How Does an Engineering Student Take a Break? A Course-Based Exercise for Promoting Mental Wellness

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ABSTRACT

Mental wellness is a challenge for students studying in engineering programs. Engineering programs are often associated with high stress from the coursework and often cite a perceived culture that is inconducive towards relieving their stress. In recent years, mental wellness has been a rising topic on the minds of educators and legislators to learn how to better serve learning communities. Programs and initiatives are often offered but underutilized due to perceived barriers preventing students from reaching out for additional resources. Lack of accessibility, the fact that conversations about mental wellness are not normalized within the classroom, and the pressure to perform within the classroom are just some of the reasons students cite for not using campus resources. This study on a course-based activity aims to promote the discussion of mental wellness within an engineering course and promote the use of stress reduction strategies. The results reveal that students had a positive reaction to the activity being implemented in an engineering class and appreciated the discussion about mental wellness in engineering. Additionally, the study revealed information on many stressors faced by students in engineering programs. After the conclusion of the activity, over half of the students who participated in the study plan on implementing mental wellness strategies into their routines to manage their stress.

Introduction

Mental wellness is a fundamental aspect of health. Mental wellness is defined as an internal resource that allows for the capacity to manage feelings and behavior [1]. For students studying in higher education, it is fundamental to develop both awareness and strategies to develop their personal mental wellness. However, it is common for students in higher education to face challenges promoting their mental wellness. Examples include: stressors from the many commitments that are faced by students, an underutilization of resources, and an overall lack of knowledge on mental wellness. Students participating in higher education STEM-based programs report additional stressors such as a perceived social culture in both school and the engineering industry of "continuous work needed for success [2]", and the high level of required courses needed to graduate. In particular, engineering programs are often said to be particularly challenging due to the high academic workload [3]. Sharing mental wellness improvement-based strategies are an essential part needed to ensure that the student populations feel supported and to retain students throughout their degree.

Mental wellness is important to be discussed in the classroom at an early stage within students' professional careers to not only give them resources but to also improve the climate of the field. Engineering is a high-stress major where the goal is for students to be able to directly translate to

a career-based environment after college. Studies recommend the engineering classroom should be designed to teach students about skills beyond what the normal content is included within the syllabus including problem recognition and solving, time management, and to collaborate with peers on different hands-on projects [4]. Additionally, ABET recommends in Criterion 3, which focuses on student outcomes, that colleges have an important role in preparing students to enter the workforce through preparation in different areas such as teamwork, communication, and working towards specific needs of communities through their work [5]. Practicing and recognizing mental wellness is another skill that should be considered in the classroom as well which will allow students to learn how to better self-regulate, and manage their stress to prepare them for future challenges they will face working in a professional field.

We have chosen to use the term *mental wellness* since we are focusing on the context of student mental well-being rather than coming from a clinical health standpoint. Student mental wellness focuses on encouraging students to be resilient and successful within their degree programs and to develop internal resources to regulate their stress. The reference literature used to ground this work uses the term *mental health* and any quotes that we include maintains that same language.

The activity presented in this paper is an example of how mental wellness can be introduced and discussed in a higher education course with the ultimate goal of improving the awareness of mental wellness within an engineering student population. This paper presents an exploratory activity and student responses and reactions to it. While there is robust research on mental health and wellness occurring in psychological sciences and healthcare spaces, our project aims to share the perspectives of engineering students engaged in an authentic activity and reflection. The exercise allows for students to pursue any activities that they may associate with mental wellness and their reactions highlight the impact that the activity had on them. This activity aims to improve students' wellness not only in the hour required but for the lessons to be carried on throughout their educational and professional career. To better understand the goals and impacts of our intervention, we examine existing literature on mental wellness and how to share it as a resource.

Literature Review

Awareness towards mental wellness has an increasing importance placed on it for students studying in higher education institutions in the past couple of decades [6]. Initiatives have been implemented to encourage intuitions to not only improve the accessibility of resources targeted to aiding in mental health-related challenges, but also with the overall goal of creating healthier learning communities for students [7]. These initiatives come at a government level towards state-funded institutions, however, there is a noticed disconnect between the availability of resources and the utilization rate [8]. This challenge may be attributed to a variety of factors including a stigma towards mental health and a difficulty navigating the system leading to

feelings of isolation [9]. Lipson et al, have stated that engineering students have more difficulties related to mental health-related challenges than peers in other majors due to a high level of academic stress that is normalized within the degree program [10].

Engineering students face a high degree of stress due to the large workload associated with the academic program. This stress is often normalized in the form of jokes trivializing mental health [10]. Additionally, the high workload leads some students to skip meals or sleep in lieu of studying or working towards assignments for their courses which can have a negative impact on their health [11]. The lack of care towards basic needs has been shown to affect the quality of work and life for students [12].

Research from Wright et al. states that engineering students desire a normalization of the discussion of mental health in the classroom [9]. In their research of conducting interviews with engineering students discussing their personal experiences with barriers and facilitators towards seeking professional help students discussed the importance of faculty members normalizing the idea of mental health in engineering and being supportive of growth outside the traditional topics. However, work done by Wilson et al. states that engineering faculty members often do have conversations with students regarding their mental health on a personal level. Out of the study of 106 faculty members, 87% stated they discussed coping with stress with at least one student and about 70% of the interviewees were moderately or extremely concerned about undergraduate mental health [13]. Within the same study, many faculty members felt unprepared to discuss mental health with students receiving very little training themselves on the topic [13]. This gap shows there is a need for more training and ideas within the community to improve the ability to implement the discussion of mental wellness in an engineering classroom.

In this paper, we present a course-based activity where engineering instructors give students time to practice a mental wellness activity in lieu of normal classroom activities. Students then submit a response of what their activity was, their reaction towards their activities, and their ideas of how they may incorporate mental wellness further in their life.

Research Questions

The student responses allow the researchers to gain an insight into how students choose to spend their mental wellness hour. Additionally, within their responses, the students were asked to share their feelings about the activity and how they might consider mental wellness in the future. To better understand the student data two research questions were developed to assist in the analysis.

1.) What activity did students choose during their mental wellness hour?
2.) What were the reactions of the students towards the mental wellness hour?

Methods

Our Intervention: Our intervention takes in consideration previous literature that recognizes the challenges that students face not only from being students participating in an engineering higher-education program, but also from other stressors they face in normal day-to-day life as young adults. The goal of the intervention is multifaceted with two main outcomes being discussing mental health in an engineering classroom and allowing students to develop their own mental wellness coping activities. We encourage students to develop coping activities that personally work well for themselves in hopes of further implementation in the future, rather than prescribing a specific task for all students.

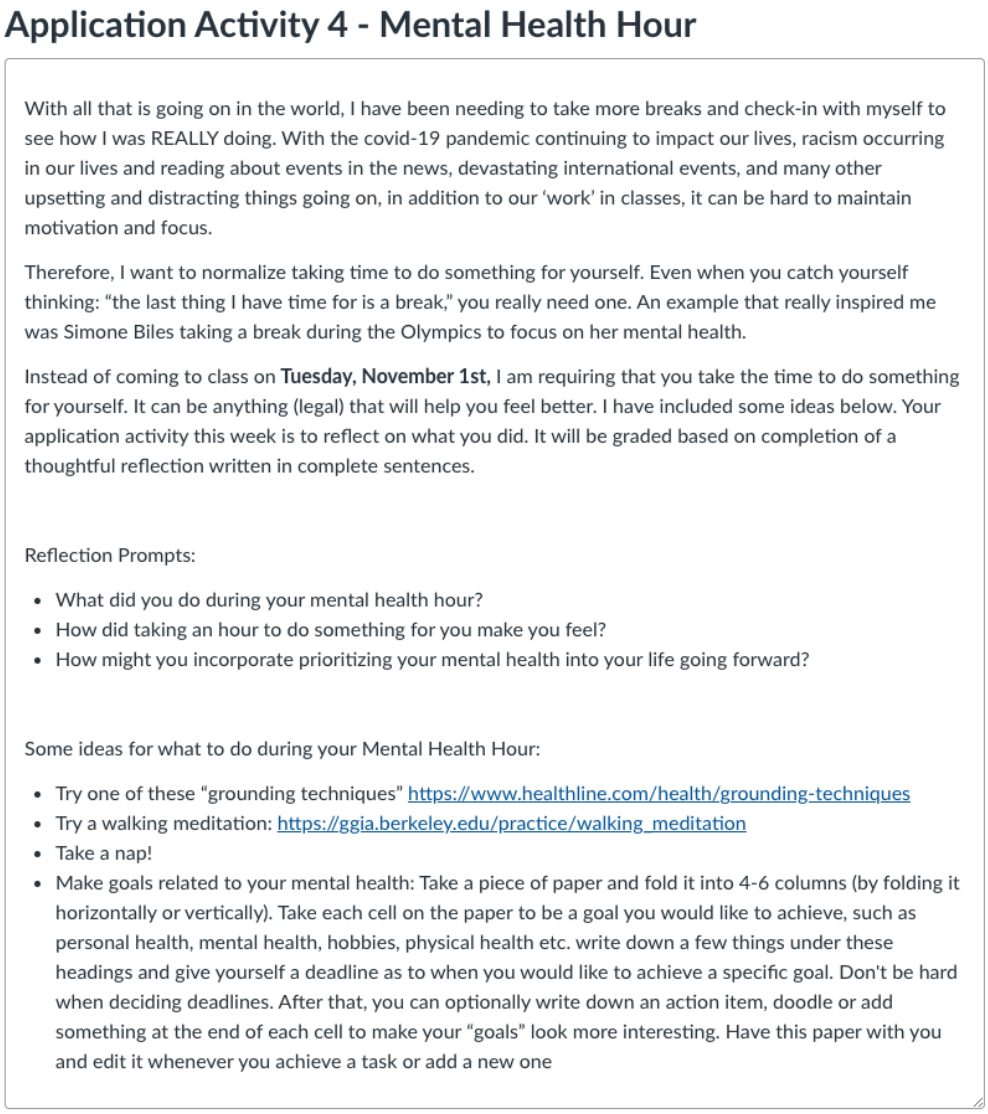
The activity was designed to be the time of a normal class session (1.5 hours). This allows for our intervention to teach students that taking time for themselves is still productive. The upper-division course took place from 11 am - 12:20 pm, and the lower-division course took place from 3:30 pm - 4:50 pm. The data collection and analysis for this research was considered exempt by the school's institutional review board, and all necessary protocols were followed for student data protections.

Theoretical Framework: This activity is inspired by Nel Nodding's theory of Ethics of Care where it is suggested that caring is a universal human attribute and caring is ethically basic to humans [14]. This theory supports the message that educators are responsible for caring for their students and believing in their success outside of the classroom [15]. The theory can be extended to say that the goal of an engineering educator is to ensure that engineering students are able to leave the degree program as not only successful engineers but also as successful people in society.

Context: The activity described was assigned in two courses taught by the same instructor: a core, lower-division introduction to engineering computations course required for undergraduate mechanical, aerospace, chemical and material science engineering students and a core, upper-division mechanics of materials course required for mechanical, aerospace and material science engineering students. The courses in which the data was collected were taught remotely over Zoom in Fall 2021. As a part of the course grading criteria application activities were assigned weekly in addition to traditional problem-based homework assignments, one of which has been described and studied in another paper [16]. Students may elect to drop one application activity per academic quarter.

The application activity from where the data is derived for this paper was assigned on week three of a ten week quarter for the upper-division course and on week four for lower-division course. The description for the application activity titled "Mental Health Hour" is featured below in

Figure 1. The assignment was titled as “Mental Health Hour” despite being 80 minutes for convenience.



Application Activity 4 - Mental Health Hour

With all that is going on in the world, I have been needing to take more breaks and check-in with myself to see how I was REALLY doing. With the covid-19 pandemic continuing to impact our lives, racism occurring in our lives and reading about events in the news, devastating international events, and many other upsetting and distracting things going on, in addition to our ‘work’ in classes, it can be hard to maintain motivation and focus.

Therefore, I want to normalize taking time to do something for yourself. Even when you catch yourself thinking: “the last thing I have time for is a break,” you really need one. An example that really inspired me was Simone Biles taking a break during the Olympics to focus on her mental health.

Instead of coming to class on **Tuesday, November 1st,** I am requiring that you take the time to do something for yourself. It can be anything (legal) that will help you feel better. I have included some ideas below. Your application activity this week is to reflect on what you did. It will be graded based on completion of a thoughtful reflection written in complete sentences.

Reflection Prompts:

- What did you do during your mental health hour?
- How did taking an hour to do something for you make you feel?
- How might you incorporate prioritizing your mental health into your life going forward?

Some ideas for what to do during your Mental Health Hour:

- Try one of these “grounding techniques” https://www.healthline.com/health/grounding-techniques
- Try a walking meditation: https://ggia.berkeley.edu/practice/walking_meditation
- Take a nap!
- Make goals related to your mental health: Take a piece of paper and fold it into 4-6 columns (by folding it horizontally or vertically). Take each cell on the paper to be a goal you would like to achieve, such as personal health, mental health, hobbies, physical health etc. write down a few things under these headings and give yourself a deadline as to when you would like to achieve a specific goal. Don't be hard when deciding deadlines. After that, you can optionally write down an action item, doodle or add something at the end of each cell to make your “goals” look more interesting. Have this paper with you and edit it whenever you achieve a task or add a new one

Figure 1: Assignment Description

Participants: The demographics of the participants in this study are tabulated below in Table 1 and 2. The study was conducted at a large-public R1 institution. The representation of the students in this study are reflective of the institution being designated as a Hispanic-Serving Institution (HSI) and an Asian American and Native American Pacific Islander-Serving Institution (AANAPISI). Women are represented in this study at a similar percent to the national average [17]. Students in the study were predominantly mechanical and aerospace engineers. Other majors featured in the study in lower percentages include: material science, chemical,

biomedical, and electrical engineers. The remaining students come from non-engineering majors such as applied physics, math, and undeclared students.

Factor		Lower-Division Participants	Upper-Division Participants	All Participants
Race/Ethnicity				
	Asian / Asian American	89 (51.45%)	117 (47.37%)	206 (49.05%)
	Hispanic	42 (24.28%)	56 (22.67%)	98 (23.33)
	White non-Hispanic	29 (16.76%)	47 (19.03%)	76 (18.10%)
	Black	6 (3.47%)	4 (1.62%)	10 (2.38%)
	American Indian / Alaskan Native	1 (0.58%)	0 (0%)	1 (0.24%)
	Pacific Islander	1 (0.58%)	0 (0%)	1 (0.24%)
	Decline to State	5 (2.89%)	23 (9.31%)	28 (6.67%)
Gender Identity				
	Male	142 (82.08%)	188 (76.11%)	330 (78.57%)
	Female	28 (16.18%)	46 (18.62%)	74 (17.62%)
	Non-binary	2 (1.16%)	0 (0%)	2 (0.48%)
	Decline to State	1 (0.58%)	13 (5.26%)	14 (3.33%)
Other				
	First-Generation Student	56 (32.37%)	188 (76.11%)	142 (33.81%)
	Under-Reprisented Minority	51 (29.48%)	46 (18.62%)	113 (26.90%)
	Low Income	43 (24.86%)	0 (0%)	97 (23.10%)
	International Student	20 (11.56%)	13 (5.26%)	34 (8.10%)
Total Students		173	247	420

Table 1: Student Demographics

Factor		Lower-Division Participants	Upper-Division Participants	All Participants
Class Standing				
	Freshman	112 (64.74%)	0 (0%)	112 (26.67%)
	Sophomore	50 (28.90%)	1 (0.40%)	51 (12.14%)
	Junior	9 (5.20%)	118 (47.77%)	127 (30.24%)
	Senior	2 (1.16%)	128 (51.82%)	130 (30.95%)
Major				
	Mechanical Engineering	75 (43.35%)	171 (69.23%)	246 (58.57%)
	Aerospace Engineering	44 (25.43%)	56 (22.67%)	100 (23.81%)
	Material Science and Engineering	13 (7.51%)	13 (5.26%)	26 (6.19%)
	Chemical Engineering	21 (12.14%)	1 (0.40%)	22 (5.24%)
	Other Engineering (Biomedical, Civil, Electrical, etc.)	10 (5.78%)	3 (1.21%)	13 (3.10%)
	Non-Engineering Major (Applied Physics, Math, Business Economics, etc.)	4 (2.31%)	3 (1.21%)	7 (1.67%)
	Undeclared or Unaffiliated Major	6 (3.47%)	0 (0%)	6 (1.43%)
Total Students		173	247	420

Table 2: Student Academic Demographics

This paper describes an activity that can be implemented in not only an engineering classroom, but in any higher education environment which can allow students to connect an activity to support their mental wellness in hopes of not only continuing to practice it beyond the intervention, but to improve their overall understanding on mental wellness.

Data Analysis

The student submissions for the application activity were de-identified for anonymity and uploaded in Atlas.ti for thematic analysis. The codebook shown in Figure 2 features both priori codes based on literature for common mental wellness activities and emergent codes that commonly emerged during the analysis.

Code	**Category**	**Description**
Exercise	Activity	Physical movement during the activity period
Eating/Drinking	Activity	Consumed food or drink during the activity period
Sleeping	Activity	Slept or took a nap during the activity period
Organization/Planning	Activity	Organized or planned their schedule or goals during the activity period
School Work	Activity	Worked on school work during the activity period
Listening to Music	Activity	Listened to music during the activity period
Hobbies	Activity	Participated in a hobby (ie: art, dance, etc.) during the activity period
TV, Youtube and Other Streaming Services	Activity	Watched media during the activity period
Errands	Activity	Conducted errands (ie: shopping, cleaning, ect.) during the activity period
Prayer, Mindfulness Activities	Activity	Participated in prayer or other activities that practice mindfulness during the activity period
Video Games	Activity	Played video games during the activity period
Special Occasion	Activity	Used the time for a special occasion during the activity period
Social Media	Activity	Expressed going on social media during the activity period
Time Spent with Others	Activity	Stated to spend their mental wellness hour with other people

Academic	Stressor	Discussed school work as a stressor in their response
Career	Stressor	Discussed career challenges or prospects as a stressor in their response
Family	Stressor	Discussed family or familial issues as a stressor in their response
Financial	Stressor	Discussed financial challenges as a stressor in their response
Illness	Stressor	Discussed either personal or relative illness as a stressor in their response
Responsibilities	Stressor	Discussed responsibilities as a stressor in their response
Social/Friendships	Stressor	Discussed social challenges as a stressor in their response
Transition/Homesickness	Stressor	Discussed hardships related to transitioning or homesickness as a stressor in their response
Further Implementation	Reactions	Discussed further implementing their mental wellness activity in their response
Reaction to Professor/Class	Reactions	Discussed a reaction towards the instructor or the course in their response
Reaction to Engineering/College	Reactions	Discussed a reaction towards engineering or college in their response
Guilt Association	Reactions	Discussed feeling guilty about taking a break in their response
More Stressed	Reactions	Discussed feeling more stressed in their response

Figure 2: Codebook Used to Analyze the Data

The student submissions were coded by a single researcher and codes were applied to recurring themes present within the student responses. The researcher consistently met with the research advisor for the project to discuss the codebook to be used on the project, and the validity was determined through analyzing a subset of 30 submissions to refine and clarify the codes, before proceeding with the full set to ensure that any discrepancies were discussed prior to the completion of the project.

Results

The results from the thematic analysis show the different activities that students submitted as a part of their mental wellness hour and their reactions as a result of the activity. Additionally, the activity exposed different stressors that students in engineering face. The prompt asked students

to share what activity they did during their mental wellness hour along with asking them to share how they felt during their mental wellness hour. Finally the students were asked to describe how they might incorporate prioritizing their mental health in their life going forward.

The student responses were coded on for three major categories. The first set of codes analyzed the activities students did during their mental health hour (hobbies, eating meals, exercise, etc.) Next we asked students for their reaction to the activity. An emerging category of codes was revealed that some students elected to discuss stressors that they are currently experiencing (academic, social/familial, career, etc.) and to what extent the mental wellness activity helped them.

The results showed that many students elected to participate in more than one activity during the 1.5 hour period which allowed them to modify their daily routine to participate in different activities and modify their schedules.

Activities: The participants of the different activities are tabulated in Table 3 separated by course.

Code	Lower-Division Participants N = 173	Upper-Division Participants N = 238	Total Participants N = 411
Exercise	45 (26%)	63 (26%)	108 (26%)
Eating/Drinking	18 (10%)	44 (18%)	62 (15%)
Sleeping	34 (20%)	70 (29%)	104 (25%)
Organization/Planning	10 (6%)	20 (8%)	30 (7%)
School Work	10 (6%)	19 (8%)	29 (7%)
Listening to Music	16 (9%)	17 (7%)	33 (8%)
Hobbies	38 (22%)	16 (7%)	54 (13%)
TV, Youtube and Other Streaming Services	23 (13%)	16 (7%)	39 (9%)
Errands	2 (1%)	11 (5%)	13 (3%)
Prayer, Meditiation, Yoga	5 (3%)	11 (5%)	16 (4%)
Video Games	14 (8%)	5 (2%)	19 (5%)
Special Occasion	4 (2%)	3 (1%)	7 (2%)
Social Media	1 (1%)	0 (0%)	1 (0%)

Table 3: Activities Selected by the Students During the Mental Wellness Hour

The most common activity was exercise, closely followed by sleeping, then eating. Other responses include hobbies, doing school work, organizing and planning their life or schedule and watching TV or other forms of media. A difference is noted between the lower-division course and the upper-division course. The percentage of students who elected to exercise during the break were the same between the two courses. Students in the upper-division course choose to sleep or consume food during their time at a higher rate than the lower-division course, while

students in the lower-division course used their time for hobbies, watching media, or playing video games at a higher rate. It is also noted that it was seen that some students elected to spend their mental wellness with others (79/411), and even discussed the activity with others not enrolled in the course.

It is noted that out of all the participants in both courses only one student explicitly discussed using social media as their activity during the mental wellness hour.

Reactions: The students as a part of the prompt were asked to share both how the activity made them feel along with how they might incorporate mental wellness into their life going forward. A total of 264 out of 411 (64.23%) students discussed further implementing their activity they chose into their routine. The course breakdown was 107 out of 173 (61.8%) in the lower-division, and 157 out of 238 (67.0%) in the upper-division course.

Additional student reactions were that 21 out of 411 (5.11%) students had a specific reaction to the professor or the course as a result of the activity. Many of the reactions were highly positive and discussed feeling more connected and expressed gratitude for being able to have a professor they felt personally cared about their mental wellness. Three students in the upper division course expressed feelings about mental wellness and engineering citing feelings about how mental wellness is thought of within engineering and their perception around the culture within engineering: Finally a small number of students (8/411) expressed feeling guilty or more stressed after the mental wellness activity. Examples of the student reactions to the activity are tabulated in Table 4.

Code	Quote
Reaction to the Professor/Course	"I appreciate our professor's commitment to focusing on the importance of their student's mental health, and I hope our society as a whole continues to move in a similar direction."
	"Thank you professor for giving us this hour because I don't think I would've thought I had the time to do this unless you gave us this time."
	"The professor for this course is the first professor I met who pays so much attention to students' mental health."
Reaction Towards Engineering	"This also allowed me to reflect on how often I should take a break since classes and projects do consume the majority of my time. Sadly, engineering major, in general, does not prioritize mental health even if the school "promotes" the idea of it."
	"While engineers are usually thought of as very logical and rational people who do not rely on emotions, it is nice to be able to express all the pent-up emotion in a productive way."
Feeling of guilt or more stressed after the activity	"Since sometimes I feel like I don't do enough, taking a break seems selfish and like the wrong thing to do."
	"Now that I think about it, I could not really 'enjoy' my time. The bath took more than an hour, and it made me think a lot of different thoughts. From the past, I always wanted to be an engineer, not knowing that it would be this rough to become one, and I had many struggles and hesitation to just give it up, yet I am still here studying my best to reach my goal.

Table 4: Student Reactions to the Activity

Stressors: Stressors were an emerging group of codes that appeared in student responses. The students were not prompted to discuss the stressors that they are facing, however a number of students elected to discuss stressors in their life. The highest mentioned stressor in both the upper-division course and the lower-division course were academic related stressors followed by illness. The students in the upper-division course more commonly discussed stressors. The stressors discussed by the participants are featured within Table 5.

Code	Lower-Division Participants N = 173	Upper-Division Participants N = 238	Total Participants N = 411
Academic	26 (15%)	41 (17%)	67 (16%)
Career	1 (1%)	8 (3%)	9 (2%)
Family	2 (1%)	7 (3%)	9 (2%)
Finanical	1 (1%)	2 (1%)	3 (1%)
Illness	2 (1%)	18 (8%)	20 (5%)
Responsibilities	1 (1%)	5 (2%)	6 (1%)
Social/Friendships	2 (1%)	7 (9%)	9 (2%)
Transition/Homesickness	4 (2%)	6 (10%)	10 (2%)

Table 5: Stressors Mentioned in the Narratives

In the student responses the most frequently mentioned stressor was academic at a total of 67/411 (16%) where students commonly mentioned tests, exams and other academic related challenges as a stressor. The next most common stressor was illness which was due to the Covid-19 pandemic. Other stressors were less commonly mentioned, but also include family, or social related stressors along with responsibilities, financial hardships and difficulties transitioning to college or a 4-year institution. Excerpts from the student narratives are tabulated in Table 6.

Code	Quote
Academic	I am also stressed about my chem midterm coming up on Tuesday. If I don't understand one little thing out of a whole list of topics, I hyperfixate on my lack of knowledge in that area and put myself down."
	"All the accumulated stress and anxiety which my courses and research project have caused me from the massive amounts of course work to the endless hours spent on CAD designing the fuselage of an aircraft for my research project."
	"It's very degrading for me to constantly have school and its associated work on my mind all the time. This feeling of having school on my mind constantly came back to me later in the week; as the mere thought of all the work I had to do to succeed in my other classes instigated an anxiety attack."
Career	"Reading all these internship requirements companies are looking for in candidates can make me feel like I am not good enough."
	"I have a job that makes me work 40 hours a week. I asked for less hours but I am still getting called in."
Family	"if I am honest I actually cried as I walked as it is also been about 3 months since my dad has passed."
Financial	"I work so much because I help back home financially and having money on the side for unexpected events is a way I keep myself calm and collected while still being a full-time student. Not having that worry that I might not have enough for next week is how I spent that hour you gave us as a break."
Social	"College has been a little tough on my mental health, especially regarding eating and feeling like I have no real friends or people who care about my existence here."
Trasnsition/Homesickness	"I have been struggling with my mental health transitioning into college."
Academic, Career, Family, Responsibilities	"I found myself struggling to stay on task with school, work, organization/club commitments, and my family/social life."

Table 6: Stressors Mentioned within Student Responses

Discussion

The main focus of our thematic analysis focused on answering our research questions of which activities would engineering students elect to choose during the 1.5 hour mental wellness break and their reaction towards the activity. However, emergent findings increased the scope of the paper to include analyzing the different stressors that students chose to share within their responses. The course-based activity had an overall positive reaction where many students stated within their responses that they would like to implement the activity they did during their mental wellness hour into a more regular part of their routine. Additionally the activity achieved its goal of encouraging engineering students to think about mental wellness and how it applies to them. Another positive outcome was that students choose to spend their mental wellness hour with other family members or friends which helped in the goal of building a healthier learning community by spreading the effects of the activity beyond the scope of the classroom.

The data had an emerging recurring theme of students discussing stressors within their responses This work is framed during the first quarter of learning back on campus after the Covid-19 Pandemic so students had many unique experiences and felt different hardships within their life, so this activity was especially appreciated by the students who were transitioning back into format of in-person learning or entering college for the first time. Within the responses the

students also discussed their stress and perception around their perceived image of how an engineering student or an engineer working in industry should act or feel which shaped their mindset around mental wellness

Additionally the activity that the most students elected to choose was exercise during the break. Many students either went to the gym on campus, or spent time outside, which supports the idea of healthy living through a good sleep schedule or eating well and can improve mental health [12]. The goal of the overall project is no matter what activity the students selected, they can further use it in their life to take time for themselves and consider the benefits of slowing down, taking a break and reflecting on their current mental wellness.

This activity achieved the initial goal by allowing students to not only learn about the course material within the classroom, but also by learning another skill that can be applied to not only their time in the class or college. This activity leaves us hopeful that students will further integrate the idea of mental wellness within their life. The goal of this project is not to conduct research on the mental health of students in engineering, but rather to raise awareness towards mental wellness and to give an opportunity to the students to try incorporating mental wellness into their routines.

Limitations and Future Work

The mental wellness activity described in this paper has exposed interesting findings and reactions to how engineering students approach mental wellness. This intervention serves as a possible example to how an activity talking about mental wellness can be incorporated within a classroom environment. The project serves as a step towards improving the awareness of mental wellness, however, there are various improvements that can be made to the intervention.

The analysis of the data considered solely the responses of the students within their submitted reflections. The information was coded and categorized based on their mention of stressors, activities, and responses. A limitation that the project faced was that the responses were not linked to any factors such as race, gender, age, or socioeconomic status which might have a large impact on students' mental wellness. In addition, it may highlight students' propensity to elect certain activities. The thematic analysis did expose differences in the lower-division students when compared to the upper-division students, however a future analysis could allow for a greater understanding. Additionally, the activity asked students how they may implement mental wellness activities into their normal routine however there is no longitudinal data collection to further study student's response to a long term intervention, and this activity only covers the normal class time of 1.5 hours.

This study has subjective areas and does not feature a survey or any measurement of students' emotions regarding the activity. The overall goal of this study is not to measure mental wellness, but to raise awareness and knowledge of methods to regulate and manage themselves. The intervention could be improved through having the concept of mental wellness be incorporated throughout the course term to further study the long term effects of implementing an activity such as this and to further show students that mental wellness goes beyond just a small break.

Conclusion

The main takeaway studied from the student responses indicated a positive response to the classroom activity regarding mental wellness. We saw that there were benefits of allowing the students to put different activities to support themselves into practice in hopes of further implementation into their routines as engineering students. Additionally we hope that this activity incites engineering students to continue the discussion outside the classroom with peers and other members of the community to help build a healthier learning environment.

This activity acknowledges the current limitations around the study and aims to improve the analysis beyond the student responses. Further work could improve upon analyzing students' demographic information to improve the scope of the data analysis to connect the responses of students' experiences around a mental wellness activity with their backgrounds to better understand students' reactions to the activity.

This activity hopes to improve awareness of mental wellness and its importance within an engineering classroom. The goal of the activity was to share from an engineering faculty member that taking a break as an engineering student is not only beneficial, but fundamental for success as a student. Burnout and other mental health related challenges are real concerns that students studying engineering programs face, however, through this activity the hopes are to shift the classroom into a safe place for students to feel comfortable to better understand how to manage their stress in their personal ways. As educators, we believe there is a responsibility to not only instruct students on how to be engineers, but to aid the next generation of engineers in being successful and healthy members of society.

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