

WIP: Addressing graduate student wellness through a multidimensional approach

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I. INTRODUCTION

Graduate student wellbeing and attrition are complex issues which are rarely addressed holistically [1]. A recent summit held by The National Academies of Sciences, Engineering, and Medicine (NASEM) gathered to reimagine the future of science, technology, engineering, mathematics, & medicine (STEMM) graduate education in light of nearly 50% attrition across STEMM PhD programs in the United States [2]. Students participating in research-intensive graduate programs experience high stress from a variety of cultural, organizational, and environmental factors [3] which often leads to poor wellbeing, a major factor of their attrition. Therefore, addressing graduate student wellbeing is an urgent challenge for graduate education practitioners and requires a multi-dimensional approach for a quickly advancing technological landscape.

In response to a call for projects focused on improving student well-being and strengthening student success across all campuses within a system of southeastern public universities, the purpose of this study is to assess the impact use of funds received through this system's inaugural wellness mini grant. The funds are currently being used to develop and disseminate programming and resources for graduate students with the goal of improving their knowledge and practice of personal wellness.

Beyond general program assessment, the following research questions guide this study:

1. How do graduate students describe wellness and related resources?
2. How do they describe wellness differently after participating in departmental wellness events?

The purpose of this study is to explore how graduate students understand wellness and available resources, as well as to explore how programming facilitated by their academic department influences their wellness experiences.

II. LITERATURE

Literature regarding graduate student wellbeing is expansive and explores a myriad of factors both external (e.g. financial and advisor relationships) and internal (e.g. motivation and sense of belonging) [4, 5]. Subsequently, these diverse explorations have produced a wide range of recommendations for program design and student support strategies including more specific prioritization of graduate student well-being by program leadership and advisors, improved mentors' advocacy of their students, and increased support for students' self-efficacy [4, 6]. However, the majority of research in graduate student wellness recommends changes in practice without applying or measuring these proposed interventions [6]. Multiple systematic reviews of research on graduate student wellbeing note that though definitions are diverse, wellbeing is multifaceted and requires a holistic approach [5, 7]. Though the literature consistently identifies

graduate students' concerning low wellbeing, the discussion of interventions remains limited [7]. This study addresses the gap highlighted by Guo and Liu [7] by promoting psychological wellbeing through embedded departmental programming and expectations.

Therefore, we utilize the wellness framework designed by Swarbrick et al. [8] for two reasons. Firstly, Swarbrick et al.'s [8] multi-dimensional approach is utilized by the sponsoring university system, and the project is designed for scalability across multiple campuses within the system; therefore, applying this framework increases uniformity among pre-existing wellness initiatives among campuses. Secondly, Swarbrick et al.'s [8] approach provides the most comprehensive consideration of both internal and external factors, as well as empowering the individual for their personal wellness. Because we are utilizing such a well-defined and holistic framework, for this paper we set aside definitions that distinguish between the terms 'wellness' and 'wellbeing' and use them interchangeably. For the purpose of this paper, wellness and wellbeing will be defined not as the absence of pain or hardship but as a "dynamic process" where the individual or community is an active agent in pursuit of a balanced and more satisfying lifestyle [8].

Swarbrick's model defines eight overlapping dimensions that influence one's wellness: physical, intellectual, social, financial, emotional, occupational, spiritual, and environmental [8, 9]. These dimensions are intended to guide individuals as they practice self-assessment and goal setting by helping them consider a variety of influences and opportunities throughout their lived experiences. The model encourages reflection and small actions that feel more manageable, thereby strengthening self-efficacy through the ability to meet these smaller goals and notice their ripple-effects. For graduate students who are already pushing themselves to meet high academic and professional expectations, we anticipate that this strengths-based approach will be easier for students to adopt.

One advantage of this model is its interconnectedness; small changes in the habits influencing one dimension are likely to impact changes in several other dimensions [8]. This compounding influence on one's wellness is likely to increase confidence and motivation for continued efforts. For graduate students and early-career researchers whose attention, time, and energy is demanded in many directions, this model provides a significant return on investment concerning their wellbeing. For instance, making a slight habit change to take a 15-minute walk daily may likely benefit their physical, emotional, and intellectual wellness. Increased energy and positive mood may encourage them to make another small change, continuing the pattern and increasing balance over time.

An additional asset is the model's emphasis on personal reflection, decision, and action which allows each student a *personalized* wellness plan. This may be especially beneficial for international students whose unique challenges often lead to isolation and increased stress [10].

We acknowledge that graduate student experiences, identities, and needs vary greatly, hence the extensive research on graduate student wellness and the many factors that impact wellness [7]. Through self-assessment and personal goal setting, students are encouraged to craft wellness plans that fit their personal needs whether they are an international student (who face their own set of challenges related to the cross-cultural education experience), support a family, have chronic health challenges, or experience any other potential circumstance. This project will develop programs that equip students to address their unique needs by encouraging them to individually map their wellness along the eight dimensions. The broad definitions of the eight dimensions allows the individual to interpret it through their unique cultural lens.

III. METHODS

We have recruited study participants from students within three interdisciplinary STEM PhD programs at a public R1 university. Students in these programs are conducting their dissertation research at either the university campus responsible for their degree program or an affiliated national laboratory. Participants include US citizens and international students. The targeted cross-institutional PhD programs have historically received criticism for their non-traditional design. Consistent concerns related to students' social, occupational, and intellectual wellness have been raised by university faculty since students in these programs commonly work under mentorship from a staff scientist rather than tenure-track faculty. Additionally, due to the interdisciplinary nature of the programs, students' research and work locations vary greatly, posing a risk for isolation from their peers in the program or university.

Our use of iterative inquiry aligns this research study with the more broad assessment of the developed programming as we receive and apply both scheduled and ad-hoc feedback throughout the funding period [11]. As recommended by Grbich [11] to support tracking changes over time, we collected both quantitative and qualitative data from a pre-program survey to understand students' current perspective of wellness and learn more about their experience of wellness as a graduate student. Their responses guided initial decisions about how we should utilize the grant funding (i.e. what programs and resources to develop). Because this survey was developed for the purpose of guiding grant project activity, a consent statement was not included in this initial survey. The survey includes questions about the student's academic status, quantitative questions about the students' experience of wellness, and qualitative questions asking students to describe their experiences of wellbeing and belonging and how their research might have been impacted by said experiences. The survey in its entirety is included in Appendix A.

We will distribute a similar survey towards the close of the grant award period, around August 2026. This survey will include an IRB-approved consent form before participants begin. Otherwise, this post-program survey will duplicate the pre-program survey with additional

questions asking whether participants were present at any of the programming, reflective qualitative questions to ask how their experiences in the programming changed how they considered or practiced wellness, and whether they believe these considerations or practices had an impact on their research.

We will use descriptive statistics to analyze the quantitative data from surveys and the qualitative data from surveys will be inductively coded then deductively coded for thematic analysis. The quantitative data will provide insight regarding students' confidence or desire for improvement across specific dimensions of wellness. Qualitative feedback will be received iteratively from pre/post program surveys and the workshop feedback surveys. We will apply a combination of deductive coding using the eight dimensions of wellness and inductive value coding to analyze the qualitative data [12].

IV. PRELIMINARY RESULTS

Since submitting the abstract for ASEE 2026, additional data and preliminary analysis revealed participants experience less satisfaction in occupational wellness. Occupational wellness refers to an individual's satisfaction with their career and professional experiences, including whether you have positive relationships with coworkers, enjoy your responsibilities and ability to complete them, and find time to enjoy life outside of work [9]. This emphasis on lower satisfaction in their occupational wellness shifted our original presumptions that graduate students experienced the lowest wellness in the social and emotional dimensions. Due to the interrelatedness of these dimensions, we speculate that changes in the occupational wellness will also positively impact students' social and emotional wellness.

This data led us to invite alumni to attend a previously scheduled monthly departmental networking event. This casual coffee hour was originally designed to support social connections among students and increase student access to program leadership as a sort of open house replacement for office hours. It has received consistent attendance of anywhere from 1-20 students per month. With scalability in mind, we invited alumni currently employed at the national laboratory to the November 2025 Coffee Connects. Incorporating alumni into a pre-existing event provided a low-barrier strategy for us to connect students with professionals who shared their academic experiences. We emailed our invitation to all alumni for whom our records reported that they currently worked at the national laboratory. Three alumni RSVP'd and attended. Their graduation terms spanned between the last eight years to 12 months. Additionally, their current roles varied from group leader, staff scientist, and administrative which provided students with a variety of perspectives for post-graduation opportunities for those who may be interested in research, management, or administrative roles. This meeting also allowed program leadership a chance to meet and reconnect with alumni which led to invitations for future seminar presentations and potential collaboration opportunities, thereby increasing the

occupational wellness of program staff as well as that of students. This slight change to invite people we were already aware of, to an event we were already hosting, already shows signs of ripple effects for students and staff into the next semester.

Our future programming emphasizes equipping students with language and tools to take ownership of their personal wellness. This includes a “Semester Reset” workshop during our annual Spring semester department meetings and gave students an opportunity to (re)assess their wellness and consider healthy habits that will fit seamlessly into their new semester. Overall, our goal is to continue educating students on the 8-dimensional model of wellness [8] so they feel empowered to pursue improved personal wellness through self-assessment, goal-setting, and small habits and practices. We hope that the information and practices we provide will benefit students beyond their graduate studies and throughout the entirety of their career and therefore influence the future research groups and other professional communities.

V. DISCUSSION

There is a gap between what students verbally say they want or need to improve their wellbeing and what they report in surveys designed with more nuanced language and definitions of wellness. Observational experience presents students asking for more social events and gatherings; however, attendance rates for in-person events generally average about half of those who positively respond to invitations. We hope that using a more interconnected model will help practitioners design more holistic programming that addresses multiple needs at a time, thus better meeting students’ desires for more satisfying social connections and emotional experiences while more explicitly addressing their needs in other dimensions, such as occupational or financial. Contrastingly, this interconnectedness poses a significant challenge for assessing the effectiveness of our resources and programming. Additional investigation into instruments measuring wellness is needed to identify and verify pre-existing diagnostic devices.

Scalability of programming remains a consistent concern so embedding initiatives into pre-existing programs and expectations is imperative to success. Routine department orientations, seminars, and general communications provide ample opportunities to address the eight dimensions of wellness. We look forward to seeing these ideas continue to take shape through the continuation of receiving and responding to feedback.

Changes in wellness habits and goal setting have a compounding influence not only on the different dimensions within an individual’s experience, but early evidence suggests the influence also snowballs into the wellness experience of others (e.g. staff and faculty facilitating wellness programs). Though beyond the scope of our funded project period, we hope to expand

data collection and analysis as our resources and instruments are shared throughout the system in alignment with original project goals of scalability.

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Appendix A

Pre-Program Survey

1. How do you spend your time academically?

Mostly Coursework

Mostly Research

2. In which department are you enrolled as a student?

3. Where do you primarily conduct research?

4. On a scale of 1 (very unwell) to 4 (extremely well), how would you describe your overall wellbeing at this time?

1 – very unwell

2 – somewhat unwell

3 – somewhat well

4 – extremely well

5. On a scale of 1 (completely unconnected) to 4 (extremely connected), how would you describe your sense of belonging to your academic or research community at this time?

1 – Completely unconnected

2- Somewhat unconnected

3- somewhat connected

4 – extremely connected

6. UT's wellness framework recognizes 8 dimensions that influence wellness. Each dimension helps uniquely support holistic wellbeing. After reviewing the dimensions' descriptions, please rank them in order by areas you feel Most Satisfied (8) to Least Satisfied (1).

Physical

Environmental

Financial

Intellectual

Spiritual

Occupational

Emotional

Social

7. List the top 2-3 challenges you feel are currently impeding your overall wellbeing.
8. How has the quality of your wellness impacted your research?
9. List the top 2-3 challenges you feel are currently impeding your overall sense of belonging to your academic or research community.
10. How has the quality of your sense of belonging impacted your research?
11. Is there any other information regarding wellbeing or belonging as a graduate student conducting research that you would like to share with us?