



Fit Project Report - January 7, 2022

Project Title: Using wearable technology-based metrics to measure the impacts of HR & HRV and mindfulness-based practices

Project Lead: Dr. Christine Slavik, Child, Youth and Family Studies

This FIT Grant project was initially approved and funded for the 2019/20 academic year. Due to the interruption of F2F course delivery during the COVID-19 pandemic, the project implementation was delayed. In September 2021 the CYC275 Wellness and Mindfulness-based practices course was once again able to be held on campus and the research project could be completed.

Summary of the learning activities planned and undertaken

This project supported and enhanced a current course that has proven to be highly successful among UFV students across disciplines. CYC275 Wellness and Mindfulness-Based Practices (MBP) is a core course in the BA in CYC degree program and is offered twice in an academic year. There is great interest from students from a variety of other faculties and programs at UFV including: psychology, kinesiology, philosophy, social work, criminology, adult education, and BGS. The project involved the addition of utilizing wearable technology-based metrics to improve student success and mastery of personal health and wellness. The project explored whether the addition of this tool, could amplify and bring to life the changes that are occurring for students as they engage in MBP. In September 2021, during the first F2F class of CYC 275, each student in the course was provided with a letter of information about the project and a consent form to sign if they wished to participate in the project. Students registered in the course were provided a FITBIT Charge 4 wristband to wear when engaged in MBP in class and at home. Students were invited to monitor their heart rate and heart rate variability throughout the course, providing real time evidence of physiological changes. Students were asked to note and record their heart rate from the FITBIT before and after engaging in the following MBP in class and at home for the duration of the semester– breathing mediation, sitting meditation, walking meditation, body scan, gentle hatha yoga and loving-kindness meditation. A sample data collection sheet was distributed along with a questionnaire exploring MBP and the FITBIT use.

The intended outcome for students is a deeper understanding of their own personal power to contribute to their health and wellness. The addition of wearable technology could potentially provide a correlation to the perceptions (thoughts, feelings and sensations) that students experience when engaged in the MBP. It was hoped that students would be able to track “in the moment” feedback as well as over the duration of the course feedback through the FITBIT. Beyond HR and HRV there was also the possibility to track sleep, steps and other functions which could be considered as lifestyle changes that might also relate to the addition of MBP.

Outcomes

23 students were registered in and attended the CYC275 Wellness and Mindfulness-based practices in Child and Youth care course in the fall of 2021.

A range of program areas were represented amongst the students:

- 18 students from the BA in Child and Youth Care degree program
- 2 students from the Bachelor of Social Work program
- 2 students from the Social Service Worker Diploma program
- 1 student from the Liberal Arts Diploma program

During the semester, step-by-step guidance and presentations were systematically utilized to introduce mindfulness-based stress reduction. Students engaged in the following practices in class and were also assigned these as home practices:

- ♥ Breathing meditation
- ♥ Sitting meditation
- ♥ Walking meditation
- ♥ Body Scan meditation
- ♥ Gentle Hatha yoga (standing and lying down)
- ♥ Loving Kindness meditation

In addition to the practical instruction of mindful meditation, theoretical foundations and benefits of mindfulness-based practices were shared and discussed. Personal and professional practice relevance was highlighted and cultivated in the context of the helping professions throughout the course.

Students participating in the project were asked to send their completed questionnaires and data collection sheets in after the course was finished in December 2021.

The response rate for the questionnaire and data sheets was 30% (7 respondents).

Question	Yes	No	Uncertain
1. Did monitoring your heart rate feedback from the FITBIT before and after engaging in mindfulness-based practices,(in class and at home) have any effect on adherence to doing the mindfulness-based practices over the duration of the course?	6	1	
2. Did monitoring your heart rate feedback on the FITBIT before and after engaging in mindfulness-based practices, impact your understanding of your personal power to contribute to your health and wellness?	7		
3. Did you notice a relationship between your heart rate measurements and your perceptions (thoughts, feelings and sensations) while engaging in mindfulness-based practices (in class and at home) over the duration of the course?	7		
4. Did wearing a FITBIT to monitor your heart rate before and after mindfulness-based practices (in class and at home) over the duration of the course, influence your overall motivation in relation to mindfulness-based practices?	7		
5. Did you utilize the FITBIT to monitor any other functions over the duration of the course?	7		

The participants were also given the opportunity to provide comments to support the responses to the questionnaire items which were thoughtfully completed and support the overall aims of the research project. When asked if monitoring effected adherence to the practices the majority agreed there was an effect. An example of the feedback included:

♥It demonstrated to me how effective some of these mindfulness practices are in lowering and calming my heartrate. Which made me implement some of these practices in moments of my heartrate increasing.

♥Monitoring my heart rate held me accountable and motivated me to stick to my mindful based practices which I did on a regular basis over the duration of the course.

One participant felt the monitoring did not affect adherence and noted:

♥I was able to complete the MBP no problem and the FITBIT didn't have an influence on how it affected my practice.

When asked whether monitoring heart rate before and after engaging in MBP impacted understanding of their personal power to contribute to overall health and wellness, the participants all agreed yes.

♥I saw my heartrate go down significantly after doing my practice. I was able to see which practice benefited my body the most and how much lower my heart rate went down.

♥Well I have never thought that I could control how I felt before in the way that mindfulness helps me to feel. Even just understanding how it has been able to reduce my heart rate is mind blowing. Most of the time when I feel unwell it's because my pulse is racing – and now I have a toolkit that I can use against that pulse racing.

♥I realized how I can actually implement mindfulness practices to help improve my wellness and health. By finding specific practices and tools that benefit me out of the many shared and introduced was very beneficial.

♥With the FITBIT it showed the before and after rhythm of my heartrate after mindfulness-based practice. It was a good visual to see how my heartrate slowed down and how calm I felt after it.

♥In monitoring my heart rate, I realized I had the personal power to control it through mindful based practices which usually lowered my heart rate and was better for my overall health and wellness. If I am in a stressful situation and my heart rate goes up, I can use mindfulness to help lower it.

A significant aim of the course is to help students notice the relationship between thoughts, feelings and sensations in their body, and to be able to make skilful choices in managing stress and challenges. One of the questions honed in on this relationship and participants positively reported they noticed this key component. The following supported this:

♥Over the duration I noticed at times when my heart rate was lower I felt calmer, less anxious and more content in that.

♥I was always curious about my heartrate before and after practices or using tools to slow myself down and be attuned with myself. It helped me be motivated to slow down and relax.

When it came to whether wearing technology to monitor heart rate was a motivational factor in doing MBP the participants all agreed it was. The following is a sample of the comments provided:

♥It was difficult to get myself to the mindfulness practice but wearing it was a reminder for me. I would look at my heartrate and realize I should do mindfulness to calm myself.

♥I had a FITBIT before the class, but I think having the class and a FITBIT made me more motivated. I think I would feel less motivated without my FITBIT because in all honesty my FITBIT motivates me a lot.

♥Now that I see the beneficial effects to my heart rate after practicing mindfulness, I am more motivated to continue this type of practice in order to improve my health.

Finally, the participants were asked if they utilized the wearable technology to monitor any other functions during the course and all responded that they did. One student accessed and utilized the breathing tool available on the FITBIT. Several students utilized the sleep monitoring function and also the steps function that counts how many steps are taken in a 24 hour period.

It is interesting to note that no student accessed and utilized the HRV (heart rate variability) function available on the wearable technology.

The data sheets participants submitted clearly indicated that engaging in mindfulness-based practices contributed to their heart rate becoming lower during MBP. The practices that contributed the most to reducing heart rate and promoting calm were yoga and body scan. In some of these instances the participant's heart rate dropped between 25-40 beats per minutes. Breathing and sitting meditation also were recorded regularly and were noted to drop a participant's heart rate between 5-20 beats per minutes from before to after the MBP. The data also reflects that initially some of the practices did not decrease heart rate and in fact a participant's heart rate was higher after the practice. This was noted to have changed over the course of the semester where after learning the practices and becoming familiar with getting grounded, it was having the desired impact.

Description of the degree to which the goals of the project were achieved

The intention of the project was demonstrated through the results. One of the desired outcomes for students was to measure if they formed a deeper understanding of their own personal power to contribute to their health and wellness. Through the questionnaire responses and the supporting narrative, the students highlighted that they had a new awareness of both their personal power and the relationship between mind-body connections contributing to their stress. The "in the moment" feedback seemed to be a motivating factor for some of the students who value having the data available to monitor how their body is functioning. Students also noted that having seen this correlation they plan to continue the practices to regulate their health and wellness in the future.