

# “Not a Therapist”: Why Engineering Faculty and Staff Do/n’t Engage in Supporting Student Mental Health and Wellbeing\*

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The engineering culture of stress may negatively impact student mental health and wellbeing (MHW). Engineering faculty and staff are in a key position to support undergraduate students, but there is limited research examining their beliefs about students’ MHW. The purpose of this article is to explore engineering faculty and staff’s perceptions of their responsibility in supporting their undergraduate engineering students’ MHW as well as the impact of engineering culture on this perceived responsibility. In this qualitative study, we interviewed 28 engineering faculty and staff at 18 institutions in the United States about their perceived responsibility in supporting undergraduate students’ MHW. Results show that faculty and staff care about their students’ MHW and want to support it; however, engineering culture acts as a barrier to this care. Faculty and staff feel underprepared to support student MHW, and their own MHW is often also diminished. Faculty at institutions of smaller sizes were more likely to describe expectations of relationship building as a necessary part of teaching. Our results indicate a need for increased awareness of the impacts engineering culture has on faculty comfort engaging with student MHW. In addition to increasing opportunities for supporting students’ MHW, faculty and staff MHW need further support. We recommend specific strategies for dismantling a culture of stress by highlighting and prioritizing movement towards a culture of wellness in engineering.

**Keywords:** multi-institution; faculty attitudes; institutional culture; qualitative; interviews; mental health and wellbeing

## 1. Introduction and Background

Between 2021 and 2022, over 60% of college students faced one or more challenge with their mental health [1]. Additionally, the number of students reporting distress approximately doubled over the ten-year period between 2009 and 2019 [2], suggesting that this trend has been consistently on the rise. Another study found that 50% of engineering students in a multi-institutional survey screened positive for a major mental health condition [3]. As a community of engineering educators, not only do we want to reduce hardship for engineering students, but we also desire increased wellness [4]. However, students in engineering majors ranked within the lowest quartile of all disciplines for measures of flourishing, which examines their self-perception of success in aspects such as self-esteem, purpose, and optimism [5]. We therefore must examine engineering academic culture, which encompasses the expectations and norms experienced by students, faculty, and staff [6, 7]. With a clearer understanding of culture, we can then ideate and implement measures to promote wellness.

Mental health and wellbeing (MHW) [8] are critical components of wellness. Most previous studies on MHW in engineering academia have centered on undergraduate student experiences. These works describe engineering academia to have an unsupportive environment [9] with an ethos of superiority where some professors are not understanding or sympathetic [10] and students do not feel like they have time to meet their wellness needs [11].

Studies of engineering culture more broadly echo these findings by describing a culture that values rigor [12], where engineers are venerated for overcoming these challenges [13]. Students who do not overcome these challenges are labeled as “not cut out for engineering” [6 p. 57], which promotes exclusion [6]. An additional aspect of this engineering culture includes students who are less likely to seek professional help to support their mental health [14, 15], possibly because this high stress is normalized [16]. Jensen and Cross [17] found that perceptions of a more inclusive engineering culture are positively associated with higher student MHW, especially for students who are underrepresented in engineering.

Staff (e.g., career advisors) and faculty directly contribute to engineering culture by holding posi-

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tions of power within academia [18–24]. It is critical to understand faculty and staff perspectives because, as the participant Ken from our study shared, “I think that ultimately a culture change related to mental health in engineering has to start from faculty.” There is some research showing that faculty and staff across academia feel a responsibility to support students’ MHW [25–27], and a recent study has shown that engineering faculty feel underprepared to engage with this support [28]. Schein’s foundational model of organizational culture suggests that to fully understand a culture, the beliefs and values espoused by the culture towards its members must be understood [7]. Researching how and why faculty and staff do or do not provide help and support for students can elucidate their perspectives and beliefs. These underlying values influence their experiences with students, which informs their conceptualizations of culture [7]. Currently, there is no research delving into why engineering faculty and staff do or do not engage with actions that are supportive of their undergraduate students’ MHW. The purpose of this study is to examine this research gap with a focus on engineering culture.

## 2. Theoretical Framework: Godfrey and Parker’s Framework of Cultural Dimensions in Engineering Culture

Godfrey and Parker [19] implemented Schein’s organizational framework of culture [7, 29] on engineering culture in academia, and their ethnographic study focused on faculty, staff, and students at a single university in New Zealand. They found six dimensions of engineering culture that have since been applied in contexts including engineering student MHW [16, 17].

- *An Engineering Way of Thinking* describes knowledge that is valued by engineers. This includes conceptualizing mathematics as infallible and reliable, where work is objective and there is often a best answer given specific constraints. This way of thinking is perceived as inherently unbiased because math and design thinking are considered incapable of bias.
- *An Engineering Way of Doing* focuses on perceived norms for engineers. There is a focus on “hardness,” which is associated with masculinity, and “working through the pain.” [19, p. 12]. Both competition and cooperation are expected, and there is an expectation of time as a constraint.
- *Being an Engineer* details personal characteristics of someone who sees themselves as an engineer. This includes ideas such as logical, practical, tough, conservative, and unemotional.

- *Acceptance of Difference* describes engineering as primarily homogenous in experience (e.g., similar age and prior school experience). Diversity is ostensibly valued, though members are expected to adhere to the same rigid engineering cultural norms.
- *Relationships* shows a strong bond shared and created through academic-oriented tasks and interactions. These relationships are viewed as essential.
- *Relationship to Environment* situates engineering academia within the broader academic environment, with a perception of autonomy and self-sufficiency as a discipline.

Since engineering culture often rewards elements that are not traditionally associated with MHW, such as toughness and dismissing emotions, we were interested in how people in this culture engaged with actions supportive of MHW. These dimensions were used to guide the interview protocol development as well as in the final stages of analysis, and they provide context to understand the cultural impacts described by the participants in this study.

## 3. Research Questions

In this study, we answered the following research questions:

- RQ1:** What factors influence the perceived responsibility of engineering faculty and staff to support undergraduate students’ MHW?
- RQ2:** How does engineering culture impact faculty and staff perceptions of their responsibility and capability to support students’ MHW?

## 4. Methods

The manuscript presented here describes results from 28 interviews that we conducted with engineering faculty and staff at 18 universities within the United States. This was part of a larger, mixed-methods study examining the culture of stress within engineering. These results focus on how faculty and staff engage with student MHW in their academic environment. In the following sections, we provide a description of the methodologies used and confirmation of quality. This research was approved by the focal institutions’ Institutional Review Boards (HUM00218022 for the University of Michigan, Ann Arbor and IRB# 20223 at the University of Illinois Urbana-Champaign).

### 4.1 Positionality

Several students, faculty, and staff comprise this team. Some of our socio-cultural identities that

have influenced this work [30–32] include: white and mixed-race, American (all), first-generation, low-income, middle-income, heterosexual, queer, cisgender, women, and men. Many authors have experience in supporting (as a teaching assistant) or leading a classroom, helping them empathize with participants.

Multiple authors have experienced tensions regarding their own mental health challenges in engineering spaces, sometimes with limited faculty advisor or instructor support. We all believe that faculty have a responsibility to support their students, including intervening on students' behalf when they notice a potential mental health crisis. These experiences provided some of the motivation to explore this research.

Most authors have backgrounds in engineering or physics disciplines, both of which are steeped in positivism, and they all engage at least partly with engineering education research. The first two authors joined the team most recently and brought constructionist and aspiring critical views to the interviews and analysis.

We had different expectations for participants' responses, which included anticipating variation in responses based on participants' gender, age, tenure status or position, and views on mental health. For example, some authors expected staff to generally be more connected with students than faculty.

#### 4.2 Participants

The research team contacted participants through advertisements in a college of engineering newsletter and via a multi-institutional listserv. The advertisements mentioned supporting undergraduate mental health and recruited engineering faculty and staff who work with engineering students. Participants were offered compensation of \$50 via an electronic gift card. All participants who replied to the advertisement were invited to join the study.

Participants in this study were faculty ( $n = 24$ ) or staff ( $n = 4$ ) who were associated with engineering departments and support offices at 18 universities in the United States. In this context, staff primarily refers to individuals with a primary focus on career advising, and faculty refers to individuals whose primary responsibilities involve teaching and may include research. Institution classifications and sizes [33] of these participants are disaggregated and presented in Table 1 and Table 2.

Participants had been in their role or a similar role for a range of years. Some were in their first year, and others had been in their role for over 20 years. Many participants self-identified as educators (over 75%), mentors (over 60%), and researchers (over 50%). Additionally, participants ranged

**Table 1.** Institution classification for participants engaged in this study

Carnegie Institution Classification	Participant Count
Doctoral Universities Very high research activity (R1)	$n = 18$ (64%)
Doctoral Universities High research activity (R2)	$n = 3$ (11%)
Doctoral/Professional Universities (D/PU)	$n = 1$ (4%)
Master's Colleges and Universities Larger programs (M1)	$n = 6$ (21%)

**Table 2.** Institution size for participants engaged in this study

Carnegie Institution Size <sup>a</sup>	Participant Count
Very Large (>10,000)	$n = 1$ (4%)
Large (5,000–9,999)	$n = 15$ (54%)
Medium (2,000–4,999)	$n = 9$ (32%)
Small (500–1,999)	$n = 3$ (11%)

<sup>a</sup> Number of full-time equivalent enrolled students

from a postdoctoral fellow (acknowledged by their institution as faculty due to teaching a course) to heads of departments. Participants included people who used feminine (e.g., she, her, hers) ( $n = 20$ ) and masculine (e.g., he, him, his) ( $n = 8$ ) pronouns. We did not request further detailed information about participant demographics or rank to preserve participant anonymity. Randomly generated pseudonyms and gender-neutral pronouns are used to refer to participants when presented below.

#### 4.3 Data Collection

Participants were virtually interviewed one time through Zoom for 22–63 minutes with an average of 41 minutes. Participants were asked to keep cameras on to foster a more natural conversation, but only audio was retained for later transcription and analysis.

The interviewer used a semi-structured interviews protocol that consisted of three distinct but related sections. The interview protocol was developed using Godfrey and Parker's Engineering Culture [19], and the protocol was pilot tested with individuals who were outside of the participant pool. The basis of these sections focused on (1) Understanding Mental Health Climate: How does this individual perceive their role and experiences with mental health in engineering education?; (2) Student Experiences of Stress: How does this individual perceive stress and mental health (i.e., anxiety and depression), and how does this relate to students in their mind?; and (3) Stress Management and Coping: How does this individual perceive different supports and coping skills for students at the university/discipline level and personal level? The full interview protocol can be found in Appendix A.

The first four participants’ interviews were conducted with the fourth author in the spring of 2021, and the remaining 24 interviews were conducted with the second author in the winter of 2021 and spring of 2022.

4.4 Data Analysis

Audio files for each interview were transcribed by a professional service and then cleaned and reviewed by the fifth and second authors for clarity and accuracy. The transcripts were then approximately divided into two sections by the first author based on the interviewee’s answers. The first section, which is primarily the basis for this manuscript, centered on participants’ understanding of their roles and responsibilities within these roles. The second section, which is centered on participants’ understanding of their students’ experiences, is not presented here. The resulting data were then open-coded by the first author using Taguette [34] with a combination of inductive and deductive codes. This author also memoed throughout this process about ideas and inter-code relations [35]. During this process, a “living codebook” was maintained in a spreadsheet with codes, definitions, memos, and intra-team conversation [36]. This codebook was continuously updated as new data was coded and analyzed. An example of an inductive code includes participants describing their job role, which was indicated by phrases such as “we,” “the department,” or “my job as [role] is about.” Actions taken and feelings expressed by participants are other example inductive codes, all with a rich variety of subcodes. Among deductive codes were those that answered some of the interview questions, such as “Do you think faculty and staff have a responsibility to intervene when a student is struggling?” Example codes are shown in Table 3 along with

their corresponding themes and research questions. Our team then individually reviewed and discussed the codebook, interesting findings, and related exemplar quotes, thus engaging in communicative validation [37]. Underlying threads within the codes were identified and grouped into themes that were guided using Godfrey and Parker’s Engineering Culture framework [19]. These were then mapped onto our research questions. Prior work and analysis with this data includes identifying specific recommendations that participants made to increase support for undergraduate student MHW [38] and exploring how participants described their vision of a “culture of wellness” [39].

5. Results

Faculty and staff participants in this study described several dimensions to their experiences supporting student MHW. The resulting dimensions are presented as seven *Themes*. Participants often *Personally Cared* for their students and wanted them to be mentally healthy, and this often centered around connecting with the “human” experiences of their students. In addition to individual viewpoints, some participants described *Caring as a Cultural Norm*, thus expecting this human-centered care from their colleagues. This was then contrasted by an *Engineering “Culture of Despair” [acting] as a MHW Barrier*, where MHW was considered as unrelated to the experience of being an engineer. Participants also described feeling *Fear and [the resulting] Inaction* as well as *Responsibility and [the resulting] Action* to support student MHW. Participants often felt *Underprepared* to support their students and also described feeling and observing *Diminished Faculty MHW*.

Table 3. Mapped research questions, related themes, and example codes. Code definitions are given with example codes

Research Question	Theme	Example Code	Code Definition
RQ 1	Theme 1: Personally Caring: “As a human being”	My Feelings: Love my students	Participant personally connecting with and caring for their students
	Theme 2: Caring as a Cultural Norm: “Eager to help”	My Job Role: “Cheerleader”	Participant viewing their role as being a cheerleader for students
	Theme 5: Responsibility and Action: “I would hate to sit back and something happen”	Question Answers: Responsibility to intervene	Participant responses to the question “Do you think faculty and staff have a responsibility to intervene when a student is struggling?”
RQ 2	Theme 3: Engineering “Culture of Despair” as a MHW Barrier	Question Answers: Stigma	Participant responses to the question “Have you heard of any negative stigmas among students regarding mental health?”
	Theme 4: Fear and Inaction: “I don’t want to say something wrong”	Question Answers: Responsibility to intervene	Participant responses to the question “Do you think faculty and staff have a responsibility to intervene when a student is struggling?”
	Theme 6: Underprepared: “More targeted resources”	MHW Support Structures	Participant descriptions of available and desired MHW support opportunities
	Theme 7: Diminished Faculty MHW: “It takes energy”	Other Faculty/Staff	Participant views about other faculty and staff MHW

### 5.1 *Personally Caring: "As a human being"*

Some participants described feeling a personal responsibility to recognize signs of distress and provide support to their students. Often, this was based on the "human" element of caring for their students and supporting these human needs of feeling heard and valued. These values were most consistently indicated by staff in advisor roles or faculty at smaller institutions.

Mentor and teacher Audrey described feeling responsible for supporting their fellow human beings, independent of any feelings associated with their position of power as a teacher and mentor:

"I think human beings [have a responsibility to intervene when they suspect someone is struggling with their mental health]. Not just necessarily faculty. I just think as a human being, it's the right thing. It's the right thing to do." (Audrey, edited to include the referenced question)

Audrey noted feeling like supporting their students is the "right thing" to do "as a human being," implying that this is a core principle to them and not only a situational cultural norm. Margaret, a career advisor, shared similar personal values when they said, "It's a personal choice. I love my job. I love my students." This expression of a conscious personal choice to care for their students as individual persons was commonly expressed by participants.

Participants also described actions they took to support students on a one-on-one basis by meeting fundamental human needs. Some examples include encouraging social support, employing active listening, and following up to check in on a student they perceive as struggling. Alice made sure the students "have people that they can rely on or talk to" and Ashley's "most effective" advice had been to "just listen and not provide advice necessarily." Marny described their office as a safe space for students to cry. In these examples, participants described seeing their students as humans with fundamental needs for community, safety, and feeling recognized and validated. In this way, participants were able to connect with their students in a way they found valuable and meaningful.

Several other faculty mentioned meeting student wellness needs through community and food. Mark shared, "I'm a firm believer in that creating community allows people to . . . [feel] they're not in this alone. So, we really do a lot of stuff around food." Mark then described a variety of ways they viewed food as a useful tool in bringing people together and helping them feel a sense of community. Similarly, Alexis shared that, "at the end of the semester, I bring a cake to the class and then we celebrate."

Later, a student came to Alexis and shared that bringing cake was "the only reason [the student] decided to continue to engineering" because it showed "there are people who care for us." Alexis's seemingly small gesture showed that they cared for their students on an individual level, and this supported their students' retention and likely their MHW.

### 5.2 *Caring as a Cultural Norm: "Eager to help"*

While only some participants described feeling a need to proactively support their students, most or all of the participants in this study described being part of a culture of caring for their students. Often, this was based on the "human" element of caring for their students as described in the previous section on personally caring. Participants in roles of both faculty and staff described expectations that they and others in their role would endeavor to meet student wellbeing needs. A subset of these participants described cultural norms centered around building relationships with their students, and this expectation was most commonly described by participants at smaller institutions. Even faculty who sometimes expressed skepticism about students' needs (e.g., some participants wondered if every case was genuine, or if there was potential for accommodations to be abused) described feeling a desire for struggling students to surpass these challenges and ultimately succeed in their studies.

Both faculty and staff described meeting student wellbeing needs as part of their defined job role. Margaret explained the nuance between what they view as their personal versus job roles:

"[I] feel like it's important for me to reach out and make sure that they're doing okay. And that's just something I kind of see as my personal role. And part of my job [as an advisor], I sort of see it as my job to make sure that their wellbeing is being met." (Margaret)

Here, Margaret differentiated between two similar aspects. While they *Personally Care* as described previously, this is not perceived as required by their job role. However, they also ensure that student wellbeing needs are met, and this was perceived as part of their job role.

Participants who were staff, particularly those in career advisor positions, described offering hope to the students as part of their perceived job responsibilities. Destiny shared that: "the first thing that we try to do is instill a sense of hope. To say, your life is not over, there's still opportunity" and helping "push back on any feelings of hopelessness" that the students feel. Similarly, Jane shared, "I think that the nature of engineering career services, what we do, we're basically cheerleaders. We want them to succeed." Interestingly, none of the parti-

Participants who were faculty described offering hope or “cheerleading” as part of their expected job role despite having a desire for successful students.

Faculty participants, primarily those who worked at medium or small institutions, described being flexible, recognizing imposter syndrome, checking on students, and building a relationship with students. Mark shared: “I believe part of my job as an educator, and education is about relationships.” Jason also elaborated how they address relationships:

“We talk explicitly about imposter syndrome about once a semester, and we do workshops. And because we have the culture, my senior engineers, when they see it, can address it [imposter syndrome] on their teams in ways that you wouldn’t find in traditional programs.” (Jason)

The culture fostered by Jason and their colleagues is one that encourages recognizing and talking about the experience of doubting one’s capabilities combined with a fear of being exposed as a fraud despite external achievements. Jason follows that their program is not “traditional” in that they emulate “corporate culture” by “having informal interactions.” Ashley often has class sizes of 10–15 students, and “because of the class sizes and because of the relationships that [they] foster with [their] students,” Ashley feels like they are “able to develop a really close relationship.”

Faculty at larger institutions did not regularly describe building relationships with their students; nonetheless, they also described a culture of caring by wanting their students to succeed. Max, a professor at a large university, most clearly explained this:

“Most of my colleagues, including me and the department overall, I mean, they are very willing to help such a student. Right. So, whenever they get their expert opinion and showing that they’re . . . struggling, I mean, we are all eager to help them.” (Max)

Even though Max displayed skepticism about student concerns, first requiring a student to “get their expert opinion” (e.g., of a counselor or psychiatrist) to demonstrate need, even Max, who was the least willing to engage with MHW issues, expressed their feelings of being “very willing” and “eager” to help. Additionally, Max perceives this willingness to help as a common feeling in their department overall.

Not all participants perceived a personal responsibility to proactively intervene, but many still wanted their students to succeed. This lends to the possibility that the culture perpetuated in part by engineering faculty may sometimes include a component of care. This component of care may be most clearly conveyed in settings that are more likely to promote personal interaction between

individuals or small groups, such as classrooms with fewer students or office hours with a small instructor-to-student ratio.

This care is a critical component to engaging with supporting student MHW, but it may be limited by an engineering culture of professionalism; a lack of knowledge, resulting in fear, about how to responsibly provide care and support for students; and the capacity (i.e., emotional and available time) of faculty and staff. These three components are described in the following themes.

### 5.3 Engineering “Culture of Despair” as a MHW Barrier

Several participants described the culture of engineering as one that acts as a barrier to engaging with actions that are supportive of MHW. This extended to perceptions of administrative pressure to not report when they felt concerns for student MHW. The participants who observed this culture had been working in their roles for a variety of years, some fewer than five years and others for more than 10 years. These participants were also more frequently but not exclusively faculty at large and very large (refer to Table 2) institutions.

Ken described their perceptions that student MHW is not valued within engineering culture, because engineering norms and behaviors are separate from MHW:

“I think engineering promotes a culture to be disconnected from your body and your mind where you are enculturated to, when things get tough, you basically dull yourself to the pain or suffering that you may be feeling. And you put your nose down to the grindstone and work harder. And that is the way that one is successful in engineering.” (Ken)

This engineering culture of being “disconnected from your body” is one that requires deprioritizing MHW because awareness of our feelings is a key component to MHW. Ken describes that this disconnection is “the way that one is successful in engineering.” Ken’s description implies that engineering culture requires devaluing MHW to be considered successful. Similarly, Stephanie described their “really intensive engineering program” as having a “culture of despair,” which was “pretty concerning.” Despair as a cultural descriptor may be an indicator of diminished mental health for a significant portion of the population due to the majority of individuals feeling a loss of hope or confidence. This engineering-specific culture of deprioritizing MHW was also described by a few participants as present in the engineering industry outside of academia. Approximately half of Max’s career was spent in industry, and they shared, “To be successful, we have to learn how to handle that kind of stress. Yeah. I mean, [in an important

position in industry] there is a lot of yelling and name calling.” This verbal harassment contributed to a high-stress environment that Max endured. These examples show that participants perceive engineering culture as one that devalues MHW, though it is interesting to note that Jason’s earlier description of engineering culture as “informal” hints at a more nuanced depiction of engineering industry’s culture.

There can also be negative consequences from upper administration when faculty do engage in supporting student MHW. This was only mentioned by a few faculty, but Marny shared a clear example:

“I filed this human intervention request for a student I was worried [about], and the Vice Provost yelled at me, emailed me and yelled, inside of 40 minutes . . . scolding me for misusing campus resources.” (Marny)

Marny describes these “institutional pressures” to “not engage” as significant, but these were not enough to prohibit Marny’s actions in the future. Marny cited support from their department chair as well as their tenure position as important supporting factors in continuing to be a “student advocate.” However, Marny adds:

“If that were my first time engaging, and I were more worried about my own personal situation, my own job situation, that would just shut me down. And I would never engage again.” (Marny)

Even though Marny has committed to continue supporting and advocating for student MHW, they noted that pressures from upper administration would have been enough to limit their interaction if they did not have as much support or security (e.g., tenure) in their position.

Many participants described feeling uncertain about engaging with student MHW, in part through a fear of feeling unprepared in a culture that deprioritizes MHW. These feelings of uncertainty are further examined in the next theme.

#### 5.4 Fear and Inaction: “I don’t want to say something wrong”

Some participants explicitly shared that proactively engaging with student MHW was neither appropriate nor part of their job, sometimes due to concern or fear. Some participants both felt and observed their peers feeling untrained and unprepared to act proactively towards supporting student MHW, i.e., describing a fear of “say[ing] something wrong.” These participants did not feel confident in their abilities and thus felt a fear of acting, which prohibited them from engaging more actively in supporting student MHW.

Harry, who is faculty at a large institution, described himself as a “mandatory reporter” if

they think someone is going to “hurt themselves or others.” However, Harry did *not* view it as their “job to reach out to anybody who might be struggling and then offer lots of resources.” They then shared that “there are other places” such as Student Resource offices for students to receive support for their MHW. Even though Harry cares about their students, they are “not good” at supporting students’ MHW. Similarly, Max felt a responsibility to “notify the expert,” because “[faculty] are not the experts.” Shelly described that, other than “at a minimum. . . to alert the Dean of Students,” they do not view it as the required responsibility of every faculty to “help that student one-on-one” with MHW, since not all faculty feel “comfortable” doing so.

Helen experienced fear-based pushback by faculty at their small-sized university who had attended a workshop encouraging faculty to talk about student mental health more often in their classes:

“In my group that I had this, there was a pushback like, look, I’m not a mental health professional. I’m not going to do anything. I can’t, I don’t want to, I don’t want to say something wrong. I’m not going to do anything.” (Helen)

The faculty in Helen’s workshop expressed a fear of acting to support student MHW because of the potential negative consequences of making a mistake. These faculty felt similarly to Harry in that they did not feel trained or prepared to do “a whole lot more than” mandatory reporting. These participants described a cultural assumption that faculty often feel uncomfortable engaging with the human aspects of student MHW. This contrasts what Jason, Mark, and Ashley described in *Caring as a Cultural Norm* where they described building relationships and thus supporting student MHW as integral to teaching.

Other participants were currently questioning when and how to engage when they suspect a student might be experiencing diminished mental health. Lila shared a recent story of a student who is “consistently disrespectful,” and they feel unsure about how to engage with this student:

“I feel a little unsure, but I don’t feel comfortable intervening directly, and I don’t know if that’s because I don’t believe it’s my responsibility or if that is just the expectation that I feel there is of me currently.” (Lila)

Lila was not immediately concerned about this student physically harming themselves or others, but they did notice behavior that they viewed as indicative of diminished MHW. Lila was uncertain how to support this student, in part because they did not view this as part of their job role. This indicates that the cultural expectations may impact a person’s

willingness to engage directly with supporting others’ MHW.

*5.5 Responsibility and Action: “I would hate to sit back and something happen”*

Some faculty participants connected their role as faculty to a responsibility to report a student who may have diminished MHW. Some participants worried about missing warning signs that their role positioned them to notice, and they felt a corresponding responsibility to engage with student MHW. These faculty indicated an increased willingness to proactively reach out to a student they suspected might be struggling or to prioritize an environment that promotes wellness.

Helen shared, “I would hate to sit back and something happen, you know? . . . This is such a stressful environment for some students.” Helen described this climate of high stress as negatively impacting students’ MHW. In such an environment, Helen felt a responsibility to act and support student MHW.

Other participants did not as explicitly connect their reasons for acting to fear, yet they still viewed supporting students with harm-reduction reasoning. Faculty indicated this by feeling a responsibility to act because they might be the first to notice warning signs of student struggles. Louise, a teaching professor at a large university, felt it was “absolutely. . . important to have professors reaching out to students or at least reaching out to the correct people” because professors are “the ones that are interacting with students the most . . . [and] able to notice first if a student’s struggling.” Louise connected the value they placed on supporting students’ MHW with their frequent interaction with students. Not only is supporting students’ MHW important, but Louise has access to “notice first” if a student may need support. Shelly similarly noted that “faculty are some of the first to notice warning signs.”

Other faculty described feeling responsible to support student MHW development in general, instead of only or primarily reporting their concerns. Ted, who is faculty at a large institution, shared:

“I don’t think it’s written into our contracts. So in that regard, it’s not an official responsibility. But, I do . . . believe it should come along with the job. Look, we’re here, we’re very privileged to have these, this job as a professor and do things that we’re very passionate about. We also should recognize that, especially at the college undergraduate level, you’re dealing with more than just teaching the subject, you’re dealing with the development of young adults. And, I think we should take that very seriously.” (Ted)

Ted then explicitly shared that they believed supporting MHW “should be a responsibility for

faculty”. Ted connected their position of privilege as a professor and described an accompanying feeling of responsibility to support their students’ wellbeing. Steve also noted that faculty members “have more personal connections; they are more aware of what the students are going through.” This meant that they were more able to “[help] students out in mental health issues and awareness” when compared to an advisor in their medium-sized university, who “does not know the students” in the same way.

With this felt responsibility and the previously described fear of missteps, it may be unsurprising that participants described feeling underprepared to engage with student MHW. This is expanded upon in the next section.

*5.6 Underprepared: “More targeted resources”*

Though “not a therapist,” each participant recognized opportunities to connect students with resources, listen compassionately, and provide a supportive classroom environment. However, despite acknowledging these opportunities, participants often described feeling unequipped and underprepared, leading to a desire for additional training to support students’ MHW.

One of the most commonly shared examples of feeling prepared to promote student MHW was sharing support resources with students. Rosa described the actions they took, despite not occupying the role of a professional therapist who is trained to engage in directly discussing MHW:

“I know I’m not a therapist, right. So my goal is just to try to identify the students that [need] help and get them [help] more often than not. The first thing I’ll do, if I don’t walk them to counseling services, sometimes I’ll email the Dean of Students about them.” (Rosa)

Rosa helped students first by identifying that they needed help and then by physically walking them to their counseling services or emailing their Dean of Students, who supports students of concern. Similarly, Sarah appreciated having “a little reference guide” that is a “campus mental health support guide” that they use to quickly look up MHW references to recommend to students. Several other participants noted and appreciated both the proximity and the availability of a counselor who offered hours and appointments in their own engineering building.

Though some participants felt equipped and ready to support their students, most participants commonly described feeling underprepared to engage with student MHW. Participants often suggested increases or changes to the training they received, if they received training at all. Specific changes to current training such as increasing



regularity, including topics such as neurodiversity, and finding ways to have conversations about MHW that do not “put the whole burden on the student” have been previously presented (74). Other participants described a more severe lack of training. Kara shared that “our university does not provide anything” and felt that they “need a lot more training” and would “take whatever can be created.”

Some participants did not have directly actionable suggestions, but they requested training to help them achieve specific goals they had for supporting student MHW. For example, some participants requested training to support and validate their students through compassionate engagement. Ashley described this when sharing:

“I would like more targeted resources and training on specifically . . . how to effectively talk to students, being someone who is not professionally trained to do that. Because the last thing that I want to do is to make matters worse . . . I feel like I’m doing a good enough job, but I’m not really sure that I am.” (Ashley)

Despite lacking the training and resources to feel confident that they are helping their students, Ashley has been engaging with their students and tentatively feels like they have been successful. Similarly, Louise described a desire for training to help be “somebody who they feel comfortable talking to,” while engaging compassionately and “getting them. . . the help that they need.”

Participants also described seeing opportunities for student engagement, while at the same time needing help to further support MHW in the classroom. Alexis shared “[The students] don’t want to be joining more things . . . If we can support them in the classroom, that will be the best way. And I don’t have much strategies on that.” Even though there were resources available to Alexis’s students, they noted their students’ have limited time, which prohibits them from engaging with these resources. Since students already participate in class, Alexis recognized the classroom as an opportunity for supporting MHW. However, they did not know how to do this.

Zoe’s suggestions were similar to Alexis’s and included several tangible examples:

“It would be good if instructors were given strategies. . . in the context of their class for maintaining an acceptable level of stress. . . or recognizing when you need to reach out, I don’t know.” (Zoe)

Zoe’s recommendations of recognizing warning signs or proactively maintaining student stress at an “acceptable” level were still in the ideation phase, as indicated by the “I don’t know” at the end of their suggestion. Zoe then shared that integrating support for MHW into the classroom was “important,”

but this importance was later contrasted by an additional qualifier of “yet another thing that faculty will need to attend and be trained on.” Zoe predicted that this “important” topic would be undervalued by the people present in the current culture of engineering, since it would be perceived as “yet another thing.” Therefore, integrating support for MHW into the classroom was not considered to be a critical component for faculty success in the current engineering environment.

Tiffany also expressed a desire for classroom-related support. They hesitantly noted a tension between determining if a student was being truthful and supporting their MHW. Tiffany shared, “we respect if somebody says they’re having [a] mental health issue,” but they then asked what to do if a student is “in a time crunch.” Tiffany requested “a resource to somehow say – again, I don’t know how to say this – if a student is lying or not.” Here, Tiffany shared a concern that students would falsely claim their mental health was suffering to gain more time to complete an assignment. Tiffany was interested in learning to recognize student MHW but was hesitant to make judgments regarding student needs. When asked to describe signs of student stress, Tiffany said that, while they recognize their own signs of stress, they do not feel confident in recognizing signs of stress in undergraduate students. Tiffany thus does not feel confident in accepting student’s truthfulness or recognizing signs of diminished MHW, and this resulted in their limited engagement and ability to support student MHW.

While participants described feeling uncertain around supporting student MHW, they also described concern for faculty MHW, which is discussed in the next theme.

### 5.7 Diminished Faculty MHW: “It takes energy”

Participants felt concern for their own and their peers’ MHW. Some participants viscerally described experiencing and observing diminished MHW. Other participants noted the critical importance of faculty and staff MHW in furthering students’ wellbeing. Sometimes, expectations from their surrounding culture prohibited participant interaction with supporting others’ MHW.

Both staff and faculty from all university sizes observed these occurrences, though only faculty and not staff MHW was described as diminished. One of the staff members, Destiny, shared, “I think the awareness . . . of mental health needs and wellness needs, [is] probably a little bit more present with staff members than it is for faculty.” Destiny’s description shares that they have generally observed faculty as less engaged with MHW when compared to staff.

Faculty also viewed their own MHW as diminished. Kara described their experience during their first year teaching:

“On the faculty side, we’re seeing burnout, massive burnout. . . I’m just, I was physically ill yesterday at the end of the day. It’s just so much physical energy to kind of hold the space for the students and the colleagues and keep things moving forward. It’s just, it’s tough.” (Kara)

Kara felt physically sick from the large amount of stress they experienced from supporting students and colleagues. Kara cited the COVID-19 pandemic, which had started a year earlier, as one of the primary exacerbating factors. However, Kara also noted that senior colleagues were “already tired” before the pandemic started, indicative of preexisting diminished MHW. Ted also noted that supporting their own MHW was “hard for everyone, faculty included.”

Mark also explicitly expressed concern for faculty and staff MHW, and they then connected this to student MHW: “We do need to worry about the mental health of the staff and faculty because if we aren’t able to help ourselves maintain that balance, how can we help our students?” Margaret echoed this observation of a “loop” of negative impacts from faculty stress on their students, sharing an example where an overwhelmed instructor would ignore student emails and thus student stress increased.

In addition to noting the MHW of all faculty and staff, Mark also personally felt an added toll on their own MHW when supporting students:

“Sometimes all that comfort [that a student feels in sharing their mental health struggles with me] has a negative effect on me. I have a lot of students feel comfortable putting it on me, which is great, but then I got to figure out how to find them help and let’s be fair, it takes energy on [from] me sometimes, as well.” (Mark)

Even though Mark wants students to continue sharing their struggles and feel comfortable doing so, providing that support depletes Mark’s MHW. Since Mark perceives value in providing support to students, they value increasing available support for faculty and staff MHW.

Despite a clear need for faculty and staff MHW support, some participants described an expectation to not engage with their colleagues’ MHW. Lila, an educator and mentor at a large research university, most clearly expressed this by sharing, “I don’t really think about wellbeing in terms of other faculty. For whatever reason the first thing that popped into my mind was: it’s none of my business.” Lila did not explicitly attribute this to engineering culture. In fact, Lila said, “I don’t know what that says about me,” thus describing an internal conflict between the “human” aspect of

valuing others’ emotions and a surrounding culture in their institutional workplace that disregards and devalues MHW.

Even though the questions asked in these interviews did not primarily ask about faculty MHW, participants commonly described support for faculty MHW as a critical and overlooked area of need in a culture that deemphasizes this need.

## 6. Discussion and Implications

Our participants shared perspectives that illuminate the multifaceted and complex nature of supporting student MHW in engineering. They indicate a clear need for support and change in engineering culture to more value MHW, but there were few explicit examples for this change. In this section, we include implications as general recommendations from the literature with citations leading to specific examples of possible actionable next steps.

### 6.1 *Engineering Culture as a Barrier to Supporting Mental Health and Wellbeing*

Participants described aspects of engineering culture as prohibitive to engaging with MHW, affecting both their faculty and staff peers and their students. This aligns with the Engineering Culture framework implemented in this paper as well as findings from additional literature.

Godfrey and Parker [19] describe engineering as objective and separate from and separate from human-centered experiences such as feelings, which is echoed in the ideology of depoliticization [40–42]. This emphasis on objectivity is also acknowledged in calls to stop describing engineering skills as “hard” versus “soft” [43–45], critiques on rigor [12], and theoretical explorations of shame [46, 47] and empathy [48] in engineering education. This focus on objectivity relates to the positivistic history of engineering [49] with past and current ties to the military [43, 50]; further, it likely contributes to a lack of mental health awareness in engineering culture. Godfrey and Parker’s [19 p. 12] descriptor of a “boot camp mentality” portrays a culture of “working through the pain,” which was also echoed when the participant Ken previously described being “expected to dull yourself to the pain” to be successful in engineering. This focus on objectivity over prioritizing human experience is also described by Cech [51] as a “culture of disengagement” where students’ concern for “non-technical” and human-centered aspects, e.g., concern for public welfare significantly declines as they engage with engineering education. Our participants described their motivation for engaging with student MHW as fueled

by personally caring “as a human being;” however, these human-centered motivations have been shown to become devalued by those engaged in engineering culture.

This disengagement with human-centered aspects such as MHW also led well-intentioned faculty, such as Max, to require a student to seek and obtain an “expert opinion” from a certified mental health diagnosis before engaging with supportive actions. However, this expert opinion is often difficult to obtain due to limited available resources [16, 52–54], systemic oppression [55–62], and stigma for mental health help-seeking in engineering culture [14, 63]. This current system described by Max burdens students with the responsibility of obtaining a diagnosis and withholding support until they have overcome these barriers. Beddoes and Danowitz report that engineering students view professors as “not being sympathetic, understanding, or accommodating” which “contributes to mental health challenges and related stigma” [10, p. 4]. Responses from some of the faculty participants in this study align with these student perspectives. These faculty often intend to support their students’ MHW, but their own feelings of unpreparedness and the resulting fear or concern often inhibit their engagement in actions to proactively engage with student MHW.

Due to these cultural barriers, it is necessary to change engineering culture if we want to be more supportive of MHW for students, faculty, and staff. This involves shifting engineering culture along the spectrum of wellness towards a culture of wellness [64]. Shifting this culture will involve a myriad of efforts. For example, increasing faculty awareness of and, critically, empathy for these systemic barriers may help faculty like Max integrate policies in their classroom that are more supportive of student MHW. This might be partially achieved through engaging with empathy-centric material such as the Audio for Inclusion efforts that disseminate marginalized students’ narratives [65]. Other efforts include reducing stigma for seeking MHW support [14, 63], increasing access to relevant MHW resources [16, 52, 53]. Participants such as Zoe who want to redesign their classroom culture may engage in actions as exemplified in [66–73]. These actions are needed across higher education, and they are especially needed in engineering. Part of this needed change will likely include shifting the culture’s view to appreciate human-centered values. When this happens, it will likely manifest as social and structural rewards for developing social competencies and an erosion of the emphasis on objectivity over human-centered concerns such as MHW and social welfare.

## *6.2 Faculty and Staff feel Underprepared to Support Students’ and their own MHW*

As a result of this culture of MHW disengagement in engineering, there is a dearth of formalized, structural, and openly, intentionally rewarded knowledge and awareness of how to engage in actions to support MHW. It is particularly critical that people in positions of power, such as faculty and staff like our participants, engage in these actions and thus shift the culture of engineering from omnipresent “despair” towards one that promotes wellness.

This need for engineering faculty and staff training and awareness on topics around MHW has been echoed by a quantitative study from 2021 [28]. This study found that 30% of the 106 engineering faculty in the study had never received training related to student mental health, despite the majority of respondents having experienced a discussion with a student about mental health. Of the faculty in this study who had received training, most had low confidence in their ability to navigate conversations pertaining to MHW. To our knowledge, there is no literature about engineering career advisor training and feelings of preparedness to support student MHW.

Furthermore, to our knowledge, there is no literature that focuses on the MHW experiences of engineering faculty and staff who are in positions to support these students. This is particularly relevant because engineering has a culture that is considered separate from MHW, namely that the culture of engineering does not promote MHW. In academia and STEM fields more broadly, literature expressing concern for faculty MHW has increased in frequency, particularly for those with minoritized identities [27, 74–81].

While there may be nuances specific to engineering, we are currently empowered and able to take action based on best practices in counseling literature. Training centered on social skills, such as those in peer support programs, have been shown to have documented efficacy in areas supportive of and related to MHW [82–85]. Additionally, redesigning classroom culture to reduce MHW stigma, minimize classroom-related stressors, and support student wellbeing are also discussed and encouraged [86–92].

Other ways to reduce the burden on faculty and staff supporting each other and their students’ MHW include: (1) increase the amount of time faculty and staff have available to dedicate to supporting MHW within their academic community [76], including time to strengthen the faculty and staff community and to reinforce skills such as boundary settings [27]; (2) change reward systems

to value faculty and staff engagement with MHW; and (3) increase the available offerings of MHW resources to cover these fundamental needs for all in engineering.

Examples of expanding current MHW resources include options such as increasing the number of on-campus therapists, extending their available hours, expanding the locations where they practice, and implementing robust telehealth opportunities [53, 93]. Decreasing barriers to current MHW access might look like prioritizing mental health in student, faculty, and staff health insurance by allowing a zero-dollar copay for unlimited therapy and psychiatry sessions, increasing the number of available providers, and ensuring a zero-dollar copay for all necessary medications [53]. In addition to barriers connected directly to money, location, and time, we also encourage development of systems that provide tailored support for various demographics such as increasing housing options for lesbian, gay, bisexual, transgender, and queer (LGBTQ+) students [94, 95] and encouraging medical professionals who are knowledgeable about all identities [56, 59, 61, 62].

### 6.3 Increased Emphasis on Relationships in Smaller Institution Sizes

One recurring thread in our participant descriptions was the difference in student relationship-building described by faculty. Participants at medium and small universities most often described building relationships as a core component of education, whereas participants at large universities were more likely to view building relationships and educating students as not directly connected. This difference in attitude about relationships was not observed when considering participants’ shared pronouns or the institution classification (e.g., R1, R2, etc.). Literature surveying MHW has similarly found that basic institutional characteristics do not easily explain differences in reported MHW [96–98], though large enrollment has been associated with a higher prevalence of diminished MHW [99].

The Engineering Culture framework used in this paper describes relationships in engineering as “family-like,” where both faculty and students felt a shared sense of “being an engineer” through shared struggle [19]. These relationships were viewed as supportive and likely beneficial to the engineers’ MHW. These experiences most align with the descriptions from participants at smaller and medium universities. Notably, only one institution was used to develop the Engineering Culture framework. The data was collected in 1998, and the institution was located in New Zealand rather than the United States, where this study occurred. The institution size was not described in the paper.

These contrasting aspects may account for some of the different experiences reported in this manuscript such as a decrease in emphasis on relationship building between faculty and students. Recently, Major et al. [100] found that large and/or doctoral-granting institutions were more likely to have students who reported outcomes that were less favorable to student success, such as lower belonging and lower perception of faculty caring, which aligns with the findings presented here.

Faculty have more structural power than students, and due to their privilege, they may be unaware of barriers that students face which negatively impact their MHW [20, 73]. This lack of awareness may result in inaction around supporting student MHW. Relationship building has been described as a fundamental aspect of developing as an advocate [50], and relationship building may be a key component of developing an awareness of the hardships students face. This implies that relationship building may be a critical component of supporting the MHW of students. Near-peer mentoring [101] for faculty, staff, and students alike may be one way of building and strengthening these relationships [102, 103]. Another method may be to decrease class sizes and increase the number of teaching assistants who are available to students, increasing the ratio of instructors to students. Other trauma-informed models of healing support collective action [104, 105], which could be realized in academia by students advocating for their needs with support from faculty and staff. Structural supports that encourage relationships and community building within and between students, faculty, and staff will thus likely support MHW for these individuals.

### 6.4 Limitations and Future Work

Participants in this study self-selected to participate in an interview that included topics of MHW. As such, the faculty and staff in this study’s values are likely to align more closely with action to support student MHW. Future work of importance in this area includes illuminating the voices of those who are less immediately concerned with student MHW. Additionally, faculty MHW emerged as an important and high-impact area to examine further. There is also a clear need for more action and research on what will effectively support faculty in supporting student MHW. This study also only examined universities within the United States, and further work could expand this work to universities in other countries.

## 7. Conclusion

This work describes qualitative results from inter-

views with 28 engineering faculty and staff at 18 universities in the United States. We examined the responsibilities these faculty and staff felt in supporting their students' MHW as well as their expectations of their engineering academic culture. Participants described personally caring for their students, though many felt under qualified and ill-prepared to properly support students' MHW. While cultural expectations of care were described in many institutions, expectations for relationship-building were most prevalent within smaller universities. Engineering culture primarily emerged as a barrier to participants engaging with activities supportive of MHW. This was described through participants' descriptions of feeling fear, feeling underprepared, and experiencing their own diminished MHW. This implies that a culture change is

needed to shift engineering culture toward increasing wellness, for the wellbeing of everyone who is part of this culture.

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## Appendix A - Interview Protocol

### *Understanding Mental Health Climate*

1. How would you describe your role: researcher, educator, and/or mentor? Length in role? Why?
  - a. Probe: What are your daily (weekly) experiences in your department like in that role?
  - b. Probe: Are there any barriers or challenges to interacting and developing professional relationships with your students?
2. Have you had an interaction with an undergraduate engineering student regarding any mental health issues? <If so, please describe; If not, why you think that is?>
  - a. Probe: Did you initiate the interaction? Why/Why not?
  - b. Probe: Was the interaction positive? Why or why not?
  - c. Probe: Was the student comfortable discussing a mental health issue? Were you?
  - d. Probe: Do you think learning more about mental health issues and prevention would help you support students better? How so?
3. Have you ever noticed undergraduate engineering students struggling with mental health issues? What does that look like to you?
  - a. Probe: Have you had any formal training to help you learn more about mental health?
  - b. Probe: How confident are you about referring undergraduate students to appropriate resources?
  - c. Probe: What specific resources or training do you need, or would like to receive, to support your undergraduate students?
4. Have you noticed if undergraduate engineering students are able to recognize when themselves or their peers are struggling with mental health issues?
  - a. Probe: Have you heard of any negative stigmas among students regarding mental health? What do they look like, and how do they affect students?
  - b. Probe: To your knowledge, does your department offer formal training for students?
  - c. Probe: What value do you see in students learning more about mental health issues and prevention? Academically? Personally?
5. Describe what wellness or wellbeing means to you
  - a. Probe: Are there additional features such as [mental, physical, emotional, etc.] you consider a part of wellbeing?
6. Do you think students and faculty in engineering struggle with particular aspects of wellbeing? Which ones, and why?
  - a. Probe: What do you think a culture of wellness in engineering or your department would or should look like?
  - b. Probe: Have you noticed your department promoting undergraduate engineering student mental health and wellness awareness? How so?
7. Do you think faculty members, like yourself, have a responsibility to intervene when you suspect a student is struggling with mental health or wellness? Why/Why not?



- a. Probe: How would you intervene when there is a problem? (e.g., personal conversation, reach out to counselor)
- b. Probe: When do you think you should NOT intervene? Why?

#### *Student Experiences of Stress*

8. How would you describe the relationship between undergraduate engineering students' stress and mental health?
  - a. Probe: Have you noticed any positive effects these students experience from stress? What about negative effects?
  - b. Probe: Have you noticed if students' motivation is impacted by their stress? In what ways?
  - c. Probe: Are there other aspects of engineering students' lives that are impacted by stress besides mental health?
9. In your opinion, is stress different from anxiety? Depression? How so?
  - a. Probe: Do you think they differ by time span, feelings of strength, or frequency?
  - b. Probe: What other emotions or feelings do you think undergraduate engineers experience with stress/when stressed?
  - c. Probe: How often do you think undergraduate engineering students experience stress or other challenges with mental health? Has this changed over time? <Rephrase if needed: do you think students are experiencing increasing amounts of stress each year?>
10. What do you think of when you hear the words "stressed undergraduate engineer"?
  - a. Probe: How do you define the word stress?
  - b. Probe: How have you heard undergraduate engineering students talk about stress, and how often?
11. Have you noticed any norms or customs regarding stress in engineering that most undergraduate students in your department experience? Do you experience any yourself?
  - a. Probe: Were there any norms or customs regarding stress in engineering that you experienced as an undergraduate engineer?
  - b. Probe: Have you noticed undergraduate engineering students experience more issues with extreme stress and mental health than other majors? Why/Why not? <If so, is that a bad thing?>
  - c. Probe: Do you think that stress and mental health strain in engineering is necessary for undergraduate students' future success as engineers? Why/Why not?
  - d. Probe: Are there specific characteristics of your discipline or department that you have noticed undergraduate students find particularly stressful?
12. How would you describe the physical or physiological signs of stress in undergraduate engineers?
  - a. Probe: Do you ever notice any visible body changes in any students such as weight gain/loss, sleep deprived, hair loss, being sick?
  - b. Probe: Are the signs of stress in students more noticeable at certain times of the semester?
13. What do you think typically causes stress in undergraduate engineers?
  - a. Probe: What aspects (e.g., registration, grades) of the undergraduate engineering curriculum do you think is most stressful for students?
    - i. Do you think the academic calendar or time/deadlines adds to their stress?
  - b. Probe: What kind of social related (e.g., relationships) stressors do you think the students often face?
  - c. Probe: Do you think there are personal factors (e.g., self-expectations, motivation or regulation abilities) that cause students stress?

#### *Stress Management and Coping*

14. Can you describe things you have heard or learned undergraduate engineering students do to manage stress?
  - a. Probe: Any Physical practices, Religious practices, Wellbeing, or Relaxation practices?
  - b. Probe: Are there coping strategies (e.g., working out, drinking) you notice students use that you find healthy or unhealthy?
  - c. Probe: Where or who do you think students learn these stress management strategies from?
  - d. Probe: Have you ever noticed if faculty in your department or college do similar or different things than the students to manage stress?
15. What have you noticed your department/program does to encourage healthy and/or unhealthy stress management/coping strategies for undergraduate engineering students?

- a. Probe: In what ways do you model healthy coping strategies for undergraduate engineering students (e.g., mentioning benefits of exercise)? What about unhealthy (e.g., emailing at 3am)?
  - b. Probe: Do you think students notice your stress levels? How do you think it impacts them?
16. Can you describe any resources or supports on campus or in your department for undergraduate engineering students who are stressed?
- a. Probe: Have you heard whether undergraduate engineering students actually use and benefit from these resources?
  - b. Probe: Are there any other resources that should be made available to undergraduate engineering students to support their stress management?
17. Is there anything else about mental health in engineering that I didn’t cover that you wanted to discuss?

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