

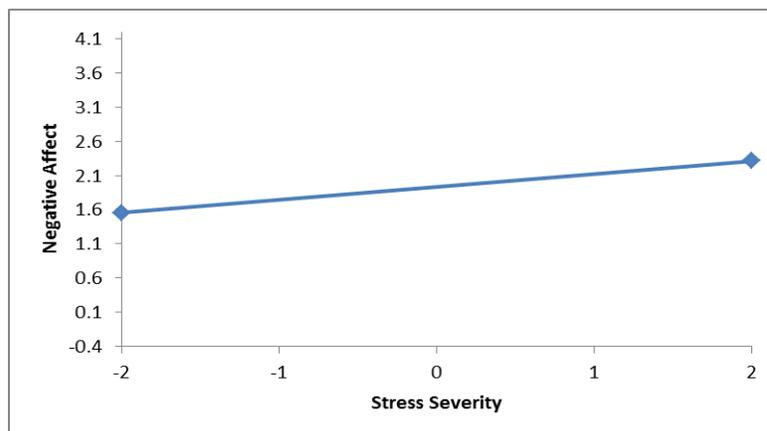
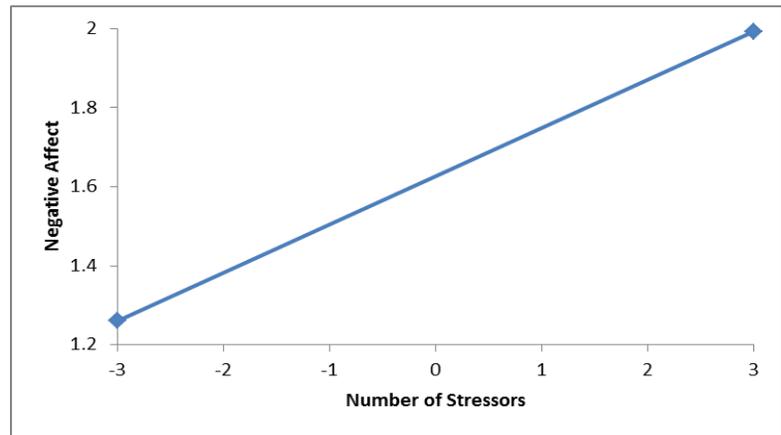
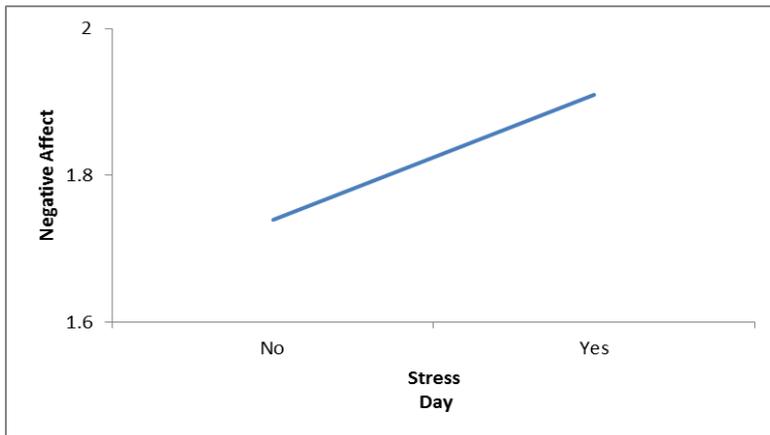


Health and Well-Being Study Results Report

Stress and Affect

The daily surveys asked questions about the number and severity of stressful events experienced in the last 24 hours. We examined the link between stress and affect, or mood. Positive affect (PA) refers to the experience of feeling enthusiastic, active and alert, whereas negative affect (NA) refers to the experience of feeling distressed, guilty or nervous.

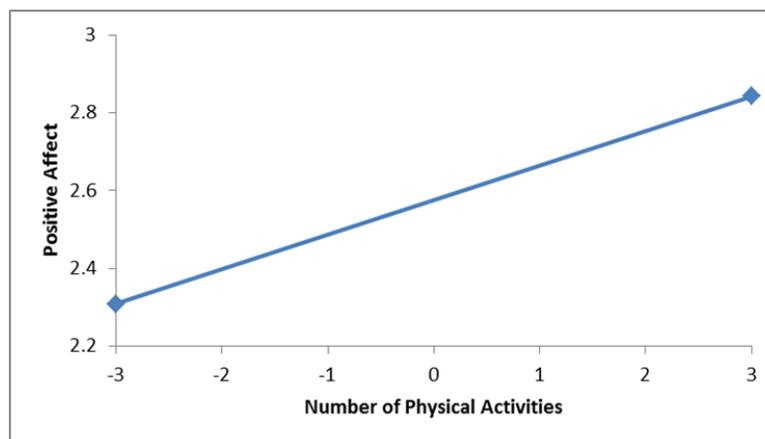
The graphs below show the association between daily stress (on the horizontal, X-axis) and NA (on the vertical, Y-axis). We found that NA was higher on days when one or more stressor was reported, as opposed to stress-free days (left), and that NA also increased as a higher number of stressors were reported (right). In the bottom figure, we can see that days which were felt as being very stressful, as opposed to not at all stressful, were also associated with higher NA (bottom).



The important thing to notice is that it didn't matter what the stressful event was – as long as it felt stressful to you, your mood was affected. This may not seem very surprising, but it shows why it's so important to monitor stress levels and know which situations you find to be stressful. Then, it is easier to find positive ways to cope with the stress – whether by talking to someone about it, getting outside, keeping a journal or exercising, you can keep affect and mood high even on stressful days.

Exercise and Affect

We also found a strong relationship between exercise and affect. The graph below shows that a day when an individual reported doing more physical activity tended to also be a day when they reported high PA and a better mood. Days with less or no exercise were days with lower PA.



This means that you felt more positive emotions and generally felt better on exercise days, no matter which type of exercise you did - be it swimming, dancing or gardening. This trend has also been shown in other research studies and illustrates that the benefits of exercise extend beyond physical fitness - it can improve our moods as well!

Stress and Health

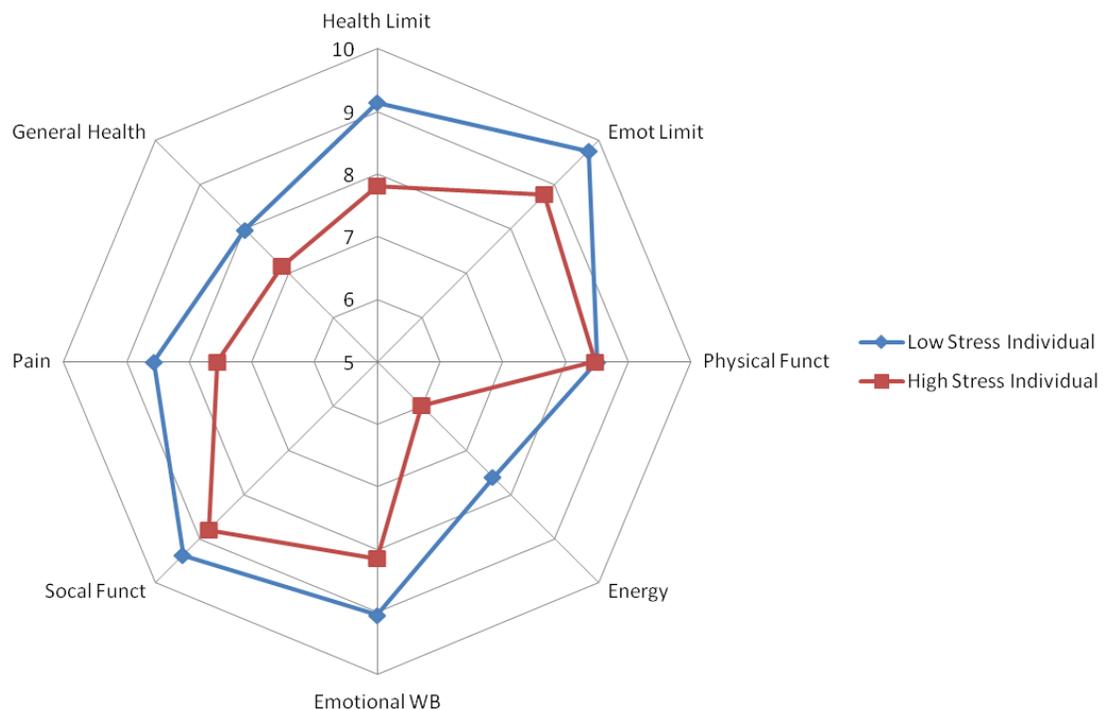
We asked questions about health which covered eight major areas:

- Physical functioning
- Role limitations due to physical health
- Role limitations due to emotional problems
- Energy/vitality
- Emotional well-being
- Social functioning
- Bodily pain
- General health

Scores on each of these areas ranged from 0-10, where 10 is a high health state with no negative symptoms.

A major goal of this project was to find out whether these different aspects of health change from day-to-day, and whether this change is different depending on one's experiences that day. We saw daily changes in most of these health areas for most people, though some were more stable than others. For example, most people did not report big changes in their pain level from day-to-day.

The figure below shows the average score on each health area by two types of people: people who reported very few stressful days over the week (blue), and people who reported several stressful days over the week (red). You can see that a person who experienced less stress also tended to have higher scores on each of the eight health areas.

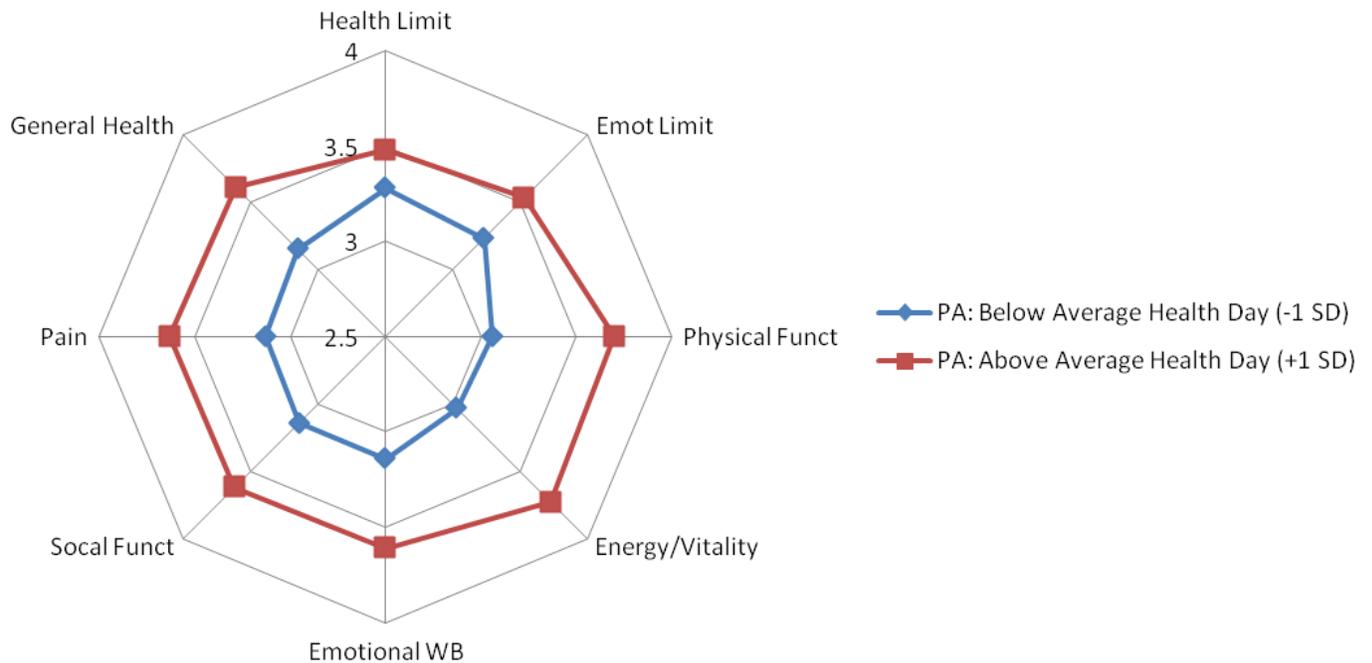


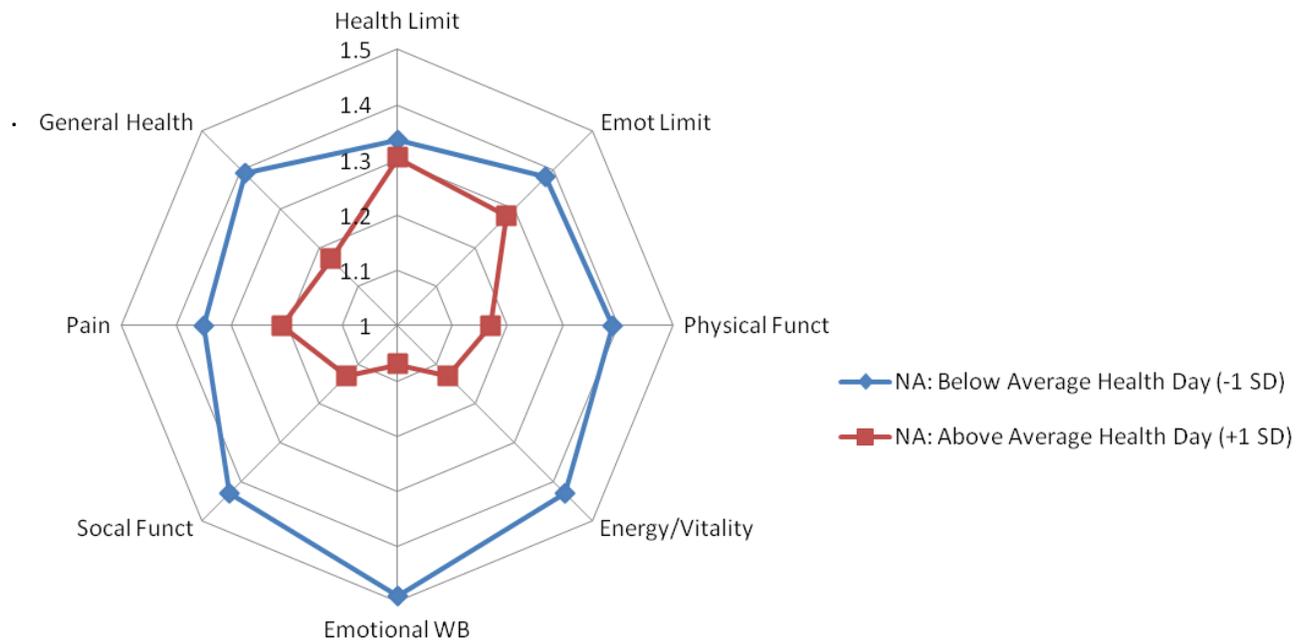
We found this same pattern with physical activity, such that individuals who exercised on more days over the week tended to report better health than those who exercised on fewer days.

Health and Affect

Is your physical, emotional or social health on a given day related to your mood on that day? To answer that question, we examined the associations between each of the eight aspect of health listed above and positive and negative affect (PA and NA).

This analysis showed a very strong relationship, such that individuals who reported better health tended to also report more PA and less NA than those whose health scores were lower over the week. In the first figure below, you can see that days with higher health scores (above average, red) tend to also have more PA compared to days with lower health (blue). The second figure below shows the same trend for NA: days with lower health (blue) tend to be days with more NA.





Working with your doctor and other health care professionals to manage physical health symptoms and making lifestyle changes to reduce their frequency and severity are some of the steps you can take to improve your affect and your overall sense of well-being.

Conclusions

Overall, the results from this study support the findings of past research in this area and illustrate the interconnectivity of health with affect, stress, physical activity and well-being. We believe it is important to consider health as a well-rounded concept, not simply the absence of illness. Regularly monitoring health and daily experiences helps us to learn more about these relationships and about an individual's typical levels. In the future, we envision a survey monitoring system which would allow early detection of change from normal, and quicker interventions to counter any decline in health or well-being. This research project was also an important test of the online patient health portal and its potential for making possible communication between doctors and patients, as well as administering web-based surveys.