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Cultivating Wellness: A Student-Professor Dialogue on Mentoring Future Biomedical Leaders

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The program presented within this paper is designed to support students from historically excluded communities in biomedical research by integrating mentoring, research training, and intentional wellness practices. As a Hispanic-Serving Institution in a high-poverty, minority-majority region, New Mexico State University recognizes the importance of fostering both academic persistence and emotional wellbeing—particularly for first-generation students facing challenges such as financial strain, identity-based exclusion, and imposter syndrome. In response to data showing that over 40% of college students experience anxiety and related mental health concerns, a wellness focus is embedded throughout to increase awareness of emotional health needs and promote development of healthy coping skills. Students are paired with faculty mentors at the beginning of the two-week introductory seminar and engage in weekly sessions focused on socio-emotional learning. Topics include "Sense of Belonging," "Identifying Self-Care Needs," and "Scientific Mindset: Embracing the Joy of Being Wrong," all designed to build self-efficacy, resilience, and a strong connection to the scientific community. The approach draws on the NIH UNITE initiative, research on culturally responsive mentorship, and wellness frameworks that promote persistence and belonging in STEM. The foundation is grounded in Vygotsky's sociocultural theory, which highlights the role of social interaction and cultural context in learning. Together, these foundations inform a holistic model that nurtures students both personally and professionally as they prepare for biomedical careers. Program evaluations reflect high levels of satisfaction, with no session rated below "Valuable." One favorite, "Nurturing Myself: Mind, Body, & Spirit," received praise for its timely focus on self-care. Students consistently report feeling supported, connected, and confident—affirming the program's impact in cultivating wellness and success in the next generation of biomedical leaders.

Keywords: College student, mental wellness, first-generation

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Introduction

New Mexico State University (NMSU), a Hispanic-Serving Institution located in a high-poverty, minority-majority region, has developed an innovative program that supports historically excluded students in biomedical research.

Recognizing the dual challenges of academic persistence and emotional wellbeing especially for first-generation students—this initiative embeds mentoring, research training, and wellness practices. Through a unique student-professor dialogue, the program explores how wellness-centered mentoring strategies can create supportive, inclusive pathways into biomedical research careers.

Literature Review

The program detailed in this paper draws on several foundational models and frameworks to shape its design and implementation. At the national level, the NIH UNITE initiative underscores the importance of addressing structural racism and promoting inclusive excellence in biomedical research. The initiative launched in March 2020 with the goal of ending structural racism and achieving racial and ethnic equity in biomedical research to enhance the diversity of the biomedical workforce (National Institutes of Health [NIH], 2021). This aligns with research on culturally responsive mentorship, such as Huff's (2021) work on identity safety and counterpaces for underrepresented students in science, technology, engineering and math (STEM). Incorporation of wellness frameworks in the program support student

resilience, self-efficacy, and emotional wellbeing. Studies documenting high rates of anxiety and mental health concerns among college students justify the inclusion of a wellness focus (Novotney, 2013). The integration of socio-emotional learning into STEM mentorship addresses not only academic but also personal growth needs. Vygotsky's sociocultural theory (Vygotsky, 1978) offers a key pedagogical lens, emphasizing the critical role of social interaction and cultural context in learning. Through structured mentorship and peer dialogue, students engage in co-constructed knowledge that validates their lived experiences and empowers their identity development as scientists. Together, these theories inform a holistic and equitable model of student support.

Program

This funded program's primary objective is to promote broad participation in the biomedical research workforce by strengthening research training environments and expanding the pool of well-trained students who complete their baccalaureate degree, and transition into and complete biomedical, research-focused higher degree programs (i.e. Ph.D. or MD-Ph.D.). The program's intended population is first-generation undergraduate junior and senior students with a GPA of 3.2 or higher in pursuit of biomedical or bio-behavioral research degrees who are within two-three years of graduation. The program curriculum designs provides complimentary components to address the needs of students from historically marginalized backgrounds, including those who are first-generation college attendees. These students often face unique challenges, including financial strain, cultural isolation, and imposter syndrome (Holden, Wright, & Sims, 2021). Additionally, the post-COVID-19 pandemic has witnessed increased levels of anxiety and depression among youth with estimates suggesting up to 25% of youth experiencing depression and 20% experiencing anxiety (Office of the Surgeon General, 2021). To address these challenges among college students, an integrated approach which nurtures competence and confidence is needed.

Students begin the program with a two-week orientation seminar that introduces research fundamentals and wellness practices. They are then paired with faculty mentors and participate in weekly sessions on topics such as "Sense of Belonging," "Identifying Self-Care Needs," "Rejection is Re-direction" and "Scientific Mindset: Embracing the Joy of Being Wrong." These topics are strategically chosen to build self-awareness, resilience, and community. The curriculum also includes structured opportunities for reflection and skill-building to reinforce students' sense of purpose and belonging in biomedical pathways.

At the heart of the initiative is a student-professor dialogue that serves as a cornerstone of the wellness-mentoring model. Rather than relying solely on traditional lectures, these dialogues invite candid conversations about the emotional and intellectual journey of becoming a scientist. Faculty share their own stories of growth, uncertainty, and resilience, modeling vulnerability and authenticity. Students are encouraged to reflect on their personal experiences, ask questions, and engage in discussions that link emotional intelligence with academic persistence. For example, in sessions on "Nurturing Myself: Mind, Body, & Spirit," students explored strategies for maintaining balance during research-intensive periods. Instructors offered mindfulness techniques, journaling prompts, and communal support practices that students could implement immediately. These dialogues not only strengthen student-faculty relationships but also foster a mentoring culture grounded in mutual respect and holistic development. By validating emotional experiences alongside academic progress, the model disrupts the notion that STEM success must come at the expense of personal well being.

Results

In our first year of the program, we had a total of 8 students participate, all with varying majors such as organic chemistry, biology, psychology, and engineering. Five females and three males participated in the program. The race and ethnicity mix of the students included Hispanic, White, and Asian. We collected data at three points during the program: at the end of the summer session (Summer 2024) at the end of the Fall semester (Fall 2024), and at the end of the Spring semester (Spring 2025). Program evaluations indicate consistently high levels of student satisfaction. No session has been rated below "Valuable," and recurring praise has been directed toward the integration of wellness topics. The session on "Nurturing Myself: Mind, Body, & Spirit" emerged as a favorite for its practical and timely focus on self-care. Students expressed that it helped them reframe self-maintenance as a strength rather than a distraction from their scientific goals. One faculty mentor noted that students in the U-RISE program are demonstrating increased confidence in research communication and professional demeanor. Others commented on the value of seeing students develop a strong sense of community, which is often missing in traditional research environments. These qualitative outcomes suggest that integrating wellness into STEM mentorship can have far-reaching effects on persistence, performance, and identity development.

The table below outlines the program results from the end of the Spring 2025 semester. Students largely found all the sessions quite valuable. No student rated any session as not valuable or slightly valuable. However, for the sessions that focused on wellness, seven out of eight students chose extremely valuable: Mental wellness during times of stress, and Rejection is redirection. The Table below provides a breakdown of how participants responded.

Table 1
Spring 2025 Class Sessions

Class Session Title	Not Valuable	Slightly Valuable	Valuable	Very Valuable	Extremely Valuable
January 28: Successful Summer Research Internships: Selecting, applying, and preparing	0	0	0	1	7
February 4: Summer Research Applications: Challenges, Hurdles, and Accomplishments and IDP Updates	0	0	2	3	3
*February 18: Away from the Bench: Developing new skills for success	0	0	0	6	2
February 25: What can I do with a Ph.D, besides work in academia?	0	0	1	4	3
March 4: Journey from undergraduate to current position (guest speaker)	0	0	1	2	5
March 18: URISE Teams share and discuss professional videos generated	0	0	3	2	3
*March 25: Mental wellness during times of stress	0	0	0	1	7
*April 8: Book club discussion Why Has Nobody Told me this Before? (Smith, 2022) and The Mindful College Student (Loucks, 2022)	0	0	1	3	4
*April 15: Rejection is re-direction: Embracing growth through setbacks	0	0	0	1	7
April 22 URCAS poster presentations by URISE Scholars	0	0	1	3	4
April 29: Honors Thesis, publishing in the Honors student journal, and Honors fellowship opportunities (Guest Speakers)	0	0	0	5	3
May 6: Professional Videos presentations	0	0	3	2	3

*Denotes Complimentary Component Focused on Wellness
Further, students were asked to provide an open-ended response regarding which session was their favorite. The following provides a sampling of the responses:

- I loved the book club discussion. I was able to make time to read despite the busy schedule.
- Rejection is redirection, because it's something I've always struggled with.
- I feel like all of these sessions mean a lot to me. There was a lot to take away from each topic and they were all worthwhile.
- My favorite session was the book club discussion because we got to apply the learnings to our problems in our current life.

Discussion

The success of this initiative has important implications for institutions seeking to support underrepresented students in biomedical research. First, embedding wellness into research training is not only feasible, but also necessary. Programs should recognize the emotional labor and identity navigation that many students from marginalized backgrounds must undertake. Providing a space where those realities are acknowledged can enhance both retention and achievement.

Second, mentoring models that include dialogue, authenticity, and socio-emotional learning can be adapted for a range of educational settings. Whether through in-person seminars or virtual platforms, the key is to center student voice and lived experience. Institutions can replicate this model by training mentors in cultural responsiveness, allocating time for structured

wellness sessions, and building communities of practice around mentorship.

Thirdly, to sustain these efforts amid potential loss of federal funding, given the changes toward diversity, equity, and inclusion, institutions must explore creative and cost-effective strategies to keep wellness and inclusive mentoring practices alive and at the forefront of educational training.

Embedding these values into the fabric of existing structures—such as academic advising, peer mentoring, and faculty development—can ensure continuity without requiring significant new investment. Partnerships with campus counseling centers, student affairs, and community organizations can provide supplemental support and co-facilitation of wellness activities. By institutionalizing commitment to student well-being and inclusive mentorship, the impact of this initiative can persist and evolve, even in the face of shifting financial landscapes.

Conclusion

Mentorship in biomedical research must evolve to reflect the realities of today's students. By integrating wellness, identity affirmation, and culturally responsive strategies, this program at NMSU illustrates a model of mentoring that cultivates not only scientists but whole people. As student-professor dialogues continue to shape this work, the broader field can look to this approach as a pathway for fostering equity, persistence, and joy in STEM.

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