



Identifying mental health related help-seeking beliefs in undergraduate engineers

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Abstract

There has been an alarming increase in the prevalence of mental health concerns amongst undergraduate students. Engineering students experiencing mental health distress are less likely to seek professional help than are non-engineering students. Lack of treatment can result in the escalation of mental health symptoms among engineering students. This study, supported by an NSF Research Initiation in Engineering Formation grant, focused on characterizing engineering students' beliefs about seeking help for a mental health concern. Using the integrated behavioral model as a framework, 33 semi-structured qualitative interviews were conducted with engineering students from a wide range of majors, years of study, and social identity groups. Interviews were analyzed through deductive coding to identify key beliefs associated with help-seeking as defined by the integrated behavioral model. The beliefs identified include a desire among engineering students to fix their own problems, to avoid admitting imperfection, and fear of being seen by others when seeking help for a mental health concern. These results were used to create an engineering mental health help-seeking instrument containing items related to perceived outcomes/attributes, experiential (i.e., affective) beliefs, barriers/facilitators, and perceived norms associated with help seeking. This instrument is currently being refined through cognitive interviews, and pilot data will be collected to examine evidence of instrument reliability and validity. The finalized instrument will be used to identify those beliefs that are predictive of help-seeking intention and behavior. These beliefs are prime targets for future interventions designed to increase mental health help-seeking in the undergraduate engineering student population.

Project overview

National data show that engineering students with mental health problems are significantly less likely to seek professional help than their peers [1]. This identifies a treatment gap for engineering students, meaning that only a portion of those in mental health distress are seeking professional treatment. While treatment gaps exist for cisgender men, persons of color, and first-generation students in general, the proportions of distressed students seeking help are further reduced in engineering [2,3]. Interventions targeted at reshaping engineering identity to be supportive of mental health related help-seeking could increase success and retention of at-risk students. Furthermore, increased willingness to seek help could improve mental health in the engineering workforce. As a first step, this project aims to use a mixed-methods approach to design and refine an instrument to identify key mental health related help-seeking beliefs in undergraduate engineering students. In doing this, the study aims to address the following research questions:

- RQ1 What are engineering students' beliefs about using mental health services?
- RQ2 How should engineering students' help-seeking beliefs be measured via a self-report research instrument?

To address these research questions, we designed a two-stage research plan that was guided by our theoretical framework, the integrated behavior model (IBM) (Figure 1).

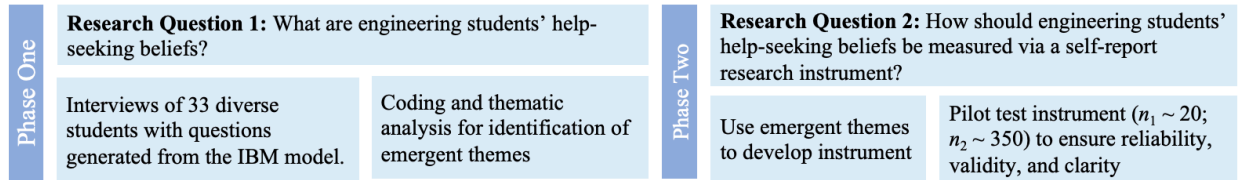


Figure 1. Research plan

In the first stage, we conducted 33 semi-structured interviews with a diverse groups of undergraduate engineering students to better understand the beliefs that they have about seeking help for a mental health concern. In the second stage, we designed and refined an instrument to measure these help-seeking beliefs in undergraduate engineering students. Through this paper, we will present the work that has been completed to date and highlight preliminary findings.

Theoretical framework

The IBM is an empirically supported social scientific framework that can be applied to identify beliefs that influence behavior within a given population [4]. In the mental healthcare context, the IBM states that the most important driver for help-seeking behavior is intention (Figure 1).

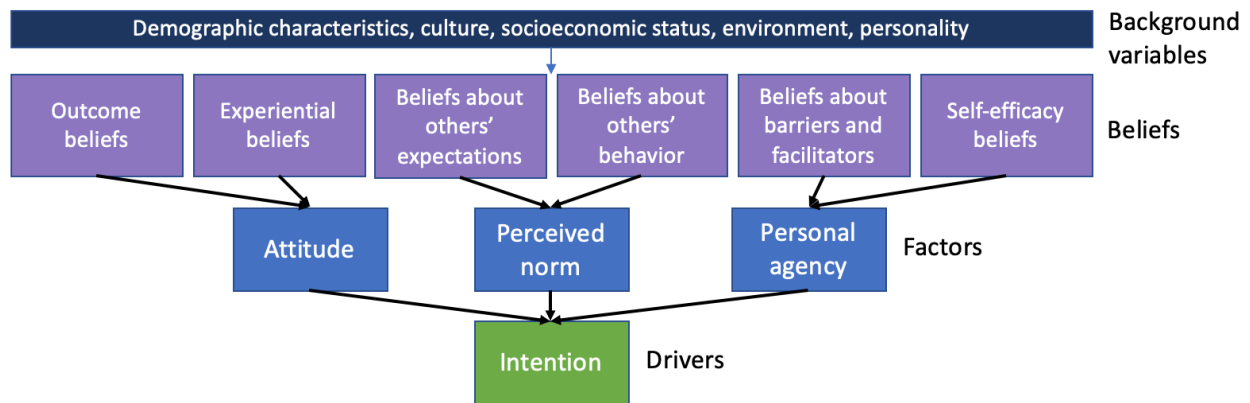


Figure 2. The background variables, beliefs, and factors influencing intention to seek help per the Integrated Behavioral Model.

Intention is driven by three different factors: attitude, perceived norm, and personal agency. Attitude is a person's overall evaluation (bad versus good) of help-seeking given their outcome beliefs (anticipated negative or positive outcomes of seeking help) and experiential beliefs (negative or positive emotional responses to the idea of the help-seeking experience). Perceived norm refers to the societal pressure an individual feels to seek help based on their beliefs about others' expectations for their behavior (i.e., do they believe that their friends or family expect them to seek help?) as well as their beliefs about others' behavior (i.e., do they believe that their friends or family would seek help for themselves?). Finally, personal agency is a person's evaluation of whether they will be able to seek help, given their beliefs about barriers and facilitators to seeking help and their self-efficacy beliefs (i.e., confidence in their ability to seek help). These six categories of beliefs are influenced by background variables such as demographic characteristics, culture, socioeconomic status, environment, and personality. A strength of the IBM is that it allows for identification of the beliefs that drive behavior. Identifying the specific beliefs that drive mental

health related help-seeking behavior in undergraduate engineering students can provide empirically identified targets for future intervention.

Work completed to date

Phase one: Qualitative interviews

To date, we have conducted 33 semi-structured interviews with undergraduate engineering students to understand their beliefs about seeking help for a mental health concern. Purposeful stratified sampling was used to ensure representation of a diverse set of interviewees across major, year of study, gender, race/ethnicity, generational status, nationality, and mental health status. Currently, inductive coding is being used to identify the perceived barriers and facilitators to seeking help for a mental health concern. Preliminary results have identified the following facilitators and barriers to seeking help [5].

- 1) Supportive input from others promotes help-seeking
- 2) If time is limited, mental health is a lower priority
- 3) Students operate on a “suck it up” mentality unless they’ve reached a breaking point
- 4) Help-seeking is associated with public shame

Further inductive coding will be used to identify student beliefs related to perceived norms, attitudes, and perceptions of how the engineering culture influences help-seeking.

Phase two: Instrument design and refinement

To allow for creation of an instrument, deductive coding was used to create a comprehensive list of help-seeking beliefs. These help-seeking beliefs were refined by the research team and integrated into a quantitative research instrument to measure the help-seeking beliefs identified by the IBM. These items were combined with subscales from the literature that aim to measure the factors that influence help-seeking intention to create a comprehensive research instrument (Table 3).

Table 3. Summary of the comprehensive quantitative instrument developed

Type	# Items	Name
Driver	3	Intention [6]
Factor	9	Attitude [7]
Factor	6	Perceived Norm [8]
Factor	6	Personal Agency [9]
Belief	38	Attitude - Outcome Beliefs
Belief	19	Attitude - Experiential Beliefs
Belief	11	Perceived Norm - Beliefs about others' expectations
Belief	11	Perceived Norm - Beliefs about others' behavior
Belief	20	Personal Agency - Beliefs about presence of barriers and facilitators

To date, cognitive interviews have been conducted with 11 students. The instrument was refined throughout the cognitive interview process. Pilot data will be collected using the instrument during the Spring of 2022.

Future work

To date, we have successfully developed an instrument to measure the beliefs that students have about seeking help for a mental health concern. Moving forward, we will continue with cognitive interviews to ensure the clarity of the instrument. Additionally, we will collect pilot data from students across the college of engineering. With these data, we will be able to evaluate the performance of the instrument. Additionally, we will be able to identify the factors and beliefs that best predict help-seeking intention in undergraduate engineering students. Findings will help to identify empirically driven targets for interventions aimed at improving help-seeking in undergraduate engineering students.

Acknowledgments

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References

- [1] S. K. Lipson, S. Zhou, B. Wagner, K. Beck and D. Eisenberg, "Major differences: Variations in undergraduate and graduate student mental health and treatment utilization across academic disciplines." *Journal of College Student Psychotherapy*, vol. 30, no. 1, pp. 23-41, 2016.
- [2] D. Eisenberg *et al.*, "The Healthy Minds Study: 2018-2019 Data Report," 2019.
- [3] S. A. Wilson, Hammer, J.H., and Usher, E.L., "Engineering Student Mental Health: Analysis of national data from the Healthy Minds Study," in *American Society for Engineering Education Annual Conference*, 2020.
- [4] D. E. Montaña, and D. Kasprzyk. "Theory of reasoned action, theory of planned behavior, and the integrated behavioral model," in *Health behavior: Theory, research, and practice*, 5th ed., San Francisco, CA: Jossey-Bass, 2015, pp. 95-124.
- [5] C. J. Wright, L. E. Harris, E. L. Usher, J. H. Hammer, S. A. Wilson, M. E. Miller, "Identifying Engineering Students' Beliefs About Seeking Help for Mental Health Concerns," in *American Society for Engineering Education Annual Conference*, 2021.
- [6] J. H. Hammer and D. A. Spiker, "Dimensionality, Reliability, and Predictive Evidence of Validity for Three Help Seeking Intention Instruments: ISCI, GHSQ, and MHSIS," *Journal of Counseling Psychology*, vol. 65, pp. 394-401, 2018.
- [7] J. H. Hammer, M.C. Parent, and D. A. Spiker, "Mental Help Seeking Attitudes Scale (MHSAS): Development, reliability, validity, and comparison with the ATSSPH-SF and IASMHS-PO," *Journal of Counseling Psychology*, vol. 65, pp. 74-85, 2018
- [8] J. H. Hammer, D. A. Spiker, and P. B. Perrin, "Physician referral to a psychologist: Testing alternative behavioral healthcare seeking models," *Journal of Clinical Psychology*, vol. 75, pp. 726-741, 2019.

[9] D. A. Spiker, E. C. Berney, J. H. Hammer, and K. C. Jensen, "Maintaining the relationship: Relational schemas and women's intent to seek couple therapy," *The Counseling Psychologist*, in press.