Doctors of Tomorrow

Navigating the Transition from High School to University through High Quality Connections

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ABSTRACT

Background

The medical profession continues to be unrepresentative of the patients being served in the United States. This discrepancy persists despite the numerous known benefits of a diverse workforce. Doctors of Tomorrow (DoT) is a pipeline program that prepares students from underrepresented communities to pursue careers in medicine. DoT provides support beginning in high school through matriculation in graduate school.

Methods

Focus groups were held with 8 current DoT students enrolled in a university to explore their individual perspectives of participating in a pipeline program and gain a better understanding of their transition from high school to university.

Results

Three main themes were identified in the focus groups:

(1) concern about academic rigor in higher education, (2) resilience in new role as a university student, and (3) desire for social network.

Conclusions

This study qualitatively analyzed the experiences of a select group of students following their freshman year at a university. Through the lens of high-quality connections, we can see the value that DoT participants place on relationships and developing meaningful connections. DoT Succeed students are intentional about the networks they establish and how those interactions, relationships, and connections will serve their career trajectory. These same students are also clear about the networks that are distractors. While they explore those pathways, they are continuing to discover how to limit investment to these events and individuals.

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The authors have no conflicts of interest to disclose.

Introduction

Doctors of Tomorrow really showed me that if you work hard, you can get to where you want to go. And this is where I wanted to go because of Doctors of Tomorrow.

The medical community continues to be unrepresentative of the people that they serve as healthcare professionals. People who identify as white continue to be the racial majority in the United States, consisting of 76.9% of the population. With an ever diversifying population, Black or African American, the largest racial minority, accounts for 13.3% of the population today. The largest ethnic minority group, as defined by the United States census, was Hispanic or Latino which 17.8% of the population self-identified as being.¹ Medical school graduates are not reflective of these diverse populations. In 2015, only 5.7% of graduates were Black or African American, and 5.6% identified as Hispanic or Latino. However, perhaps more alarming, these numbers have remained stable since 2012.² As the US population continues to diversify, both racially and ethnically, a diverse medical profession is vital to addressing growing health inequalities.²⁻⁷

The discrepancy between racial and ethnic representation in the US population versus that in the medical community persists despite the numerous, well-studied advantages associated with having a diverse medical workforce, such as improvements in access to quality healthcare for underserved populations, enhancement of critical-thinking abilities, and advancements in cultural competency.⁵⁻¹¹ Medical organizations, such as the Association of American Medical Colleges (AAMC), have released renewed calls for increased diversity within medical school admissions.² Additionally, there is evidence that group diversity, in both backgrounds and experiences, can serve to enhance the productivity and outcomes of the team. Group diversity allows the team to build on the individual strengths that each person has

developed through their previous experiences.¹²⁻¹⁴ Yet the admission rates of medical students from diverse communities have remained stagnant.^{2,10}

One vital component of the renewed commitment to diversity initiatives is exploring the needs of students from communities underrepresented in medicine (URM). Medical pipelines that start as early as high school may hold the answer to addressing the lack of representation within the medical field.¹⁵ The 2016 AAMC Matriculating Student Questionnaire found that 52.1% of students realized they wanted to be a doctor before or during high school, highlighting the importance of pipeline programs that begin earlier within students' educational journeys.¹⁶ Although considerable attention has been given to medical pipeline programs in high school,^{4,17-20} there is limited work tracking longitudinal outcomes largely because these programs have consisted of short interventions.²¹ There is also currently little research exploring the experiences of URM youth as they transition from high school to university programs and few evaluations of medical pipeline programs that follow the students throughout the entirety of their academic journey.

One medical pipeline model that provides an opportunity for deeper inquiry with participants is the medical student-led and operated program Doctors of Tomorrow (DoT). DoT works to inspire and prepare high school students from communities URM to pursue careers in healthcare.²²⁻²³ Since 2012, DoT has existed as a partnership between Cass Technical High School (CTHS) in Detroit and the University of Michigan Medical School (UMMS) in Ann Arbor. High school student mentees of the program engage in hands-on clinical experiences, gain exposure to some of the public health challenges faced in the Detroit community, and form longitudinal relationships with medical student mentors. This partnership has created an experience in which all members, including the mentees and mentors, assume an active role in the promotion of diversity, equity, inclusion, and reduction of bias in the medical field.

DoT is unique from other medical pipeline programs in that it provides support from high school through to matriculation in medical school or another health professional graduate school. The initial DoT program was focused on freshman high school students. As students graduated from the program after 1 year, there was a recognized need for continued mentorship throughout the remainder of high school and into their undergraduate studies. DoT Rising for 10th–12th grade CTHS students was launched in 2016, and DoT Succeed for CTHS alumnae who have matriculated at the University of Michigan was introduced in 2017. The DoT Rising program focuses on university readiness, whereas DoT Succeed seeks to provide an accessible support network as students move increasingly closer to achieving their goal of a career in healthcare. Both programs include continued mentorship from medical students, physicians, and other medical school faculty. Programming in DoT Succeed also includes meetings with the medical student leadership team focused on relevant themes, such as wellness, time management, and networking. To provide opportunities in leadership and team building, DoT Succeed students assist in planning many of the DoT Rising events.

Interacting with community members, fostering new relationships with peers, and connecting to mentors are central components of DoT. This structure lends itself to inquiry using the concept of high-quality connections. Our study focuses on these connections within the context of work relationships and how they are defined by greater depth in emotional expression and level of understanding between parties. It provides a lens through which to examine the shift in DoT students from high aspirations to professionally oriented trajectories.²⁴

The study sought to explore individual perspectives as well as the collective memory regarding participation in a pipeline program. The aim was to gain a better understanding of the experiences of DoT program participants who transitioned from

high school to university. The information gained will be used to guide future development of pipeline programs.

Methods

Study Population

Participants were 4 males and 4 females who were attending a higher education university in the United States and involved in the DoT Succeed program in 2016–2017. All DoT Succeed students participated in the focus groups and were previously active members in DoT and DoT Rising. Three focus groups were facilitated in April 2017, each consisting of 2 to 4 participants. Participants were all students at the same university and were in their first year of study. Participants all self-identified as Black Americans and were 18–19 years old.

Materials and Interview Schedule

A semi-structured interview was used in which we opened the dialogue with questions about the participants' plans for summer, then asking more specifically about their university experiences. The discussion focused on high school preparation, transitions from high school to university, the value of mentorship, and success at the university. We used follow-up questions and probes to more deeply explore topics and ensure all participants had an opportunity to express their views during the discussion. Participants were encouraged to share their opinions in as much detail as they felt comfortable. The facilitators did not move on to the next question until they felt all participants had expressed their viewpoints. See Table 1 for full list of questions explored.

Data Generation

Focus groups were facilitated at a higher education university. After the study was approved by the Institutional Board of Research at the University of Michigan, DoT Succeed students were contacted via email and invited to participate. DoT Succeed students voluntarily signed up to participate in

TABLE 1.

<i>Reflection on College Experience</i>	<ul style="list-style-type: none"> • Let's start off by sharing what you are looking forward to doing this summer. • How do you define "success" in college? What factors are important to achieving that success? • If you are a freshman, look back over the past year: <ul style="list-style-type: none"> ◦ How has your college experience compared to your expectations about college when you were in high school? ◦ How would you describe your transition from high school at Cass Tech to college here at UM? ◦ What resources or programs, if any, have you participated in that you think have helped you adjust to college life? • So far in college, what have been your greatest or proudest successes or triumphs? • So far in college, what have been the greatest obstacles or challenges you have faced? • What are your current career plans after college? <ul style="list-style-type: none"> ◦ If no longer medicine, what affected your choice to change careers? ◦ If still medicine, what draws you to this career?
<i>Reflection on the Doctors of Tomorrow Program</i>	<ul style="list-style-type: none"> • Looking back to high school, how, if at all, did participating in Doctors of Tomorrow influence your college experience? • How could the Doctors of Tomorrow organization have better supported you along any step of your academic journey, from high school to college? • What do you see as the benefits, if any, of participating in DoT Succeed?
<i>Reflection on Mentorship</i>	<ul style="list-style-type: none"> • How do you define "mentorship"? • What makes an effective mentor? • What role, if any, has mentorship played in your academic journey, from high school to college? <ul style="list-style-type: none"> ◦ What contact, if any, have you had with your DoT mentor since graduation? ◦ Tell us more about this mentoring relationship? (eg, How often do you connect? What do you talk about? If you are no longer connected, when did you lose touch?) • What other mentors have you identified since starting college at UM? • Tell us more about this mentoring relationship. How has this mentor helped you pursue your goals?

1 of the 3 time slots available. The times were chosen with an undergraduate schedule in mind. Participants were explained the procedure of the study, were assured of anonymity and confidentiality, and were verbally consented. There were 2 facilitators, including the first author, for the focus groups, which lasted an average of 60 minutes.

Audio recordings of the focus group discussions were transcribed verbatim.

Approach and Analysis

We used interpretive description to guide our exploration of the experiences that were being shared. Interpretive description allows for synergy

between descriptive documentation of participant statements and appropriate meaning-making of the experiences shared. Trust in the researchers' application of this approach is supported by the in-depth introduction to the DoT program in order to foreground relevant context.²⁵⁻²⁷

Analysis of focus group data was undertaken using thematic analysis. This involves coding and interpreting the data through an iterative process. Codes were grouped into common categories. Using an inductive approach, 3 main themes were identified. The first author (KS) initially analyzed the focus group transcripts using QSR International's Nvivo 11.4.1 qualitative data analysis software. The senior author (GS) intermittently reviewed the analysis and coded samples of the data to ensure consensus. Any discrepancies in the analysis were discussed and resolved.

Results

Three main themes were identified: (1) concern about academic rigor in higher education, (2) resilience in new role as a university student, and (3) desire for social network.

Theme 1. Concern about academic rigor in higher education

Many of the students' comments related to the academic rigor in higher education. Although they all graduated from a high-performing high school in Detroit, they found the classes to be difficult with respect to subject matter, class size, and structure of the work including the online assignments and requirements for team projects. They were intentional in how they organized their classes and utilized many of the resources available on campus. Many of the students were involved in a summer bridge program at the university, designed to facilitate the transition from high school to undergraduate studies.²⁸ The program also provides a supportive community for participants. The summer bridge program additionally allows access to the comprehensive studies program, in which students can utilize year-round individualized

academic mentoring and register for core classes that have fewer than the typical 300 plus students. The summer program is highly structured in order to prepare students with appropriate time management and coping skills for their first semester.

Reflecting on their first year of study at the university, students frequently stated their greatest success was passing a difficult class. They developed several strategies that deviated from previous approaches used throughout high school to support this success. In particular, extending themselves into new interpersonal interactions was an important new strategy. One student, who self-described as being shy, commented the following:

I've made sure that I put myself out there to my professors to the point where we all know each other on a first-name basis. So, like, in lecture, I raise my hand. They'll call me by my first name.

The students also frequently associated their perceived success at the university to their ability to appropriately manage their time. Although many participated in extracurricular activities in addition to DoT Succeed to build a social network, they dedicated much of their time to succeeding academically. Because their parents or guardians were not physically present to direct their time, the students were responsible for determining the best use of their own time and who they were going to spend it with, and they were frequently conflicted. A participant explained:

There's so many opportunities out there that get you distracted on the weekend. And you don't want to fall into the trap. But sometimes you do. And you feel bad about it later because you knew you could have been studying during that time.

The students wrestled with the desire to do well in their academic classes, especially with

their long-term desire to pursue various graduate degrees in the health profession, and their need to interact with their new community.

Theme 2. Resilience in new role as a university student

DoT Succeed students described feeling that although they were encountering many challenges, such as the academic rigor of university classes, they were able to overcome these obstacles through their own recognition of self-worth. As explained by one student, “You’re working to get to that kind of self-visualization, just trying to see yourself succeed rather than see yourself in light of other people.”

Furthermore, with repeated use of comments such as “this is only the beginning,” participants expressed bracketing difficult encounters in order to maintain focus on their long-term goals and preserve a belief in their abilities. Students showed parallel resiliency, empathy, and support for one another in shorter-term goals, such as passing classes or learning a new skill in their research lab. One student shared the following regarding his research project:

The biggest takeaway was recognizing that what you’re doing, even if it’s a remedial task, it’s going to add up to the bigger picture in the end. The data analysis didn’t seem like much at the time, but now . . . I have to present at a symposium . . . I felt really proud of that.

When specifically asked about their success, many of the students also referred to how others, rather than their own resiliency and perseverance, helped them achieve their accomplishments. The students found support from other students, their family members, and mentors. A participant expressed it this way:

I’m not here for myself. I’m here for my mom, my grandma. Like, every day, I think to myself, I’m here for them. I came here for them. I’m

going to be successful for them, just so that, you know, I don’t have to see them struggling in the future.

Although students did voice some reservations about their postsecondary pursuits, they were equally as quick to keep discouraging thoughts in check. One student expressed feeling lucky to be at the institution and shared concerns about not actually belonging at the university but quickly tempered that disbelief:

I’m not meant for this or I’m not supposed to be here. But, like, we got accepted for a reason. We’re here for a reason, so, I’m going to stay here and I’m going to do what I need to do and what I want to do.

In response to this comment, others in the focus group were clear to him that his acceptance was not luck but rather based on qualifications and merit. As students transition into their new roles at the university, strengthening affirming relationships, such as those with DoT Succeed peers, helped reestablish their identities and strategies for succeeding in this context.

Theme 3. Desire for social network

The students expressed a strong desire for a supportive social network and recognized the potential benefits of such a network. At the core of the DoT mission is mentorship. As many of the students are the first in their families to attend a university, they relied strongly on the mentorship provided through the program to make critical decisions. One student stated, “I didn’t have too many people who went to a prestigious school like this.” Another commented regarding the students at CTHS that “they don’t really have people to go to ask those types of things.” The DoT Succeed students recognized the value of mentorship and the associated benefits and focused on finding additional mentors outside their specific programs of interest. As already built in the DoT Succeed programming, the

students expressed continued desired to return to their community to provide additional mentoring opportunities for students from their high school. A student shared:

My hometown is Detroit, so I want to go back to Detroit and help other people out, try to get them into the university. I want to bring them to the University, see different aspects of the university because it is often misconceived. Like, just try to change people's mindsets and impact other students so everybody can come here and be productive.

In addition to mentors, students desired a community of individuals similar in age and experience to support them through the frequent trials of higher education and encourage them to achieve their goals. This supportive community allowed the students to build reserve. The students identified the importance of togetherness. One participant explained:

We were in the library like every night just studying. But we were—we were grinding it out. And we weren't doing the best, but we had each other. And seeing them struggle, like, oh, yeah, you got this grade? I got—I got something lower than that. But we were—we were almost there.

Students found it valuable to invest in their newly established social support systems despite the many demands on their time.

Discussion

This study qualitatively analyzed the experiences of a select group of students following their freshman year at a university. Through the lens of high-quality connections, we can see the value that DoT participants place on strong relationships and developing meaningful connections. DoT Succeed students are intentional about the networks they establish and how those interactions,

relationships, and connections will serve their career trajectory and personal wellness. Their core communities allowed for sharing of age and contextually relevant experiences while also supporting one another on their trajectories to careers in healthcare professions. These same students are also clear about some networks being potential distractors. While they explore those pathways, they are continuing to discover how to limit investment in these unhelpful events and individuals.

The DoT Succeed students are the inaugural group of students in a novel pipeline program, many of whom are first-generation university students. The focus group was completed at the conclusion of the first-year of programming for DoT Succeed to guide future curricular development. For many of the DoT students, their first exposure to a university campus or the application process was through the DoT program. First generation students, and students from communities in which many of their high school peers are first-generation students, are known to experience a more difficult transition from secondary education to higher education. Already facing difficulty given the increased rigor of academic courses, the anxieties associated with living away from home, and competing demands of academic and social pressures, students with similar demographics to DoT Succeed students face additional academic, social, and cultural transitions of being in an unfamiliar and often isolating place.²⁹ The students made apparent that they relied on those around them, including their mentors, peers, friends, and family, to find academic success. Evidence suggests that in addition to offering emotional support and instilling confidence, especially among peers, positive interpersonal interactions can improve the cognitive performance of both individuals.³⁰

While decreased exposure to higher education may make the transition more difficult, the students' background may also have a protective factor. Kimhi found that the low indicators of well-being associated with cities such as Detroit may have contributed to the students' perceived

resilience and ability to withstand stress.^{31,32} Compared to many of their peers at the university, the DoT Succeed students have had to overcome greater barriers—individually or as a community—in pursuing their education.^{29,33} Their strong relationships with mentors and peers likely have an additive effect by providing greater emotional carrying capacity, tenacity, and empathy.²⁴

In fall 2018, 8 additional DoT alumnae matriculated into the DoT Succeed program. The programming will expand to include one-on-one mentorship between sophomore and freshman students, along with the continued mentorship from medical student leadership and faculty. The senior DoT Succeed students are uniquely positioned to provide access to resources that led to their success during their freshman year, provide a social network based on similar backgrounds and experiences, and share stories of personal failures and successes. Given the current students' focus on the importance of their community in their success, greater emphasis needs to be placed on ensuring the inclusion of community members in future DoT Succeed programming and for other similar programs that encourage URM youth to pursue careers in the healthcare field. By creating a community of scholars with shared experiences, students will be provided with resources that they determined were important to success, particularly in the transition from secondary to higher education, and that will assist in overcoming potential barriers.

This study had several limitations. The number of participants is small, and they are from a specific population at a single institution. Although focus groups were useful in this preliminary measure of the students' experiences at the university, focus groups can involve self-presentation biases and potential conformity of views from the influence of peers. Although focus groups will be conducted annually with the newly inaugurated DoT Succeed students, further studies of undergraduate student experiences should involve individual interviews, combined with survey self-report methods

describing their experiences in areas such as wellness, access to resources, and mentorship. Additionally, grade point averages and course selection should be considered in the analysis. However, this study provides a solid foundation to understanding the experiences of DoT Succeed students. Further comparison to students from additional URM communities would be useful in determining how the information gleaned from these focus groups could be transferable to other contexts.

The students' experiences illustrate the value of the DoT Succeed program, specifically for nurturing an essential social network and providing skills to expand connections that support the continued success of students as they progress toward attaining professional degrees. The skills learned making connections early within their careers will be transferable across time, relationships, and settings.³⁴

Conclusion

While students encountered challenges in transitioning to their new role as university students, they strategically drew on the diversity of their connections. Through mentorship, reliance on their community members and friends, and access to individuals and resources, DoT students were able to address difficulties and have remained committed to pursuing careers in the healthcare field. They recognized the value of a longitudinal mentorship program located on a university campus and desired to continue providing mentorship to younger students in their community. High-quality interactions—helpful interactions, supportive relationships, and meaningful connections—provide a powerful framework that helps to ensure students transitioning through pipeline programs are better positioned for successful pursuit of medical careers.

References

1. United States Census Bureau. QuickFacts: United States 2016. <https://www.census.gov/quickfacts/fact/table/US/PST045216>. Accessed April 23, 2017

2. Association of American Medical Colleges. Diversity in Medical Education: Facts and Figures 2016. Washington, DC: Association of American Medical Colleges. <http://www.aamcdiversityfactsandfigures2016.org/> Accessed August 4, 2016.
3. Komaromy M, Grumbach K, Drake M, Vranizan K, Lurie N, Keane D, Bindman AB. The role of black and Hispanic physicians in providing health care for underserved populations. *N Engl J Med*. 1996;334(20):1305–1310. doi:10.1056/NEJM199605163342006
4. Mitchell DA, Lassiter SL. Addressing health care disparities and increasing workforce diversity: the next step for the dental, medical, and public health professions. *Am J Public Health*. 2006;96(12):2093–2097. doi:10.2105/AJPH.2005.082818
5. Cohen JJ, Gabriel BA, Terrell C. The case for diversity in the health care workforce. *Health Aff (Millwood)*. 2002;21(5):90–102. doi:10.1377/hlthaff.21.5.90
6. Institute of Medicine (US) Committee on Institutional and Policy-Level Strategies for Increasing the Diversity of the U.S. Healthcare Workforce; Smedley BD, Butler AS, Bristow LR, eds. *In the Nation's Compelling Interest: Ensuring Diversity in the Health-Care Workforce*. Washington, DC: National Academies Press; 2004.
7. Reede JY. A recurring theme: the need for minority physicians. *Health Aff (Millwood)*. 2003;22(4):91–93.
8. Castillo-Page L, Schoolcraft SA, Milem JF, O'Brien C. Assessing the climate and culture around diversity and inclusion in academic medicine: difficult but essential. *Acad Med*. 2012;87(10):1313.
9. Mujawar I, Sabatino M, Ray Mitchell S, Walker B, Weissinger P, Plankey M. A 12-year comparison of students' perspectives on diversity at a Jesuit medical school. *Med Educ Online*. 2014;19:23401.
10. *Missing Persons: Minorities in the Health Professions. A Report of the Sullivan Commission on Diversity in the Healthcare Workforce*. Sullivan Commission; 2011.
11. Saha S, Guiton G, Wimmers PF, Wilkerson L. Student body racial and ethnic composition and diversity-related outcomes in US medical schools. *JAMA*. 2008;300(10):1135–1145.
12. Page SE. *The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies*. Princeton, NJ: Princeton University Press; 2008.
13. Kearney E, Gebert D, Voelpel SC. When and how diversity benefits teams: the importance of team members' need for cognition. *Acad Manage J*. 2009;52(3):581–598.
14. Roberge M-É, van Dick R. Recognizing the benefits of diversity: when and how does diversity increase group performance? *Hum Resour Manage R*. 2010;20(4):295–308.
15. Page KR, Castillo-Page L, Wright SM. Faculty diversity programs in U.S. medical schools and characteristics associated with higher faculty diversity. *Acad Med*. 2011;86(10):1221–1228.
16. Association of American Medical Colleges. Matriculating Student Questionnaire, 2016. Washington DC: Association of American Medical Colleges. <https://www.aamc.org/data/msq/>. Accessed August 10, 2017.
17. Smith SG, Nsiah-Kumi PA, Jones PR, Pamies RJ. Pipeline programs in the health professions, part 1: preserving diversity and reducing health disparities. *J Natl Med Assoc*. 2009;101(9):836–851.
18. Grumbach K, Coffman J, Rosenoff E, Muñoz C, Gándara P, Sepulveda E. *Strategies for Improving the Diversity of the Health Professions, 2003*. Woodland Hills: The California Endowment; http://futurehealth.ucsf.edu/pdf_files/StrategiesforImprovingFINAL.pdf. Accessed August 9, 2017.
19. Carline JD, Patterson DG. Characteristics of health professions schools, public school systems, and community-based organizations in successful partnerships to increase the numbers of underrepresented minority students entering health professions education. *Acad Med*. 2003;78(5):467–482.
20. Fincher R-M, Sykes-Brown W, Allen-Noble R. Health science learning academy: a successful "pipeline" educational program for high school students. *Acad Med*. 2002;77(7):437–438.
21. Winkleby MA. The Stanford Medical Youth Science Program: 18 years of a biomedical program for low-income high school students. *Acad Med*. 2007;82(2):139–145.
22. Derck J, Zahn K, Finks JF, Mand S, Sandhu G. Doctors of tomorrow: an innovative curriculum connecting underrepresented minority high school students to medical school. *Educ Health*. 2016;29(3):259–265.
23. Ross PT, Yates E, Derck J, Finks JF, Sandhu G. Doctors of tomorrow—a pipeline program for getting a head start in medicine. *International Journal of Humanities and Social Science Invention* 2016;5(9):33–37.
24. Stephens JP, Heaphy E and Dutton J. High quality connections. In: Cameron K, Spreitzer G, eds. *Handbook of Positive Organizational Scholarship*. New York, NY: Oxford University Press; 2011.

25. Thorne S. Toward methodological emancipation in applied health research. *Qual Health Res*. 2011;21(4):443–453.
26. Thorne S. *Interpretive Description: Qualitative Research for Applied Practice*. 2nd ed. New York, NY: Routledge; 2016.
27. Thorne S, Kirkham SR, MacDonald-Emes J. Interpretive description: a noncategorical qualitative alternative for developing nursing knowledge. *Res Nurs Health*. 1997;20(2):169–177.
28. Walpole M, Simmerman H, Mack C, Mills JT, Scales M, Albano D. Bridge to success: insight into summer bridge program students' college transition. *Journal of the First-Year Experience & Students in Transition*. 2008;20(1):11–30.
29. Pascarella ET, Pierson CT, Wolniak GC, Terenzini P. First-generation college students: additional evidence on college experiences and outcomes. *J High Educ*. 2004;75(3):249–284.
30. Ybarra O, Burnstein E, Winkielman P, et al. Mental exercising through simple socializing: social interaction promotes general cognitive functioning. *Pers Soc Psychol Bull*. 2008;34(2):248–259.
31. Guevara W, Alicia S. 2017 *Kids Count in Michigan Data Book: A Michigan Where All Kids Thrive*. Lansing, MI: Michigan League for Public Policy; 2017.
32. Kimhi, S. Levels of resilience: associations among individual, community, and national resilience. *J Health Psychol*. 2014;21(2):164–170.
33. Jaquette O, Curs BR, Posselt JR. Tuition rich, mission poor: nonresident enrollment growth and the socioeconomic and racial composition of public research universities. *J High Educ*. 2016;87(5):635–673.
34. Kram K, Ragins BR. The landscape of mentoring in the 21st century. In: Ragins, BR, Kram, KE, eds. *The Handbook of Mentoring at Work: Theory, Research and Practice*. Thousand Oaks, CA: Sage Publications; 2007;659–692.