

# The Impact of a Shared Nature Experience on the Outlook of Medical Students

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## Introduction

Recently there has been increased interest in the mental health of medical students. Although medical school does appear to cause significant psychological distress, medical students generally feel satisfied with their lives (1) and have high levels of happiness (3). This happiness, defined as an intellectual status of well-being (3), has been shown to relate to religious attitude, spiritual intelligence, and self-efficacy, but it has not been tied to academic achievement (1). Medical students who are physically active have also been shown to be significantly happier than their inactive counterparts (3).

While the urbanization of human society has had abundant benefits, it has also brought about an increase in feelings of isolation and depression (2). In response to this trend, there has been an increase in programs geared at removing people for their typical urban environments and giving them planned and purposeful experiences in nature. These programs have been shown to produce a variety of benefits, including improved self-concept, self-esteem, and cognitive autonomy, along with more prosocial behavior, and increased group cohesion (4). In general, studies support the idea that time spent in or viewing nature causes a decrease in self-reported stress level, while increasing positive mood and self-rating of positive affect, such as elation and affection (2).

Even though studies have investigated the mental health of medical students and, separately, the impact of nature on mental wellness, there appears to be little inquiry into the benefits of nature on medical students. This study attempts to investigate this intersection.

## Methods


A group of OMS II Rocky Vista University –Southern Utah students (n = 9) enrolled during Spring 2019 in an optional course that involved backpacking in Coyote Gulch (Kane County, Utah) for three days. The outdoor experience required 8-10 miles of hiking each day, while carrying a backpack with items necessary for the excursion (food, water, clothing, sleeping bag, etc...). During each day of the trip, students spent time journaling and completing self-reflection assignments about personal happiness and personal relationships.

Before departing on the trip, each participant completed a novel 10-point questionnaire, which asked about their mental state, specifically asking for perceived levels of happiness, social support, optimism, power/control, purpose, and satisfaction with school. Each question used a Likert scale from 1-5 (see Figure 1). They were also asked three open ended questions about what brings them happiness, what they would change to have more happiness, and how nature may impact their happiness. At the end of the backpacking trip (3 days later), the students were asked to complete the same questionnaire again. To maintain anonymity, students were randomly assigned an animal (see Figure 2) that allowed comparison before and after results for each student. Statistical analysis (via Student's t-test) was completed in Microsoft Excel.




Figure 1: Student Questionnaire Tool

The following Questionnaire Tool was completed by each student before and after the backpacking experience.



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**Backpacking and Life-Long Joy Survey**  
I agree that my anonymous answers to these questions can be used in an RVU research study led by Matt Linton, Ph.D. This project has been approved by the RVU IRB committee (#2019-0032). Y \_\_\_\_ N \_\_\_\_  
For questions 1-10, please use a Likert Scale rating from 1 to 5, with 1 being Strongly Disagree and 5 being Strongly Agree.

	Strongly Disagree	1	2	Neutral	3	4	Strongly Agree
1 I am happy.							
2 I feel that I have power in my own life to personally control my happiness.	1	2	3	4	5		
3 My personal relationships are fulfilling and gratifying.	1	2	3	4	5		
4 My grades in medical school accurately reflect my work ethic.	1	2	3	4	5		
5 My fellow students at RVU are supportive and care about me as a person.	1	2	3	4	5		
6 My life has a strong sense of purpose.	1	2	3	4	5		
7 I am pleased so far with my education at RVU.	1	2	3	4	5		
8 Faculty and staff at RVU care about me.	1	2	3	4	5		
9 I can make a difference in the world.	1	2	3	4	5		
10 I am optimistic about my future as a physician.	1	2	3	4	5		

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**Backpacking and Life-Long Joy Survey**  
11. What are the primary sources of happiness in my life?

12. What would I change in my life, if I could, that would lead to my greater happiness?

13. How is nature/wilderness connected to happiness in my life?

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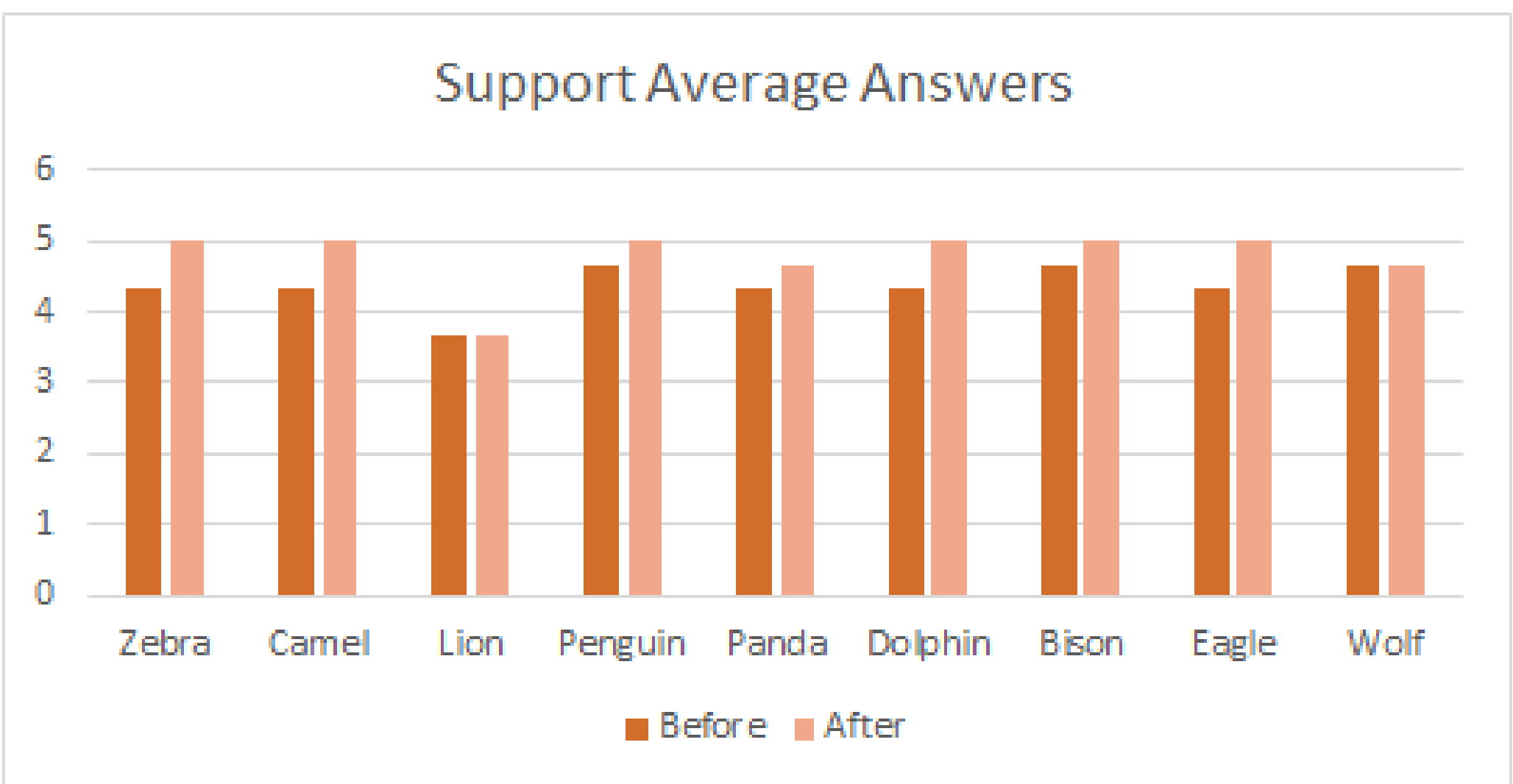
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## Results

All questionnaire packets that were completed (n = 9) were included in the analysis. After the pre-questionnaires were graded, the average score of all participants was found to be 4.46 out of 5.0, representing that the surveyed population feels as though they have a high level of overall support, happiness, optimism, power/control, purpose, and school satisfaction. The results of the post-questionnaire was then graded, and the average score of all participants was 4.64 out of 5.0, showing a numerical improvement in scores. When the questionnaires completed before and after the time spent backpacking were compared, it was shown that the overall increase was significant (P < 0.01). When individually compared, only one individual showed a statistically significant improvement in their scores (Eagle, p = 0.014), while one other students' improvement (Camel, p = 0.05) was nearly significant.

Of the individual questions, there were two that showed a statistically significant change. Question number 3, "My personal relationships are fulfilling and gratifying," improved from an average of 4.33 to 4.89 (p = 0.01). Question number 5, "My fellow students at RVU are supportive and care about me as a person," improved from 4.44 to 4.89 (p = 0.03). No other individual questions showed statistical improvement. Lastly, questions were grouped according to similar themes (support, happiness, optimism, power/control, purpose, and school satisfaction). Of all the categories, only "support" showed a significant improvement (Questions 3, 5, and 8) from 4.37 to 4.78 (p < 0.01).

Figure 2



## Conclusions

Consistent with previous studies (3), these results indicate that the students participating in this study were generally happy, optimistic, satisfied with their education, and feel self-empowered. Additionally, students generally expressed good social connection to their peers and close friends (1). The students that self-enrolled in this elective course at Rocky Vista University College of Osteopathic Medicine clearly do not represent a statistically valid sample of their entire cohort of students. In fact, as this course occurred at the beginning of a six-week concentrated board study period, it is likely that the students who enrolled are more academically confident and prepared than the average student at RVU. As studies have shown that time spent in nature can improve positive moods (2), it is also possible that naturally happier people tend to seek out adventurous outdoor activities. Upon return from the trip, one student articulated that "nature and the wild bring me happiness by connecting me to the world I live in. It allows me to escape the day-to-day and sort of reset my perspective (Penguin, question 3)."

Of special note is that students did report statistically improved social connection to their academic peers and close friends after this experience. The authors were not surprised by this result, as one would expect that spending three days hiking and socializing in a remote canyon, without digital and other distractions typical of modern life, would engender feelings of connectedness to peers and friends who are present with them. As one of the subject put it after the trip, "It gives me perspective about how I fit into the world and reminds me that there is way more out there than what I have going on right now in my life (Bison, question 3)." We hypothesize that this experience not only causes feelings of connectedness to those peers that were on the hike, but also foster feelings of closeness and social connection to family and friends that were not in close proximity.

The results of this study suggest that regular experiences in nature during a chronically stressful experience, such as medical school, would likely be beneficial. Our findings are consistent with other studies that showed that experiences outdoors are associated with improvements in well-being, good health, and resilience (4). This was found to be especially true in producing feelings of social connectedness, which would assist in ameliorating feelings of isolation and loneliness that occur in times of stress.

## References

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