

Evidence2Practice (E2P): Leveraging Implementation Science to Promote Careers in HIV Research Among Students From Historically Black Colleges and Universities

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Background: The HIV research workforce is not representative of populations most affected by the epidemic. Innovative educational programs are needed to motivate diverse student populations to pursue careers in HIV research.

Methods: The Duke University Center for AIDS Research Evidence2Practice (E2P) program is a 3-day interactive workshop that introduces students from Historically Black Colleges and Universities (HBCU) to HIV pre-exposure prophylaxis, implementation science, and human-centered design. Participants develop 1-page action plans to increase awareness and uptake of pre-exposure prophylaxis on their campus. The program was evaluated

using a partially mixed-method concurrent equal status study design with pre-program and post-program surveys and in-depth interviews.

Results: Among the 52 participating students, 44 completed the preworkshop survey, 45 completed the postworkshop survey, and 10 participated in an in-depth interview. Most participants identified as Black or African American and cisgender female. Participating in the E2P program was associated with: (1) an increase in median interest in pursuing a career in HIV research ($P < 0.01$) and (2) a decrease in median perceived difficulty in starting a career in HIV research ($P < 0.01$). Several students described that a lack of knowledge about initiating an HIV research career, a perceived lack of qualifications and knowledge about HIV science, and limited experience were major barriers to considering careers in HIV research.

Conclusions: The E2P program enhanced HBCU students' interest in careers related to HIV research and improved their self-efficacy to pursue such careers. On-campus educational enrichment initiatives, led by active HIV researchers and clinicians, should be a critical part of diversifying the HIV workforce.

Key Words: HIV, diversity, Historically Black Colleges and Universities

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INTRODUCTION

Implementation science (IS) is predicated on the importance of a comprehensive understanding of the context in which an evidence-based practice is to be implemented.¹ Bringing racially diverse perspectives to the field of HIV IS is particularly important given the current state of the HIV epidemic in the United States. With Black/African American individuals accounting for 42% of all new HIV infections in the United States and a PrEP uptake rate of 9% within this population nationally, racial disparities are at the center of the persistence of the HIV epidemic nationally.^{2,3} Diversifying the HIV IS workforce, and the HIV research community overall, is an important approach to address the racial disparities that critically impede our progress toward ending the HIV epidemic (EHE). The Evidence2Practice (E2P) program was established in 2021 at the Duke University to

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promote careers in HIV research among undergraduates and graduate students from Historically Black Colleges and Universities (HBCUs). E2P highlights health services research and IS as important entry points into careers in HIV science. Funded by the DC Center for AIDS Research Diversity, Equity and Inclusion Pathway Initiative (CDEIPI),⁴ the program seeks to encourage students to consider careers in HIV research by interfacing with them on their campuses and enlisting their expertise on how to promote HIV prevention strategies within their campus community. Here, we describe E2P and present student feedback from 5 participating HBCUs.

METHODS

Program Description

E2P is an educational enrichment program featuring a 3-day interactive workshop on HBCU campuses, delivered in-person by a team of expert instructors with the goal of developing student-informed, campus-specific HIV prevention strategies. Informed by Kolb's Experiential Learning Theory (Fig. 1),⁵ the guiding principles of E2P are to empower participating students to consider a career in HIV research by: (1) building capacity in the emerging field of IS, specifically focusing on health systems research and human-centered design, (2) demonstrating the value of "context expertise" in IS for addressing key public health issues, such as HIV prevention, in a scientifically rigorous manner, and (3) enlisting their expertise as "context experts" on developing a campus-specific strategy for promoting HIV prevention strategies. Given the program development team's central objective to bring the field of HIV research to HBCU students on their campuses, we decided that a 3-day intensive on-campus workshop was most appropriate.

Day 1 of the workshop features a 4.5-hour colloquium on HIV epidemiology, IS, design thinking, and HIV prevention modalities. Lectures are delivered by faculty at Duke University (Division of Infectious Diseases and Department of Population Health), New York University School of Global Health, and the Office of HIV/AIDS Network Coordination. At the conclusion of day 1 activities, students are presented

with the central design question: "How might we develop a student-centered strategy to improve awareness of PrEP on your campus?" Day 2 is a 4-hour brainstorming discussion that uses human-centered design techniques to encourage idea generation from students addressing the central design question.⁶ Students' ideas are organized into 3- to 4-component design questions, and students are divided into groups to address 1 question per group for the remainder of the workshop. The 4-hour-long day 3 session provides time for students to consolidate ideas into executable components of a campus-specific HIV prevention dissemination action plan. Each student group presents their plan component to peers at the end of the day 3 session. The E2P team collates the student-generated components and develops a 1-page HIV prevention action plan that incorporates all implementation strategy components.

Phase I of the E2P program focused on 6 undergraduate institutions in SC, an EHE priority jurisdiction. Participating institutions are highlighted in Table 1, Supplemental Digital Content (<http://links.lww.com/QAI/C98>). Before each workshop, the E2P team engaged a faculty champion on each campus to promote to students and to select 8–12 students to participate in program's workshop. Faculty champions were given basic eligibility criteria for participant selection (currently enrolled graduate/undergraduate student, priority given to students in health profession-related majors) but were otherwise given autonomy to select students at their discretion. All participating students were compensated \$300 for completing the 3-day workshop (or \$100 for each of the 3 days completed). Students who completed an in-depth interview (IDI) received an additional \$50.

The program was designed, implemented, and evaluated by a diverse team with respect to race and gender who individually have had long-standing commitments to diversity, equity, and inclusion principles. This article's first author, the E2P program director, is a cisgender Black male who is an HBCU alumnus but has not been involved in the active campus life of HBCUs in several years. He acknowledges his biases in designing a program focused on contemporary HBCU students and their views on HIV prevention. This article's senior author, the E2P evaluation director, is a

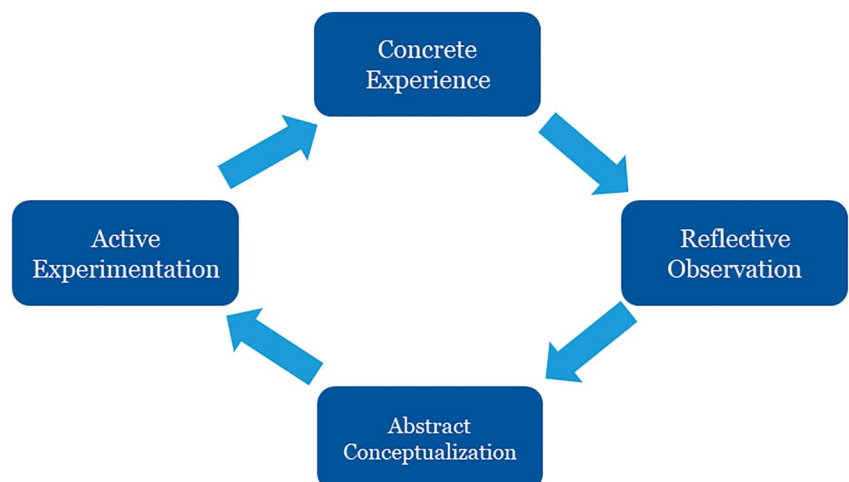


FIGURE 1. Kolb's cycle of experiential learning. full color online

TABLE 1. Student Descriptive Characteristics (n = 44)*

Characteristic	n (%)
Age, median (range)	21.0 (19.0–24.0)
Year in school	
Freshman	10 (22.7)
Sophomore	8 (18.2)
Junior	8 (18.2)
Senior	9 (20.5)
Graduate school	9 (20.5)
Hispanic or Latino/a/e/x	2 (4.5)
Race	
Black or African American	31 (70.5)
American Indian or Alaska Native	3 (6.8)
Multiracial	3 (6.8)
Asian	2 (4.5)
White	2 (4.5)
Choose not to disclose	3 (6.8)
Gender identity†	
Cisgender female	28 (63.6)
Cisgender male	13 (29.5)
Nonbinary	1 (2.3)
Another gender identity	1 (2.3)
Sexual orientation‡	
Straight/heterosexual	30 (68.2)
Bisexual	5 (11.4)
Asexual	3 (6.8)
Lesbian	3 (6.8)
Pansexual	1 (2.3)
Choose not to disclose	2 (4.5)

* Totals may not equal 100% because of rounding.
 † Data missing from 1 participant.
 ‡ Response options not chosen: demisexual, gay, queer, questioning or unsure, and same-gender loving.

cisgender White female who conducts research with populations who are disenfranchised because of race, ethnicity, sexuality, and/or gender. Because she is not part of the communities whom she serves through research, she partners with community representatives to co-inform the research and uses a qualitative descriptive study design^{7,8} to keep the qualitative findings close to participants’ words and meanings.

Program Evaluation

Study Design and Sample Size

We used a partially mixed-method concurrent equal status study design.⁹ We collected complementary quantitative and qualitative data immediately after program implementation at each institution and analyzed the datasets separately after the E2P program was completed at all participating institutions. For the quantitative assessment, we administered pre- and post-E2P workshop surveys with all participating students to assess the effect of the E2P program on various outcomes. For the qualitative component, we conducted qualitative descriptive study^{7,8} using IDIs with a random sample of participating students at each institution to describe students’ perspectives of and experiences with the

E2P program and provide an opportunity for students to explain and elaborate on their survey responses. We aimed to interview 12 students based on research suggesting when data saturation occurs.¹⁰

Evaluation Outcomes

The primary outcome was the effect of the E2P program on student’s interest in a career in HIV research. We also assessed students’ perceived ease or difficulty of starting a career in HIV research and the effect of the E2P program on their career aspirations as secondary outcomes.

Data Collection and Sample Selection

A few days before the workshop, students were sent an email with an individual link to the E2P preworkshop survey, a 35-single-item online questionnaire that includes questions on demographics; awareness and knowledge of HIV, IS, and human-centered design; perceptions of the HIV epidemic; and overall career interests, including interest in a career specifically in HIV research and perceived ease or difficulty in starting a career in HIV research. For the postworkshop survey, students received another email with an individual link to the E2P postworkshop survey and were asked to complete it at the end of the day 3 session. The 31-single-item questionnaire repeated several questions, such as interest in a career in HIV research and perceived ease or difficulty in starting a career in HIV research, and a direct question on the effect of E2P on students’ career aspirations.

For the IDIs, we randomly selected students from each institution who participated in at least 1 workshop session. Selection occurred after the E2P program was concluded at each institution. We aimed to interview 2 students per institution and conduct the interview within 2 weeks of the last workshop session. We used a semi-structured question guide and explored students’ (1) perceptions of the E2P program overall, including their interest in attending the workshop and the usefulness of the E2P program, and (2) responses to survey in more depth, primarily focusing on students’ interest in and perceptions of their self-efficacy (eg, easy/difficulty) in starting a career in HIV research and the effect of the E2P program on students’ career aspirations and plans. Some survey and IDI questions were informed by the social cognitive career theory.¹¹ All IDIs were conducted via telephone by an interviewer who identifies as a Black female. IDIs were audio-recorded with students’ permission and transcribed verbatim.

Data Analyses

We analyzed data from 5 of the 6 schools that participated in phase I of the E2P program; 1 school completed the E2P program late. We analyzed the quantitative and qualitative data separately. For the survey data, we used descriptive statistics to summarize the data and Wilcoxon signed rank tests to test alternative hypotheses that median levels of postprogram interest in a career in HIV research and perceived difficulty in starting a career in HIV research were greater than and less than preprogram interest and perceived difficulty, respectively.

We used applied thematic analysis to analyze the qualitative data.¹² We analyzed students’ narratives related

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to the primary and secondary outcomes of the evaluation and narratives that described the overall appeal of the E2P program to situate the findings within their larger context. Two analysts first applied structural codes to the data using NVivo 12 (Lumivero, Denver, CO).¹³ The structural codes group together students' narratives related to a particular topic or interview questions (eg, workshop appeal, career aspirations). Within each structural topic, analysts identified and applied content codes, which describe and capture the specific perceptions and experiences described by students (eg, the specific reasons the workshop was appealing, such as to learn more about HIV research). Analysts conducted intercoder reliability checks throughout and adjusted coding and the codebooks as necessary to foster consistent applications of the codes. After the structural and content coding was completed, we used axial coding to combine similar concepts (eg, instructor engagement with workshop appeal) and identify the most common participant perceptions and experiences related to the primary and secondary evaluation outcomes and overall context. An analyst then created analytical summaries that included frequency tables of content codes and narrative descriptions of the findings with illustrative quotes. The study was granted exempt status by the Duke University Institutional Review Board.

Implementation Processes

We also documented numerous informal conversations with program faculty and students and lessons learned from implementing the program and student projects.

RESULTS

Participants

Overall, 52 students preselected by faculty champions participated in 5 E2P workshops during the period of study (8–13 students per workshop). Forty-four students completed the preworkshop survey; 45 completed the postprogram survey; and 37 completed both the preworkshop and the postworkshop surveys. Participating students were diverse in their year in school, race, gender identity, and sexual orientation, although most were undergraduates ($n = 35$, 79.5%) and identified as Black or African American ($n = 31$, 70.5%), cisgender female ($n = 28$, 63.6%), and heterosexual ($n = 30$, 68.2%; Table 1). We conducted 10 IDIs with students, of which 9 completed the pre-E2P workshop survey and all 10 completed the post-E2P survey.

E2P Program Appeal

During the IDIs, students said they were interested in attending the workshop to learn more about HIV prevention; financial incentives also motivated a few students. Nearly all students mentioned that they enjoyed the engagement with the E2P instructors and their encouraging feedback. They also shared their appreciation for the collaborative and candid discussions, including the instructors' journey experiences. Most students shared their satisfaction in the creation of a campus PrEP program alongside their peers because it offered them a practical and interactive way to

develop projects while reinforcing the knowledge that they had recently acquired.

Many students expressed that they were surprised to learn that HIV continues to be a concern in their state while sharing that they were most surprised to hear about HIV incidence among Black people. A few students commented that the lack of awareness of HIV, HIV prevention and treatment options, and HIV prevention interventions among Black people, particularly those their age, likely contributes to disparities in the HIV epidemic. Additionally, several students expressed feeling inspired to use human-centered design principles both within and outside the field of HIV (see Table 2 for participant quotes). Minimal concerns were expressed about the workshop facilitation or content.

Effect of the E2P Program on Career Planning Career Interests and Aspirations

Participating in E2P was associated with an increase in median interest in pursuing a career in HIV research ($P < 0.01$). From the preworkshop to postworkshop surveys, the percentage of students (with paired preresponses/postresponses, $n = 34$) who were moderately interested in a career related to HIV research increased from 15% to 35%, and the percentage of extremely interested students increased from 6% to 15% (Fig. 2). Overall, 18 students (53%) experienced increased interest preworkshop/postworkshop survey; 15 (44%) experienced no change in interest; and 1 experienced a decrease in interest.

In the postworkshop survey, 13.3% of students ($n = 6$) reported that the E2P program affected their career aspirations “a lot—I now want a career in HIV,” and 46.7% ($n = 21$) reported that the program affected their aspirations “somewhat—I am now thinking about a potential career in HIV” (Fig. 3). Additionally, students indicated that they were either now considering an advanced degree when they previously were not ($n = 12$, 26.7%) or were considering an advanced degree in the HIV research field when they previously were considering an advanced degree not related to HIV research ($n = 8$, 17.8%).

During the IDIs, none of the students indicated a complete shift in academic or career trajectory; however, most said they planned to incorporate HIV-related activities into their existing future plans in some way, such as ongoing advocacy. Students' responses were varied when describing how the E2P program influenced their decisions to include HIV-related activities in their future plans; influential factors included discussing career options, learning about disparities in HIV, and gaining skills in human-centered design and IS (see Table 2 for participant quotes).

Perceived Difficulty in Starting a Career in HIV Research

Participating in the E2P program was associated with a decrease in median perceived difficulty in starting a career in HIV ($P < 0.01$). From the preworkshop to

TABLE 2. Student Quotes

Topic	Excerpt
E2P program appeal Motivation to attend	<p>What appealed to me is basically, before starting the program, I was really oblivious towards the status of persons in America living with HIV and even young adults. What really got me interested about continuing the meetings was knowing that I could find out ways to prevent myself and also people around me from contracting this deadly disease. They really informed us. They gave us a lot of statistical data and also, they let us, basically, come up with ideas for ourselves to try to reach young people about protecting themselves and also ways to prevent themselves from getting STDs and HIV.</p> <p>I mean, at first, you know, it was the compensation. It was that. But after the first meeting, I was really intrigued. I honestly didn't really care about the payment after that because it was so fun, and I honestly would do it again without being compensated because me and my friends who went with me, we actually had a lot of fun brainstorming ideas, coming up with marketing schemes, all that fun stuff. It really was interesting to do that and learn at the same time.</p>
Engagement with facilitators	<p>I would get stuck with saying what I was trying to say, and they're [instructors] like, "You're just trying to say..." and then give me more feedback as to why it's important what I said and how it would help impact what's going on...It made me feel good. [The instructors] understand where you're coming from, and as a student in college, a lot of people probably don't listen because they still think we're kids...they were able to understand where I was coming from and my point of view.</p>
Student projects	<p>Well, I liked it because I'm more of a hands-on person. So, for me, actually doing something and actually doing something that I learned, I like that better than just talking about it constantly. I love talking about it, but actually doing it with small groups was pretty good.</p>
Collaborate with peers	<p>I like the way we were able to network with each other and kind of bounce ideas off of each other, and then also have the coordinators there that were saying, "Okay, well, think about this aspect, and think about this." So, it kind of felt as though you felt you were on the right track, and even if you weren't, you were still getting something out of it. And it was an environment created of, "There's no wrong answer." It's what you feel is right, is right. It's just, "How do we do it?"</p>
HIV statistics	<p>I was really touched by, I loved the actual facts, the actual data. The statistics really surprised and that made me become more aware and then made me want to spread more awareness about being that I didn't know the numbers were so high in South Carolina.</p> <p>It was interesting to learn a lot of people in poverty, and Black people specifically, their percentages kind of blew all the other ones out of the water, really. Really, just because this was information that I didn't know, but it was interesting. But, it was not that surprising because I know a lot of Black people tend to be scared of the doctor and don't trust our healthcare providers. So, they should, but I don't really hear too often of older Black people going to get tested as often as they should and things like that.</p>
Human-centered design principles	<p>Because usually when we make plans, it's just like a straightforward, but we don't think about like how might this affect this person, or will this be feasible, will this be acceptable. So, it was just more of breaking things down and like doing things the correct way, and that's where they helped us with because he gave us a little more—and they just put a little more thought into whatever plan or whatever we were trying to do.</p>
E2P program effect on career plans HIV advocacy	<p>I've been thinking more recently about maybe trying to incorporate ways for policy making into my career goals, I guess. Trying to find ways to make beneficial policies for African Americans and everyone in the accessibility, I guess, of HIV prevention methods. I still plan on keeping my degree plans.</p> <p>Well, my major is [name of degree], so I do want to go to law school to be a lawyer. After the workshop, I don't believe that it has changed, but I still would be an advocate ... to help in some way or to spread awareness ... growing up, my worst subject was always science, so I don't believe that's something that I would change my major to do. But I would be an advocate, if anything.</p>
Influence of the E2P program on future plans	<p>Learning about the different types of career options. Learning that [I] can go and get a doctorate in this field. Or, you can apply it and assess it for research because I've done a couple of research assistant internships on campus. That's something I'm good at, looking and finding information and putting it in percent. So, if you're trying to be a lawyer doesn't work out, then I have skills that I can fall back on in a field that's interesting to me.</p> <p>Just reinforcing the need. Talking about the disparities, and then coming up with these resolutions. It just reinforced the fact that I really do need to look into my options better, and make better connections. Stay in touch with [professor's name], 'cause he joked, and he's like, "Can I come work for you?" And I was like, "Well, give me a job first, sir!"</p>
Easy to start HIV research-related career	<p>If I was going along the research-based entry points, I think it would be easier for me to start a career that's HIV oriented. Because I have a lot of experience in doing research as an assistant for my professor, specifically in social sciences. So, get it towards helping others, which is to make your focus of HIV research.</p> <p>Well, because there are a lot of avenues to go to get into HIV and it just really depends on what you wanna do. It's easy to do but hard in the sense of how much work you wanna put into it, I guess is a better way of phrasing it. You can go to any HIV-specializing clinic and say, "Hey, I wanna volunteer" or "Where can you use me in this division? This is my background," and they'll have something for you. They will put you to work.</p>

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TABLE 2. (Continued) Student Quotes

Topic	Excerpt
Difficult to start HIV research-related career	<p>I guess trying to find the right connections, the right people to get connected to because prior to this program, I wasn't even truly aware of how big the research focus was.</p> <p>I think it would probably be difficult because you would have to do a lot of research. You have to understand the disease first, and also transitioning from what you already know to something new, there's so much about HIV that could have you wondering why is it not curable yet. Where did it come from? How did people find out about it? How much people had HIV before it was a known disease? There's so much things that would have me puzzled.</p> <p>I think another big thing would be having experience with these things. So, coming right out of college, you probably wouldn't have as much experience as they would want you to have. It'd be difficult trying to get that experience in to get exactly where you want to be. I wouldn't say you can't get the experience while in college, but I feel like doing labs or maybe workshops and shadowing healthcare professionals while you are in college, they would still want you to have more experience outside of that.</p>
Confidence in starting a career in HIV research	<p>I find with the right amount of dedication presented—well, I'm pretty confident that anyone could start a career. It may or may not take a while. Because plans usually don't go as smoothly as you would like them to ... some bumps in the road getting to that goal. [I] feel like on my part, all I have to do is apply myself. So, if that's something that I really wanted to do, I would work as hard as I can for it.</p> <p>Okay, what is the lowest answer? That would probably be the answer. Because I am really—I don't know how to explain to you how horrible I am in biology. It is so crazy. And then people will be like, "Oh, that's the easiest science." Like, no. It's torture. I despise it. [...] Oh. And, I don't know how to start a career in HIV. So, trying to figure all that out.</p>

postworkshop surveys, the percentage of students (with paired preresponses/postresponses, n = 26) who perceived starting a career in HIV research as “easy” increased from 19% to 35%, and the percentage of students who perceived career entry as “very easy” increased from 4% to 15%. Overall, 11 students (42%) experienced a decrease in perceived difficulty; 14 (54%) experienced no change in perceived difficulty; and 1 experienced an increase in perceived difficulty.

During the IDIs, students shared their reasons for perceiving that a career in HIV research would be easy or difficult to initiate. Several said it would be difficult because of their limited medical knowledge of HIV; their lack awareness of career options; their lack of awareness of, access to, or capacity to establish career paths or professional

networks in the field; their limited knowledge of the topic of HIV or the field of work; and a concern that their qualifications may not meet the demands for the field or that they may not have the experience required.

Nearly as many students who said it would be difficult to start a career in HIV research said they thought it would be easy. Some students linked this perception to their previous work experiences in HIV or related fields and the knowledge and skills they learned from the E2P workshop. Other students focused on the availability of opportunities in the field and existing resources that could make starting a career in HIV research easy. Students mentioned, however, that there are several caveats that would affect their ability to start a career in HIV research, such as knowing the steps to take and having relevant resources and job opportunities.

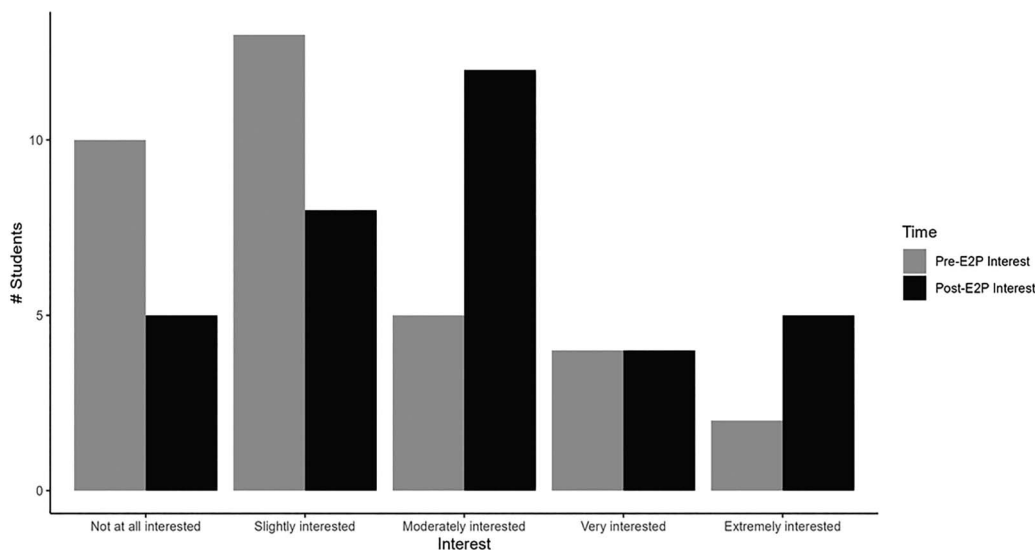


FIGURE 2. Student interest in an HIV-related career pre- and post-E2P program participation.

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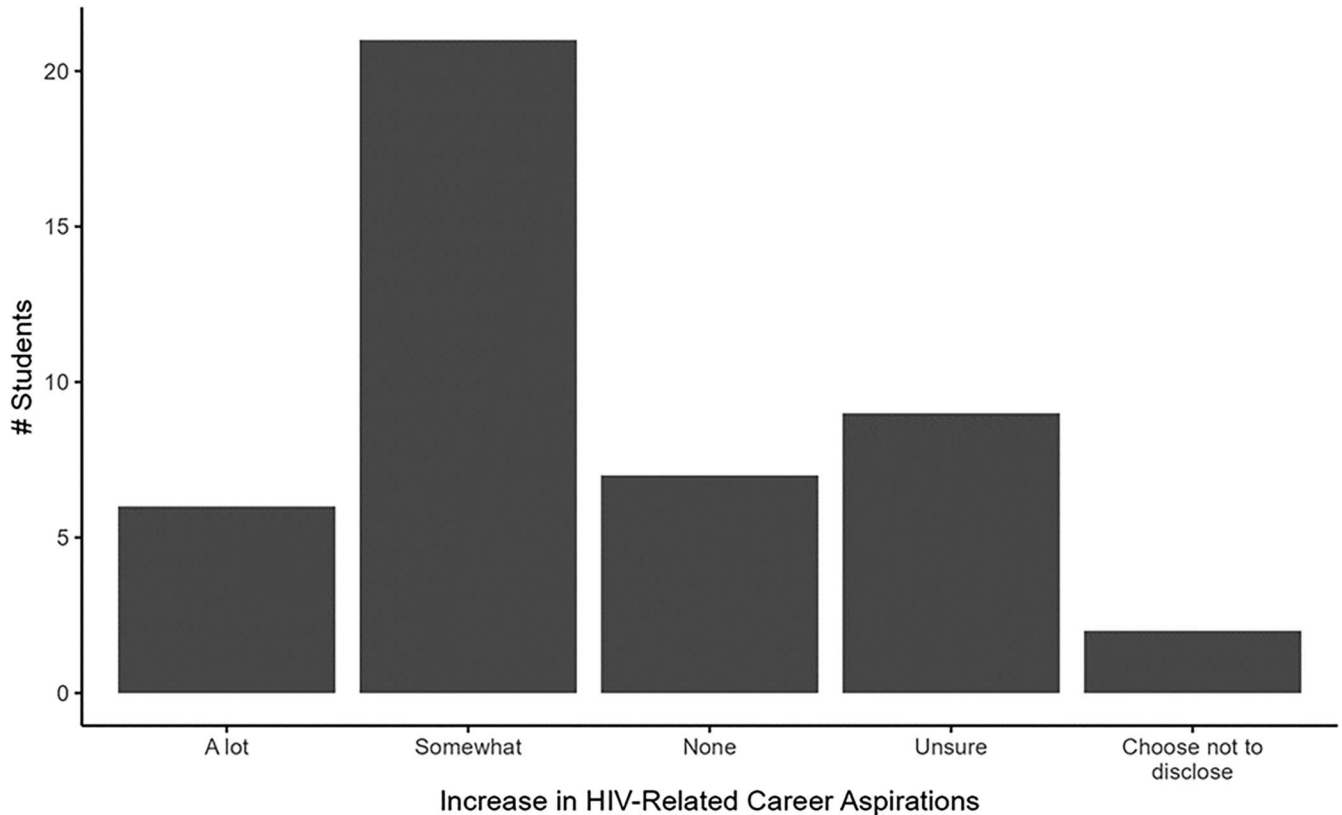


FIGURE 3. Self-reported effect of the E2P program on students' career aspirations.

Students elaborated on their confidence in starting a career in HIV research, with several students feeling that they were somewhat confident and a few students feeling very confident. Some students shared that they were somewhat confident because they possessed particular skills, qualities, or resources that could support their efforts to start a career in HIV research, whereas other students who were somewhat confident expressed concerns similar to those expressed about the difficulties in starting a career in HIV research, such as the need for additional credentials, the lack of knowledge about the field or where to start, and the difficulty engaging and networking with people in the field.

Implementation Insights

During unplanned, informal conversations, students often stated the importance of incorporating peer educators into the program's activities. Additionally, they assigned value to personal stories (to complement epidemiological data), particularly from peers living with HIV. We also learned that engaging faculty champions was critical to the success of the program given their insight on students most likely to engage in program activities. Although students were given contact information for E2P faculty for mentoring, few contacted us for one-on-one career development sessions. Finally, the inability to quickly implement the student-generated 1-page action plans soon after the workshops

resulted in a significant loss of momentum for the execution of the on-campus HIV prevention promotion initiatives.

DISCUSSION

The overall objective of E2P is to develop a pathway for pursuing careers in HIV research, in alignment with the mission of CDEIPI.⁴ The program is predicated on leveraging the long history of HBCU graduates committed to public service and the communities they serve.¹⁴ IS is the study of methods and strategies to promote the adoption and integration of evidence-based practices, interventions, and policies into routine health care and public health settings to improve the impact on population health. IS is anchored by an in-depth understanding of norms, values, and perceptions of priority populations and communities.¹⁵ The NIH acknowledges the persistence of the “know-do” gap between evidence-based HIV prevention strategies, such as PrEP, and their uptake in the real world. As a result, significant NIH funds have been allocated to support HIV implementation research programs in recent years.^{16,17} Unfortunately, researchers positioned to benefit from these funds are not representative of populations at highest risk of HIV acquisition.¹⁸ E2P was developed to interface the public service-driven ethos of HBCU students¹⁴ and the accessibility of IS as an entry point into a career in HIV science given its favorable valuation of context expertise compared with other HIV-related fields of study.

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Findings from our workshop survey suggest that E2P increased HBCU students' interest in careers in HIV research. Additionally, most students who participated in an IDI expressed an intention to incorporate HIV awareness-related activities into their career development plans or future path even if they were not considering HIV science as a primary career field. Most students perceived the pathway to pursue a career in HIV science as less difficult than they did before participating, suggesting that E2P's experiential learning component may have been effective in improving the self-efficacy of students to embark upon a career in HIV research.

A recurring narrative among participants in the IDIs was the lack of knowledge about HIV as a public health concern and the lack of knowledge of "where to start" in the pursuit of a career in HIV science. The emergence of these narratives points to a potential lack of preprofessional mentoring opportunities to complement on-campus preprofessional counseling infrastructure. HIV researchers can play a large role in addressing this gap by increasing their visibility on HBCU campuses and providing opportunities for complementary mentoring from professionals active in HIV science. Overall, our data demonstrate the efficient, yet high-impact, potential of active HIV researchers interfacing with HBCU students directly on-campus, further supporting the notion that such efforts should be a critical part of diversifying the HIV research workforce.

Unfortunately, we did not collect data on the number of students who expressed interest but did not participate in the program given our choice to provide faculty champions autonomy in selecting students. We will collect this information in the future. Future program iterations will also inquire whether students want career development mentoring as a question item on the preworkshop survey. Whether the loss of momentum we experienced between the development and implementation of the students' action plans resulted in students reconsidering their careers in HIV science is unclear. Our hope is to secure funding to support these innovative HBCU campus-specific HIV prevention action plans in the future. Future iterations of E2P will incorporate the lessons learned into program operations.

E2P has introduced a diverse group of HBCU students to HIV research through IS. Although early data from the program evaluation are encouraging, we know that moving the needle on diversification of the HIV research workforce requires long-term engagement and a community of supportive mentors that will foster these newly engaged students along the HIV career development pathway. With future funding, we plan to (1) expand the program to more HBCUs and Latino/a/e/x-serving undergraduate institutions in EHE priority jurisdictions, (2) develop a 10-week summer enrichment program focused on having selected students further develop workshop-generated action plans with close mentoring from implementation research-related faculty, and (3) support the implementation of selected campus-specific HIV prevention action plans generated from the program. Ultimately, we believe that in-person, on-campus educational engagement is a critical catalyst for the successful recruitment

of Black and Latino/a/e/x undergraduate students into careers in HIV science and will remain the key pillar of the E2P program into the future. Our hope is that the E2P program's paradigm of recruiting a diverse HIV research workforce on HBCU campuses and other minority-serving institutions permeates HIV science pathway initiatives nationally.

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