, and 22.6% felt "very happy". Of those who did not, only 24.0% felt a higher quality of life, 29.9% perceived lower stress, and 11.5% felt "very happy." (Holt et al., 2019). The study found a consistent increase in different measures of positive mental health, suggesting that green spaces have a positive impact on student's mental health. Considering that the two studies were done in culturally different countries, these studies also show that improving green spaces has an overall positive impact for the majority of people regardless of their background.

## Conclusion

Nature, and more specifically green spaces, are capable of significantly reducing stress and improving mood and cognition. The framework to promote and improve college green spaces has already been laid out and proven effective by many schools across different parts of the world. Consequently, college staff and student leadership have ample resources to make nature part of the solution for the college mental health crisis and should extend more efforts to do so. After all, by promoting student mental health we are not only helping individuals but setting ourselves up for a brighter future.

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