

This column addresses aspects of lifelong learning for current students, alumni, and faculty. Examples of student and faculty activities that involve industrial practice and engagement as well as continuing education are welcome. These topics may not always lend themselves to the traditional scholarly format with formal assessment and extensive literature review but may be more editorial in nature. Submit papers through journals.flvc.org/cee, include lifelong learning in the title, and specify lifelong learning as the article type.

STRATEGIES FOR SUPPORTING ENGINEERING STUDENT MENTAL HEALTH

SARAH A. WILSON¹ AND DEBORAH S. GOLDBERG²

1. University of Kentucky • Lexington, Kentucky 40506

2. University of Maryland • College Park, Maryland 20742

INTRODUCTION

Colleges and universities are experiencing what has been called a mental health crisis, with significant increases in the prevalence of mental health symptoms and diagnoses.^[1] For instance, the percentage of students reporting symptoms associated with anxiety has increased from 22% in 2014 to 31% in 2019.^[2,3] Of particular concern, the prevalence of suicidal ideation has also increased from 5.8% in 2007 to 10.8% in 2017,^[4] with death by suicide identified as the third highest cause of death in the college-aged population in the US.^[5] Symptoms of mental health distress were shown to further increase in college students after the start of the Covid-19 pandemic, with particular impact on students from rural communities, low socioeconomic status, families with healthcare workers, and families impacted by illness.^[6] Universities nationwide have aimed to increase student access to counseling services, leading to an increase in the percentage of students who have accessed mental healthcare.^[4] Despite this, individuals who are at highest risk for death by suicide are often least likely to seek professional help.^[7]

Within engineering, students can experience significant stressors due to academic expectations, time demands, and an unsupportive training environment.^[8,9] These stressors result in what has been called a “stress culture” that can negatively impact student mental health.^[10] The prevalence of mental health concerns in undergraduate engineering students can vary by institution, with the percentage of engineering students in mental health distress similar or higher to national

averages for college students.^[11, 12] Concerningly, mental health distress is more prevalent in marginalized engineering student populations including female,^[10, 13] Hispanic,^[13] and gender expansive students.^[14] Differential impacts of mental health distress were further displayed through the Covid-19 pandemic.^[15] Additionally, several studies have shown that engineering students in mental health distress



Sarah A. Wilson, PhD, is an Assistant Professor in Chemical and Materials Engineering at the University of Kentucky. She earned her BS from Rowan University and PhD from the University of Massachusetts. Her research focuses on understanding and overcoming internal barriers to success within engineering. In particular, she is interested in understanding help-seeking behavior in engineering students experiencing mental health distress. She has collaborated on national workshops on supporting engineering student mental health since 2020.

Deborah S. Goldberg, PhD, is a senior lecturer in Chemical and Biomolecular Engineering at the University of Maryland, College Park. She earned her BS in chemical engineering, her PhD in bioengineering, and worked in the biopharmaceutical industry for six years before joining the University of Maryland in 2016. In addition to teaching and advising, she currently serves as the department Associate Chair for Strategic Initiatives, where she implements programs to improve department community and student belonging, with a focus on student mental health.



are less likely to have sought professional help when compared to non-engineering students.^[16, 17] By not accessing treatment, these students are at higher risk for escalation of their mental health symptoms to more severe and persistent mental health disorders.^[18] Together, these findings highlight the importance of work aimed at prioritizing student mental wellness for creating a supportive and equitable engineering environment.

As chemical engineering faculty, we are often a source of support for students as they navigate their college experience. This means we engage in conversations with students who are experiencing challenges, including those who are in mental health distress. In a study of engineering faculty, most faculty had experienced conversations with students about their mental health but very few were confident in their ability to navigate these conversations.^[19] Through this article, we aim to provide you with guidelines that can be used to support students who are in mental health distress. We recognize that mental health distress can range from normal stress and anxieties to diagnosable mental health concerns, all of which can benefit from the support of professional mental health and wellness resources. Therefore, we emphasize the role of faculty as referral agents for students experiencing all levels of mental health distress, aiding in the connection of students to professional help. While this article is not intended to replace mental health training that is available through your campus or national programs, we hope that it can help you feel more prepared to support the students in your program.

TAKING PROACTIVE STEPS TO SUPPORT STUDENT MENTAL HEALTH

One of the best ways that you can prepare to support students who are in distress is to know about available student support resources (Figure 1). At most universities, students have access to mental health services such as individual talk therapy, group therapy, and support groups, among other wellness activities.^[20] Academic advisors, disability resource centers and other departmental/college/university resources can often provide additional assistance to students in distress. It is important for you to know the resources that students have access to on campus and the process for referral. This information can often be found on a resource list that has been created by your university. While this is a helpful starting point, it can be beneficial to add additional detail to your list of resources. As an example, you should understand which resource is appropriate for different student experiences that you might encounter.

For instance, where can you refer a student who emails in distress in the evening or on a weekend? Or who do you call if you are concerned about a student's safety? Be sure to have this information integrated into your resource list to simplify your response in what might be a stressful situation. It can also be helpful to include examples of what you might say to a student who is in distress.

In learning about your campus resources, it is always important to understand your role and responsibilities within your institution. Some institutions may have mandatory reporting guidelines that require reporting of student mental health concerns, especially involving students who might be a danger to themselves or others. Including information on your resource sheet about your mandatory reporting responsibilities can help to ensure that proper procedures are followed. Additionally, most institutions have specific guidelines that faculty should follow when concerned for a student's well-being. If you are unsure about the appropriate procedures at your own university, you should reach out to the mental health resources on your campus for additional guidelines. Once you have created your resource list, you should keep both print and digital copies available for quick access. You can also save important phone numbers (including national mental health hotlines) into your phone in case of emergency. Once you have gathered the list of resources for yourself, be sure to share your work with other faculty in your department or college. This can help to raise awareness around student mental health and drive towards a culture that is more supportive of student well-being.

Be Proactive!

Steps to support
student mental health

Identify on-campus resources

- Learn the purpose of each resource
- Know the referral process

Understand your role

- Know your mandatory reporting guidelines
- Learn university referral recommendations

Walk in student's shoes

- Identify the location of important resources
- Become familiar with the intake process

Share your knowledge

- Share what you have learned with others
- Show students you prioritize mental health

Figure 1. A summary of proactive steps that faculty can take to support student mental health.

In addition to learning about the resources available on your campus, it can also be helpful to put yourself in the student's shoes so that you understand how to support them. For instance, in addition to knowing where the counseling center is located, you might consider walking to the counseling center and asking them to explain the intake process. There is literature to support that fear or stress around the act of help seeking that can act as a barrier in young people.^[21] Therefore, you can help to minimize student stress by talking them through the steps of making their first appointment. Additionally, if a student is in crisis, you will already be familiar with the location and process for bringing a student to the counseling center. As you go through the process of accessing these resources, it can be helpful to take note of any barriers that you encounter. Often, those who are in charge of on campus resources are unaware of barriers that exist to their services. Therefore, you can advocate for your students by reaching out to administrators and helping to drive change to simplify treatment access. Through becoming intimately familiar with the resources available to students on campus, you can reduce the stress associated with responding to students who are in distress.

Another way that you can increase student access to help seeking is through normalization of mental health and the help-seeking process. Engineering culture has been described as "hard" or unemotional,^[22] and a "culture of stress"^[19] due to the characterization of stress as commonplace.^[23] This perception among students can lead them to deprioritize their mental health over academics.^[8] You can help to change this narrative by modeling wellness within your courses. Rather than avoiding conversations around mental health and wellness, you can talk about your own experiences and how you prioritize your own well-being. You can also take time in class to present students with available resources and communicate support that they prioritize their well-being. Not only can this help to reduce knowledge gaps about available resources, but it could change student attitudes around help seeking, two barriers that have been previously identified in the help-seeking literature.^[24] Together, these strategies show students that you are an advocate for their well-being and help to normalize the prioritization of mental health within engineering.

CONVERSATIONS WITH STUDENTS AND MAKING A REFERRAL

As a faculty member, you are often in a position to observe student behavior, enabling identification of students who are experiencing academic and/or psychological distress.^[25] Through learning the symptoms of mental health distress, you can serve as a referral agent for students and encourage them to seek out help for their mental health (Figure 2).

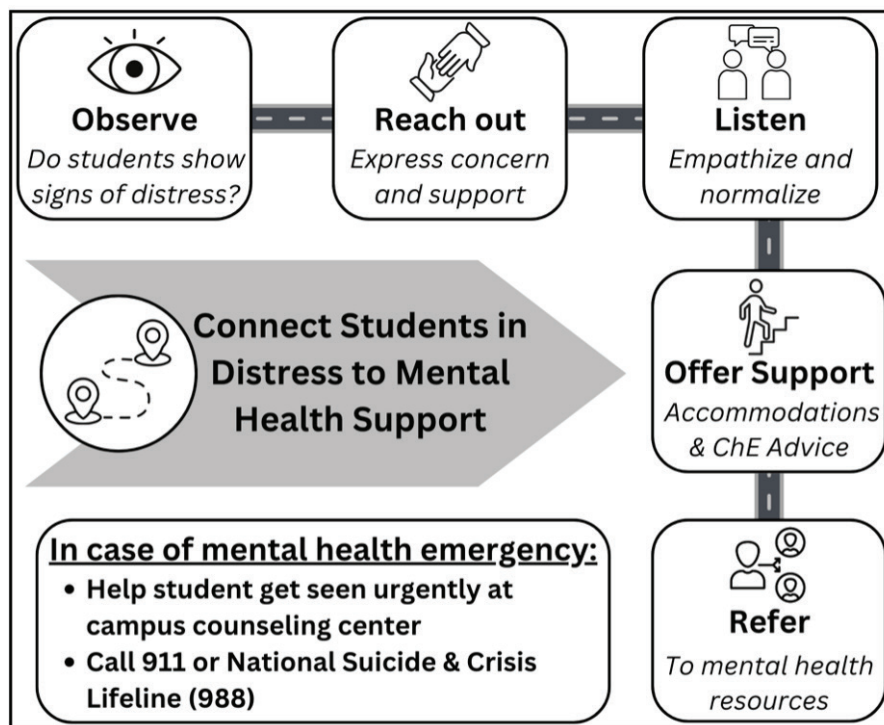


Figure 2. A summary of steps that faculty can take to connect students in distress to mental health support.

There are many opportunities to learn more about identifying and responding to signs of mental health distress. Programs such as Mental Health First Aid,^[26] QPR (Question. Persuade. Refer.)^[27] and other gatekeeper trainings have been proven to improve mental health literacy on college campuses.^[28-32] Additionally, the REDFLAGS model is an acronym used to identify warning signs for mental distress that has proven useful for faculty in higher education, including warning signs such as Recurrent absences (R), Extreme and unusual emotional reactions (E), and Difficulty concentrating (D).^[33] If you notice a student showing signs of mental distress such as changes in class attendance or performance, consider reaching out to them. You can reach out in person or via email, expressing concern about the observed behavior and offering to meet with the student one-on-one

to talk about how they are doing. For instance, “I noticed that you haven’t been attending class over the past week. I wanted to check in with you to make sure that you are doing okay. How have you been doing?” In doing this, you want to ensure that you prioritize the student’s well-being over their performance within your course. Additionally, asking an *open-ended* question (e.g., “how have you been doing?”) rather than a yes or no question (e.g., “are you doing okay?”) can invite them to open up more honestly about how they are doing. Having this open invitation can be a bridge for students who may otherwise be reluctant to seek help.

During the meeting, the student may share the reasons for their academic struggles, which could be due to a specific situation, such as a sick family member or other crisis, or may be more general, such as lack of motivation, exam anxiety, or concern about future career goals. As faculty, we have expertise in helping students navigate the chemical engineering experience, including preparing for exams and identifying career pathways. If there are places where your expertise as a chemical engineering faculty might help to ease a student’s anxieties, these conversations can be very useful. Additionally, helping students to recognize that they are not alone in their career confusion (in fact many students have these same fears) can help to normalize these experiences. Within your own courses, offering academic accommodations, such as extended deadlines, can help the student meet the course expectations while managing difficult situations. These accommodations show your support of the student and can open dialogue for future accommodations, if needed. While conversations with you can be hugely beneficial to relieve stress and anxiety, it is always important to end these conversations with a discussion of professional mental health support that can further help them navigate their experiences.

In the case of more generalized challenges such as lack of motivation, anxiety, depression, or extreme stress, academic accommodations may not be sufficient. In this case, you should refer the student to on campus resources such as counseling services. Since engineering students are often reluctant to seek help for their mental health,^[16, 17] the way in which you deliver the referral is especially important. Listening to the student and empathizing with their struggles can make them feel heard.^[34] Oftentimes, students experiencing mental health challenges feel alone, so it may also be helpful to normalize their situation by sharing that these challenges affect many of their peers, even if their fellow students don’t talk about it. While it is known that there is resistance to help-seeking in engineers, there are also additional social identity factors that can influence help-seeking behaviors.^[35] For students that are more resistant to seeking help, it may be helpful to relate seeking mental health support to seeking medical care, to talk about the academic benefits of prioritizing mental health, or to share that they are not alone in feeling reluctant to seek help.

Once you have suggested that a student could benefit from mental health services, it is important to connect the student with the right resources. As mentioned earlier, you should have information on campus mental health services readily available and can offer to help students make an appointment. If the student is not ready to make an appointment, you can follow up with an email to the student listing the relevant services, websites, and phone numbers. Having a pre-written email with a list of campus resources can expedite the process of getting this information to students. Additionally, it can be helpful to ask the student if it is okay if you follow up with them in a week or two to see if they were able to access treatment. This accountability might help students to follow through in scheduling an appointment.

It is critical to remember that your role as a faculty member is to encourage the student to seek appropriate help, not to diagnose the problem or play the role of a mental health counselor. By expressing concern, making the student feel heard, and providing the student with clear ways to access the campus mental health services, you can facilitate students reaching the mental health support they need. In addition to supporting students directly, it is also important to ensure you are following campus guidelines for student support. This could include submitting a referral for the student to campus resources or connecting with the student’s academic advisor to ensure that they are receiving the follow-up support that they need.

RESPONDING TO MENTAL HEALTH EMERGENCIES

If a student shares that they may be considering self-harm or death by suicide, it is critical for you to connect them with help quickly. Within engineering, referral to mental health services by a friend or other referent has been identified as a facilitator to help seeking.^[8] As mentioned previously, there are many training opportunities such as Mental Health First Aid and QPR training that have proven useful in increasing mental health literacy and can prepare you for responding to students experiencing suicidal ideation.^[28-32] Knowing your campus resources ahead of time can help you be prepared to get students the help they need. First and foremost, if you are concerned about the immediate safety of the student or others, campus and community police departments should have a plan in place to provide the appropriate assistance. For less critical responses, many campus counseling centers offer emergency appointments, and may encourage faculty to *walk the student* to the counseling center. Some campuses offer a mechanism to report the student of concern so that the campus can deploy a coordinated response, for example using resident life, the counseling center, and the campus police department. It is also important to understand which resources are available during business hours and which

are available after hours, as well as the preferred reporting strategy for your own campus. If campus resources are not available, consider calling 988, the National Suicide & Crisis Lifeline, to connect the student with a mental health professional.^[36] Being prepared by having a clear strategy to support students under these conditions can help to alleviate stress and ensure that students are able to quickly receive the help that they need.

CONCLUSION

Supporting students who are experiencing mental health challenges can feel overwhelming but is something that many faculty experience throughout their career. Since chemical engineering students are under high levels of stress due to the academic rigor of the major and are often reluctant to seek help, we play an important role in connecting students with mental health resources. Preparing ahead and having a plan in place to help respond to students who are in distress can help to reduce stress around these situations and ensure that students are getting the help that they need. Additionally, showing your support for students experiencing mental health distress can help to normalize prioritization of mental health in the engineering community.

If you are looking for more formal training on supporting student mental health, there are many national training opportunities in addition to what might be available on your campus. Mental Health First Aid^[26] offers both in person and online courses that focus on identifying and supporting someone in a mental health crisis. If you want to learn more about suicide prevention and how to talk with someone at risk for suicide, QPR^[27] training is an emergency response protocol designed to help someone in crisis. QPR training for gatekeepers is available online. These trainings and others are often available on university campuses to help increase your preparedness to provide support for students in mental health distress.

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