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of Diverse Students for Careers in the Health Professions

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EDITOR'S FOREWORD

Examining the Root Cause of Inadequate Representation of Minorities in Healthcare Professions

The American healthcare system has made tremendous strides technologically. Electronic health records facilitate continuity of care; telemedicine provides easy access to healthcare providers; wearable medical technology tracks and alerts the wearer and the provider of changes in anything from heart rate to blood glucose levels; enhanced diagnostics enable earlier detection and treatment of disease—and so much more. Collectively, these advances have been proven to extend life and the quality of life. They distinguish the United States from all other countries in the world. In this light, the disparate access to quality healthcare for US minority communities is perplexing. It remains a crisis due, in part, to inadequate representation of minorities in the healthcare professions.

The literature is inundated with studies describing the pervasive underrepresentation of minority professionals across the healthcare fields. Data reported by the Physician Assistant Education Association (PAEA, 2020) revealed that "69.4% of first-year physician associate/assistant (PA) students in 2019 were White, compared with 60.4% of the US general population. In the same period, only 3.9% of first-year PA students were Black, compared with 13.4% of the US general population. Similarly, only 7.6% of first-year PA students were Hispanic or Latino compared with 18.3% of the US general population" (cited in Kayingo et al., 2022, p. 51).

Bringing awareness of this predicament and alarming statistics is absolutely necessary; however, before meaningful change can occur, the root causes must be understood. To guide rectification, analysis must start with pre-enrollment into higher education and a review of the many barriers that prevent minority students from being accepted into programs. Finally, for those fortunate enough to achieve admission into health science major programs, we must understand the deep-rooted challenges unique to minority students that interfere with their persistence toward graduation. Authors of this issue of the journal explore the problems and solutions through three lenses: access to pipeline programs, social determinants, and microaggressive behaviors leading to high attrition rates.

PIPELINE

To move the needle on the disproportionate underrepresentation of minority healthcare providers in a positive trajectory, multipronged strategies are required. The pathway to a career in healthcare should begin early, well before the point of applying for admissions. Evidence shows that students who are fortunate enough to have exposure to pipeline programs in high school and

the early college years are more likely to have their interest piqued to pursue a career in healthcare (Vandermeulen et al., 2022). This finding holds true especially for first-generation college students, who may have never visited a college campus and have little knowledge of the various options in healthcare professions. Building programs that integrate campus site visits, preadmissions counseling, training in time management and good study habits, and a career assessment inventory to help determine the best fit could not only increase diverse applicants but prepare them for success.

SOCIAL DETERMINANTS

Health typically comes to mind when the phrase *social determinants* is brought up in a conversation, but social factors also affect overall development and preparedness for the rigors of college. Those with more financial means have access to resources financially challenged families cannot reach and may not even know about. Resources, such as private tutoring, software learning programs, access to a stable internet connection and life experiences through travel, are still considered a luxury for some.

While a child's environment and circumstances influence the path in life, they should not derail the opportunity to reach full potential. Administrators of higher education admissions policies who genuinely want to sway the pendulum should make decisions from a holistic vantage point, not scores alone.

MICROAGGRESSIONS

The same level of strategic effort invested in increasing the diversity of health science programs must be applied to retention to graduation and ultimately careers. Many nonacademic factors result in disruptions or dropout; the most common are financial challenges, acute medical illness, and family obligations, but less overt reasons can drive minority students, in particular African American students, to walk away, like the subtle and at times not-so-subtle comments, gestures, and exclusionary behaviors that minimize their sense of worth. These microaggressions can have devasting, long-lasting impact on the mental health of the victims of these discriminatory acts. In today's climate of high suicide rates, mass shootings, and other violent acts, higher education administrators should feel compelled to mitigate unnecessary stressors.

Students are already anxious and feel pressure from parents and other family to achieve. Compounded by being subjected to microaggressions, minority students' mental health and wellbeing

can be sorely taxed, leading to the high dropout rates that work against diversity in the healthcare workforce.

CONCLUSION

The uniform demographics of the country's healthcare professionals spans the disciplines, including physicians, nurses, physical and occupational therapists, and more. The imbalance contributes to poorer health outcomes for minority populations. Debates, studies, and articles have examined the problem; unfortunately, we recognize it, take intense measures to shine a light on it, but fail to take widespread actions to correct it at the root. This systemic behavior leads to a cycle some call analysis paralysis. A multilevel intervention strategy must be conceived and implemented on a national scale through legislation before truly sustainable change occurs. The time has come to stop analyzing this frankly shameful problem and to begin intentional actions toward resolution. If not now, when?

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Leslee Battle

Guest Editor

NAMME PRESIDENT'S FOREWORD

Resilience

The American healthcare system has made tremendous strides. The past few years have been challenging and uncertain. After the global pandemic and political upheavals, we remain resilient in our mission as we navigate forward. The new year brings new opportunities, renewed commitment, and a time to refocus on our mission. The National Association of Medical Minority Educators (NAMME) have been working to support and serve our communities for over 45 years.

Despite major advances in medicine, disparities in health and healthcare persist, especially in underserved communities. Increasing research demonstrates underserved groups' lack of access and the disproportionate risk to quality healthcare (Satcher, 2000). Social determinants of health often drive the health disparities plaguing disadvantaged patients, who experience the most significant impairment of health outcomes from preventable and treatable conditions.

Public health experts have established that the social environment in which people live, learn, work, and play is among the most important determinants of health and contributes to disparities. Diversity, equity, and inclusion are vital in supporting and maintaining health and reducing health disparities. NAMME must be resilient in increasing the diversity of the healthcare workforce to reduce healthcare disparities. One of the basic disparity causes can be addressed by actively seeking a more diverse workforce (Jackson & Garcia, 2014). When you have an inclusive workforce, you have more equitable care for everyone.

NAMME is resilient and "where inclusion and diversity meet the health professions." NAMME's work is displayed through collaborative efforts. Its biennial national conference provides an opportunity for health professionals, admissions staff, faculty, and academic clinicians to share knowledge and experiences, to organize, and to recruit our future healthcare professionals.

Founded in 1975, NAMME has been resilient in its mission and vision, creating effective strategies to maintain diversity, equity, and inclusion in today's climate. Our partnership with the *Journal of Best Practices in Health Professions Diversity: Research, Education and Policy* helps us to remain resilient! I encourage you to get involved with the journal through article submissions, serving as a peer reviewer, or becoming part of the editorial board.

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Effect of Microaggressions on Medical Residents' Program Satisfaction and Depression

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ABSTRACT

We conducted a national survey of 682 US medical residents and found that Black residents reported a significantly higher frequency of microaggressions than their White counterparts. That higher frequency was significantly associated with lower satisfaction with the residency program and the risk for depression across all residents. The demonstrated prevalence and impact of microaggressions in graduate medical education (GME) create a moral obligation for teachers and leaders to develop initiatives promoting inclusion and wellness for residents.

Keywords: ▪ Depression ▪ Medical Education ▪ Medical Residents ▪ Microaggressions ▪ Satisfaction

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INTRODUCTION

The well-documented benefits of diversity in medicine include improved medical education for all students; more culturally competent physicians; increased access to, and quality of, care for underserved populations; more opportunities for racially concordant care; and more research addressing healthcare disparities (AAMC, 2014; ACGME, 2020a; Alsan, Garrick, & Graziani, 2018). Responding to the call for greater diversity in the healthcare workforce, many graduate medical education (GME) programs are implementing new policies and procedures, such as holistic resident screening and selection (Barcelo, Shadravan, & Wells, 2021; Tunson et al., 2016). However, discrete efforts are insufficient. The ACGME Program Director's Guide (2020b) emphasizes that in addition to diversity, GME programs must ensure inclusive learning environments. Institutions must be aware that threats to inclusion and equity, such as microaggressions, jeopardize any gains in diversity.

Microaggressions are defined as subtle statements and behaviors that communicate denigrating messages consciously or unconsciously, verbally or nonverbally, about some aspect of the recipient's identity (Sue et al., 2007). Their prevalence in the higher education experiences of students of color has been well documented (Blume et al., 2012; Solorzano, 1998; Yosso et al., 2009). In a qualitative study, 37 students from backgrounds underrepresented in medicine and nursing reported daily exposure to microaggressions, sparking stress, frustration, and anger (Ackerman-Barger et al., 2020). They felt these microaggressions damaged their well-being, learning, and academic performance. Another study of medical students reported that microaggressions were a frequent part of their education and were associated with a positive depression screening and decreased satisfaction with medical school (Anderson et al., 2021).

The prevalence of microaggressions in GME is less well attested. A study of 27 minority residents in programs across the United States found they had been mistaken for foreigners, nonmedical staff (such as transport), and one another (Osseo-Asare et al., 2018). Moreover, they felt reluctant to report such microaggressions to their program leadership, citing fear of retribution, the belief that no action would be taken, and lack of time and energy (Osseo-Asare et al., 2018).

Experiencing microaggressions is significantly associated with negative outcomes. Blume et al. (2012) found that undergraduate students of color experienced significantly higher levels of microaggression than their White counterparts and were at increased risk for anxiety, which could threaten their cognitive and academic performance. In a study of minority graduate and professional students, nearly all of whom reported recently experiencing microaggressions, the frequency of those experiences and the distress they evoked were significantly associated with depression (Lilly et al., 2018). Mistreated trainees, including those who experience microaggressions, often question their choice of a career in medicine and their specialty (Nunez-Smith et al., 2009). The prevalence of mistreatment in residency is well documented (Crutcher et al., 2011; Karim, 2014; Li et al., 2010). Note that for underrepresented residents already subjected to this general mistreatment, personally targeted microaggressions add a layer of abuse (Osseo-Asare et al., 2018).

Although all groups who experience microaggressions are worthy of study, our study focuses on racial microaggressions. Our goals were to explore the frequency of microaggressions experienced by White residents and residents from African American/Black, Latinx, Native American, and Asian backgrounds. Whether individuals of Asian descent are underrepresented in medicine is debated (Ko & Ton, 2020), but we decided to include them because microaggressions, marginalization, and violence against them have increased since the beginning of the COVID-19 pandemic.

Our specific aims were to investigate 1) overall *frequency of experiencing microaggressions* during the past year; 2) which specific past microaggressions predict current *residency program satisfaction*; and 3) which specific past microaggressions predict the likelihood of current *depression* as measured by a screening tool. We hypothesized that, compared to White residents, underrepresented minority residents would report a significantly higher frequency of microaggressions both overall (Hypothesis 1a) and targeted (Hypothesis 1b) and race-related self-attributions (Hypothesis 1c). We expected that a high frequency of microaggressions overall would be significantly associated with *lower residency program satisfaction* across all residents (Hypothesis 2a) and with variations based on race/ethnicity (Hypothesis 2b) and that specific microaggressions would significantly predict lower *current residency program satisfaction* across all residents (Hypothesis 2c) and significantly lower program satisfaction among Black/African American residents than among Whites (Hypothesis 2d). Similarly, we expected a strong positive relationship between a higher frequency of microaggressions during the past year and current higher *depression* scores across all residents (Hypothesis 3a) and by race/ethnicity (Hypothesis 3b) and that targeted microaggressions would significantly predict greater current depression scores across all residents (Hypothesis 3c).

METHODS

Participants and Procedures

Our interprofessional research team consisted of four health professions educators of whom two are Associate Deans of Diversity, Equity, and Inclusion; two teach in a school of medicine and two in a school of nursing; three are full professors, and one an assistant professor; a physician, and a medical student. Three are Black, one White, one mixed White and Latino, and one is of Middle Eastern descent.

After receiving Institutional Review Board approval, we conducted a national, cross-sectional, internet-based survey. We had to address several recruitment challenges. First, medical residents are chronically over surveyed, which may reduce their willingness to participate. Second, we had to consider how to engage participants on a sensitive topic like microaggressions in a social environment responding to the televised police killing of George Perry Floyd, Jr., a Black man, in

Minneapolis. To reduce reluctance to respond to surveys, Dillman, Smyth, and Christian's (2014) Tailored Design Method notes that people are more likely to respond to requests from strangers when they trust that the rewards will exceed the cost or effort. Therefore, in our email request and the opening paragraph of the survey, we emphasized the potential utility of the results: "We hope that this study will add to the knowledge of the presence of racial microaggressions in residency training and ultimately contribute to a climate of diversity and inclusion." We also assured participants that the survey was anonymous.

The final challenge was access. Email contacts for medical residents are not made public, so we sent a recruitment email to each Designated Institutional Official (DIO) at ACGME-accredited residency programs asking them to share the survey information with the residents at their institutions. The survey was also shared through the Young Black Doctor Facebook page.

The anonymous surveys were distributed, and data collected via Qualtrics between August and November 2020.

Measurement Tools

We used three self-report questionnaires—the Racial and Ethnic Microaggressions Scale (REMS), our Satisfaction with Residency Program questionnaire, and the Patient Health Questionnaire-2 Items (PHQ-2)—to produce a 31-item survey with 19 additional demographic questions. Prior to data collection, we administered the survey to 21 nursing, medical, and physician assistant students and followed up with them in focus groups to determine its understandability, usability, and the length of time it took to complete. We made minor revisions, then solicited review from faculty with expertise in diversity, equity, and inclusion for content validation. We are currently preparing a manuscript that reports the psychometric properties of the brief REMS adaptation specifically for healthcare trainees.

Racial and Ethnic Microaggression Scale (REMS). The Racial and Ethnic Microaggression scale is a validated tool designed to measure the slights people of color experience in their everyday lives (Nadal, 2011). The original version has 45 items that assess six domains: (a) assumptions of inferiority, (b) second-class citizen and assumptions of criminality, (c) microinvalidations, (d) exoticization or assumptions of similarity, (e) environmental microaggressions, and (f) workplace and school microaggressions. We identified and adapted the 15 items that most clearly reflected medical residents' experiences in educational and clinical settings (see Table 1). Participants were asked how often they experienced each type of microaggression from classmates, staff, faculty, and/or patients (0 = never, 1 = at least once a year, 2 = at least once a month, 3 = at least once a week, and 4 = almost every day) with higher scores indicating higher frequency. To help us understand the context of the microaggressions reported, we added questions that probed for self-attributions, or features of their own identity that they thought might contribute to their

being a recipient of microaggressions. For each microaggression, participants could choose among potential attributions including race/ethnicity, gender, sexual orientation, religion, shade of skin, age, height, weight, disability, socioeconomic status (SES), and unknown. The internal reliability of the REMS-15 was very good (Cronbach's alpha = .89).

Satisfaction with Residency Program. Because there was no validated tool to assess satisfaction with medical residency programs, we developed a four-item measure: 1) I would recommend my residency program to friends; 2) I would consider fellowship training at my current institution; 3) I have seriously considered transferring to another residency program, and 4) I have seriously considered withdrawing from my residency program. Responses were based on a 4-point scale: strongly agree, agree, disagree, and strongly disagree. Scores were summed so that higher scores indicate greater satisfaction with the residency training program. Internal reliability of this satisfaction questionnaire was adequate (Cronbach's alpha = .77).

Patient Health Questionnaire-2 Items (PHQ-2). We used the 2-item PHQ-2 to screen for potential depression (Lowe, Kroenke, & Grafe, 2005) because it is validated, simple, and brief. It asks: Over the past 2 weeks, how often have you been bothered by any of the following: 1) little interest or pleasure doing things; and/or 2) feeling down, depressed, or hopeless. For each item, the response options were not at all; several days; more than half the days; and nearly every day, coded 0, 1, 2, and 3, respectively. A total score of 3 or higher signaled a positive PHQ-2 depression screen. Internal reliability of the PHQ-2 was excellent (Cronbach's alpha = .91).

Data Analysis

For between-group comparisons, we used 95% confidence intervals and effect-size measures, including partial eta-squared ($\eta p2$) or Cohen's d (Cohen, 1988; Pierce, Block & Aguinis, 2004). For Hypothesis 1, we conducted a between-groups t-test to examine whether, compared to Whites, residents of color reported a significantly higher frequency of microaggressions during the past year on the REMS-15 (Hypothesis 1a). To identify which specific microaggressions differed significantly between groups (Hypothesis 1b), we used a Bonferroni-corrected alpha threshold of $p \leq .003$ (alpha level = .05 / 15 statistical tests = .0033) for between-groups t-tests to minimize Type I error (false-positive detection) associated with many tests (Hypothesis 1c). To examine subgroup differences in frequency of microaggressions (Hypothesis 1d), we conducted a univariate analysis of variance (ANOVA) with follow-up paired t-tests to compare the differential frequency of microaggressions between subgroups of sufficient size: White vs Black vs Asian.

For Hypotheses 2 and 3, we computed the Pearson's product correlation coefficient to quantify the associations between past frequency of microaggressions and current *satisfaction with the residency program* and *depression screener scores*, respectively, across all participants (Hypotheses 2a, 3a) and in Whites and minorities specifically (Hypotheses 2b, 3b). We then conducted linear

regressions to identify which specific microaggressions experienced during the past year predicted current *satisfaction with the residency program* and current *depression screener scores*, respectively, across all residents (Hypotheses 2c, 3c) and significantly lower program satisfaction among Black/African American vs White residents (Hypothesis 2d).

RESULTS

Participants

The study sample consisted of 682 medical residents (M_{age} = 30.49 years, *SD* = 3.61, range = 22–54) who provided complete responses on the REMS-15. We observed missing data on the Satisfaction with the Medical Residency Program scale for 124 (18.2%) residents and the depression screener (PHQ-2) for 122 (17.9%) residents. Biological sex was reported as 349 (51.2%) female, 200 (29.3%) male, 2 (0.3%) intersex, and 131 (19.2%) no response. For place of birth, 424 (62.2%) reported being born in the USA, 127 (18.6%) were foreign-born, and 131 (19.2%) provided no response. Hispanic/Latinx/Spanish ethnicity was endorsed by 26 (3.8%). Racial identification was reported as 314 (46.4%) White, 36 (5.4%) Black, 6 (0.9%) Native American/Alaskan Native, 151 Asian (22.1%), 2 Hawaiian/Pacific Islander (0.3%), 35 other (5.1%), and 138 no response (20.2%). Socioeconomic class was reported as 39 (5.7%) upper, 193 (28.3%) upper middle, 217 (31.8%) middle, 76 (11.1%) lower middle, 21 (3.1%) lower, 5 (0.7%) do not know, and 131 (19.2%) no response. Being the first person in their family to attend graduate/professional school was endorsed by 210 (30.8%), with 340 (49.9%) reporting no, 1 (0.1%) not sure, and 131 (19.2%) providing no response. In terms of year in residency, 137 (20.1%) reported first, 152 (22.3%) second, 143 (21.0%) third, 69 (10.1%) fourth, 44 (6.5%) other, and 137 (20.1%) did not respond.

Hypothesis 1: Frequency of Microaggressions

Hypothesis 1a. Compared to Whites, underrepresented minority residents reported a significantly higher frequency of microaggressions on the REMS-15: M_{WR} = 12.21, *SD* = 8.74 vs. M_{UR} = 16.29, *SD* = 12.28; $F(1,541) = 20.45$, $p < .001$, $\eta 2 = 0.04$ (see Table 1).

Hypothesis 1b. Compared to Whites, residents of color reported experiencing 7 of the 15 specific microaggressions at significantly higher frequency (ts: 3.08 to 4.22, df = 540; *p*s < 0.002) based on a Bonferroni-corrected alpha-value of $p \leq 0.003$. The specific microaggressions (and Cohen's d effect size) include Q4, (*d* = .27); Q5, (*d* = .41); Q6, (*d* =.86); Q7, (*d* = .32); Q9, (*d* = .34); Q10, (*d* = 0.31); and Q14, (*d* = .29).

Table 1: REMS-15 Questions and Associations with Hypotheses 1–3

Item	*Question*	*Associated Hypothesis*
Q1	People trivialize my ideas in discussions	2
Q2	People devalue my opinion on patient care	
Q3	My ideas in the classroom are met with hostility	2
Q4	People mistake me for someone else who shares an aspect of my identity	1
Q5	People imply that I was matched with this program for reasons other than merit	1,3
Q6	People are surprised by how well I speak English	1
Q7	In clinical settings I am mistaken for auxiliary staff (custodian, interpreters, technicians, etc.)	1
Q8	People seem surprised by my intelligence	
Q9	I am made to feel unwelcome in a group	1
Q10	People are cautious with their personal belongings around me	1
Q11	I am reluctant to ask questions because I fear I will be judged	
Q12	My ideas are ignored but other people are applauded when they say the same thing	
Q13	I feel socially isolated in my residency program	2
Q14	People discourage me from pursuing a medical field I am interested in	1
Q15	People assume I could be violent	2,3

Hypothesis 1c. Compared to Whites, underrepresented residents endorsed at a significantly higher rate the following self-attributions as reasons for being the target of microaggressions: gender, race, age, religion, language, accent, clothing, skin color, and other (see Fig. 1).

Hypothesis 1d. A univariate ANOVA revealed a significant effect of race on frequency of microaggressions ($F[5,538] = 6.40$, $p < .001$, $\eta\ 2 = .060$. Follow-up t-tests showed that Black/African American residents reported significantly more frequent microaggressions than White residents: ($t[348] = 5.01$, $p < .001$, 95%CI[5.17, 11.85], Cohen's d =.88) and Asian residents ($t[185] = 2.76$,

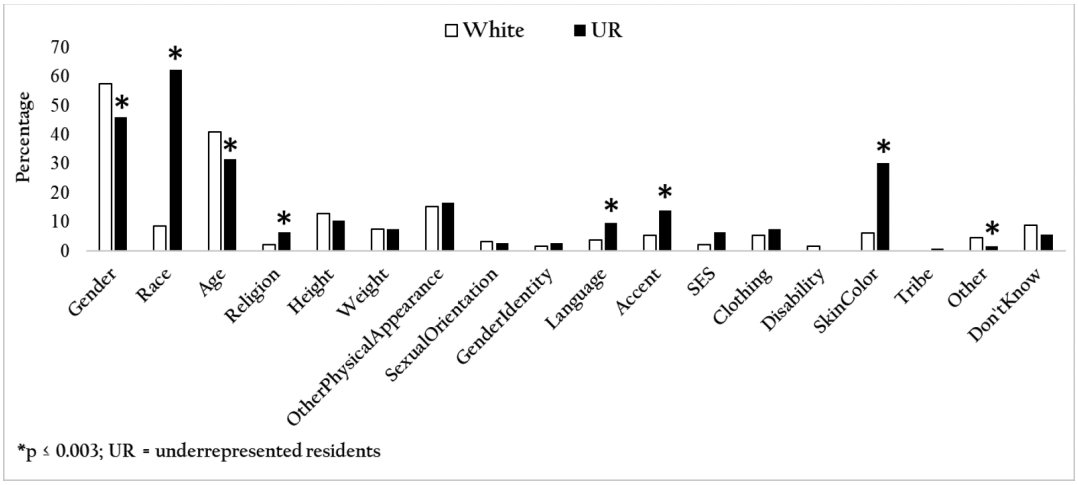

Figure 1: Self-attributions for Experiencing Microaggressions: White vs Underrepresented Residents

p = .006, 95%CI[1.74, 10.43], Cohen's d = .51). Compared to Whites, Asian residents reported a higher frequency of microaggressions (t[463] = 2.59, p = .010, 95%CI[.58, 4.27], Cohen's d = .26).

Hypothesis 2: Microaggressions and Residency Program Satisfaction

Hypothesis 2a. A between-groups t-test showed that, compared to Whites, underrepresented residents reported lower residency program satisfaction (M_{WR} = 12.63, SD = 3.32 vs. M_{UR} = 121.75, SD = 3.50; t(538) = 2.99, p = .003, d = .26). Correlation analysis yielded a significant inverse relationship between frequency of microaggressions and residency program satisfaction across all residents (r[558] = -.56, p < .001).

Hypothesis 2b. We found significant inverse associations between frequency of microaggressions and residency program satisfaction in both Whites (r[312] = -.53, p < .001) and their underrepreseted counterparts (r[228] = -.57, p < .001).

Hypothesis 2c. Linear regression showed that more frequent experience of microaggressions significantly predicted lower current residency program satisfaction across all residents, with the model explaining 38% of the variance in microaggressions (R2 = .38, F(15,539) =21.87,

$p < .001$). Four specific microaggressions were significant predictors: Q1, "People trivialize my ideas in discussions" ($B = -.53$, SEM = .17, $t = 3.09$, $p = .002$, 95%CI[-.86, -.19]); Q3, "My ideas in the classroom are met with hostility" ($B = -.46$, SEM = .15, $t = 2.97$, $p = .003$, 95%CI[-.76, -.15]); Q13, "I feel socially isolated in my residency program" ($B = -.47$, SEM = .16, $t = 2.94$, $p = .003$, 95%CI[-.79, -.16]); and Q15, "People assume I could be violent" ($B = -.66$, SEM = .12, $t = 5.73$, $p < .001$, 95%CI[-.88, -.43]).

Hypothesis 2d. A univariate ANOVA found an overall effect of race on residency program satisfaction ($F[5,536] = 63.34$, $p = .006$, $\eta\ 2 = .03$). Follow-up t-tests showed that Black/African American residents ($M_{Black} = 11.03$, $SD = 3.34$) reported significantly lower residency program satisfaction than White residents ($M_{White} = 12.63$, $SD = 3.32$; $t[346] = 2.74$, $p = .007$, 95%CI[.45, 2.76], $d = .48$) and similar satisfaction to Asian residents' ($M_{Asian} = 12.16$, $SD = 3.34$; $t[185] = 1.81$, $p = .07$, 95%CI[-0.10, 2.36], $d = .33$).

Hypothesis 3: Microaggressions and Depression Screener Scores

Hypothesis 3a. A between-groups t-test showed no difference in PHQ-2 depression screener scores between Whites and underrepresented residents (M = 1.45, SD = 1.70 vs. $M_{UR} = 1.56$, SD = 1.78; $t[540] = 0.72$, $p = .47$, $d = .06$). Correlation analysis revealed a significant positive relationship between frequency of microaggressions and depression screener scores across all residents ($r(560) = .42$, $p < .001$).

Hypothesis 3b. We also found significant inverse associations between frequency of microaggressions and depression screener scores in both White residents ($r[314] = .38$, $p < .001$) and their underrepresented counterparts ($r[228] = .49$, $p < .001$).

Hypothesis 3c. Linear regression showed that more frequent past microaggressions significantly predicted higher depression screener scores across all residents ($R2 = .27$, $F[15,541] = 12.98$, $p < .001$). Two specific microaggressions were significant predictors: Q5, "People imply that I was matched with this program for reasons other than merit" ($B = .34$, SEM = .11, $t = 3.07$, $p = .002$, 95%CI[.12, .55]); and Q15, "People assume I could be violent" ($B = .30$, SEM = .06, $t = 4.71$, $p < .001$, 95%CI[.17, .42]).

DISCUSSION

The goal of this study was to examine the relationships among microaggressions, program satisfaction, and depression risk in US medical residents. We found that underrepresented minority residents, specifically Blacks/African Americans, reported significantly more microaggressions than their White counterparts. In addition, they endorsed such self-attributions as gender, race, age,

religion, language, accent, clothing, skin color, and other as reasons for microaggressive targeting. We found that more microaggressions were associated with lower residency program satisfaction and higher depression screener scores across all residents. These findings align closely with findings from other studies (Auguste, Cruise, & Jimenez, 2021; Lilly et al., 2018; O'Keefe et al., 2014). Although we found that underrepresented residents reported lower residency program satisfaction than their White counterparts, their depression scores did not differ.

Lower residency program satisfaction was most closely associated with two microaggression types. The first was item 13, "I feel socially isolated in my program." This result aligns with findings from a qualitative study where medical students described feeling isolated, excluded, or like they did not belong in medical school (Ackerman-Barger et al., 2020). In another study, a Black medical student stated, "I was reminded that it's not normal for a student of color to be a medical student and that I, maybe, don't belong in medicine" (Ackerman-Barger et al., 2016, p. 1240).

The other item related to both residency program dissatisfaction and depression was Q15, "People assume I could be violent." This microaggression is known as "assumption of criminality", when people are assumed to be dangerous or criminal based upon their race (Sue, 2010). Note that our survey was conducted only months after the brutal police killing of a Black man, George Floyd, which sparked months of national protests and confrontations. Whether our results reflect those events or are ongoing associations is hard to know.

A microaggression that stood out for both its frequency and its association with a higher depression screener score was Q5, "People imply that I was matched with this program for reasons other than merit.". This category of microaggression is known as "ascription of intelligence" (Sue, 2010) where degree of intelligence is assigned to individuals based upon their color. Rooted in a history of eugenics in the United States that sought to prove "scientifically" that people of color, primarily Black people, were intellectually inferior to White people, the notion that students are accepted into higher education, medical schools, or matched into residency programs to fulfill a diversity quota rather than because of their academic capability is harmful. In another study, a medical student identified "a deep-seated belief that people of color are less smart than their Caucasian counterparts and therefore do not deserve to go to college, professional schools" (Ackerman-Barger et al., 2016, p. 1240).

Institutions often do not recognize bias and microaggressions exist, and that interventions are required (Osseo-Asare et al., 2018). Ongoing climate surveys can gain insight, but data do not change behavior. Strategic initiatives and action plans must follow. Studies indicate that quality interracial contact predicts less explicit and implicit bias (Onyeador et al., 2020; van Ryn et al., 2015), reinforcing the value of increasing the diversity of students, residents, faculty, and leadership. Institutions can also require robust ongoing training for residents, faculty, attendings, and leadership on how to address microaggressions (Ackerman-Barger & Jacobs, 2020; Ackerman-Barger et al., 2021) and develop mechanisms to report and monitor bias. They must not only identify individuals who are frequent sources of microaggressions but implement inclusion enhancement plans for them and consider whether those who persist, despite intervention, are fit to uphold the mission of the organization.

Limitations and Future Research

A limitation of the study was the high rate of "no response" items. They may result from the volume of surveys that medical residents receive as well as their rigorous work schedules. They may also be afraid to report their experiences or potentially identifying information, especially in learning environments that do not feel inclusive or safe. Another limitation is our inability to identify whether the sources of microaggressions were classmates, staff, faculty, or patients. Consequently, we could not determine whether faculty microaggressions are more frequent or harmful than those initiated by patients. Future studies might define and measure the sources of each microaggression. Although our data provide insight into experiences of microaggressions and their impact in residency programs, they should be considered preliminary.

This study focused on the experience of racial microaggressions. Further research is needed to discern whether other groups disproportionately experience microaggressions based on gender, LGBTQ+, disability, and religion, and so forth. We hope that our study will lead the way. Interventional studies are also needed to determine whether strategies grounded in data can mitigate the frequency and impact of microaggressions.

CONCLUSION

Microaggressions can harm the wellness, learning and performance of medical residents. Underrepresented residents reported experiencing significantly more microaggressions and lower residency program satisfaction than White residents. These findings impose a moral imperative for teachers and leaders to develop and implement innovative approaches to ensure inclusive excellence and resident wellness in GME environments. Systemic racism is a complex and wicked societal problem that can have no one solution. One of the many contributing factors is the unchecked tolerance of microaggressions that impede diversity efforts. Understanding and mitigating racial microaggressions will not dismantle systemic racism, but systemic racism cannot be dismantled without them.

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ORIGINAL RESEARCH

Health Careers Opportunity Program (HCOP): Coaching Colorado's Underserved Students Toward Promising Health Careers

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ABSTRACT

To increase and diversify the US healthcare workforce, MSU Denver developed the health equity-based Health Careers Opportunity Program (HCOP). It provides scholarships/stipends, proactive advising, mentorship experiences, and training in key areas to first-generation, low-income, and students of color seeking health careers. In its first three years, program retention (95.6%) and university retention (90.6%) have been remarkably high. Students (n=130) reported high levels of support (93.2%), program engagement (94.2%), and confidence in career goals (94.1%) but lower engagement with other HCOP scholars (67%). Many want to work with patients experiencing health disparities (86.4%), and 36.9% want to serve in rural areas. Students responded most to proactive advising, mentorship experiences, and the health equity curriculum, suggesting these high-impact practices foster successful transition into health careers.

Keywords: ▪ Diversifying Healthcare ▪ First Generation Students ▪ Health Equity ▪ Undergraduate Pipeline Programs ▪ Underserved Students

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INTRODUCTION

The Need for a Diverse Health Workforce

The need for more health workers in the United States is well established (American Hospital Association, 2021; Health Resources and Services Administration [HRSA], 2021; USAFacts, 2021). This need was increasing even before the COVID-19 pandemic took its toll. The American Hospital Association (2021) predicts a national shortage of up to 3.2 million, including allied health and behavioral health professionals, by 2026.

Just as important is the need for a more diverse healthcare workforce. Patients often report greater satisfaction with their physician when they are the same race (LaVeist & Nuru-Jeter, 2002). Studies have found that some white healthcare providers have biased perceptions of their patients of color (Hall et al., 2015), which harms these patients' wellness outcomes (Fiscella et al., 2000). Whites are overrepresented in 23 of 30 health occupations, and people of color are underrepresented in leadership positions in health management (Institute for Diversity in Health Management, 2016) and health, behavioral health, and allied health fields ranging from social work to nursing to dentistry (HRSA, 2017).

The shortages of health workers are reflected in many U.S. states, including Colorado, where numerous urban and rural areas lack adequate primary care and mental health services (Colorado Department of Public Health and Environment, 2015a; 2015b). Colorado's population is projected to grow by over 20% between 2020 and 2040 (Colorado Parks & Wildlife, 2020), and people of color will comprise nearly half. While whites comprise 70% of Colorado's populace, they represent 92.7% of registered nurses, 92% of physician assistants, 85% of dentists, and 90% of mental health workers (Shimasaki & Walker, 2013).

These statistics strongly indicate a need for not only more health workers, but a more diverse healthcare workforce. One potential solution is the creation of pipeline programs designed for undergraduate students who are underrepresented in health-related fields, including low-income, first-generation, and ethnic minorities. They face significant barriers, beyond those of other students, on the road to graduation and a successful career.

Barriers Faced by Underserved Students

Financial aid can help with the considerable cost of education, but the challenges underserved students face often go beyond the monetary. As a result, undergraduate students of color are 50% less likely to maintain interest in medical careers (Cervantes et al., 2014). First-generation students have dramatically higher college attrition rates than their continuing-generation peers; they are approximately twice as likely to leave college without a degree (Chen & Carroll, 2005) and more likely to have difficulty choosing a major (Pascarella et al., 2004). Lack of connection with faculty and professionals, or social capital, in the chosen field contributes to these outcomes

(Schwartz et al., 2017). Moreover, first-generation students and students of color tend to report a weaker sense of belonging in college, which can undermine personal and professional success (Allan et al., 2016; Gummadam et al., 2016; Patton et al., 2016; Stebleton et al., 2014; Stephens et al., 2015).

The barriers these students face point to a need for programs that increase their engagement, career exploration, sense of community, and opportunities to connect with professionals for guidance and mentorship. One study of first-generation students showed that every advisor–advisee meeting increased retention 13% (Swecker et al., 2013). Advisors are a resource that prepares at-risk students to complete their programs (Varney, 2012). In particular, proactive advising, which involves planning contact with students to build a supportive relationship, has proven most helpful. Centralized services that include proactive advising increased retention rates by 8% over a four-year period (Backhus, 1989).

How MSU Denver is Addressing Inequities in the Health Workforce

The Health Institute at Metropolitan State University of Denver has begun to address the critical shortages of health workers, the lack of diversity in healthcare, and the problem of health inequities. Comprised of ten departments, it has numerous health and allied health training programs, and its urban location and affordability attract diverse students—50.3% of undergraduate students are people of color; 30.3% are Pell-eligible; and 57.7% are first-generation. MSU leads Colorado's four-year universities in diverse enrollment and holds federal designations as a Minority-Serving Institution and a Hispanic-Serving Institution.

Modeled after the evidenced-based Healthcare Interest Program (Cervantes et al., 2014), the Health Institute's Health Careers Opportunity Program (HCOP), launched in 2018, supports underserved students seeking a career in health-related fields. It aims to guide them through graduation into graduate programs and/or employment in health-related fields. HCOP provides qualifying students a combination of scholarship/stipends, proactive advising, mentorship experiences, and training in cultural responsiveness, health equity, emerging health issues, and financial wellness.

This study presents data on HCOP's first three years, focusing on retention and student feedback in several key areas.

METHODS

Recruitment

To be eligible for HCOP, students must have declared one of 15 health-related majors and express interest in a health or allied health career. HCOP seeks students of color; students from edu-

cationally or economically disadvantaged backgrounds, including low-income (Pell-eligible) and first-generation; veterans; and nontraditional (age 25+) students. In years 1-3, the program aimed to select 45 per year and received 133, 103, and 110 applications, respectively.

Sample

In years 1-3, a total of 135 students were admitted (47, 45, and 43 in each cohort, respectively), and 130 consented to have their data shared. The mean age is 30 (range 18-65). By ethnicity, 37.7% are white; 25.4% Hispanic; 10% biracial or mixed; 9.3% Black; 6.2% Asian; 3.1% Native American/Alaskan; and 8.5% either chose not to answer or had missing data. Sixty-two (48%) qualify as minorities underrepresented in healthcare. In addition, 80% are first-generation students; 64.6% Pell-eligible; 6.2% veterans; and 72.3% women. Most are juniors (45.4%); 29.2% are seniors; 23.8% sophomores; and 1.5% freshman.

The breakdown for health-related majors is as follows: 23% Biology, 18% Social Work, 15% Nutrition-Dietetics, 10% Psychology, 8% Integrative Health Care, 6% Human Services, 5% Healthcare Management, 4% Exercise Science, 3% Speech, Language, and Hearing Sciences, 3% Biochemistry, 2% Individualized Degree Program, and 1% for Chemistry, Healthcare Information Systems, Healthcare Professional Services, and Athletic Training.

Assessments and Data Collection

Data collected from students falls into three types: 1) demographic and background information gleaned from their HCOP applications; 2) surveys; and 3) focus groups administered by an external consulting firm. Finally, a year after they graduate, past HCOP scholars are sent a survey to assess their career outcomes; when more accrue, these data will be presented in a future publication. Students receive a $30 gift card for focus group participation and a $20 gift card for filling out the follow-up survey. All students included in analyses signed a consent form and were told that their responses are confidential; no personal or identifying information is shared; data files do not include names; and their participation is voluntary.

Program Details

Health scholars attend a mandatory orientation session before starting the fall semester. They enroll in a three-credit course based on the Designing Your Life framework (Burnett & Evans, 2016), which includes writing assignments, speakers from various health fields, breakout sessions, activities, and readings on health equity, such as *The Immortal Life of Henrietta Lacks* by Rebecca Skloot. Class topics include training in cultural responsiveness, health equity, rural health, substance abuse, social determinants of health, and emerging health issues. During spring semester, students seek out a mentor with whom they will meet for 4-8 hours per month. Mentors expose students to their field and help with career exploration, resume writing, and career guidance.

As part of the proactive advising model, students are assigned to a Health Career Navigator (HCN) with whom they must meet at least five times over the academic year. Topics discussed include career planning and goals, academic struggles and successes, and personal challenges. HCNs serve as a support system for the student, and these relationships extend beyond the program as well.

Students attend social capital and financial wellness workshops as well as programmatic events, including the annual, university-wide Navigate Your Health Career Event that includes a keynote speaker, panel discussions, a career expo, and networking opportunities, and an end-of-year celebration to honor the students and their families, friends, and mentors.

Finally, students are awarded scholarships ($3,600) and a stipend ($1,200; $1,500 for non-traditional students over 25, as per grant requirements).

Analyses

This study assesses the program's first three cohorts (n=130) based on retention, survey, and focus group data. The program retention rate was obtained by calculating the percentage of students who completed program requirements and received a passing grade in the fall semester course. University retention rate was obtained by calculating the percentage of students who enrolled in fall semester courses after completing HCOP.

After completing program requirements, students answered survey questions based on a 5-point Likert scale ranging from *strongly agree* (5) to *strongly disagree* (1). Percentages presented below include students who answered questions with *strongly agree* or *agree*. For the open-ended survey question, "How did HCOP or your HCOP mentor affect your application to your health-related field of interest (e.g., letter of recommendation, clinical hours, change in career of interest)?" answers were coded into eight categories. If a student listed several answers, each counted as one and was included in its own category.

Finally, focus group data were taken from reports provided by the external organization that conducted them. They listed the students' most and least favorite aspects of HCOP. Student counts for each aspect were summed to determine those mentioned most often.

RESULTS

Retention

Of the 135 students enrolled in HCOP, only two per year left the program before completion, all due to significant personal issues. Program retention rates range from 95.3-95.7% for each cohort, for an overall retention rate of 95.6%. University retention rates were 95%, 82%, and 93% (Table 1), with an overall rate of 90.6%. These retention values exclude those students who left the program and those who graduated right after completing the program.

Table 1: University Retention Rates for Students Completing HCOP

	Year	*Graduated*	*Enrolled in Fall*	*Did not Enroll*	*Retention Rate*
Cohort 1 (n=45)*	2018-2019	2	41	2	95%
Cohort 2 (n=43)*	2019-2020	9	28	6	82%
Cohort 3 (n=41)*	2020-2021	12	27	2	93%

*Includes only students who completed the program.

Survey Results

Survey results (n=103) showed that the vast majority of HCOP students felt supported in the program (93.2%). They found their HCN accessible (97.1%) and a valuable source of information (96.1%); valued their mentorship experiences (92.2%); and felt engaged with the program (94.2%). A smaller number (67%) reported feeling engaged with the other HCOP participants.

In terms of career goals, 76.7% of students reported they would pursue their career in Colorado; 86.4% want to work with patients experiencing health disparities; and 36.9% want to pursue their careers in a rural area.

When evaluating career preparation, 94.1% of students felt confident they would attain their career goals; 88.2% had a solid plan in place to do so; and 91.1% had a good understanding of the financial commitment needed to obtain their goals.

When asked, "How did HCOP or your HCOP mentor affect your application to your health-related field of interest (e.g., letter of recommendation, clinical hours, change in career of interest)?" students (n=95) listed a specific career-related outcome, such as a recommendation letter, internship, or introductions to people in their field (24.2%); increased insight into their field or path within healthcare (20.8%); exposure via mentorship/shadowing hours (15.8%); useful tips, such as help with resumes, interviewing, and graduate school applications (14.2%); increased confidence (8.3%); a change in career goals (8.3%); receiving support (5.0%); and 3.3% listed no benefit.

Focus Group Data

A subset of students (n=85) offered their most and least favorite aspects of HCOP. Most favored their relationship with their Health Career Navigator. Mentorship experiences scored second, and the readings and focus on health equity third. As least favorite, most mentioned the program's workload and unclear assignments. A close second was insufficient opportunity to connect with HCOP peers.

DISCUSSION

To address Colorado's need for diverse health workers, MSU Denver's Health Careers Opportunity Program (HCOP), a year-long, health equity-based scholarship and pipeline program, was developed for students of color as well as first-generation and low-income students. Data on the program's first three years confirm very high program retention (95.6%) and university retention (90.6%), especially compared to overall university retention rates ranging from 63% to 67% during the 2009-2018 period. Cohort 2's university retention rate was lower at 82%; however, the COVID-19 pandemic struck that year, decreasing enrollment across the university in fall.

This section addresses the aspects of the program that were most effective in keeping students engaged and meeting the aims.

Heath Career Navigator Support

A foundation of HCOP is proactive advising and coaching to build relationships and support students' career goals during and beyond the program. HCOP maintains a low student-advisor ratio (15:1), and HCNs provide crucial support with the struggles underserved students face, whether academic, financial, or personal. Survey results showed that the HCNs were among the most valuable and valued aspects of the program; students listed their HCN most often as their favorite part of the program. To quote one student, "[My HCN], first and foremost, has been the single greatest support that I've had at MSU by being a friend and ally." These results suggest that the proactive advising model has many benefits and is a powerful way to retain underserved students and usher them into satisfying health careers.

Engagement

Ninety-four percent of HCOP students reported feeling engaged with HCOP. With biweekly fall classes including breakout groups, regular assignments, periodic meetings with their HCN, spring mentorship experiences, and health-related lectures and events, students were immersed in the program, relevant healthcare and health equity topics, and their career development. Note that in focus groups, some complained about the workload. While the program continues to refine how it communicates its expectations and class assignments, the high student engagement, course grade, retention, and survey results suggest that students are benefitting from the workload. One HCOP alumnus said it best: "I'll be honest: when I was in it, I thought it was busywork. But man, after doing it, the transformation and understanding of where I wanted to go next and what's important to me is huge."

However, a third of students felt disconnected from their cohort. During focus groups, several mentioned a desire for more opportunities to build relationships with their fellow HCOP

scholars. The pandemic made student-level engagement difficult; for most of its first three years, the program was administered virtually. One suggestion is creating times, possibly in class, when students can engage in activities to get acquainted and develop relationships and a sense of community. Collaborative activities may prove especially valuable in nurturing students who struggle to feel they belong (Allan et al., 2016; Gummadam et al., 2016; Stebleton et al., 2014; Stephens et al., 2015).

Mentorship and Exposure

HCNs provide valuable support to students, but mentorship offers a unique opportunity to interact with a professional in the health field, and 92% of students found their mentorship experience valuable. Likewise, during focus groups, students mentioned mentorship experiences as one of their favorite parts of the program, second to working with their HCNs. These mentorship activities provide real-world field experience, exposure to the profession, and the ability to create connections that could lead to a future job or other opportunities. They are especially valuable for first-generation students, who often have very little exposure to these professions through their families or personal networks. One student said, "My mentor helped me gain the confidence to apply to any school I would like to attend without feeling like I was not good enough."

Career Preparation

One of HCOP's major goals is to guide underserved students into health-related careers. Survey results showed that a high percentage of students felt confident they would attain their career goals, had a career plan in place, and had a good understanding of the financial commitment needed to obtain those goals. The program's emphasis on life design and financial wellness, along with HCN and mentor support, prepared students to take the next steps; that is, to graduate and enter health-related training programs or careers.

When asked how HCOP affected their application to their health-related field of interest, students reported a wide variety of benefits, illustrating that the breadth of topics covered allowed them choices, and HCNs tailored their meetings with students to address their unique needs.

Filling Gaps and Diversifying Healthcare

Another HCOP goal is to fill gaps and to diversify healthcare in a growing state with increasingly diverse demographics. HCOP students represent a diverse group with interests in health and allied health fields. More than three-quarters of the students plan to pursue health careers in Colorado, and 36.9% reported a desire to serve in rural areas. Perhaps most notably, 86.4% want to work with patients experiencing health disparities, and the program's heavy focus on health equity was its third most-mentioned strength after HCNs and mentorship experiences.

While some students entered the program with a desire to address health disparities, many knew little about health equity and reported finding the readings and lectures "eye-opening." They subsequently attested that what they learned only reaffirmed their desire to work in health and be part of the solution. Exposing students to concerns about health equity may stoke their desire to address them in their career, especially when many underserved students may have personal experience with health disparities.

CONCLUSION

After completing its first three years, the Health Career Opportunity Program (HCOP) at MSU Denver has shown very high program and university retention and strong feedback from students. Its focus on coaching ethnic minority, first-generation, and low-income students and emphasis on health equity may contribute to a new generation of diverse, culturally competent health workers who value health equity. Underserved students interested in health fields may greatly benefit from a program like HCOP that provides support beyond the financial. Proactive advising, mentorship experiences, an emphasis on health equity, and coursework and activities to maintain engagement strengthen student retention and successful transition to healthcare careers.

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ORIGINAL RESEARCH

Assessment of Health Professions Pipeline Programs that Effectively Recruit, Prepare, and Retain Underrepresented/Disadvantaged Students

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ABSTRACT

To fulfill its mission, SUNY Downstate Health Sciences University has engaged in many pipeline initiatives to prepare underrepresented/disadvantaged (high school and undergraduate) students for success in the health professions. This paper assesses programs and practices to recruit, prepare, and retain them, focusing on mentorship and academic enhancement strategies to improve test-taking/study skills, time management, and exposure to the sciences and health professions. SUNY Downstate's pipeline programs boast a high rate of college acceptance, which we attribute to the high percentage of students who complete the programs. We propose them as a model for increasing the number of diverse practitioners trained to address the needs of underserved communities.

Keywords: ▪ Disadvantaged ▪ Health Professions ▪ Pipeline ▪ STEM ▪ Underrepresented

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INTRODUCTION

Increasing the diversity of health professions students is critical to meeting the needs of increasingly diverse communities. According to the US Census Bureau, by the year 2060, today's minorities will make up over 50% of the population (Vespa et al., 2020). However, they will remain underrepresented in the healthcare workforce unless strategic efforts to increase diversity keep pace.

In 1991, the Association of American Medical Colleges (AAMC) launched Project 3000 by 2000, which aimed to increase the medical school enrollment of underrepresented/disadvantaged students to 3,000 by the year 2000 (Terrell & Beaidreai, 2003). It dared health-professions educators to forge pipeline programs with neighboring colleges and K-12 schools. To this end, SUNY Downstate Health Sciences University established several initiatives to recruit, prepare, and retain underrepresented/disadvantaged students in the health professions. This article explores the successful outcomes of pipeline programs offered at SUNY Downstate, where many participants gained exposure to the health professions and matriculated to college.

While both the AAMC and the National Medical Association (NMA) remain vigilant in their efforts to address disparities and underrepresentation among healthcare providers, the data continue to show disparities. Enrollment in pipeline programs targeting science, technology, engineering, and mathematics (STEM) has steadily increased, but attrition rates for underrepresented/disadvantaged students in health professions schools remain high, and the percentage entering the health professions has not dramatically improved. For example, in 2020, they comprised only 22% of the applicant pool (Agrawal et al., 2005).

This shortage is due to many social inequities, including inconsistent precollege educational preparation and lack of access to mentorship and exposure to the health professions (Agrawal et al., 2005). Pipeline programs often focus on recruitment, retention, and the transition from high school to undergraduate programs in addressing outcome measures for increasing diversity (Burgos et al., 2015; Edlow et al., 2007). An effective approach would introduce students to careers in the health professions earlier (Thurmond & Cregler, 1999). Admissions officers need new methods to recognize the attributes of a good healthcare provider, such as character, compassion, altruism, professionalism, integrity, respect, and the road traveled.

This exploratory study identifies barriers to admission to the health professions for students classified as underrepresented/disadvantaged by the AAMC. It describes effective pipeline initiatives and approaches to ensure successful completion and progression to health professions schools. Themes drawn from the review of the literature include personal factors, undergraduate education, family/friends, support systems, employment, graduate program/university, and faculty mentorship.

STUDENT RETENTION FRAMEWORK AND THEORY OF HUMAN MOTIVATION

When recruiting underrepresented/disadvantaged students for pipeline initiatives and the health professions, educators must take into account turbulent life experiences that affect educational accomplishments and may even drive progress (Wheatley, 2006, p. 13). The roads traveled foster motivation and persistence and the ability to overcome obstacles, to balance and adapt. They inform how students view themselves and their environment. To recognize the roles that pipeline programs must play, we drew on Swail's geometric model of student persistence and Maslow's hierarchy of needs (Shaver, 2015, p. 17; Swail, 1995; Swail et al., 2003)

Swail's model looks at student retention in the context of individual and school properties and goals (Swail, 1995). Students are placed at the core of a triangle walled by internal and external influences that affect their persistence. Academic fit hinges on cognitive, moral, and social factors, congruence, retention, and satisfaction with the school (Swail et al., 2003). The less supportive the school, the higher the risk that students will drop out. Motivation is closely related to student advising. Equilibrium is achieved when the school meets the students where they are and then helps them to move forward (Swail et al., 2003).

We also used Maslow's hierarchy-of-needs framework to assess students' goals and psychological/core needs (Maslow, 1970; Milheim, 2012; Prescott & Simpson, 2004). If basic resources are not provided, students cannot achieve high levels of satisfaction. Those whose basic needs are not met often fall behind the better prepared, ultimately dropping out. Once their physiological needs are met, other needs can be addressed. Pipeline programs should make contact with students at the outset to guarantee they have the resources they need (Milheim, 2012).

Promoting diversity and inclusion at SUNY Downstate required positive interactions between faculty and students. Understanding the need for inclusion was a key factor in retention. This study revealed the importance of social assimilation to promote determination and success (Bean & Eaton 2001, 2002). Emphasizing the *character* of healthcare providers in the admissions criteria and selection process could be a paradigm shift in improving recruitment, preparation, and retention. Schools would think holistically about the strengths needed for health careers and their interrelationships.

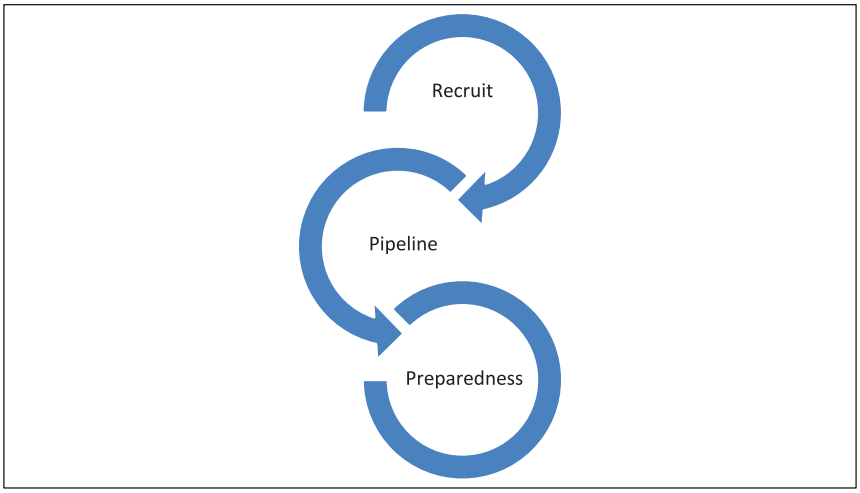

Figure 1: Equitable Admissions Model

Our model for equitable admissions is an empirical guide addressing (1) applicant recruitment; (2) pipeline program selection criteria; and (3) preparation for college entry. The model has been proven to expose students to the health professions and to help health professions schools to rethink their admissions process to accommodate a new emphasis on mission.

RECRUITMENT

Advising and Mentoring as part of Recruitment

A critical factor in increasing the enrollment of underrepresented/disadvantaged students in the health professions is advisement. Entrenched inequities in education leave them unprepared to pursue science majors (Smedley et al., 2001), and the complexities of the health professions admissions process further complicate access (Reichard-Brown et al., 2020). Many of these students do not receive adequate or appropriate advisement at their undergraduate institutions for a variety of reasons. Some report that their advisors do not support or completely discourage their decision to enter a health field (Smedley et al., 2001). Others point to inadequate staffing so that securing a counseling appointment with a prehealth advisor is difficult (Smedley et al., 2001).

The first hurdle, then, is to help underrepresented/disadvantaged students complete the prerequisite courses in the sciences. The next is to inform them about the supplemental, nonacademic

skills and experience necessary to be competitive in the application process. Pipeline programs play a critical role in supplementing, supplanting or surpassing advisement in providing information and support to increase the number of historically underrepresented/disadvantaged students entering college and participating in STEM and health-related fields and the licensed professions. This article focuses on programs offered at SUNY Downstate.

A major reason why underrepresented/disadvantaged students do not feel a sense of belonging is the lack of pipeline program faculty from backgrounds similar to theirs. Students must be able to identify themselves in the faculty responsible for teaching and training them; their success largely depends on a supportive learning environment that integrates academic and social support (Perna et al., 2009). Research shows that race harmony is vital for mentorship and student self-efficacy (Hurtado et al., 2011). Therefore, pipeline initiatives should establish and expand partnerships with other institutions and programs to engage more faculty from backgrounds similar to students'.

The failure to recruit underrepresented/disadvantaged students to pipeline programs is a main theme in the literature (Demetriou & Schmitz-Sciborski, 2011). Efforts must comprise a wide array of modules developed by experts in the field of education, diversity, and inclusion. These experts include educators, researchers, and professionals with experience in designing and implementing effective outreach and recruitment strategies that address the challenges faced by underrepresented and disadvantaged students. The collective outreach efforts of Student Life and Services offices, such as Student Admissions, Financial Aid, Students Affairs, Diversity Education and Research, Academic Support Services, Health Services, and Counseling are often successful in recruiting students. SUNY Downstate provides virtual webinars and in-person visits to the campus, which have often proven crucial in deciding whether or not to participate in our pipeline initiatives or to pursue a health professions degree.

Pipeline programs at health professions schools often focus on recruiting underrepresented/disadvantaged applicants who demonstrate an interest in caring for underserved communities (Toretsky et al., 2018). Our Office of Diversity Education and Research initiatives pair such students with physician mentors who practice in underserved communities. Enrollment outcomes suggest these initiatives are effective. Further studies will determine their long-term impact.

PIPELINE

Early Medical Education (EME) Program

Early Medical Education (EME) is a two-summer undergraduate pipeline program funded by a Health Careers Opportunity Program (HCOP) grant from the Human Resources and Services Administration (HRSA).

Purpose: The program is designed to increase the number of students from backgrounds that are educationally/financially disadvantaged or traditionally underrepresented entering the College of Medicine at SUNY Downstate. EME offers the benefit of direct admission to the Medical School, which is contingent upon students meeting specific MCAT and GPA criteria.

Curriculum: EME is a multicomponent program that includes didactic science lectures, clinical shadowing experiences, and Medical College Admission Test (MCAT) preparation. It has two eight-week summer sessions; the first includes an MCAT boot camp and the second a four-week Operation Success (OS) prematriculation program.

Support: Students meet regularly with the program coordinator and a representative from the Office of Academic Support Services & Advisement (OASSA) over the two years. At least once a semester, they are also required to meet with their premedical advisor, who serves as a liaison and provides academic updates. Students are not permitted to work during the two summers and receive stipends to offset their expenses.

Enrollment Outcomes: Since its inception in 1997, 202 students have completed the program, of whom 100 successfully met the MCAT and GPA requirements for acceptance into medical school. Of these, 85% have either graduated or are still enrolled.

ASSOCIATED MEDICAL SCHOOLS OF NEW YORK (AMSNY) BUFFALO POSTBACCALAUREATE

Since 1991, SUNY Downstate has participated in the AMSNY postbaccalaureate program, funded by the New York State Department of Education. It provides coursework, financial assistance, mentoring, and comprehensive support services to 20 students per year, who are recommended by 10 participating medical schools throughout New York State (AMSNY Post-Baccalaureate Programs, 2021). Each participating schools refers three to five candidates for consideration.

On average SUNY Downstate refers three underrepresented/disadvantaged applicants who interviewed but were unsuccessful in gaining admission to the College of Medicine. If selected, students will participate in the 12-month post-baccalaureate program at University of Buffalo. Those who complete the program are offered conditional acceptance to the College of Medicine at SUNY Downstate.

Purpose: The purpose of this program is twofold:

(1) it offers underrepresented/disadvantaged students who have academic deficiencies yet performed well on the interview a second chance to demonstrate their ability to handle the rigor of a medical school curriculum; and

(2) it helps to diversify medical student enrollment and subsequently practitioners entering the field.

Curriculum: Participants begin with a six-week summer diagnostic evaluation and review, which includes a dedicated study-skills course and informs an individualized curriculum to improve performance in areas where they demonstrate weaknesses. Upon completion of the summer session, they begin the academic portion of the Buffalo Post Bac program. Based on the individual assessment, participants may be required to take upper-level classes in physiology, biochemistry, microbiology, anatomy, or pharmacology taught by University of Buffalo faculty. Successful participants will receive a place in the next year's medical school class of the referring institution.

Support: All students attend tutoring sessions for the prerequisite science courses. They are required to meet regularly with program staff and staff from their referring institution for advisement. All participants attend the program tuition-free and receive a living stipend from AMSNY; they are not allowed to work while in the program. Upon successful completion, all students are required to participate in SUNY Downstate's Operation Success (OS) prematriculation program.

Enrollment Outcomes: Of the 82 students enrolled to date, 86% have made satisfactory academic progress and have either graduated or are still attending the SUNY Downstate College of Medicine.

BRIDGES TO MEDICINE PROGRAM (BRIDGES)

BRIDGES was created as a pipeline initiative for underrepresented/disadvantaged applicants who interviewed for the College of Medicine but were not accepted. This one-year, on-campus program exposes them to a modified first-year medical school curriculum. It is coordinated by the Office of Diversity Education and Research in partnership with the College of Medicine and the Office of Academic Support Services and Advisement (OASSA). Participants are full-time graduate students and eligible for financial aid on that basis. Those who complete the program earn a Master of Science in Physiology and/or medical school admission.

Purpose: The program was designed to provide a new access point for students from underrepresented groups and low socioeconomic backgrounds seeking admission into Downstate's College of Medicine. Upon successful completion, they are granted admission as first-year students.

Curriculum: BRIDGES students take some courses with first-year College of Medicine students and complete a research paper on a topic discussed during one of the units.

Support: Students meet regularly with the program coordinator and a OASSA representative. They also participate in monthly check-in meetings with program faculty and staff. Eligible

students may receive a partial scholarship from the HCOP grant to offset any hardships that might impede their achievement in the program.

Enrollment Outcomes: BRIDGES has exceeded expectations, and student performance proves this pilot is highly effective. Of 25 participants, 23 successfully matriculated into the College of Medicine for a 92% success rate. Due to its success, BRIDGES was converted from a postbacc program to a Master of Physiology program in 2020. Students who fulfill all program requirements now receive a Master's degree and are accepted into the College of Medicine. The program has helped to increase the number of underrepresented students entering Downstate and the field of medicine.

OPERATION SUCCESS PREMATRICULATION PROGRAM

Operation Success (OS) is a 4-week summer prematriculation program initially funded by an HRSA-HCOP grant but institutionalized in 1998 by the SUNY Downstate College of Medicine.

Purpose: The primary goal of the OS program is to assist underrepresented, disadvantaged, first-generation, and/or nontraditional students in adjusting to their first year of medical school.

Curriculum: The program incorporates some of the curriculum's learning formats known as *integrated pathways*. Students attend modules on Patient-Oriented Problem Solving (POPS) and Problem-Based Learning (PBL) taught by other medical students and participate in anatomy labs.

Support: The academic development component of Operation Success is designed to enhance students' study skills, time management, and research skills and help ease students' transition to medical school. Participants spend their mornings in lectures facilitated by rising second-year students and OASSA faculty. Their afternoons are spent studying cadavers in the anatomy lab. Since COVID-19, OS lectures and labs have been taught virtually. The rising second-year students also serve as mentors. The program is tuition-free, and all participants receive textbooks and supplies free of charge. When the program was held in person, they also received free housing and meals during the summer session. EME students who participate in OS are considered to be in their second summer session and receive a stipend under the HCOP grant.

Enrollment Outcomes: The program has been in existence for over 25 years. The College of Medicine sponsors between 15 and 25 students each year. Between 2015 and 2020, 109 students participated; 43 have graduated, and the remaining 64 are currently enrolled. One student is on leave to conduct research, and another is on leave for personal reasons. Only one student had to repeat a year but is still enrolled and on track to graduate.

PREPAREDNESS

The Office of Diversity Education and Research has made significant strides against factors that derail underrepresented/disadvantaged students. Providing students with an introduction to the medical school curriculum helps students better understand the rigors and expectations of the first year of medical school. Research shows that lack of such exposure combined with poor academic preparation are persistent challenges in the precollege years (Milheim, 2012). Moreover, undergraduates must complete gateway prerequisites in a significant number of science and humanities courses to be eligible to enroll in health professions programs. Students not well prepared for college entry or afforded access to pipeline programs can be obstructed by lower grades (Alexander et al., 2009).

Many underrepresented/disadvantaged students face significant challenges because of poor preparation in the sciences in their precollege years. The literature suggests that organic chemistry is a particular problem (Barr et al., 2010). Typically, these courses are taught in huge lecture rooms without academic support, or struggling students may not know how to access or use the support available. Research also shows that few faculty mentors resemble underrepresented/disadvantaged students. The lack of empathetic mentors makes seeking advice on how to balance academic demands difficult (Campbell & Campbell, 1997).

Admissions prerequisites are the leading challenge for underrepresented/disadvantaged students interested in pursuing a health career. High cumulative science GPAs and admissions test scores are stressed without considering that some schools are underresourced, and some students cannot afford to pay for the test preparation courses that help their wealthier peers score well. Many struggle with writing and interview skills and cannot clearly express their interests and abilities.

In this context, pipeline initiatives are invaluable. The following three programs sponsored by the Office of Diversity Education and Research, two in partnership with the Arthur Ashe Institute for Urban Health (AAIUH), include a significant number of underrepresented/disadvantaged students who began academic preparation in high school and community colleges as a pathway to the health professions.

SCIENCE AND TECHNOLOGY ENTRY PROGRAM (STEP)

The Science Technology Entry Program (STEP) was formed in 1986 and is sponsored by the New York State Department of Education (NYSED). This academic-year program is designed to provide STEM preparation and support to middle and high school students from groups underrepresented in the health professions. High school participants are co-enrolled in the Health Science Academy (HSA), a 3-year program sponsored by AAIUH, a nonprofit public health agency housed at SUNY Downstate.

Purpose: The mission of the program is to mentor underrepresented/disadvantaged students in (1) science and math skills, (2) preparation for admission to, and success at, postsecondary institutions, and (3) critical thinking. The current cohort includes 98 students enrolled in the 7-12th grades. The program boasts a comprehensive approach and strategic partnerships with community-based organizations, a local middle school, several high schools, and the New York City Department of Health and Mental Hygiene.

Curriculum: The comprehensive curriculum includes counseling and mentorship related to academic support, career advisement, financial literacy, professional development, and exposure to research.

Support: Participants attend seminars and receive supplemental lectures related to the health professions. In addition, middle school students participate in science fairs, while high school participants attend college fairs and STEM conferences and are exposed to research projects and clinical practices. They all receive academic and career advisement from program staff and their school liaisons.

Enrollment Outcomes: Since its inception, 96% of participants have entered postsecondary institutions, and 66% declared STEM majors.

HCOP COLLEGE PREPARATORY INITIATIVE (HCPI)

The HCPI is funded by a Health Career Opportunity Program (HCOP) grant from the Human Resources and Services Administration (HRSA). It is open to graduates of the AAIUH Health Science Academy (HSA) who are rising high school seniors.

Purpose: HCPI is designed to raise awareness of, and proficiencies in, the sciences, providing academic support to prepare for college.

Curriculum: HCPI is a 2-summer enrichment program. In the first summer, rising seniors take precalculus and calculus courses to prepare for their high schools' advanced placement calculus course in the fall. Additional courses include intensive workshops on the college admissions process, writing, research skills, and health disparities. In the second summer, the new high school graduates take courses in biology, writing, and career preparation. They also participate in research experiences related to opioid addiction, mental health, and childhood obesity. They are required to attend College Retention Strategies workshops that focus on areas previous students have identified as obstacles to the transition into college. During the academic year between summer sessions 1 and 2, students return for a third year at the AAIUH Health Science Academy and participate in monthly workshops focused on such college preparation steps as resume building, financial literacy, and identifying research opportunities.

Support: Students receive peer education and healthcare exposure through a partnership with the Brooklyn-Queens-Long Island Area Health Education Center (BQLI-AHEC). The HCPI program coordinator maintains regular contact with students to assist them in developing a new support network during their first year of college. The coordinator also continues to disseminate information about internships, scholarships, and jobs to all participants.

Enrollment Outcomes: In 2019, 55 students entered the HCPI program; 96% completed it, and 69% enrolled in college. In 2020, 100% of the enrolled students completed the HCPI, and 96% enrolled in college.

EXPLORING HEALTH CAREERS (EHC)

EHC is a 4-to-6-week summer exploratory program that exposes 30 underrepresented/ disadvantaged undergraduates to the many disciplines offered across the five schools at SUNY Downstate, focusing on medicine, research, public health, physician assistant, physical therapy, occupational therapy, midwifery, diagnostic medical imaging, medical informatics, and medical coding. The program is funded by an HCOP grant from HRSA.

Purpose: EHC aims to provide underrepresented/disadvantaged students with information relevant to targeted health professions and hands-on learning experiences in clinics and affiliated sites.

Curriculum: The curriculum includes faculty presentations and seminars that expose participants to health career options. Students learn about the admissions process, coursework, and skills needed to prepare and the occupational outlook for each health profession.

Support: The academic development component helps students attain the writing and presentation skills necessary to enter all healthcare fields. Journal clubs enhance their ability to read and interpret scientific articles. Students rotate through different hospitals, clinics, and research settings each week to get a vivid sense of daily practice. They receive assistance in completing applications to the health professions program of their choice. EHC is structured to complement the pre-health advising students receive at their respective campuses. Participation is supported by a summer stipend.

Enrollment Outcomes: EHC has had a 100% completion rate for the past three years. In 2019, the 55-member cohort included disadvantaged students from the New York State Educational Opportunity Program (EOP). Based on completed pre and post-program surveys, 83.6% of participants were exposed to healthcare fields that were new to them, and 81.8% acquired new learning methods to prepare for health professions schools. The 2020 cohort included 30 students.

Based on completed surveys, 80% were exposed to new healthcare fields, and 76% acquired new learning methods.

DISCUSSION

Fewer underrepresented/disadvantaged students are applying to, matriculating, and graduating from health professional schools. Creating pipeline programs and opportunities to explore health professions can help to increase the self efficacy of underrepresented and disadvantaged students. Increasing the diversity of healthcare providers can also lead to better health outcomes for patients who are underrepresented/disadvantaged. Therefore, it is essential to provide opportunities for underrepresented/disadvantaged students to pursue careers in healthcare and to support them in their academic and professional journeys to promote equity in healthcare.

The literature identifies specific areas that require change (Alexander et al., 2009; Lin et al., 2013; Muller & Kase, n.d.). They include admissions, curriculum, faculty, and remedial strategies (Smedley, 1970). Offices like Diversity Education and Research and Student Admissions have recruited and mentored underrepresented/disadvantaged students in pipeline and postbaccalaureate programs. As part of their recruitment and retention initiatives, they have reinforced the holistic review of each applicant, and admissions criteria are flexible.

The Association of American Medical Colleges reported that the historic increase in diversity among medical school faculty has not kept pace with the growing diversity of the US population (AAMC, 2016; 2019). By creating more diverse healthcare provider teams that are representative of the communities they serve, we may be able to address health disparities and improve health outcomes for underrepresented/disadvantaged populations. Healthcare provider diversity can also help to promote cultural competence and reduce bias in the delivery of healthcare services, which is important for addressing the unique health needs and challenges faced by diverse patient populations. Achieving this goal requires continuous and intentional efforts to increase diversity in healthcare fields, including pipeline programs, mentorship, and support for underrepresented and disadvantaged students.

Challenges

Since program participants attend a variety of institutions and are at various phases of academic development, mentoring cannot be one-size-fits all. Moreover, the summer is too short to provide mentorship beyond a certain point. Some students felt intimidated or reluctant to ask for support because they did not fully grasp whom/or what to ask. COVID-19 exacerbated these problems by preventing the in-person learning and extracurricular activities that would foster a deeper sense of community. Counseling offices at their respective high schools and undergraduate programs are

often understaffed, and the pandemic increased the need for counseling and academic services for all students, but especially underrepresented/disadvantaged students.

Finding the students we are looking for is challenging. Program participants from backgrounds historically excluded from competitive pre-health programs face personal and academic barriers. They describe gaps in information sharing, unequal access to opportunities, lack of personal and professional mentors, financial burdens, stress, and familial responsibilities. Some had to be convinced they were competitive enough to apply; having never been selected for such programs before, they lacked self-confidence. Academic barriers persist; participants reported feelings and experiences of inadequacy in math and science courses during their K-12 education. Most disadvantaged students do not believe they can qualify for or afford to attend health professions schools.

Hence, the number of underrepresented/disadvantaged students applying to pipeline programs remains stagnant. COVID-19 forced us to find new ways to recruit them, primarily by hosting webinars. Frequent follow-up is necessary to encourage underrepresented/disadvantaged students to complete the program's application process. The pandemic created special challenges for high school students, who are very difficult to engage remotely via digital platforms like Zoom. Replacing the hands-on projects and laboratory dissections students enjoy with online facsimiles was not easy. We have increased our healthcare panel discussions and workshops to accommodate.

CONCLUSION

Recruiting and retaining underrepresented/disadvantaged students in pipeline programs to prepare them for health professions are persistent struggles. COVID-19 required admissions personnel to become more strategic in supporting these students' social, emotional, and academic needs. Pipeline programs had to be stabilized and strengthened.

This paper proposes an assessment of best practices for recruiting, preparing and retaining underrepresented/disadvantaged students. The role of mentorship and advising both before and during college is important for effective retention. Health advisors and admissions offices must understand the student's motivation, expectations, values, and beliefs. Helping to identify the reasons for poor performance will help to identify interventions leading to success. Mentoring is the key as well as exposing students to a great variety of health professions. Pipeline initiatives like the ones presented here hold great promise for creating a more equitable and inclusive healthcare workforce that is better equipped to meet the needs of all patients.

This paper suggests that cohesive pipeline programs foster the success of underrepresented/disadvantaged students. Mentorship, preparation, availability, expectations, exposure, and encouragement all play a role in dynamic instructional approaches to support all students' success. Further studies will assess their long-term impact.

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ORIGINAL RESEARCH

The Role of Social Determinants in GPA-based Undergraduate Clinical Program Admissions

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ABSTRACT

Minorities are underrepresented in the health professions, and the educational pathway is an opportunity to identify early barriers. This study evaluates the relationship between social determinants and admission to an undergraduate clinical healthcare program that largely relies on grade point average (GPA). Applicants to nursing, radiography, and dental hygiene programs served as the nonprobability population sample for this quantitative correlational study. Admitting students based on GPA favored those who have better social experiences and excluded traditionally marginalized populations who experience social disadvantages. More balanced admissions criteria would help to address the inequities in diversity and inclusion that hamper the health professions.

Keywords: ▪ Admissions ▪ Dental Hygiene ▪ Nursing ▪ Radiography ▪ Underrepresented Students

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INTRODUCTION

Despite twenty years of research supporting the need for a diverse workforce, disparate representation of traditionally marginalized populations persists in the health professions (Goode & Landefeld, 2018). The driving forces behind these inequities are complex. The educational pathway presents an opportunity to identify a unique set of barriers.

Gaining admission to competitive clinical programs is a barrier for all students, regardless of background and ethnic identity. With limited capacity, programs are challenged to determine the criteria by which to rank applicants (Conrad et al., 2016). Traditionally, they have relied on grade point average (GPA). It is an objective measure of certain capabilities, and evidence correlating it with academic success and licensure pass rates have made it the primary criterion for student admissions decisions in nursing, radiography, and dental hygiene programs (American Dental Association, 2020; Downey, 2002).

Thus, student potential for success in clinical programs is often defined as a high GPA, but less unitary and easily measured social factors play a significant role in educational outcomes, especially for traditionally marginalized populations (Banerjee, 2016; Barbe et al., 2018; Metcalfe & Neubrander, 2016). Few studies have examined the influence of social determinants on the student selection process and how the heavy weighting of GPA in admissions criteria influence the diversity, equity, and inclusion of health career programs.

Social Determinants of Health

The stratified social structure affects groups' exposures, vulnerabilities, and consequences, including health (World Health Organization, 2010). This study applied the social determinants of health (SDOH) to explain the success disparities observed in higher education. The variables include economic stability, education, health and healthcare, neighborhood and built environment, and social and community context.

Economic stability: Economic stability related to accessing the resources needed for health and is determined by employment status, food security, housing stability, and poverty level. Similarly, impoverished students are less likely to achieve the same success levels as their better-resourced peers (Lacour & Tissington, 2011). Time spent working to meet a minimum economic standard competes with time devoted to academic achievement. Economic factors are also associated with the ability to access mentorship and to navigate the institutional processes necessary to attend college (Fitzpatrick et al., 2014). This study's economic stability indicators were the student's employment status and financial need, including ability to pay for food and afford texts and educational supplies.

Educational access and quality: SDOH studies address educational factors, such as access to learning experiences and the quality of the experiences. Here, determinants of student success

are defined by the high school preparation experience, type of undergraduate institution enrolled in to complete prerequisite courses (community college, state institution, or private institution), and enrollment status.

Health and healthcare: The World Health Organization (2010) defines *health* as a state of complete physical, mental, and social well-being based on an individual's health status, ability to access health services, and the quality of those services (Office of Disease Prevention and Health Promotion [ODPHP], n.d.). Illness, whether physical or mental, is a barrier to student success (Freitas & Leonard, 2011; Larson et al., 2016; Manchri et al., 2017). Physical ailments can limit a student's ability to attend classes and complete coursework. Common mental triggers associated with the student experience, such as stress and anxiety, have been shown to affect GPA and overall student success (Larson et al., 2016; Manchri et al., 2017). The health and healthcare factor of student success is defined by the student's ability to access health services, the quality of those services, and self-reported physical and mental health status.

Neighborhood and built environment: The SDOH literature blends physical and social surroundings. This factor comprises housing quality, crime and violence, and environmental conditions (ODPHP, 2020). The ability to afford safe housing, free of environmental hazards and threats of violent attack, can affect intellectual development. In addition, a negative relationship has been found between the distance of the commute to school and student GPA (Nelson et al., 2016).

Social and community contexts: SDOH research defines social context as influential relationships and interactions. Research on education links it to academic persistence in a variety of undergraduate majors (Barbe et al., 2018; Fitzpatrick et al., 2014: Jeffreys, 2002; Metcalfe & Neubrander, 2016). The type and amount of social support from close family members can determine whether a student succeeds or fails in undergraduate clinical programs. In this context, student success is defined by the sense of belonging on campus, social connection to undergraduate peers, experiences of discrimination in educational settings, and social support from family and friends.

Purpose

The purpose of the study was to evaluate the relationship between social determinants and admission to competitive undergraduate clinical healthcare programs that use GPA as a primary factor in decisions. It compared social experience reported by admitted students to that reported by students denied admission to nursing, radiography, and dental hygiene programs. It was designed to answer the following questions:

- To what extent do particular social determinants/background (economic stability, educational access and quality, healthcare access and quality, neighborhood and built environment, and social and community context) influence a student's acceptance

into competitive undergraduate clinical programs that use GPA as a primary deciding factor?
- To what extent does the combination of social determinants influence a student's acceptance into competitive undergraduate clinical programs that use GPA as a primary deciding factor?

METHODS

This study used a quantitative correlational design approved by the Institutional Review Board of A.T. Still University Kirksville. More specifically, it used binomial logistic regression to forecast a relationship among the predictor variables and the criterion variable. All variables were measured by a novel questionnaire that was reviewed by content experts using a rubric. Following pilot data collection, the survey instrument was further refined. The resulting Cronbach's alpha score was 0.736.

The author and principal investigator (PI) requested letters of cooperation from the director or appropriate administrator (Chief Nursing Administrator, Dean, IRB chair, or other) of 12 nursing, 21 radiologic technology, and 17 dental hygiene programs. These administrators forwarded the data collection email containing a link to the Qualtrics survey instrument to participants. The PI had no direct contact with the sample.

The procedure was a nonprobability population sample. The target population consisted of applicants to undergraduate entry-level clinical nursing, radiography, and dental hygiene programs in the United States in the spring/summer semester of the 2021 academic year. Case delineation was the category of acceptance to an undergraduate clinical health program that uses GPA as a primary factor in admissions. *Acceptance* was defined as the primary cohort offered a place in the programs. Students admitted after placement on the waitlist or an alternate list were not included in the accepted category.

RESULTS

After removing incomplete data sets, a total of 134 participant responses was analyzed. The percent of each demographic factor in the total sample was calculated (see Table 1). The mean age was approximately 25 years old. The majority (82.8%) of the total sample was not Hispanic nor Latinx. Similarly, the majority of the admitted (82.3%) and rejected (84.2%) groups was not Hispanic nor Latinx. The majority of the total sample, the admitted group, and the rejected group was born in the United States (82.8%, 84.4%, and 78.9%, respectively).

Binomial logistic regression was performed to determine the effects of high school preparation, type of undergraduate institution attended, enrollment status, and first-generation status on

Table 1: Demographic Characteristics and Admission Status, N = 134

Variable	*n (%)*		
	Total sample N = 134	*Admitted n = 96*	*Rejected n = 38*
Gender			
Male	7(5.2)	6(6.3)	1(2.6)
Female	124(92.5)	87(90.6)	37(97.4)
Nonbinary/third gender	1(0.7)	1(1)	–
Prefer not to say	2(1.5)	2(2.1)	–
Race			
Native American or Alaska Native	1(0.7)	1(1)	–
Asian	13(9.7)	9(9.4)	4(10.5)
Black or African American	10(7.5)	5(5.2)	5(13.2)
White	91(67.9)	67(69.8)	24(63.2)
Unknown	3(2.2)	3(3.1)	–
Other not listed	5(3.7)	4(4.2)	1(2.6)
Two or more races	5(3.7)	3(3.1)	2(5.3)
Prefer not to answer	6(4.5)	4(4.2)	2(5.3)

the likelihood of being admitted to the competitive clinical program. No outliers were identified for the indicators classified under education access and quality. The logistic regression model was statistically significant at the 10% level, selected due to the small sample size ($X^2(7) = 13.892$, $p = 0.053$). Of the four variables, only high school preparedness was statistically significant at the 10% level ($p = 0.085$). Individuals were 34% more likely to be accepted for each unit of high school preparation above the average.

Data were cleaned to remove "unsure" responses from the social and community context variables. Binomial logistic regression was performed to determine the effects of sense of belonging on campus, social connection to peers, social support from family and friends, and experiences of discrimination on the likelihood of being admitted to the competitive clinical program. Overall findings were statistically significant ($X^2(4) = 22.409$, $p < 0.001$). Of the four variables, support from family and friends ($p = 0.002$) and feelings of discrimination ($p = 0.008$) were statistically significant. The more support from family and friends, the more likely an individual was to be

accepted. The more common experiences of discrimination, the less likely the student would be admitted without relegation to a waitlist or alternate list.

No variables related to healthcare access and quality, economic stability, and neighborhood and built environment were statistically significant.

Binomial logistic regression was performed to assess the relationship between the predictor variables and the criterion variable for Research Question 2. The independent variables were the combined variables categorized by the social determinants of student success. The model was statistically significant ($p = 0.009$), but only the *Ed_combined* variable was significant at the 10% level ($p = 0.98$).

DISCUSSION

This study found a significant relationship between the applicants' perceived level of high school preparation and admission to the clinical program. Note that low-income community schools often receive less state and local funding than do schools in high-earning communities in similar districts (US Department of Education [US ED], 2011). Students' financial background can affect their access to quality educational experiences before matriculation to higher education institutions (ED, n.d.).

This study also found that social support from family and friends plays a crucial role in acceptance to competitive clinical undergraduate programs. Individuals who received such support, which can be both emotional and financial, were more likely to be admitted. Admissions criteria seem to exclude individuals who were part of the foster system or have no close social ties for other reasons.

Individuals who experienced high levels of stress or discrimination during prerequisite coursework were less likely to be admitted to competitive clinical undergraduate programs. Such coursework is intrinsically stressful, and life circumstances can add to the burden. Individuals from traditionally marginalized populations often experience stress due to economic hardship, lack of social support, and lack of safety (Broda et al., 2018, Creamer, 2020).

Education access and quality were found to have a significant relationship with admission to programs that use GPA as a primary factor. Although the number of non-White undergraduate students from impoverished backgrounds has increased in recent years, they are less likely to graduate than their wealthier peers (Smith, 2019; US ED, n.d.). Similarly, this study found that a disadvantaged educational background predicted exclusion from competitive undergraduate healthcare programs.

Limitations

This research project had limitations. The instrument used to collect data was novel, developed specifically for this project, and relied on self-reports reflecting on students' experiences throughout prerequisite coursework. Administrators did not provide a count of total applicants to their

programs, so the true population size is unknown. Participants were recruited from undergraduate nursing, radiography, and dental hygiene programs that used GPA as a primary factor in the application process. The term *primary factor* was not defined with set limits but left up to program administrator interpretation.

Recommendations

Future research: Future research should focus on each health profession to identify the unique factors at play in its educational pathway. Collaborative research with accrediting agencies to define admissions criteria for each discipline is needed, and once they are established, future studies can focus on the social profiles that result. This study should be repeated with a larger sample for each profession, using its novel instrument to identify social factors related to student success and whether program admissions criteria select for them.

This study focused on the role of social determinants in the undergraduate clinical admissions process as reported by students who persisted in prerequisite courses to be eligible to apply. Future prospective research should address how these social factors affect retention of students in prenursing, preradiography, and predental hygiene programs. Why do some students from disadvantaged backgrounds persist, while others change majors or drop out before applying to competitive clinical programs?

Practice: As the health professions try to address racial and ethnic disparities between practitioners and patients, they should pay attention to the educational pathways leading to program admission. Admissions criteria can create unintended barriers for students who lack social support from family and friends and/or have experienced economic instability, high stress, or discrimination. Administrators and admissions committees should reflect on the ripple effect of each criterion to ensure those admitted will be retained, graduate, and go on to serve communities whose social and demographic backgrounds they reflect and understand.

Additional research is needed before specific holistic admissions criteria can be recommended. Program directors and admissions committees must be conscious of the factors at play when standards are established. The context for traditional practices has changed.

CONCLUSION

Establishing admissions criteria is a crucial programmatic decision with broad implications for the diversity, equity, and inclusion of the professional healthcare workforce and patient outcomes. Relying on longstanding traditions as the sole justification for criteria decisions ignores the growing knowledge base on student success and persistence. This study demonstrated the social inequities in relying primarily on GPA to differentiate applicants.

Admitting students based primarily on prerequisite GPA favors those who have better social experiences. Understanding the role social factors play in student success can aid in the establishment of balanced, holistic admissions criteria that provide wider access to professional licensure careers. Balanced admissions criteria present a unique opportunity to address barriers to diversity, equity, and inclusion at the beginning of the professional pathway. Identifying and addressing them are logical and efficient ways to reduce health disparities. As the gatekeepers of the health career pathway, professional program administrators and admissions committees must consider how their policies contribute to diversity, equity, and inclusion and the observed health disparities in the United States.

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ORIGINAL RESEARCH

Faculty Development to Promote Peer Leadership Programming at a Hispanic-Serving Institution

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ABSTRACT

This case study assesses a two-part workshop series designed to build the capacity of interdisciplinary health science faculty to engage students in the peer leadership model to serve Bronx communities. Peer leaders, sometimes termed community health workers, can improve well-being in low-resourced neighborhoods at high risk for health problems yet often healthcare deserts, with few medical offices and pharmacies. While their assistance is vital, the academic discourse about how to build such programs and train peer leaders is limited. We describe a model to engage health professions faculty at a Hispanic-serving institution (HIS), where surrounding neighborhoods are impoverished and most at risk for associated illnesses.

Keywords: ▪ College Students ▪ Community Health Workers ▪ Faculty ▪ Low-resourced Neighborhoods ▪ Peer Leadership

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INTRODUCTION

Community health workers (CHWs), or peer leaders, have not been fully integrated into healthcare or higher education systems in the United States. They share demographic characteristics with, and often live in, low-income communities of color, offering assistance and support to guide behavioral changes that promote health (Burt & Sisselman-Borgia, 2020). These communities are often overlooked and underserved to deal with the health disparities resulting from structural inequities. Many are healthcare deserts, with poor or no access to doctors and clinics, medical specialists, and commercial pharmacies, and any extant healthcare centers or pharmacies are highly likely to close (Tsui et al., 2020). Residents can rarely choose a provider and face long travel and wait times to see a medical professional or fill a prescription. Health literacy also suffers since credible sources of information are scarce in some geographic regions.

Professional training programs and educators, particularly those at minority-serving institutions, have a responsibility to improve access to healthcare and health information. They must work together across disciplines to engage and educate new community workers. Peer leadership programs have the potential to broaden the reach of the health professions to the communities most critical to reach.

This case study assesses a two-part workshop series designed to build the capacity of interdisciplinary health science faculty to engage students in the peer leadership model in Bronx communities. It describes the development of the intervention, participant reception, and the feasibility of implementing it in the future. Workshop goals were: (1) to introduce faculty to the peer leadership and CHW models and their relevance to the Bronx; (2) to generate ideas about integrating peer leadership into their curricula; (3) to discuss how best to engage students across disciplines; and (4) for assess the feasibility of implementation.

Peer Leadership and Community Health Worker Models

Peer leadership and community health programs that included partnerships with universities or academic centers were most effective and demonstrated improved cancer screening rates in underserved communities (Roland et al., 2017). In providing funds to reimburse CHWs and peer leaders for services, the Affordable Care Act opened doors to improve health access in underserved communities. One study found that CHWs improved Medicaid recipients' knowledge of medical concerns and engagement with primary care services in a community in Oregon (George et al., 2020). Some of the barriers identified were lack of information or clarity about the roles of peer leaders and community workers and how to bill for payment and include for institutional financial planning purposes (George et al., 2020). Partnering with academic institutions can help to define the roles of peer leaders and provide training and guidance on integrating these new

positions into communities. Our model forges a new way to connect academic institutions to peer leaders and CHWs.

Peretz and colleagues (2020) describe use of community health leaders to connect individuals and families to food resources, housing, financial support, healthcare, and immigration assistance during the COVID-19 pandemic. They call for payers and institutions to develop and invest in a more sustainable community health workforce to improve access to healthcare and basic needs for people in traditionally underserved areas. CHWs assist with dietary suggestions and management of diabetes and other chronic health conditions, such as chronic heart failure, high cholesterol, and high blood pressure. While communities of color often distrust medical professionals, CHWs can penetrate boundaries and make practicable suggestions. The interventions they lead also reduce mental health symptoms in vulnerable communities (Barnett et al., 2018). Peer leaders regularly assist in substance misuse recovery and medication management for individuals who experience severe and persistent mental illness.

Andrews and colleagues (2004) reviewed the literature and found that CHWs were particularly helpful in improving access to healthcare and social support among ethnic minority women. Like others, the authors call for improved definitions of CHWs and recommend that health professionals design theoretical frameworks to support well-designed interventions that include CHWs.

The literature identifies gaps related to CHW supervision and training (Scott et al., 2018), emphasizing the need to develop more professional training programs, especially at minority- serving institutions, where students are likely to be from, and training in, the communities they will serve.

Peer Leadership Education

Studies evaluating interdisciplinary peer leadership programs in higher education are limited, but some demonstrate their benefits for both students and the broader community (Bertrand, 2018; Brooms et al., 2017; Klaw et al., 2017; Lehrer et al., 2015; Riser et al., 2020; Zandee et al., 2013). Zandee and colleagues (2013) found that a program training nursing students to visit people in urban neighborhoods as CHWs improved community engagement with healthcare services and reduced emergency room visits. Another study found that psychology students improved their content knowledge and professional skills after participating in a peer leadership course that included experiential assignments and leadership activities (Riser et al., 2020). Health professions students in particular found interprofessional seminars productive in reducing barriers to and establishing cross-disciplinary collaborations (Lehrer et al., 2015).

A peer leadership program designed for veterans on campus enhanced participants' emotion regulation, access to campus and community resources, and development of professional skills, while reducing their isolation (Klaw et al., 2017). Peer leadership programs including participatory

action research projects can have particularly positive impact on people of color, underlining the need to develop such programs at minority-serving institutions (Bertrand, 2018). They create opportunities for bonding and allow students of color to build on their cultural capital to improve their sense of self-efficacy and personal growth (Brooms et al., 2017). Peer leadership programs also improve collaboration and undergraduate students' development of future plans based on more accurate visions of others (Waite & McDonald, 2019).

Here, we describe an intervention to develop of an interdisciplinary peer leadership program at an urban minority-serving institution and the feasibility of implementing it.

METHODS

We developed a two-part workshop series for health science faculty at a Hispanic-serving institution in the Bronx, NY. In the first half-day workshop, both co-authors presented information on peer leadership, including examples from their professional experiences in social work and dietetics, respectively. A guest speaker described a successful peer professional education and leadership program for students at a local community college.

Between the first and second workshops, which were spaced two weeks apart, participants were tasked with brainstorming ways to apply the peer leadership model in their specific health science field.

The second half-day workshop consisted of small group activities. Participants were paired and asked to develop their ideas about how peer leadership could make a tangible difference in their professions and how they might introduce the model in their classrooms. They were also asked to anticipate negative reactions from colleagues and students and to develop strategies to mitigate them. They then reconvened for an in-depth conversation on how to develop the model across disciplines based on their paired insights. Following each workshop, they completed a brief qualitative questionnaire from which we obtained formative and summative data about their experiences and the parts they found most useful.

All procedures were approved by the City University of New York Institutional Review Board. Participants signed one consent form agreeing to the entire evaluation procedure, which included completing the questionnaires at the end of the two workshops. Each was offered a $500 stipend in recompense.

Recruitment: The workshop leaders (the authors) reached out to colleagues in the School of Health Sciences. After discussions with the Dean and Department Chairs, five faculty members from the social work, health services administration, nutrition, nursing, and speech and hearing departments, respectively, were selected. Inclusion criteria were: (1) full-time faculty of any rank, including lecturer; (2) willingness to commit to two half-day workshops during the 2018 fall semester; and (3) willingness to complete an assignment between the workshops.

Content: The workshops provided information about the peer leadership model and Substance Abuse and Mental Health Services Administration (SAMHSA) competencies for peer leaders. They provided examples of successful use of the peer leadership model in programs designed to help men and women recover from homelessness and communities of color address food insecurity and reduce cardiometabolic syndrome through healthier eating habits.

Evaluation tools: Participants completed two questionnaires combining dichotomous yes/no questions, Likert-type scale questions, and open-ended questions. The questionnaire for the first workshop focused on whether participants felt they understood the peer leadership model and whether or not they felt able to apply it to their own fields. They were also asked to describe which elements of the workshop were most helpful and relevant. The questionnaire evaluating the second workshop asked participants to describe their understanding of the peer leadership model; their perceptions of its feasibility in their specific fields of practice; and their favorite and least favorite aspects of the entire workshop series.

Data collection: Data were collected from the questionnaires administered in paper-and- pencil at the end of each workshop. Participants could submit their questionnaires anonymously.

RESULTS

Overall, faculty reported understanding the peer leadership model and its benefits in ameliorating health disparities in their field and developing student leadership skills. Four of the five reported f that they had a better understanding of the model's principles and core competencies, while one was unsure. All 5 felt that the workshop helped them to envision how the model could apply to their field. Four of the five felt that the workshop helped them to envision how to develop leadership skills in students, and one was unsure.

Participating faculty also reported that implementing the peer leadership model across disciplines and in the classroom would be feasible. Four felt the model was a good fit with their profession; one reported it would be somewhat feasible to implement professionally but harder to integrate into the classroom curriculum. Four reported they were very likely to incorporate the model into their curriculum, and one that it was somewhat likely. All five reported that they would feel very comfortable talking about the model with students in the classroom, but one added the caveat that additional reading and materials would be helpful in preparation. All participants reported that they would feel very comfortable talking about the model with other faculty, clinicians, and professionals in their field, and again, one added that further reading would be helpful.

Three main themes emerged from responses to the open-ended questions on the most helpful and relevant parts of the workshop. First, faculty felt that the opportunity to collaborate across

disciplines and obtain feedback about different ways to use the model from different disciplinary perspectives was very meaningful. Second, they felt that learning how the peer leadership model could support diverse communities in need was helpful. Finally, they felt that the emphasis on implementation in classrooms and curricula was helpful for developing diverse leadership, particularly among students at this institution.

Two main themes emerged on perceived challenges to implementation. First and foremost, faculty felt that the bureaucracy would hamper working across disciplines and departments, particularly on curriculum development. Second, they felt that finding the time and personnel to develop new curricular materials and collaborations would be a challenge. However, all felt these challenges were surmountable.

DISCUSSION

We described the development and reception of an interdisciplinary workshop series designed to engage faculty in integrating the peer leadership model into their respective curricula. Workshop leaders provided an overview and several examples of successful implementations with vulnerable groups. Faculty participants had the opportunity to discuss the ways they might implement the model in their professions and course curricula. They felt it would be feasible but expressed reservations about time, funding, and other necessary resources. They expressed unanimous support for, and were energized by, the opportunity to work across disciplines and felt that the model would train students to be public health ambassadors within their own communities.

Peer leadership models have been successful in addressing health disparities and improving health behaviors among marginalized communities (Andrews et al., 2004). They have also been successful in educational settings, providing opportunities for students to support one another as well as their communities, where mental health support has made a marked difference (Barnett et al., 2018; Lehrer et al., 2015; Riser et al., 2020; Zandee et al., 2013).

However, faculty perspectives on the development and implementation of these programs, particularly in educational settings with nontraditional students, have received little attention. Scott and colleagues (2018) point to the gap in addressing the supervision and training protocols of peer leadership programs. Our case study reveals some of the reasons why this gap exists. It illuminates faculty views of the challenges and some of the initial administrative problems that must be resolved while revealing their potential support for increasing these programs in light of the increasing need.

Using interdisciplinary models is essential in addressing health disparities among marginalized groups who often live in impoverished, underresourced areas and access care at low rates. As health professionals, we have a duty to find creative ways to address health disparities. One of the most salient observations from our data was the importance of learning about the work in other fields. While the feasibility of implementing and integrating a peer leadership model was

questioned, it evoked less concern when faculty felt supported by one another and were able to share ideas. Knowing that they had allies in other departments with whom they could brainstorm and troubleshoot was of the utmost importance.

Most questions about feasibility were related to time and resources. Implementation will require faculty release time and college investment in the process. Cost-benefit analyses should be included in proposals. Investment in educating students as peer leaders to reduce health disparities is an investment in the surrounding communities. Students in health science programs at minority-serving institutions or historically Black colleges and universities (HBCUs) often feel a mission to serve their communities by improving healthcare access. Providing peer leadership programs is just as crucial as providing accredited programs that lead to licensure in the health professions (nursing, social work, dietetics).

Limitations

This study brings forward important considerations for the development of peer leadership programs in historically under resourced communities but has some limitations. First, the sample was small. Second, how generalizable the data are beyond an urban public college is unclear. Third, the evaluation data was gathered after the workshops, not before and after, which would have provided a more objective view of their effect on learning and shifts in thinking. Future research should include more faculty and different geographic regions, including rural areas. Needs and concerns at colleges serving these areas may differ.

CONCLUSION

Our case study is a novel contribution to the literature, providing a method of preliminary interdisciplinary collaboration as a way to prompt important faculty conversations about educating peer leaders to improve access to healthcare in our most vulnerable communities. Development of new programs and new ways to reduce health disparities must begin with faculty collaboration. Reducing health disparities must take an interdisciplinary approach. Faculty conversations across departments have the potential to advance the prevention and reduction of health disparities one community at a time.

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Health Communication: Enhancing Awareness of, and Education in, Health Disparities across Disciplines

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ABSTRACT

The field of Health Communication has been growing since its inception in the 1970s. Across the country, more undergraduate programs are focusing on it, but minority-serving institutions still have very few undergraduate majors. This paper discusses a new academic program at a Historically Black University that proposes an interdisciplinary approach to offer students a unique foundation in health communication. Specifically, the curriculum is based on a collaboration between Speech Language Pathology and Audiology and Health Communication Studies, leveraging both concentrations' foundations and culturally sensitive approaches to address disparate healthcare needs.

Keywords: ▪ Disparities ▪ Health ▪ Speech ▪ Teaching ▪ Undergraduate Students

Authors' Note: At the time of publication, the Health Communication Program has been approved to be a department. Therefore, the name is in the process of being changed. However, the curriculum will continue to reflect both Speech Language Pathology and Audiology and Health Communication Studies. There could be

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modifications to the course titles. The authors would like to thank all faculty members in the Health Communication Studies concentration for working on developing courses.

HEALTH COMMUNICATION

Health communication uses an array of approaches to raise individual, group, and community awareness (National Cancer Institute [NCI], 1989); Society for Health Communication, 2017). The Health Communication Division of the International Communication Association (ICA) was established in the mid-1970s and has two main emphases: healthcare delivery and promotion (Kreps, Bonaguro, & Query, 1998, p. 3; Kreps, 2014). The field has grown over the years, and research findings can be found in communication, public health, nursing, and health administration journals (Kreps, 1989).

Its public health prominence is recognized in its listing as one of the main objectives of Healthy People 2030. For forty years, this federal program has identified public health goals and provided tools to measure them. One goal is to eradicate health disparities, defined as "differences in the incidence, prevalence, mortality, and burden of diseases and other adverse health conditions that exist among specific population groups in the United States" (National Institutes of Health [NIH], 2017, para. 1). To achieve it, Healthy People 2030 is encouraging healthcare providers to engage in "decision-making" with patients and to understand their different levels of health literacy. It stresses interpersonal communication practices as well as the relevance of media health messages to improve health (US Department of Health and Human Services [US DHHS}, n.d.).

Interpersonal Communication in Healthcare

Many studies address the importance of effective communication in medical settings for better patient outcomes (Allenbaugh et al., 2019; Stewart, 1995). Clinicians must be aware of their communication styles, especially with patients who have lower levels of health literacy (Williams, Davis, Parker, & Weiss, 2002), and at the same time, patients should be taught how to best communicate with their health providers (Post, Cegala, & Miser 2002; Scherr et al., 2022). Factors affecting health literacy include educational attainment; providers must consider their word choice and the transparency of the written materials they distribute (Safeer & Keenan, 2005). Potential biases in patient/provider interactions must be acknowledged and addressed, especially when either is from a marginalized group (Perez-Stable & El-Toukhy, 2018).

A strength of using health communication to reduce health disparities is its interdisciplinary nature and use of different theories and approaches. Over the past decade, conferences, such as ICA-International Communication Association, have emphasized the role of communication in reducing health disparities (Harrington, 2013).

INTERDISCIPLINARY FIELD

As a field of study, health communication is based on several disciplines. According to Kreps (2020), it includes communication, social sciences, and physical sciences and professions, such as health administration, epidemiology, and public health (p. S4). Even though the field of Speech Language Pathology and Audiology is not discussed, clinicians in the American Speech-Language-Hearing Association (ASHA, n.d.) have stressed the role health communication plays in patient outcomes. Blackstone et al. (2011) emphasize how speech language pathologists and audiologists help people who have speech disorders navigate interactions in healthcare settings and increase positive health outcomes. According to ASHA (n.d.), patients receiving care for speech language disorders have difficulty communicating their health needs for a host of reasons, including insufficient time with their provider, discomfort in the clinical setting, and unfamiliar health terminology.

THE NEW PROGRAM

The Speech Program at North Carolina Agricultural & Technical State University (NCA&T) is taking a creative approach to the study of communication in its new undergraduate Health Communication Program. The new curriculum is aligned with strategic institution-level priorities and the foundation of health communication. It will include two areas, Speech Language Pathology and Audiology and Health Communication Studies (see Table 1 and Table 2), and increase interdisciplinary collaboration across the college and campus. Both classroom and research activities will give students and faculty the opportunity to address health disparities among marginalized populations. The importance of collaborations in fighting disparities has been demonstrated, especially during the COVID-19 pandemic. The new program will adhere to its theoretical roots while taking a multidisciplinary, culturally diverse approach to educating undergraduate students.

Courses include two seminars in the freshman and sophomore years, which will give students an overall understanding of the role of communication in both concentrations as well as collaborative experiences. Other courses, such as Introduction to Health Communication, Introduction to Health Advocacy, Communication in Public Health, Multicultural Practices in Health Professions, and electives on ethical and cultural concerns, will provide students the opportunity to examine interpersonal and mass media instantiations. Many of the courses will draw on cultural competence curricula. At least one Health Services Management course is required for each concentration.

The new Health Communication program, housed in the Hairston College of Health & Human Sciences, will attract majors in both concentrations as well as psychology, sociology, social work, biology, kinesiology, nursing, and health services management. Their diversity will

Table 1: Speech Language Pathology and Audiology Courses

Class Standing	*Courses*
Freshman	SPCH 116 Voice and Diction Lab I
	HCOM 100 Intro to Health Comm.
Sophomore	SPCH 319 Development of Speech & Lang in Child
	SPCH 259 Intro to Speech-Language Pathology
	SPCH 309 Phonetics
	HCOM 230 Intro to Health Advocacy
	SPED 250 Intro to Exceptional Children
Junior	SPCH 269 Intro to Audiology
	SPCH 380 Multicultural Practices in Health Professions
	HCOM 320 Communication in Public Health
	SPCH 381 Diag Test Mea Proce in Com Sci
	SPCH 424 Diag Lab Pro in Com Sci Disor
	SPCH 379 Anat Phys of Spch Hearing Mech
	SPCH 484 Phonological & Articulatory Disorders
	SPCH 382 Observ in Comm Disorders
Senior	SPCH 409 (509) Neuro for Comm Sci Disor
	SPCH 421 (521) Comm Disor in Inf & Tod
	SPCH 426 Voice and Fluency Disorders
	SPCH 429 Case Studies in Develop Dis/Clinical Practicum
	SPCH 483 Language Disorders
	SPCH 427 Aural Rehabilitation`
	SPCH 432 Case Studies in Acquired Disor
	SPCH 478 Hearing and Speech Science
	SPCH 498/SPCH 490/SPCH 575 Internship
	SPCH 487 (475) Comput Ap in Com Sci and Disor

Note: This is not an exhaustive list of recommended courses. Courses in bold are in both concentrations.

Table 2: Health Communication Studies: Recommended Courses

Class Standing	*Courses*
Freshman	**HCOM 100 Intro to Health Comm.**
Sophomore	HSM 210 U.S. Healthcare Systems
	HCOM 230 Intro to Health Advocacy
	HCOM 280 Health Campaigns & Media
	HCOM 255 Medical Term. for HCOM
	HCOM 270: Interpersonal Health Comm.
Junior	**SPCH 380 Multicultural Practices**
	HCOM 320 Comm. in Public Health
	HCOM 430 Adv. Health Advocacy
	HCOM 410 Research Methods HCOM
Senior	HSM 421 Healthcare Policy & Politics
	HCOM 400 Ethical Issues in HCOM
	HCOM 440 Adv. Multicultural HCOM
	HCOM 450 Capstone
	SPCH 475 Computer App. in Comm.
	HCOM 470 Adv. Topics in HCOM (3) OR HCOM 480 Internship

Note: This is not an exhaustive list of recommended courses. Courses in bold are in both concentrations.

give faculty an opportunity to develop assignments on health disparities that spark an exchange of ideas and research practices to promote. awareness and reduction of health disparities.

CONCLUSION

Healthy People 2030 includes Sensory or Communication Disorders as a health condition that should be addressed to reduce health disparities. A goal is to "increase the number of kids (3-17) with speech/language disorders who see a specialist" (US DHHS, n.d.). Note that an estimated 10% of Black kids are diagnosed with a communication disorder compared to slightly less than 8% of White kids. Reports show more White kids are likely to get assistance than Black kids

(NIH, 2016), yet only 3.6% of SLPs are Black (ASHA, 2020). These statistics show the urgent need to increase Black representation in the Speech Language Pathology and Disorders discipline.

More generally, Black patients are less likely to engage with medical providers who are not Black (Gordon et al., 2006a; 2006b). Black patients' visits are often shorter, with less communication, when the provider is not Black (Cooper et al., 2003; Shen et al., 2018). Studies also show that cultural relevance is crucial when delivering health messages (Muvuka et al., 2020). Training Blacks and members of other marginalized groups should be among best practices to meet diverse patients' needs, but according to Zippia (2021), Blacks make up only about 10% of professional Health Communication Specialists.

Healthy People 2030 describes health communication as a behavior that should be addressed to reduce health disparities. It calls for strategies to improve communication with healthcare providers, increase patient involvement in personal health decisions, and refine social marketing. These areas of study are critical in the new Health Communication Program. Its interdisciplinary approach is critical to educating future health communication leaders. Gaining awareness and understanding of health disparities will help students develop professional practices that will improve health outcomes for those most at risk. The program will prepare students for careers and graduate studies in their respective fields. At the time of writing this manuscript, the program is in the final stages of approval.

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"You Are Not Alone:" A Message for Black Trainees on Navigating Medical Programs

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"According to statistics from the American Council of Graduate Medical Education (ACGME), between 2004-2015, a range of 43–64 Black trainees withdrew from their medical training program, and a range of 20–46 Black trainees were dismissed."

You are not alone.

You ARE

phenomenal, brilliant, Intelligent, qualified, talented, relentless a trail-blazer, leader, a dreamer, a visionary a healer inspirational. Powerful, empowering valued needed.

You are not alone.

You ARE NOT

lazy. Dumb, stupid, untrustworthy, hostile, intimidating, incapable, incompetent, inefficient, unprofessional, below the level of your peers, a safety concern who the remediation plan says you are.

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You are not alone.

You CAN FEEL

self-doubt, shame, pain, fear shocked, disappointed, angry, anxious, hurt, hopeless, depressed, empty, lost, betrayed.

You are not alone.

You MUST

seek comfort from trusted allies, surround yourself with individuals who believe in you, solicit feedback from trusted mentors seek therapy, protect your mental health and well-being refuse to sign false documents, demand the removal of unjust evaluations discard destructive feedback, document racial and discriminatory treatment demand a safe, effective learning environment.

You are not alone.

RESOURCES FOR BLACK MEDICAL TRAINEES

Black Doc Village https://blackdocvillage.com/
National Council for Residents https://www.nationalcouncilforresidents.org/
National Medical Association https://www.nmanet.org/
Residency Rehab http://www.residencyrehab.com/
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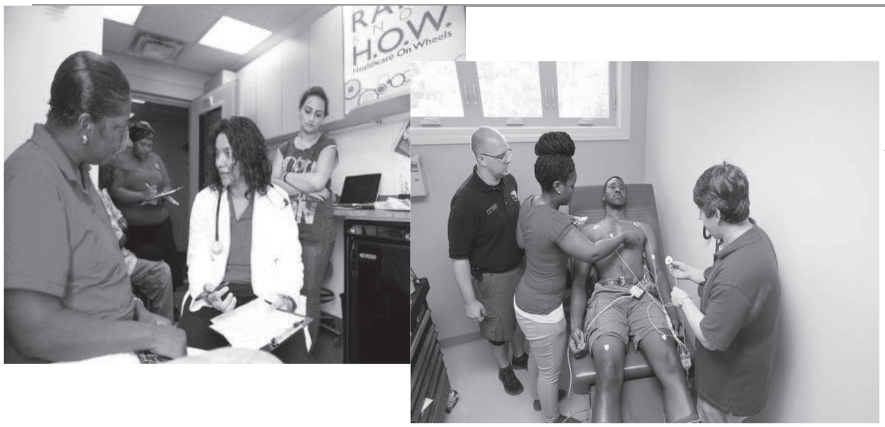

The WSSU Division of Nursing prepares culturally competent, registered and advanced-practice nurses to address global health, health disparities, and the needs of underserved communities.

A state-of-the art university, WSSU offers nursing faculty and students opportunities to engage in high-impact practices using the latest technological advances in education. In its Simulated Virtual Hospitals, nursing faculty and students team with faculty and students in physical therapy, occupational therapy, rehabilitation counseling, exercise science, and clinical laboratory science, working collaboratively as next-generation healthcare professionals.

Supported by the Center of Excellence for the Elimination of Health Disparities, faculty work with distinguished researchers on healthcare problems that affect vulnerable and disenfranchised populations.

Grounded in the principles of health equity and social justice, the Division of Nursing (DON) is poised to improve healthcare in the community and beyond. Through its international partnerships, DON reaches beyond boundaries to influence healthcare globally.

Recognized as the #1 HBCU nursing program in the nation by HBCU Colleges and the second-best nursing program in North Carolina by Best Nursing Colleges, WSSU celebrates NCLEX-RN first-time pass rates and FNP certification rates above state and national benchmarks.

Join the Team as we prepare School of Health Sciences (SOHS) and Division of Nursing education strategies for the 21st century, transforming health careers across the globe.

The Division of Nursing seeks highly qualified faculty to teach in its BSN, MSN, and DNP degree programs. Our faculty focus on research, teaching, and practice and are encouraged to expand their expertise in these areas. Traditional undergraduate, accelerated, and RN-to-BSN options prepare registered-nurse leaders. The MSN program provides Master's and certificate options for Advanced Nurse Educators and Family Nurse Practitioners. The DNP is both a post-Master's and BSN-to-DNP program focusing on the translation of research to improve clinical practice and patient outcomes. Methods vary across traditional classroom, hybrid, and online course delivery.

Applicants must hold a Master's degree in nursing, and a doctorate in nursing or a related discipline with an active program of research or scholarship and practice is preferred. Minority candidates are especially encouraged to apply. Faculty positions include 9- and 12-month appointments, and benefit packages are exceptional.

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The Division of Nursing

The Division of Nursing at Winston-Salem State University is a premier nursing school based on excellence in education, research, and public service and the diversity of its student population and program offerings. The curriculum provides experiences that allow students to develop effective communication and critical thinking skills, while implementing therapeutic interventions, promoting health, and preventing disease using evidence-based practice strategies. These experiences include the theory, clinical practicums, and public service essential for delivery of professional nursing in a variety of settings to diverse populations.

Prior learning, life, and health experiences are considered in the admissions criteria for a student population diverse in age, gender, ethnicity, and academic level. DON fosters an environment conducive to personal and professional growth and lifelong learning for students and faculty, who engage in mutually beneficial relationships with the community and other healthcare providers in ways that complement the educational mission. Values, such as kindness, compassion, justice, loyalty, cultural competence, and sensitivity, take root here. A consistent focus on excellence reflects a commitment to continuous growth, improvement, and understanding.

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Preparing over 6,000 diverse undergraduate and graduate students for success in the 21st century, Winston-Salem State University offers quality educational programs in an environment of faculty-shared governance. The university is dedicated to student development through excellence in teaching, scholarship, and service. As a comprehensive, historically Black, accredited constituent institution of the University of North Carolina, Winston-Salem State University contributes to the social, cultural, intellectual, and economic growth of the region, the state and beyond.

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Winston-Salem, the City of Arts and Innovation, is located between the Blue Ridge Mountains and the Outer Banks of the Atlantic Ocean. Only a short drive from metropolitan Charlotte and Raleigh, it forms the Piedmont Tried Region with the cities of Greensboro and High Point. Winston-Salem demonstrates a strong and unwavering commitment to the arts, excellence in healthcare research and technology, and is home to four renowned institutions of higher education.

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For questions related to faculty positions, please contact Tammy Cunningham, University Program Specialist to the Associate Dean of Nursing, at cunninghamt@wssu.edu or 336-750-2659.

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