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Delivery Of Mental Health Training Across A College Of Engineering

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Delivery of mental health training across a College of Engineering

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ABSTRACT

Mental health is of significant concern across College and University campuses. Within engineering, students have identified that they would be more likely to seek

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mental healthcare if referred by a student or faculty member. Therefore, this research to practice study aimed to encourage students to become advocates and referral agents for students in mental health distress. To accomplish this, engineering-specific mental health and wellness training was developed through the integration of quotes and data from engineering students, personalizing the training to the engineering experience. To reach nearly all engineering students (over 2,500 students), the 15-minute training was delivered in over 60 courses. The courses were selected such that nearly all students in all years of study received the training, and preference was given to courses taught by faculty who would: 1) Support integration of the training into their course, 2) Encourage a positive narrative around prioritizing mental health, and 3) Represent the demographics of students and faculty within each program. Three graduate students from Counseling Psychology were hired to schedule and deliver the training. Pre- and post-test data found that students' perceived knowledge about mental health resources and signs of a mental health concern increased. There was no change in intention to seek help. Moving forward, the training will be offered to all students on a yearly basis to 1) provide students with an up-to-date list of mental health resources on campus and 2) remind students of the importance of advocating for themselves and their peers.

1 INTRODUCTION

1.1 Student mental health

The mental health of university students has been of increasing concern worldwide. Transition to university can lead to significant changes in lifestyle (routine, diet, independence, etc.) that can induce stress. Further, many mental health disorders do not manifest until emerging adulthood (i.e., 18-25 years old) which overlaps with the traditional age of university students (Kessler et al. 2007). The Covid-19 pandemic led to further concerns around student mental health worldwide (Salimi et al. 2023). Mental health distress has been linked to decreased academic performance and retention, highlighting the importance of prioritization of mental health on university campuses.

1.2 Mental health in engineering

Within engineering, students are exposed to a high-stress academic environment that can impact mental health. Of serious concern, research within engineering shows that mental health distress differentially impacts students who are traditionally underserved in engineering, such as female and first-generation (Jensen and Cross 2021), and female and gender-expansive students (Hargis 2021). Further, engineering students experiencing mental health distress are less likely to seek help when compared to their peers outside engineering (Lipson et al. 2016). Studies within engineering have aimed to understand the impact of mental health interventions on student outcomes, as recently reviewed in (Tait, Hancock, and Bisset 2022). While mindfulness training showed promise for improving mental health outcomes for engineering students, the review highlighted the lack of experimentally validated mental health interventions for engineering students. Therefore, this study aimed to integrate and assess a mental health intervention across the College of Engineering with the goal of increasing mental health literacy in engineering students.

2 METHODOLOGY

2.1 Development of mental health training

The 15-minute mental health training was developed by the research team based on the results of prior research on mental health related help seeking in undergraduate engineering students (Wright et al. 2021, Ban et al. 2022). The team had significant expertise in mental health training based on the education and experiences of one faculty member and three graduate students in Counseling Psychology, as well as one faculty member in chemical engineering. Additionally, university administrators engaged in mental health training and service delivery were consulted to ensure the training content was up-to-date and in line with university guidelines. Finally, the training was piloted with one graduate and three undergraduate engineering students to ensure the content met the needs of the engineering student body.

2.2 Delivery of the training

The 15-minute mental health training was integrated into courses across the College of Engineering. Three graduate students from Counseling Psychology were hired to deliver the in-class training. Each student received $1,000 in monetary support for approximately 30 hours of work on the project. In addition to delivering the training, they facilitated scheduling of the sessions and collection of pre- and post-test data.

To identify courses, department chairs were contacted and asked to identify courses that would: 1) reach all students across all years of study within the major, 2) limit the overlap of students across courses, and 3) be taught by faculty that would: support the integration of the training into their course, encourage a positive narrative around prioritization of mental health, and represent the demographics of students within their program. After receiving a list of courses from each department chair, faculty were contacted by the graduate students, informed about the initiative, and asked to choose a day for integration of the training within their course. Both the department chair and associate dean for administration and academic affairs were included in the email to showcase administrative support for the initiative. For faculty that chose not to integrate the training into their courses, an out of class session was offered to students, as well as an online video of the training recorded by the graduate student.

2.3 Pre- and post-test data collection

After obtaining approval from the university institutional review board, pre- and post-test data was collected from students to assess the following: 1) knowledge of resources on the university campus (a 10-question multiple choice quiz), 2) perceived knowledge of and access to mental health resources, 3) perceived knowledge about recognizing students in mental health distress, and 4) intention to seek help for a mental health concern. Before starting the survey, students were asked to provide consent for participation in the research study. If a student decided not to participate in the study, they were taken to the end of the survey instrument. Perceived knowledge and intention to seek help were measured on a 6-point Likert scale. Further, students were asked to indicate how much they agreed with the following statement: “During my time as an engineering student, I will need to prioritize my academic success over my mental health.” Qualitative data soliciting feedback on the training was also collected through open-ended responses in the post-test. The pre-tests were sent to students prior to the mental health training by the faculty member teaching their course. The post-tests were first advertised at the end of the mental health training and a follow-up email was sent out by the faculty member teaching their course.

3 RESULTS

3.1 Mental health training

Mental health training topics were chosen based on prior research that shows that engineering students: 1) feel that they don’t have time to prioritize their mental health, 2) are less likely to seek help for their mental health, 3) feel that they would

be more likely to seek help if they received help from a friend or peer and 4) normalize the stress of the engineering training environment (Lipson et al. 2016; Jensen et al. 2023; Jensen and Cross 2021; Wright 2021; Ban et al. 2022). Five key topic areas were covered (Table 1).

Table 1. Summary of the content of the engineering student mental health training

Topic	Key content covered
Prioritizing mental health	• Engineering students feel they do not have time to prioritize mental health • Long-term stress linked to decreased academic performance and increased mental health disorders • Coping strategies can improve current and future well-being • Engineering students are less likely to seek help for their mental health
Advocating for yourself and your classmates	• Support from a friend can significantly increase help-seeking • Knowing how to recognize signs of distress can allow you to advocate for yourself and others
Recognizing normal stress vs. distress	• The difference between normal stress and mental health distress • Signs and symptoms of mental health distress and substance use • Talking to someone who is displaying signs of distress
Mental health resources	• Overview of campus resources related to mental health and wellness • Additional resources to support overall well-being (e.g., basic needs, financial support, etc.)

In addition to tailoring the content toward the needs of engineering students, quotations were incorporated from qualitative interviews with engineering students. For example, a quote was shared highlighting how engineering students feel that they cannot prioritize their mental health, “You have to prioritize the education and the work that goes towards it instead of…yourself…I think a lot of people think that it's just four years…They need to get through the school and then it'll be fine” (Wright et al. 2021). Additionally, a quote was shared when talking about the importance of advocating for the mental health of those around you, “I would be relying on the people around me to say something because in the back of my mind, I would be trying to convince myself that it's not a big deal” (Wright et al. 2021). These quotations helped to center the voices of students in the training.

3.2 Delivery of training

Ninety-five percent (57) of the 60 faculty members who were contacted agreed to the incorporation of the 15-minute mental health training into their course. In addition, 11 faculty agreed to an additional 15-minute discussion session that would be facilitated with the students in their class. Over a two-week period, the three graduate students visited the classrooms to deliver the mental health training. A total of 2,592 students were enrolled in the courses in which the training was delivered, which represents over 90% of the students enrolled in the College of Engineering.

3.3 Pre- and post-test results

Pre- and post-test data were collected to look at the impact of the mental health training on student's knowledge and beliefs about mental health and help-seeking (Figure 1).

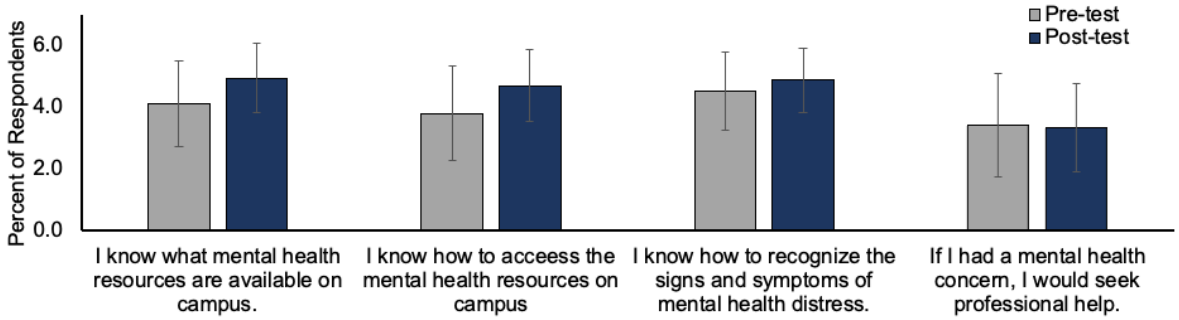

Fig. 1. Results from pre-test (n = 160) and post-test (n = 285) on mental health training. * indicates statistically significant different ($p < 0.05$) between pre- and post-test mean scores.

The training resulted in a statistically significant increase in student's perceived knowledge about and access to mental health resources on campus. This is consistent with the results of the pre- and post-test scores for knowledge of campus resources which increased from an average score of 32% to 55% after the training. Students also felt that their knowledge about recognizing the signs and symptoms of mental health distress increased. There were no changes to students' intention to seek professional help.

Of interest, students were asked to indicate how much they agreed with the statement, "During my time as an engineering student, I will need to prioritize my academic success over my mental health" (Figure 2).

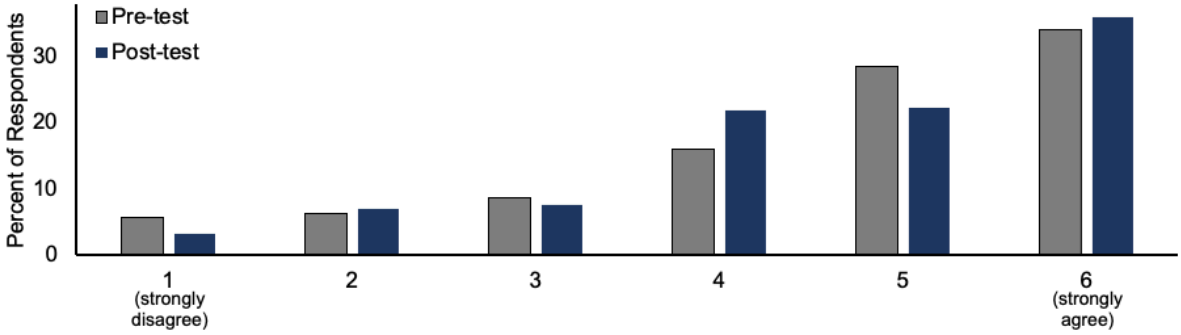

Fig. 2. Student agreement with the statement, "During my time as an engineering student, I will need to prioritize my academic success over my mental health."

While there was no significant difference in the pre- and post-test responses, over 60% of students somewhat or strongly agreed that they would have to prioritize their academics over their mental health. This provides important insight into the mindset of engineering students as they navigate their engineering training.

In addition to the quantitative data from the pre- and post-tests, qualitative data was collected to solicit feedback on the quality of the training. Some of the key themes related to the benefits of the training are summarized in Table 2.

Table 2. Summary of themes related to benefits of the mental health training

Theme	Quotation
Realizing I am not alone	"Learning that half of all engineering students also have gone to counseling or therapy. Made me feel like it's not just me."
Interesting to see data	"I think it was interesting to see the statistics about the number of engineering students who had actually used mental health compared to non-engineers."
Nice to acknowledge mental health	"It is really nice to recognize and talk about these things, as well as seeing all the resources."

The qualitative data highlights the importance of the training as well as engaging in conversations about mental health in engineering classrooms.

4 SUMMARY AND ACKNOWLEDGMENTS

With the prevalence of mental health disorders increasing in university students, it is important to develop strategies to support student mental health. This study aimed to deliver mental health training across a College of Engineering. The 15-minute training was incorporated into 60 courses with nearly 2,600 enrolled students. Pre- and post-tests of the training indicate that student knowledge about mental health resources on campus was increased, but their intention to seek help was unchanged. Qualitative data indicated that the training helped some students not to feel alone in their mental health struggles, which is an important outcome of the training.

While ideal training would lead to differences in both student knowledge and intention, it was not anticipated that a limited training of just 15 minutes would lead to significant changes in beliefs. Literature shows that mental health literacy is significantly correlated with help-seeking behavior (Gorczynski et al. 2017), indicating that changes in knowledge could be a strong step toward future change in behavior. Future interventions aimed at the normalization of mental health and help-seeking could result in further changes in student's attitudes and intentions to seek help for their mental health.

It is also important to acknowledge that the onus for change does not sit solely in the hands of the students. Currently, students face structural barriers that prevent them from prioritization of their mental health throughout their education. For instance, the high academic workload in engineering and normalization of stress puts pressure on students to solely focus on academics rather than finding balance in their lives. Faculty and administration within engineering need to help deconstruct these norms and give students permission to prioritize their well-being. Future interventions should be aimed at faculty and administration to create a culture that is supportive of mental health in engineering. This would include guidance on how to support a culture of well-being, as well as policy changes that provide students with the agency to prioritize their mental health as they pursue their engineering training.

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