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THE IMPACT OF OUTDOOR EDUCATION ON HEALTH

By

TESSA ANN LEAKE

Undergraduate Thesis
presented in partial fulfillment of the requirements
for the University Scholar distinction

Davidson Honors College
University of Montana
Missoula, MT

May 2018

Approved by:

Cara Nelson, Faculty Mentor
Ecosystem and Conservation Sciences

ABSTRACT

Leake, Tessa, B.S. May 2018

Community Health

Outdoor Education's Impact on Health

Faculty Mentor: Cara Nelson

I studied the effect that outdoor education and experiential learning has on health by interviewing students who participated in the University of Montana's Patagonia study abroad course during winter-session 2018. I interviewed participants before and after the course and asked them a series of questions about their health. Questions included how they defined health, what the greatest determinants of health are, if they have control over their health, and if they considered themselves to be in good health. Students were also asked to rate their levels of health overall, mentally, and physically in regard to both themselves and in comparison with their peers. I compared the responses from the before and after interview to determine if experiential learning like the Patagonia winter session course has any effect on health. It was my theory that outdoor education would have a positive impact on health, and most of the students did show an increase in their rating of health I cannot make any broad assumptions about the impact of outdoor education on all students' health, however, the results from my research nevertheless aligned with studies done on outdoor education and the impacts it has on students.

The Impact of Outdoor Education on Health

Introduction

Health is a difficult topic to discuss because of its hard to define nature. Common definitions of health refer to “a state of being absent of illness or injury”. Over the years, this definition has been amended to divert from discussing health in terms of physicality to a more holistic definition. The World Health Organization defines health as “a state of complete physical, mental, and social well-being not merely the absence of disease or infirmity”.

The greatest determinant of health has been found to be socioeconomic status. People with a low socioeconomic status generally do not have the time or money to prepare healthy meals. A dollar cheeseburger at McDonalds is more appealing than spending money on organic fruits and vegetables and taking the time to cook them. Stress also plays a factor in health. A person who is struggling to financially support themselves and does not know where their next meal is coming from is in a constant state of stress. In a state of stress, the body produces hormones such as cortisol and epinephrine as well as shutting down all unnecessary processes such as digestion and growth, and cells in the immune system migrate elsewhere to the skeletal and muscular system. This is the body’s way of getting ready for “fight or flight” (Schneiderman et al., 2005:5). In the case of long term stress, the body is constantly in this state, which is detrimental to health because important processes such as digestion, growth, and the immune system are not active. Fortunately, studies have been conducted on the effects of being in nature and have shown that the sounds of nature shift your nervous system into a relaxed state and lower your stress (Praag et al., 2017). Not only does a person experience less stress in nature, but spending time in nature also increases a person’s immunity (Purchiaroni et al., 2013). These are just a few of the benefits spending time in the outdoors provides a person.

Like health, there is no all-encompassing definition to define outdoor education, but in a review on students’ learning in outdoor education programs, Becker et al. (2017:2) described outdoor education as “teaching and/or learning and/or experiencing in an outdoor and/or out-of-school environment. The content of learning and teaching is therefore different and depends on the general aim of the program, the target group and the outdoor setting, e.g., the gaining of knowledge in natural sciences; increased PA (physical activity), leadership skills, personal and social development; survival skills; and improved skills in relation to nature-oriented sports.” Outdoor education has become increasingly popular as a new and innovative

way of learning. There is much talk about the positive effects outdoor education has on the students who experience it. As a Community Health major with a minor in Wilderness Studies, I have had multiple experiential learning and outdoor education experiences. Based on these experiences, I think outdoor learning can benefit students in other ways than increased knowledge and, specifically, can improve their health. Towards that end, I designed a study to test whether a three-week outdoor education program could affect participants' perceptions of their health.

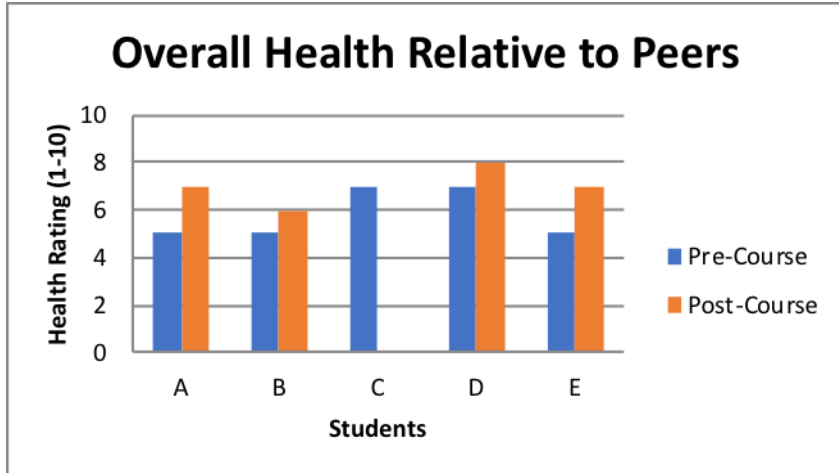
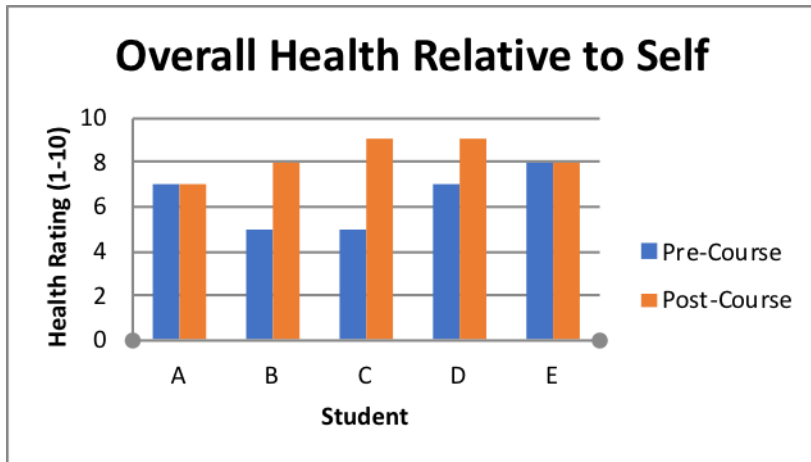
Methods

I conducted a study on the impacts, if any, outdoor education has on health on a group of students at the University of Montana who were registered to participate in a three-week winter session course in Patagonia. This experiential learning course incorporated field work with a backpacking trip to teach students about ecology, conservation, and restoration in the Patagonian region of Chile. The fieldwork was done on the lenga, a native tree species to Chile and was conducted near the town of Cerro Castillo in the Aysen region. The backpacking portion of the course started in the region of the Nacional Reserva Jeinimeni, went through the Chacabuco Valley, over to Parque Patagonia into the Tamango Reserve and ended in the town of Cochrane.

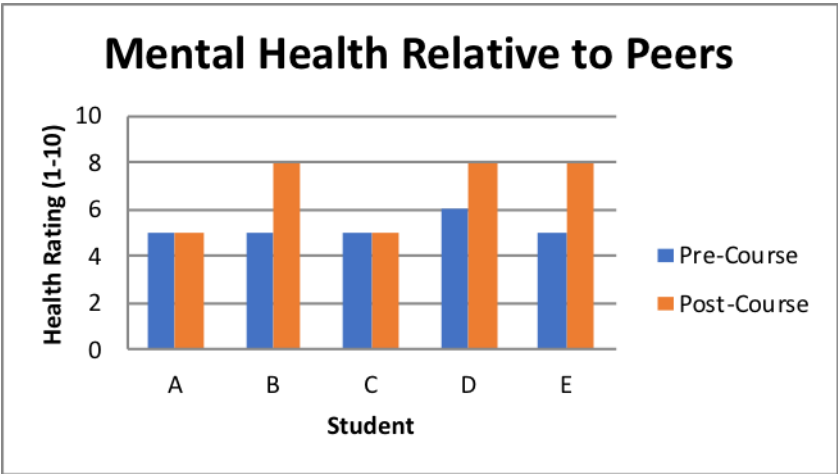
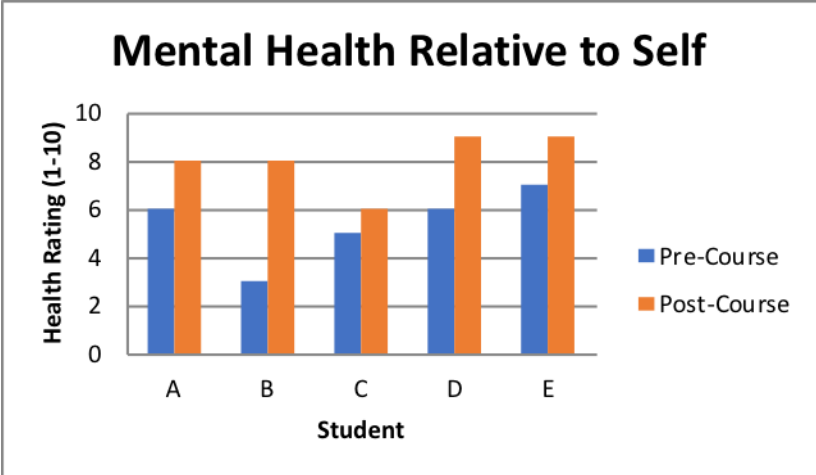
I recruited students for my research by sending out an email to students registered for the course and making an announcement at a pre-trip meeting. Participating in my research was voluntary, and students who were interested in participating were asked to send me an email to set up a time for an interview. Six students contacted me and took part in the pre-trip interview; five of the six students took part in the post-course interview. The students who participated were asked to quantify their level of health, including physical, mental, and overall health, and also were asked to provide a definition of health in their own words, what they perceived to be the greatest determinants of health, and whether they feel they have control over their health. Interview questions are included below (see page 9). The interview was recorded and later transcribed and then deleted. I have assigned the five students an alphabetical letter (A-E) to assure anonymity and will refer to them by this letter.

Results and Discussion

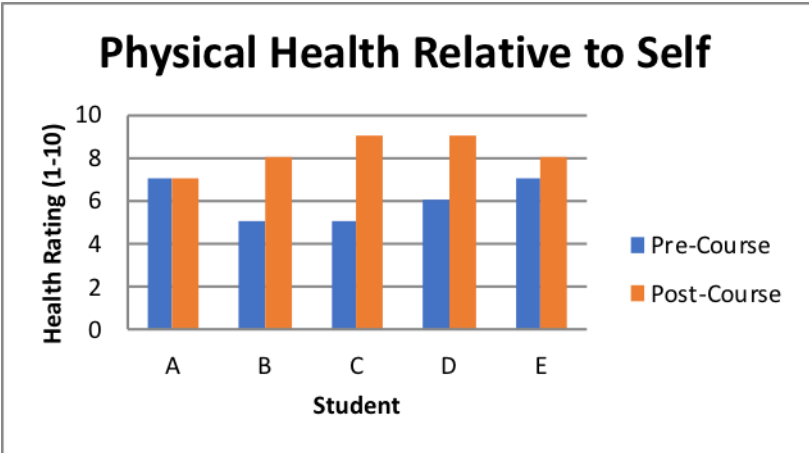
The data shows a general increase in health among the students from before to after the course, but due to the small sample size I cannot definitively say outdoor education positively impacts health. The graphs below indicate the rating of overall health students felt they were in relative to themselves and to their peers, both before and after the course. Each student reported an increase in overall health or their level of health stayed the same.

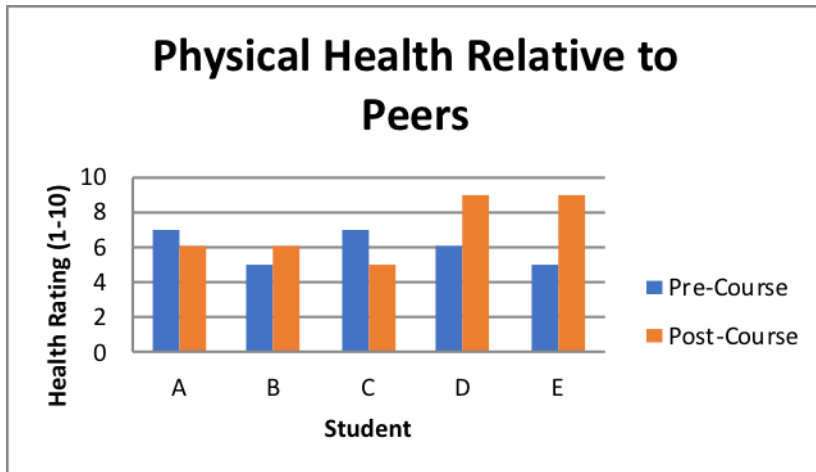


The next two graphs depict the changes students saw in their mental health both relative to themselves and to their peers. This area saw the greatest increase from the pre-course to post-course interview with Student B reporting their mental health being a three before the course and an eight after. Student E also expanded on her rating by saying “being out there all day and it being about the course, you don’t have to think or worry about anything else”.

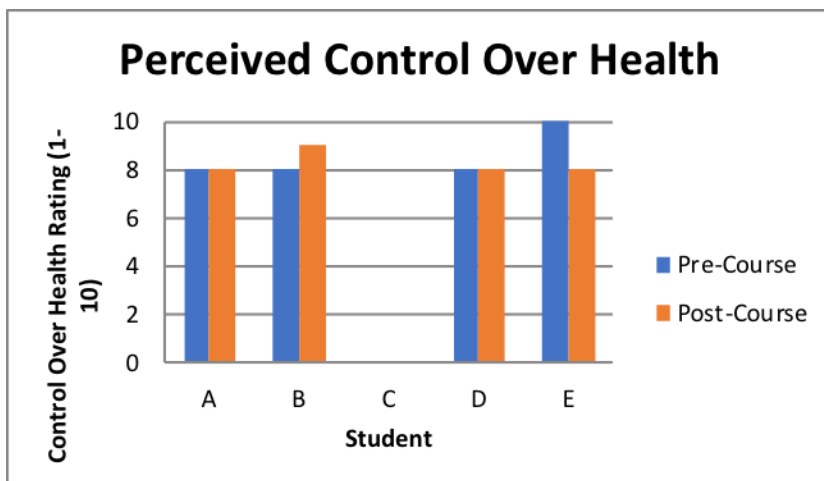


The next two graphs show the rating of physical health, again relative to themselves and their peers. In this category, several students saw a decrease in physical health relative to their peers from before to after the course. Comments from interviews revealed some students were not as in shape as they had previously thought compared to their peers.

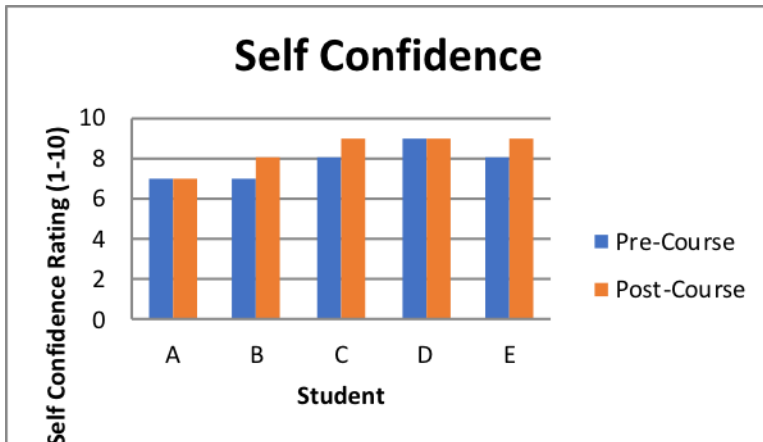




The graph below represents the student’s perceived control over their own health. All the students felt they had a great deal of control over their own health while acknowledging there are some factors that are out of their control.



The last graph shows the students’ reported level of self confidence before and after the course. Three student saw some type of increase in self confidence. Student B commented that her increase in self confidence came from the realization that no one cares what you look like in the wilderness; everyone is on a level playing field. Student A reported no change in her overall self confidence however she did comment on an increased confidence in camping and backpacking situations. Similarly, Student C explained that she was now more comfortable in wilderness settings and with backpacking.



The last question that was asked was whether the students saw an increase in their everyday happiness after the course. Three of the five students reported an increase in their everyday happiness with Student E saying the course reminded her that life is not so bad. When she is overwhelmed or busy, thinking back on the course is a good reminder that life is good. Of the two students who reported no increase in everyday happiness, Student C mentioned that although she had not experienced an increase in everyday happiness since returning from the course, she did feel an increased happiness on the course. She attributed this happiness largely to a break from technology with no access to cell phones.

Overall, students reported an increase in health in most categories from before to after the course. I calculated the average percentage change from the five students in each category, which is represented in the table below.

	Average Percentage Change
Overall Health Relative to Self	33.11%
Overall Health Relative to Peers	28.57%
Mental Health Relative to Self	59.71%
Mental Health Relative to Peers	51.11%
Physical Health Relative to Self	40.86%
Physical Health Relative to Peers	21.43%
Perceived Control over Health	-1.5%
Self Confidence	7.86%

The category that saw the highest percentage change was mental health relative to one's self, which increased 59.71%. This aligns with research that has been done on the impact of spending time in nature and the ways it lowers a person's stress (Praag et al., 2017). Several students mentioned looking at health in a different way after their course, and there was an increase in most areas of health reported by the students from before to after the course. This

does merit some attention, but I cannot make a broad inference about all students who experience outdoor education courses. Factors that may have contributed to this conclusion are the short amount of time spent in the wilderness, the population size of the participants studied, and the subjective nature of the interview.

Due to the small sample size of five, I cannot draw any concrete conclusions as to whether the Patagonia course was the cause of the reported increase in health. The rating scale and nature of the interview could be labeled as subjective because each student has different notions and definitions of health. It is also possible that because the Patagonia course is a one-time experience, there was little effect on the students' health. The majority of studies that have shown benefits from outdoor education have been in cases where the outdoor education programs are part of a curriculum that is conducted regularly. In an analysis of outdoor education, Hattie, Marsh, Neill, and Richards found program length to be one of the most important factors that influence the outcome for students involved (Hattie et al., 1998). Speaking from personal experience, I have continually participated in outdoor education rafting programs through a non-profit organization called GOALS (Get Outside and Learn Something), and I have experienced growth through participating in ongoing programs. Each trip expands further on the curriculum and leaves me feeling more in tune with myself, my surroundings, and my health.

A matter of interest in my findings were the answers regarding the definition of health and the greatest determinants of health. Every student mentioned physical fitness in their definition of health. It seems as if "health" is still viewed as many by being physically fit. Absence of illness was also brought up multiple times by students. All the students reported that the majority of the students as well as their instructor got sick on the course, and some were still suffering from being ill as the time of the post-course interview. This was a large factor in the student's rating of their health throughout the course.

In listing the greatest determinants of health, most students again mentioned being physically fit as well as eating a nutritious and well balanced diet. Only one student mentioned money as being a factor in health. Student C said "I think I have access to things that would make me healthy such as having enough money to buy healthy food, access to the gym, clear sidewalks to go for a run". This could indicate the status of the students whom I interviewed. It would appear they are in a financially secure enough place that money is not an influential factor in determining health, yet they realize that there are some factors of health that can be outside of

their control. This was the only category that saw a decrease in the average percentage from before to after the trip. One student rated their perceived control over health as a ten, indicating they had complete control over their health before the course, but after the course reported an eight because they realized there are some external factors.

Somewhat similar to my research, there has been various research done on the impacts of outdoor education and its assorted benefits. For instance, a recent review by Becker et al. explored benefits of outdoor education programs, particularly “physical activity levels, mental health status, social competences and relations, and academic achievement” (Becker et al., 2017:1). There is little research that has been carried out focusing specifically on outdoor education’s impact on health, however all the research that has been done shows impacts in areas that contribute to a person’s overall and holistic health. This aligns with most of the responses I received from students in my interviews. Although, no definitive correlation can be drawn from the data gathered to a quantitative increase resulting from the Patagonia winter-session course, there were several comments made by students that indicated a positive effect the course had on them.

After reviewing each student’s answers to the interview questions posed to them, it’s my opinion that in order to study the impact outdoor education has on health, the term health must be better understood by the general public. Students talked about health mainly in terms of physical fitness and nutrition, referring to physical activity while rating both their overall health and physical health. It was difficult to discuss health in a more holistic sense of the word when it was not well understood by the students. As health continues to evolve into a more holistic approach of well-being, I think the research will continue to show increased benefits from outdoor education.

Pre-Course Interview

Name: Age:

Major: Year in school:

Have you ever been backpacking before?

If yes, on average, over the last two years, how many days have you spend backpacking per year?

On average, how many days per year do you spend hiking? (not including days spend backpacking)

Have you ever been out of the country before?

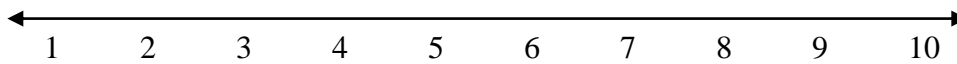
How do you define health?

What, in your opinion, are the greatest determinants of health?

Do you consider yourself to have good health? Why or why not?

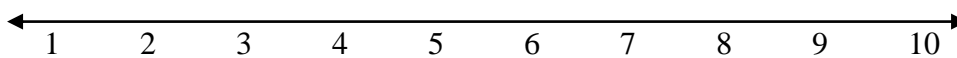
Rate your level of overall health this semester

A. Relative to yourself



1 being the worst health you've ever been in and 10 being the best health you've ever been in

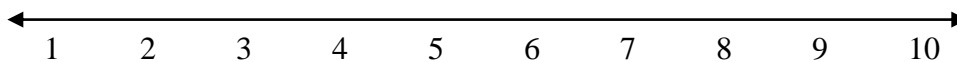
B. Relative to your peers



1 being the worst health you've ever seen someone in and 10 being the best health you've ever seen someone in

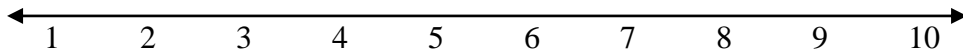
Rate your level of mental health this semester

A. Relative to yourself



1 being the worst health you've ever been in and 10 being the best health you've ever been in

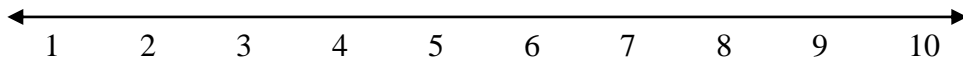
B. Relative to your peers



1 being the worst health you've ever seen someone in and 10 being the best health you've ever seen someone in

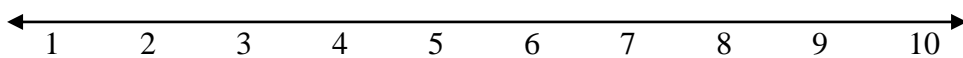
Rate your level of physical health this semester

A. Relative to yourself



1 being the worst health you've ever been in and 10 being the best health you've ever been in

B. Relative to your peers

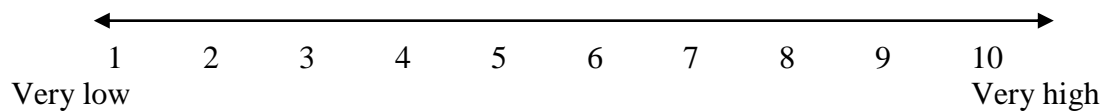


1 being the worst health you've ever seen someone in and 10 being the best health you've ever seen someone in

Do you feel you have control over your health? Why or why not?



Rate your level of self-confidence:



Post-Course Interview:

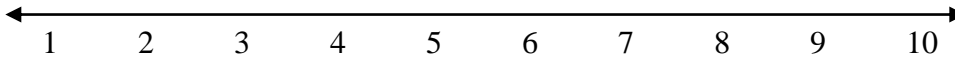
How do you define health? Has your definition of health changed after this course?

What, in your opinion, are the greatest determinants of health?

Do you consider yourself to have good health? Why or why not?

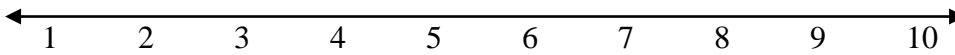
Rate your level of overall health this semester

A. Relative to yourself



1 being the worst health you've ever been in and 10 being the best health you've ever been in

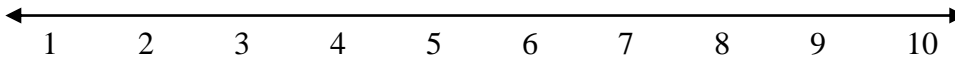
B. Relative to your peers



1 being the worst health you've ever seen someone in and 10 being the best health you've ever seen someone in

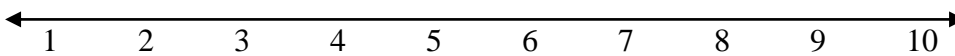
Rate your level of mental health this semester

C. Relative to yourself



1 being the worst health you've ever been in and 10 being the best health you've ever been in

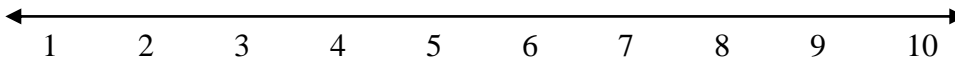
D. Relative to your peers



1 being the worst health you've ever seen someone in and 10 being the best health you've ever seen someone in

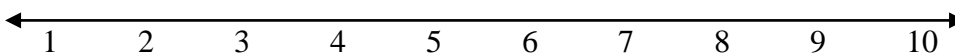
Rate you level of physical health this semester

C. Relative to yourself



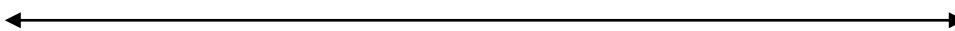
1 being the worst health you've ever been in and 10 being the best health you've ever been in

D. Relative to your peers



1 being the worst health you've ever seen someone in and 10 being the best health you've ever seen someone in

Do you feel you have control over your health? Why or why not?



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