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Factors Influencing Gender and Racial Disparities in Health Sciences Bachelor's Program

Brinda Desai Bradaric and Dina Batlivala Tresselt
College of Health Sciences, Rush University

ABSTRACT

Though there is an increase in females receiving bachelor's degrees, the number in science, technology, engineering, and mathematics (STEM) continues to lag behind males. The factors that drive such disparities are not understood. This study aimed to examine gender-based differences, racial disparities, and other factors that influence starting an undergraduate bachelor's health sciences program at Rush University. Active students and alumni from the Bachelor's in Health Sciences program at Rush University were surveyed and participated in focus groups. Factors that influenced enrollment into a bachelor's program included flexibility, support, and a personalized approach for female enrollment, whereas males preferred to enroll in bachelor's programs that offered curriculum rigor and name recognition. Finances were a significant factor, particularly for underrepresented females.

Keywords: disparities, females, gender, health sciences, STEM undergraduate, underrepresented

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INTRODUCTION

Many fields of undergraduate study have a variance in enrollment when differentiated by gender. In general, the number of undergraduate male students outnumber female students. As such, enrollment numbers of males in undergraduate programs increased more than females from Fall 2022 to Fall 2023 in the United States (2.2% and 1.2% respectively) (Education Dynamics, 2024). This is changing in the science, technology, engineering, and mathematics (STEM) fields, where the number of female students is continuing to rise (Kantrowitz, 2022). Though there is an increase in the number of females obtaining bachelor's degrees in STEM fields (Kantrowitz, 2022), there still exists gender disparities within specific STEM fields. For example, females are underrepresented in physical and earth sciences, mathematics, computer science, and engineering; however, they are equally represented in agricultural and biological science bachelor's degrees (National Center for Science and Engineering, 2023).

It is unclear why there are fewer females in certain higher education STEM fields, even as the number of females in STEM increases (Evans-Winters et al., 2021; Hardin and Longhurst, 2016; Sax, 2001; Tranfrayen-Roogbur et. al., 2021). Some research suggests that balancing school-work-life and the lack of female mentors or leaders may play a role (Parker, 2015; Sax, 2001; Tranfrayen-Roogbur et. al., 2021). Additionally, stereotypes and gender bias may also influence females in obtaining higher education degrees in certain STEM fields (Tranfrayen-Roogbur et. al. 2021). Gender disparities in STEM undergraduate enrollment were further exacerbated during the COVID-19 pandemic (Asgari et al., 2021). Undergraduate females had a significantly greater fear of COVID-19 and a tendency for greater stress, anxiety, and depression than their male counterparts (Rodriguez-Hidalgo et al., 2020). Furthermore, females working in higher education were more likely to take career breaks or slow down professional progression, becoming the primary caregiver and taking charge of domestic household responsibilities (Augustus, 2021; Parker, 2015). COVID-19, stereotyping, and bias may, in part, explain why females only make up approximately 27% of the STEM workers (Martinez and Christnacht, 2021; National Center for Education, 2020-2021). Continuing to expose females to different fields of study within STEM at an early age is integral to diversifying the science fields, particularly ones that have been dominated by males (Martinez and Christnacht, 2021).

Interestingly, the factors that influence females may also impact racial disparities between underrepresented groups and non-underrepresented groups within the STEM fields. Though the number of individuals from underrepresented groups in the STEM workforce is increasing, as is the number

of science and engineering bachelor's degrees earned by individuals from underrepresented groups (National Center for Science and Engineering, 2023), disparities persist. In 2020-2021, of the awarded STEM bachelor's degrees, only 8.9% were awarded to Black/African American students and 15.2% to Hispanic students, compared to 57.4% being awarded to white students (National Center for Education, 2020-2021). Similar to disparities with females in STEM education, there are also disparities with the type of STEM bachelor's degree earned by individuals from underrepresented groups. Hispanic and Black/African American students tend to earn bachelor's degrees in social and behavioral sciences versus mathematics, engineering, physical sciences, and computer sciences (National Center for Education, 2020-2021).

Disparities continue to influence undergraduate enrollment and subsequent employment in STEM-related fields. Two questions arise from these statistics: (1) why are there more males receiving STEM degrees and, in the STEM,-related workforce compared to females and individuals from underrepresented groups, and (2) what drives the disparities in individuals selecting a STEM field for their undergraduate studies? Though gender bias and stereotypes may play a role, the academic institution/program may not be catering to the needs of females and individuals from underrepresented groups, as it may for males. Education has been delivered under a patriarchal construct where societal, religious/cultural, and economic pressures that place males as superior to females are imposed into pedagogical learning and attainment of education (Brown, 2023; Evans-Winters, 2021; Kebingin and Riyanto, 2022; Rawat, 2014). Academic programs that empower females, as well as individuals from underrepresented groups, may allow for changes in STEM degree attainment and workforce representation (Rawat, 2014). The purpose of this study was to examine racial and gender-based differences and driving factors that influence initial enrollment into a bachelor's program. While driving factors related to enrollment may not capture the complexities associated with retention and completion of undergraduate degrees in STEM, it is nonetheless a starting point to better understand disparities in STEM education. This current study research used active students and alumni lists from the Bachelor of Science in Health Sciences (BSHS) program at Rush University Medical Center (Chicago, IL), as a high percentage of self-identified female students and a high percentage of students who identify from underrepresented groups (URM) matriculate into the program. For the purposes of this research, underrepresented groups are defined as Black/African American, Hispanic/Latin, Native American, and Hawaiian/Pacific Islander. By understanding the driving factors of enrollment, academic programs can develop targeted recruitment and support strategies leading to an equitable educational experience and workforce in STEM-related fields.

METHODS

BSHS Program

The BSHS program within the College of Health Sciences at Rush University Medical Center (Chicago, IL) was created as a two-year bachelor's completion program to address the lack of diversity in healthcare professionals. The program is on campus, with courses that are both on campus and online. In addition to the core courses (examples include professional writing, ethics, research and statistics, and capstone) that students must complete for the bachelor's degree, students choose electives from two concentrations, the medical sciences concentration and the community health and wellness concentration. Both concentrations contain courses that would fall under the STEM category, such as nutrition, informatics, biochemistry, anatomy, and physiology, to name a few.

The mission of the program is to prepare highly qualified, diverse graduates interested in pursuing healthcare careers. The program also seeks to create a bridge for students from a variety of backgrounds to improve the cultural humility of healthcare professionals and make healthcare professionals reflect the people they serve. Table 1 illustrates the demographics of the incoming BSHS cohorts from the time of program inception. Throughout 11 years (2012-2023), the BSHS program has had a diverse population of students, with more than 65% of the students self-identifying from underrepresented groups. Of these students, those who were actively in the program or obtained their bachelor's degree from Rush University Medical Center were included in this study.

The program provides immersive and interprofessional experiences in a diverse educational setting and is committed to creating a learning environment where students can develop skills to become critical thinkers, creative problem-solvers, and self-directed learners. Educational experiences support the success of students through student self-assessment and reflection, collaboration, and mentorship. These tenets are woven throughout the curriculum and educational experiences, making for a holistic and successful experience for students. In addition, the BSHS program offers scholarships for discount tuition, as well as financial support for other services related to student needs and graduate education.

Survey

Current students and alumni from the BSHS program were recruited via email to complete an anonymous survey through RedCap. The survey was designed to provide insight into what influenced students to start the BSHS program at RUSH University. The survey consisted of demographic questions, including self-

identification of gender, race/ethnicity, and whether the individual was considered an alum (see supplement).

Table 1

BSHS student demographics

	Ratio Female: Male	Female % of incoming class	URM % of incoming class
2013	5:2	71%	71%
2014	6:4	60%	70%
2015	9:3	75%	58%
2016	9:6	60%	73%
2017	7:6	54%	62%
2018	19:4	83%	56%
2019	8:4	67%	66%
2020	18:3	85%	95%
2021	19:4	83%	74%
2022	10:1	91%	82%
2023	12:3	80%	86%

The survey also included questions regarding changes that may have occurred in their lives that allowed the individual to start the bachelor's program, motivation for starting the bachelor's program, factors considered when choosing a bachelor's program, and factors considered when choosing a health sciences program (see supplement). For qualitative analysis, results from the survey are shown as a percentage of respondents and differentiated by gender and/or self-identification of URM.

Focus group

Three semi-structured, online focus groups were conducted to clarify and extend findings from the survey. The results from the anonymous survey were used to develop questions for the focus group. Each focus group consisted of 3-4 participants, and the composition of each focus group was either all male or all female. All current students and alum of the BSHS program were recruited through email. The email requested participants to join one of the three focus groups through a secure RedCap survey. Since the focus groups were delineated by gender, the RedCap survey asked participants to self-designate by gender to

populate either the male or female focus groups and dates. All participants were required to complete an electronic informed consent prior to joining the focus group. Electronic consent was obtained after informing the participant about the study aims, risks, and benefits, and the study procedure. Participants were also told that participation is voluntary and that they can leave at any point during the focus group. These procedures were approved by the Institutional Review Board of RUSH University Medical Center and meet the criteria in the Federal regulations (45 CFR 46.111 and 21 CFR 56.111) and any other applicable governing regulations or subparts. A script was developed for the facilitator to follow for each focus group. The script included a welcome, six questions, and a thank you (see supplement). The focus groups were approximately 60 minutes each and were held through a secured virtual platform, Zoom. Focus group meetings were video, and audio recorded for coding purposes. Non-verbal data were not recorded for any focus groups. Data were de-identified and transcribed by the facilitator immediately following each focus group session. The data were anonymous for analysis.

Focus group thematic analysis

Following transcription of the video data for each focus group, data were systematically coded for themes in two steps. Thematic analysis allowed for identifying, analyzing, and reporting patterns or themes within the data, allowing for a richer description of the data collected (described in Braun and Clarke, 2006). In the first step or initial coding, themes were identified for each question by gender by each author. Both authors listed between 1-3 emerging themes for each question posed in the focus groups. Themes were identified if the majority of responses in the male and female focus group sessions described or related to the theme. In the second step, the authors came together to evaluate themes identified individually to combine and subdivide themes, as necessary. Up to, but no more than, three themes were identified from the answers provided for each question, segregated by gender. The thematic analysis allowed for data extracts to be individually coded chunks of data identified within a data item, allowing for patterns to be identified within and between focus groups (Braun and Clarke, 2006). Data transcribed from individuals who did not complete the focus group was not used for analysis.

RESULTS

Survey

The authors surveyed active students and alumni of the BSHS program at RUSH University to better understand the gender-based differences and other driving factors, such as inequities, that influence enrollment and starting a bachelor's program. The response rate was 46%. The demographics of the respondents are illustrated in Table 2. Further, of the respondents, 82% self-identified as female, and of those, 84% self-identified as URM.

Table 2

Demographics of survey respondents (n=60)

	Male (18%)	**Female (82%)**
URM	91%	84%
Alumni status	72% alumni 27% current students	45% alumni 55% current students

Note: *Data shown as percentage of survey respondents by gender.*

Table 3

Significant changes that influence the start of a bachelor's program

	Male	**Female**
Eligible for tuition reimbursement through work	0	12%
Financially stable	9%	2%
Family responsibility subsided	9%	2%
Better personal health	9%	6%
Needed a raise at work	0	8%
Career change	54%	37%
None of the above	18%	33%

Note: *Data shown as percentage of survey respondents by gender, not status in program*.

Substantial changes in financial stability, health stability, or the like can contribute to an individual wanting to start and complete a bachelor's program. Forty of the total respondents said that the most substantial change that allowed

them to start a bachelor's program was wanting a career change. This was the highest response for both males and females (54% and 37% respectively; Table 3). There was also a high number of female respondents who did not select one of the choices (33%; Table 3) and instead offered their reasoning to be the desire to continue education, being awarded scholarships, and the need to transfer schools to find a better fit.

Though the trend for wanting a career change holds, when responses for females were further delineated by designation of URM groups, finances also impacted them as indicated by responses in the eligible for tuition reimbursement, financially stable, and need a raise at work category (Table 4).

Table 4

Significant changes that influence the start of a bachelor's program for females

	URM	Non-URM
Eligible for tuition reimbursement through work	15%	0
Financially stable	2%	0
Family responsibility subsided	0	13%
Better personal health	5%	13%
Needed a raise at work	10%	0
Career change	34%	50%
None of the above	34%	25%

Note: Data shown as percentage of female survey respondents differentiated by underrepresented minority groups (URM).

When asking the respondents the most important factor that needed to be met in choosing a bachelor's program, males and females had different perspectives based on the qualitative analysis. Males identified rigor and recognition of the program or curriculum as important factors when deciding between bachelor's programs (Table 5). On the other hand, females identified financial support, flexibility, and a personalized approach or small class size as determining factors for selecting a bachelor's program (Table 5). It is interesting that neither males nor females selected flexibility of curriculum, but it may be that the respondents may not have understood what that meant.

	Male	**Female**
Scholarship availability	9%	31%
Support services	0	6%
Ability to work while at school	0	22%
Preparation for graduate school	18%	12%
Flexibility of curriculum	0	0
Small class size	9%	20%
Faculty as practicing clinicians	0	4%
Name recognition	54%	2%
None of the above	9%	2%

When this is further delineated by the designation of URM groups, the qualitative analysis revealed that females who self-identified as URM were most concerned about the availability of scholarships or the ability to be able to afford their education. Interestingly, if the data for scholarship and ability to work were

combined, as both address financial stability or need for finances, then 56% of females who identify as URM groups find that to be an important factor compared to 38% of non-URM females (Table 6).

Table 6

Important factor when choosing a bachelor's program for females

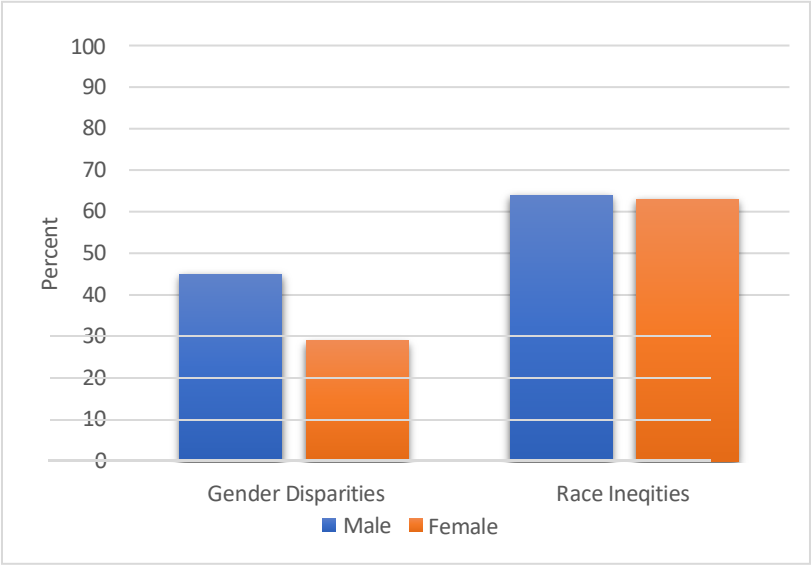
	URM	Non-URM
Scholarship availability	34%	13%
Support services	7%	0
Ability to work while at school	22%	25%
Preparation for graduate school	10%	25%
Flexibility of curriculum	0	0
Small class size	20%	25%
Faculty as practicing clinicians	2%	13%
Name recognition	2%	0
None of the above	2%	0

Note: Data shown as percentage of female survey respondents differentiated by underrepresented minority groups (URM).

Gender disparities in healthcare did not influence the decision to start a health sciences program or join the healthcare field, according to the survey results (Figure 1). However, race inequities in healthcare did influence both males and females overall (Figure 1).

Figure 1

Influence of gender and race on pursuing a health sciences program



Note: Data shown as percentage of survey respondents by gender.

Interestingly, when further delineated, females who did not identify with underrepresented groups (88%) said that race inequities also did not influence their decision to start or pursue a career in health sciences or healthcare.

Focus Group

The focus groups were developed to further understand the survey's qualitative results. There were two female focus groups, made up of six participants' total. There was one male focus group, which was made up of three participants. The focus groups had equal representation of alumni and current students. The participants were not asked to self-identify for race and ethnicity for focus group participation. Since career change was a primary reason for both males and females wanting to pursue a bachelor's degree, the focus group participants were asked what a career change means to each of them. For males, the predominant theme was their need to find a career that fit them within a healthcare setting, whereas for females, the predominant theme was that a healthcare career would allow more opportunities for job placement and growth within that job or field. All the participants agreed with the survey results

regarding males wanting to start a program based on name recognition, and females wanting a program that offers small class sizes and is financially affordable. The focus group, made up of males, further explained that they believe these survey results to be true because females have different values from males. Another theme in the male focus group answers was the idea of the difference in age to start a bachelor's program between males and females, and how that can influence factors for starting a program. The focus group, made up of females, further explained that their need for small class sizes is due to feeling shy or scared of starting a program. Another overarching theme that was identified in the female focus group answers was the need to be supported while continuing their education.

To better understand the factors that influenced their decision to start the program, the focus group participants were asked what it meant to each of them to graduate from RUSH University with a bachelor's degree. Though males in the survey identified name recognition as an important factor, the discussion revealed themes regarding more opportunities after graduating from RUSH with a bachelor's degree and having a sense of community with other RUSH University graduates. Name recognition was a third theme identified, but was less important based on the focus group discussion. The themes revealed within the female focus group were name recognition and having opportunities after graduation.

While survey results implied a strong knowledge of race inequities in healthcare, the focus groups revealed other inequities that also influenced students' drive to complete a bachelor's degree. Participants in both focus groups agreed that cultural inequities regarding upbringing, parents' background, and being considered non-traditional also influenced their decision. In the focus group made up of males, society-influenced inequities were another identified theme. In the focus group made up of females, socioeconomic inequities were another identified theme. Below are example responses from the focus group transcripts.

For me, I would say, a big factor is socioeconomic … My entire life has been poor … It was normal growing up. But if I get into the real-world stuff is hard, it's really hard, and there are some disadvantages with where you grew up and where you went to school, and whether or not you're able to graduate for whatever other reasons. – focus group participant

I think the inequities also are quite cultural … I believe, certain people that were raised in the housing of what I would say, Standard American household with parents saving up for college and kind of my parents go to a college and children following students … My parents had no knowledge of the college system, and I had to figure everything out as I went, and it was a constant one step forward, two steps back … – focus group participant

A theme that emerged from both focus groups was how female leadership implied a nurturing environment (Bachen et al, 2009). Additional themes that were identified in the focus group, made up of females, were that female leadership made them feel empowered and allowed for gender recognition/understanding. Table 1 illustrates the percentage of females in the BSHS cohorts. To provide additional context, the chair and program director of the BSHS program self- identify as female. In addition, 80% of the core faculty are female, and of those core faculty who interview prospective students, 75% are female. Approximately 70% of the courses that are taught in the BSHS program are taught by females.

Interestingly, the focus group made up of males did not notice or feel like female leadership made a difference or influenced their decision to start the BSHS program; however respected and acknowledged the equity when verbalized in these questions. The participants of the male focus group believed that the BSHS program caters to non-traditional educational settings. This aspect of a program can make it more attractive for female students, as suggested by this same theme emerging in the female focus group. Participants of the female focus group also believed that it was the perceived nurturing environment, culture of the program, and personal approach of the program that made the BSHS program more attractive to female students.

DISCUSSION

The purpose of this study was to examine racial and gender-based differences and driving factors that can influence initial enrollment into a bachelor's program (Evans-Winters et al., 2021; Hardin and Longhurst, 2016; Sax, 2001; Tranfrayen-Roogbur et. al., 2021). A primary finding from our survey data was that both males and females generally start a bachelor's program for career change. Though the reason for a career change is multi-faceted, based on our themes identified for the question regarding why participants started a bachelor's program, for males the reason is primarily to find a career that fits who they are, versus for females it is to find a career that provides them with job security and opportunities, whether it be for advancement or development.

Additionally, finances were a significant factor, particularly for underrepresented females, in starting and choosing a bachelor's program (Brit et al., 2016; Moore et al., 2021; Mowreader, 2023). Financial security and stability directly relate to the need for a career change. A career that allows for advancement, promotion, and bonuses as the daily living costs increase would allow for stability. It would also reduce stress related to finances, which can have a positive impact on academics (Britt et al., 2016; Moore et al., 2021; Mowreader, 2023). Financial stress can impact non-traditional and individuals

from underrepresented groups even more so (Mowreader, 2023). It is interesting that the factors influencing the want to start also impact the ability to start a program. This is an important hurdle for undergraduate programs to consider, particularly when trying to attract females and individuals who self-identify as URM into health science programs.

When looking for a program, the qualitative analysis indicated males tend to lean toward schools that provide academic recognition and are known for academic rigor. This may be because males may perceive that graduating from a recognized school with a rigorous program will increase the likelihood of obtaining employment post-graduation. They may also perceive that graduating from a recognized program will allow them the ability to negotiate for a higher or more competitive salary, providing more financial security. Furthermore, schools with rigorous programs have the financial backing and infrastructure to allow for some career exploration or opportunities, such as internships, that allow students to find a good career fit and build or develop their professional network. Knowing individuals in the industry and forming that network can be beneficial in finding and obtaining a job. Interestingly, this study found that females factor in the personal approach of a program when considering bachelor's programs. The focus groups further explain that this difference may be because of value differences between genders, age differences between genders, and differences in the types of support needed. For example, females are more likely to leave their education to take care of family or become a primary caregiver, forcing them to return to their education at an older age (Augustus, 2021; Parker, 2015). Interestingly, due to this break, values will be different when comparing 20-year-olds and 30 to 40-year-olds returning to education after work and/or life experiences, compounding the value differences that already exist between genders (Lwamba et al., 2022). Therefore, based on this and the findings of this study, females want an intimate program so that they will have understanding and flexibility from educators.

That may be why, from 2016 to 2019, enrollment in women's colleges increased. Many theories have been postulated for this increase, including an evolving attitude toward feminism and gender-inclusive spaces and communities (Brown, 2023; Evans-Winters, 2021; Kebingin and Riyanto, 2022; Lwamba et al., 2022; Rawat, 2014; Smith et al., 2011). Women tend to be drawn to women's colleges due to small class sizes, personalized attention, and a range of academic majors, similar reasons as to why many students choose small liberal arts colleges. Further, women's colleges tend to be more diverse than liberal arts colleges, with high enrollment of non-traditional and students from underrepresented groups (Near, 2021). In general, educators and those in leadership roles at women's colleges tend to be women. It is not surprising that females are drawn to this, as the discussed gender stereotypes suggest that

females would be able to offer compassionate education. Based on our focus groups, it was not surprising that male participants did not feel that female leadership influenced their decision to start the BSHS program, specifically.

In the qualitative analysis of the survey results, race inequities, but not gender inequities, influenced individuals to start a health science program. This may be due to how society shapes and influences gender values. Males are usually described as strong and powerful, whereas females tend to be described as compassionate and caring (Walker et al., 2018). Individuals will then tend to value these societal gender descriptions and may influence career and education choice (Brown, 2023). Gender schema theory proposes that the ideas that we have about gender are shaped through culture and society, explaining how gender expectations are social and cultural constructs (Bachen et al., 2009; Canevello, 2020; Walker et al., 2018). The intertwining of values and societal labels then influences males and females in the selection of a bachelor's program. This also aligns with the discussion from our female focus groups, where they reflected on wanting small or intimate cohorts due to fear or shyness, and wanting a program that is compassionate and supportive of their needs (Walker et al., 2018). It would be interesting to better understand how societal pressures on males to support females and be successful influence their decision on selecting an undergraduate program. It is not surprising that, from our focus group discussions, cultural, societal, and socioeconomic inequalities also influenced the decision to start a bachelor's health science program. Moreover, the focus groups revealed that societal and socioeconomic inequalities were more relatable to females than males.

This study suggests that a number of inequities and the need for financial stability empower, particularly females and individuals who self-identify as URM, to start a health science bachelor's program. Having opportunities for employment or career advancement, particularly in a field that was a good fit, was also a key outcome from the survey and focus groups. In addition, finances impact both starting and choosing a program (Brit et al., 2016; Moore et al., 2021; Mowreader, 2023). So, what can we learn from this to improve programs or the entry of females and underrepresented females into STEM programs?

1. Provide full-tuition scholarships to diversify STEM fields
2. Develop relationships with community partners and other businesses to direct students to employment following graduation.
3. Create a curriculum that can be both rigorous (expert-taught content) and nurturing (accessibility to advisors, mentors, and counselors) to attract both males and females into the program.
4. For larger programs, develop tracks allowing for small groups or cohorts to attract females and self-identified URM females into the program.

5. Provide opportunities for both males and females for career exploration, particularly with individuals who are self-identified URM females, through internships, research opportunities, community service, and volunteering.
6. Provide mentoring programs that allow females and self-identified URM females to feel empowered to go into a male-dominated field.
7. Share stories of female and self-identified URM females alum who have graduated and moved into STEM careers, particularly those who are leaders or emerging leaders. Include struggles and barriers they faced, such as family or personal responsibilities, in these stories.
8. Provide programming or courses in recognizing and addressing inequalities in healthcare, as well as how gender inequities that are generated by culture and society influence healthcare. By creating inclusive environments that prioritize diversity and equity, academic institutions can help dismantle systemic barriers and cultivate a more inclusive STEM community, ultimately fostering innovation and progress in the field.

CONCLUSIONS

The main finding from this study was that both males and females generally start a bachelor's program to have more career opportunities and the ability to change professional careers that provide job security. Additionally, finances were a significant factor, particularly for underrepresented females, in starting and choosing a STEM bachelor's program. Financial security and stability directly relate to the need for a career change. Furthermore, gender and racial disparities may be impacted by societal, cultural, and socioeconomic pressures. Understanding the needs, differentiated by gender and race, can help STEM bachelor's programs implement changes within their programs to ensure a diverse student population.

LIMITATIONS

This study provides limited insight into racial and gender disparities because students from only one bachelor's program were utilized to obtain data regarding racial and gender disparities when choosing a STEM bachelor's program. Rush University Medical Center is a primary graduate program university, and therefore, the undergraduate student population is limited. For that same reason, the sample size for the study is relatively small, even though the response rate was high. Furthermore, gender constraints were limited to male, female, and choosing not to disclose. Extending this study to a larger undergraduate university with more STEM bachelor's degrees (ex., biological sciences, chemistry, engineering, etc.), larger cohort numbers, and all-inclusive gender

categories would allow for a better understanding of the racial and gender disparities that can be segregated by different STEM programs. Another recommendation would be to evaluate the gender and racial disparities impacted by the current political and social climate.

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Bio

BRINDA DESAI BRADARIC, PhD is an assistant professor and program director for the health sciences undergraduate program in the College of Health Sciences at Rush University.

DINA BATLIVALA TRESSELT, PhD is an assistant professor and the director of marketing and admissions for the College of Health Sciences at Rush University.

Correspondence concerning this article should be addressed to Brinda Desai Bradaric, brinda_d_bradaric@rush.edu