

Montana HOPES



Mental Health Opportunities for Professional Empowerment (HOPE) in STEM: Wellbeing, Support, and Social Connectedness



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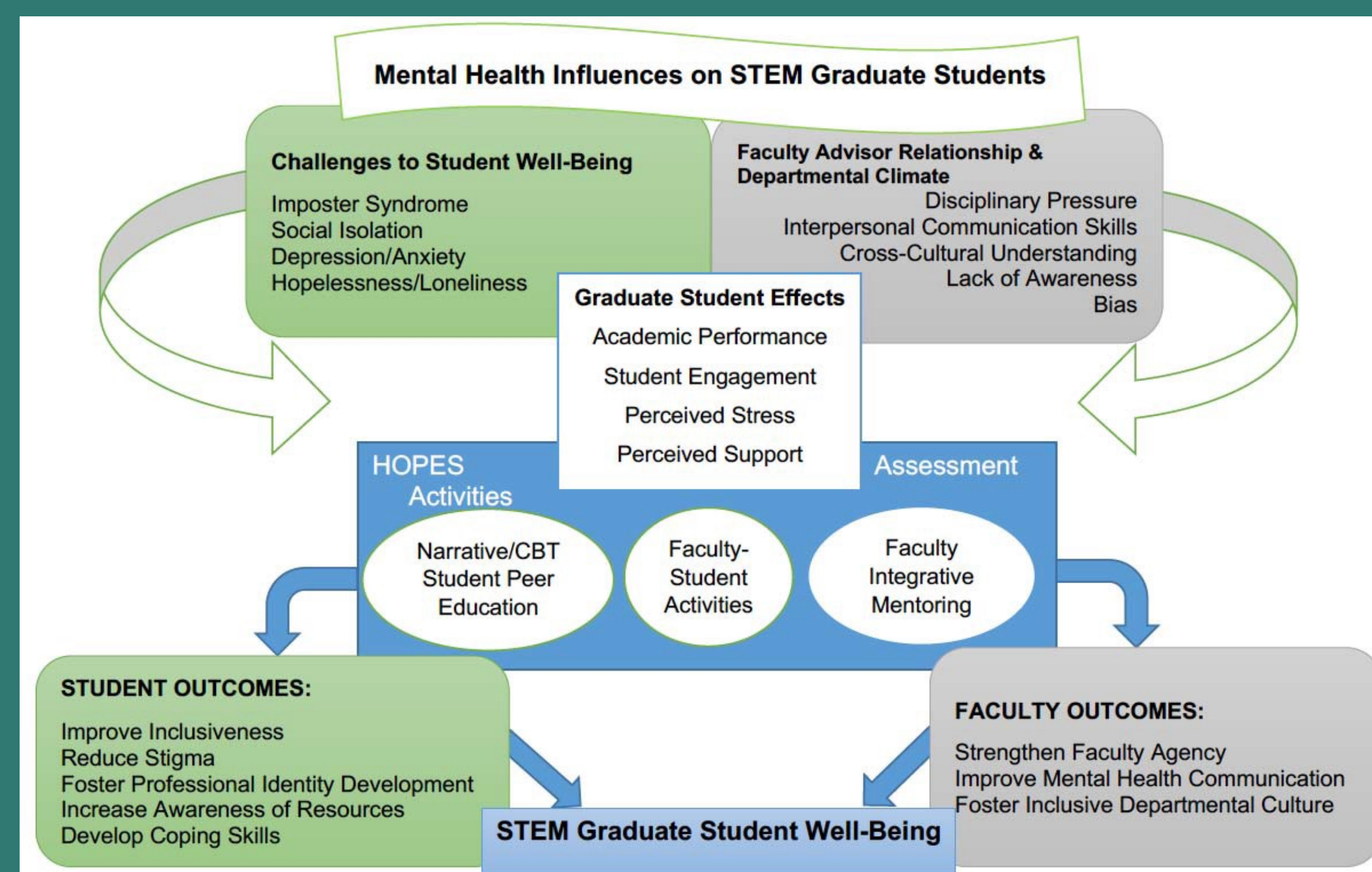
ABSTRACT

The national conversation on the mental health, resilience, and well-being of graduate students has escalated across the higher education landscape. Within STEM disciplines, competition, power-differentials and the importance of the advisee-advisor relationships are added to the stressors of field and bench research. Within this back-drop, the expanding diversity of STEM graduate students promises new perspectives and ideas that can accelerate research progress, but only if graduate schools improve inclusivity to foster an environment where students thrive, complete their degrees, and are positioned to not only join the professional STEM community but to assume leadership of it. Mental Health Opportunities for Professional Empowerment in STEM (HOPES) is a three-university collaboration consisting of Montana Technological University, Montana State University Billings, and the University of Montana. HOPES will design, pilot, assess, and implement evidence-based, sustainable and replicable strategies to facilitate and enhance graduate-student mental health. Student experiences will be designed, piloted, and evaluated to equip and empower diverse graduate students—across the full range of STEM disciplines and racial/ethnic/cultural backgrounds—to recognize, destigmatize, and manage mental-health challenges typical of graduate school and careers. In parallel, professional development for faculty mentors will be designed, piloted, and evaluated to help them alter mentoring practices that unnecessarily aggravate their mentees' mental health, to recognize trouble signs, and to refer for help..

The HOPES objectives are to:

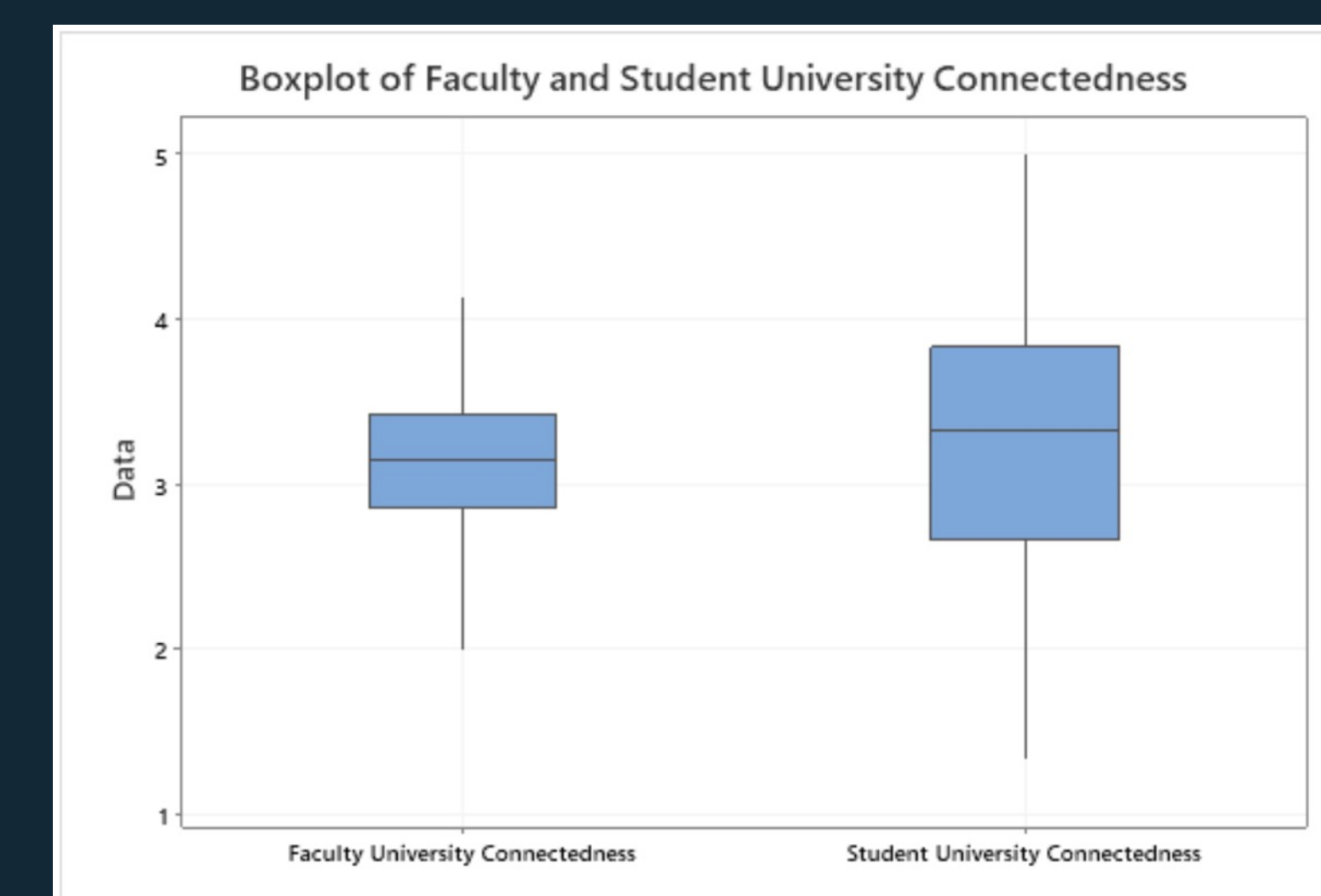
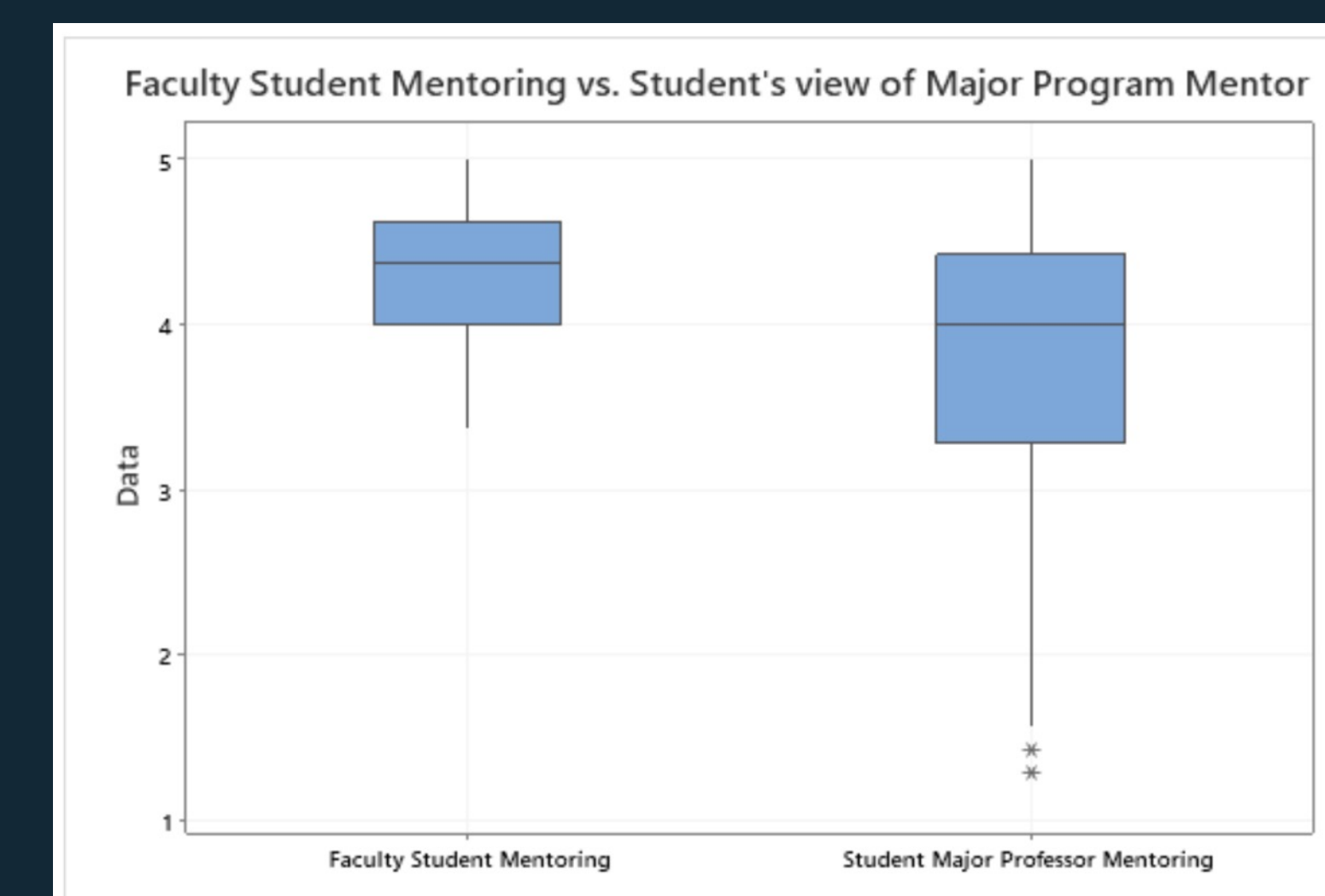
1. Build a set of innovative, inclusive, evidence-based experiences that enable diverse STEM graduate students to acquire skills for positive mental health and resilience.
2. Provide innovative professional-development experiences for STEM faculty advisors to support graduate-student mental health and transform the cultures of their disciplines/departments to become more inclusive;
3. Pilot the scale-up and expansion of these innovations to other campus settings; and
4. Perform formative and summative assessments to guide the project and its activities and assess their impact on student and faculty participants and their STEM graduate programs.

HOPES Model



Faculty and Student Perceptions

Challenges and Protective Factors

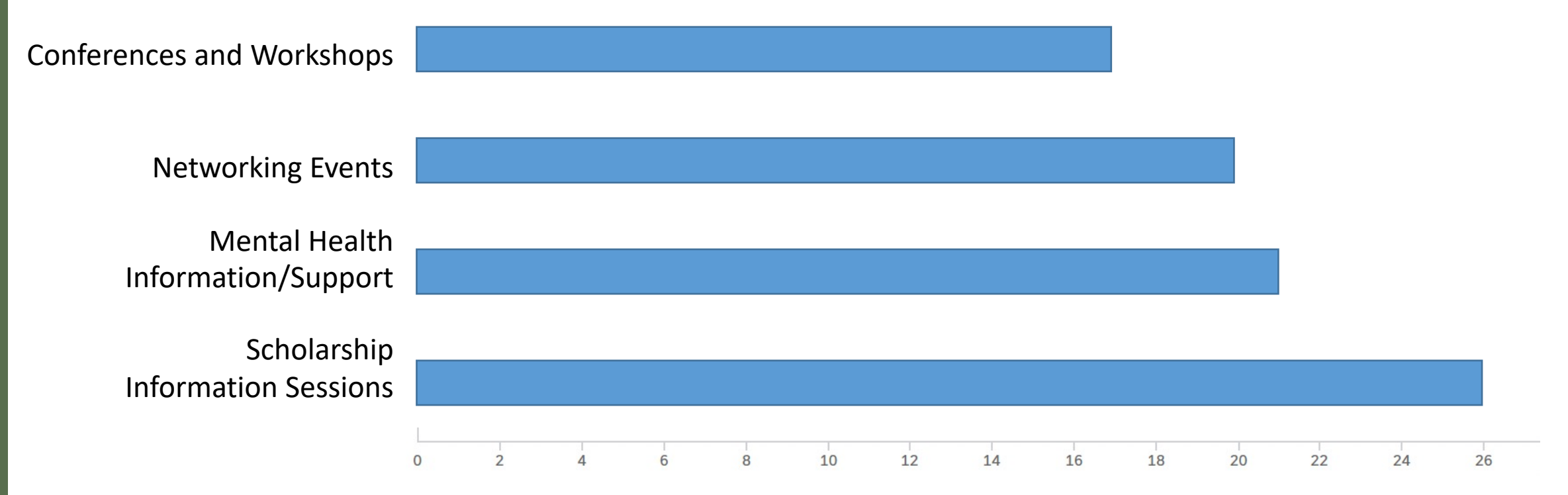


Background Data

Table 1. Graduate School Programs and Demographics (Fall 2020). Percentages are of the STEM enrollment.

STEM Data	Tech	UM	MSUB
Grad Enrollment (Heads)	219	1766	398
STEM Grad Enrollment (Heads)	211	522	13
% Female	38%	61%	69%
% Underrep. (URM)	10%	13%	8%
STEM Degrees	M.S., M. Eng., MPEM, Ph.D.	M.S., Ph.D.	M.S.
STEM Program Areas	Engineering (9 fields), Materials Science, Geosciences, Ecological Restoration, Industrial Hygiene, Interdisciplinary MS	Biological Sciences (4 fields), Chemistry (3 fields), Forest / Ecol. Science (5 fields), Geosciences, Mathematics, Neuroscience, Pharm Sci/Drug Design, Psychology, Public Health, Speech Sciences, Toxicology	Psychology

As a MSU Billings Graduate Student, Which activities would you be interested in participating on a regular basis? (Top 4 Answers from 2021 MSUB Graduate Student Survey)



Preliminary Student Data

Greatest Threats to Wellbeing (Survey Data)

	Mean stdev	Averages	
		STEM	NON-STEM
Self-Stigma relating to help seeking	2.1 +/- 0.7	2.3	2.1
Imposterism	2.9 +/- 1.1	3.0	2.7

Largest Protective Factors (Survey Data)

Faculty Support	3.8 +/- 0.9	3.8	3.8
Major Program Mentor	3.8 +/- 0.9	3.8	3.9
Cultural Congruity	3.6 +/- 0.7	3.5	3.6

Social-connectedness emerged as a theme in focus groups

"It was nice to have other people's experiences in the room and be able to see my experiences through the lens of other folks."

"I really liked the small group. If it wasn't small I don't think we'd have enough time to really talk and share more information."

"I really liked that I was hearing from people in another stem field that. I was like ohcool so it's not just like me that feels like this, its an across the board type thing."

"...it was nice that there are other people who do understand just how much time it takes and what a balance it is to juggle everything. It was really great to have those sanity checks."

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