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2022

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Short Report

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Building Research Capacity in HIV and Noncommunicable Diseases in Africa: A Mentorship and Leadership Workshop Report

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Introduction: Few structured mentoring programs target early-stage investigators in Africa, creating a gap in mentorship skills where HIV burden is greatest. We describe findings from a Nigeria-based workshop for early-career physician scientists to build mentoring and leadership capacity in HIV and noncommunicable disease research.

Methods: Baseline surveys captured participant demographics, confidence in implementing mentoring competencies, and perceived importance of workshop training domains. The workshop included didactic presentations, small group activities, and interactive discussions. Daily surveys evaluated sessions, and postworkshop surveys solicited overall course impressions.

Results: Of the 33 participants, most were male (n = 21, 63.6%) and from medicine, laboratory sciences, and surgical specialties. "Building mentees' confidence" and "setting mentees' research goals" were ranked as areas where participants most believed they needed training. Sessions were rated favorably across five areas. Greatest improvements in mean scores were for confidence in identifying personal temperament styles, describing mentoring and leadership theories/frameworks, and developing mentoring plans. Additional identified workshop strengths were content relevance, leadership case series, interactive nature, and collegial atmosphere. All respondents indicated learning something new/useful/helpful in each session. At 6-month postworkshop, most respondents (25 of 26, 96%) had replicated or plan to replicate parts of the workshop in their departments/institutions.

Discussion: Effective mentoring training initiatives targeting future academic leaders have the potential to create skilled academicians who can impart mentoring skills and competencies to their mentees.

Keywords: mentoring, HIV, noncommunicable diseases, workshop, leadership

DOI: 10.1097/CEH.0000000000000380

In sub-Saharan Africa (SSA), where the HIV burden is most pronounced, an emerging epidemic of noncommunicable diseases (NCDs) is taking its toll among persons with HIV.[1–3] This increasing complexity of HIV science requires early-stage scientists to have the ability to blend multidisciplinary facets of HIV research, learn from colleagues from diverse fields, develop leadership skills, and establish nurturing professional relationships.[4,5]

One approach to attaining these skills is through implementation of quality mentoring programs targeting early-stage investigators. The favorable impact of such mentorship efforts on

Disclosures: The authors declare no conflict of interest.

Supported by the Fogarty International Center and the National Institute of Alcohol Abuse and Alcoholism of the National Institutes of Health under award number 1D43 TW011544. The content is solely the responsibility of the authors and does not necessarily represent the official position of the National Institutes of Health.

M.H.A., M.U.S., D.J.I., and C.W.W. conceived and planned the VBRCH program. M.U.S., B.M.M., and F.I.T. helped develop and implement the workshop. All authors contributed to the development of the evaluation instruments. M.H.A., D.J.I., C.M.A., A.A.A., H.M.S., and C.W.W. wrote this article with input from all authors.

Ethical approval for the program was obtained from the Vanderbilt University Institutional Review Board and the Ethics Review Committee at Aminu Kano Teaching Hospital.

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career development of researchers is well-documented.[6–9] In the United States, extensive progress has occurred through efforts of programs such as those spearheaded by the University of California San Francisco.[4,10,11] In SSA, however, few institutions have structured mentorship training programs, creating a gap in mentorship skills and knowledge in countries with the greatest HIV burden. In a survey of orthopedic surgery residency programs in Nigeria, two-third of respondents reported no formal mentorship program in their institutions, and an overwhelming majority (73%) indicated a desire for such a program.[12]

Recent initiatives have begun to address power imbalances in global health and confront practices that permit the imposition of programs in low-income and middle-income countries without the input of host communities ("decolonizing global health"). Büyüm et al[13] suggest a leadership and knowledge shift that reflects the diversity of global health institutions and fosters the creation of new learning platforms. Training programs that spotlight local leadership and expose future academic leaders in low-income and middle-income countries to domestic role models and mentors will help to catalyze this process.

A training program was recently funded to build research capacity of physician scientists in HIV and NCDs in Nigeria,[14] including several proposed workshops covering multiple areas of identified training needs. The first of these workshops focused on strengthening trainees' skills in mentorship and leadership in health systems. We describe key findings from the workshop and offer recommendations for development of similar indigenous training models for building mentoring capacity in HIV and NCD research.

MATERIALS AND METHODS

Background

The parent training program was funded as a model platform to create a cohort of skilled Nigerian investigators having the requisite skills to independently lead HIV/NCD-focused clinical trials. Aims include cultivating an atmosphere of continuous mentoring and skills acquisition for physician faculty in Nigeria by short-term and medium-term learning opportunities, paired mentoring arrangements, and mentored research projects. These include on-site, interactive workshops to build knowledge and skills in mentorship, clinical trials methodology, evidence synthesis, qualitative research methods, stakeholder engagement, knowledge translation, responsible conduct of research, and grant writing. The full description of program training activities is described elsewhere.[14]

Workshop Objectives

The 4-day workshop was held in November 2020 in Kano, Nigeria, with the objectives to help participants understand the purpose and value of mentorship, enable participants to gain knowledge on becoming strong mentors, aid participants in developing effective and successful mentoring relationships, facilitate participants' ability to use networking opportunities to build successful research careers, and learn from real-life leadership experiences of Nigeria's public health leaders. Development of workshop objectives and content was led by Nigerian investigators, in collaboration with US-based colleagues.

Participants

The workshop targeted early-stage physician scientists with faculty appointments at the host university and/or teaching hospital. Similar D43 training grants in Nigeria were also invited to nominate trainees. The program website and social media outlets were used to generate publicity for the application process. Candidates completed an online REDCap application, including their curriculum vitae and detailing their interest in attending the workshop. Applications were reviewed by the training program executive committee, prioritizing applicants who met the above criteria and were enrolled in or alumni of other US government–funded training programs at the host institution. Attention was given to recruit female applicants to ensure gender equity among attendees.

Format

The workshop was modeled on the "Mentoring the Mentors" curriculum,[4,10,11] revised by local investigators to incorporate considerations for the Nigerian environment (structure and content of training). The workshop faculty included nine trainers (two US-based and seven Nigeria-based) and three national health leaders (heads of Nigeria's AIDS Control Agency, the national health insurance scheme, and the presidential COVID-19 task force).

The workshop included didactic presentations, small group activities, and interactive discussions. The first day focused on mentoring theories, mentoring resources and tools, and mentoring relationship dynamics. The second day covered time management techniques, work-life integration, giving and receiving constructive feedback, and scientific writing mentoring support. The third day included sessions on conflict resolution, transitioning mentoring relationships, and mentoring challenges and opportunities in Nigeria. The fourth day was devoted to leadership topics, including small group discussions on inspirational leadership, PACE color palette exercises linking personal temperament styles and leadership,[15] and the role of leadership in building and strengthening research teams. The last session each day was reserved for a "Leadership in Action" case series, during which Nigerian health leaders met with trainees and discussed their leadership experiences in an informal question-and-answer format.

The workshop was held in-person because there was consensus among investigators that in-person training would be more strategic, especially given that this was the first workshop to be held under the 5-year D43 training grant and the need to establish a strong foundational relationship with trainees. All COVID-19 preventive measures were strictly enforced, including temperature and symptom screening, socially distant seating, 100% face mask use, and provision of hand washing facilities (soap, running water, and sanitizer).

Evaluation

Participants were notified of acceptance by email with a link to a structured preworkshop survey. This baseline survey captured participant demographics and solicited participants' level of confidence (Likert scale, 1 = not confident and 3 = very confident) in implementing nine specific competencies: describing mentorship and leadership theories/frameworks, developing mentoring plans, assessing mentee skills/potentials, giving/receiving feedback, managing conflict, managing roles/expectations; outlining effective mentor roles/

expectations, describing emotional intelligence and why it matters, describing time management techniques, and identifying personal temperament styles (PACE palette exercise). Participants were also asked to rank perceived importance of workshop training domains.[11]

Daily REDCap surveys asked participants to rate each session on educational content, instructor's knowledge of subject matter, presentation quality, discussion time, and perceived usefulness (Likert scale, 1 = poor and 5 = excellent). A postworkshop assessment solicited participants' overall impressions of the program and open-ended responses. At 6-month postworkshop, we assessed whether participants used their acquired mentoring skills in new or existing mentoring relationships. All surveys were confidential.

RESULTS

Thirty-three of 38 applicants were selected to attend the workshop. Only one participant failed to complete the workshop. Most participants were male (n = 21, 63.6%) and at an early-career stage (instructor or assistant professor level, n = 26, 78.7%). There was good representation across disciplines, with most trainees drawn from adult medicine (n = 10), laboratory sciences (n = 6), and surgical (n = 8) specialties.

Overall response rates for the preworkshop and postworkshop surveys were 100%. "Building mentees' confidence" and "setting research goals with mentees" were ranked as most important in the preworkshop survey, whereas "working effectively with mentees from diverse backgrounds" and "using strategies to improve communication" ranked lowest.

All respondents (100%) indicated that the workshop objectives were successfully met. Duration and intensity of the workshop were rated "just right," with mean scores of 54 (range: 25–97) and 55 (range: 31–94), respectively. Individual sessions were rated favorably across all five dimensions, with mean scores between 4.0 ("very good") and 5.0 ("excellent") for each activity. For all sessions, 100% of participants responded to "I learned something new/useful/helpful from this session" with "strongly agree" or "agree."

There was a consistent increase in preworkshop and postworkshop mean scores for participants' levels of confidence in implementing selected mentoring skills. The greatest improvements were seen in identifying personal temperament styles (PACE color palette), describing mentoring and leadership theories and frameworks, and developing mentoring plans (Fig. 1).

Questions soliciting open-ended answers elicited various responses. Attendees listed the relevance of the course content, the leadership case series, the highly interactive format, the PACE palette exercise, and the collegial atmosphere as workshop strengths. A participant summarized the overall experience, thus, *"I have realized the need to devote more time in supporting others to grow and uphold the culture of integrity and honesty. I have noticed a gap in my knowledge and the need to strive in improving local capacity for high impact research and community service to control non-communicable diseases."* When asked to comment on what they liked least about the workshop, participants mentioned the quality of meals and the number of hours per day spent in the workshop.

Participants were asked to suggest future workshop topics. The most cited topics included scientific writing, teamwork in health, implementation science, ethics, monitoring and evaluation, and translational research. At 6-month postworkshop, 25 of 26 participants (96.2%) surveyed revealed that the workshop has improved their mentoring skills (Fig. 2). An equal proportion admitted to having replicated or plan to replicate parts of the workshop in their department/institution.

DISCUSSION

Our interactive mentorship/leadership workshop targeted early-career academic physicians and was very favorably received by trainees. There was a significant improvement in the

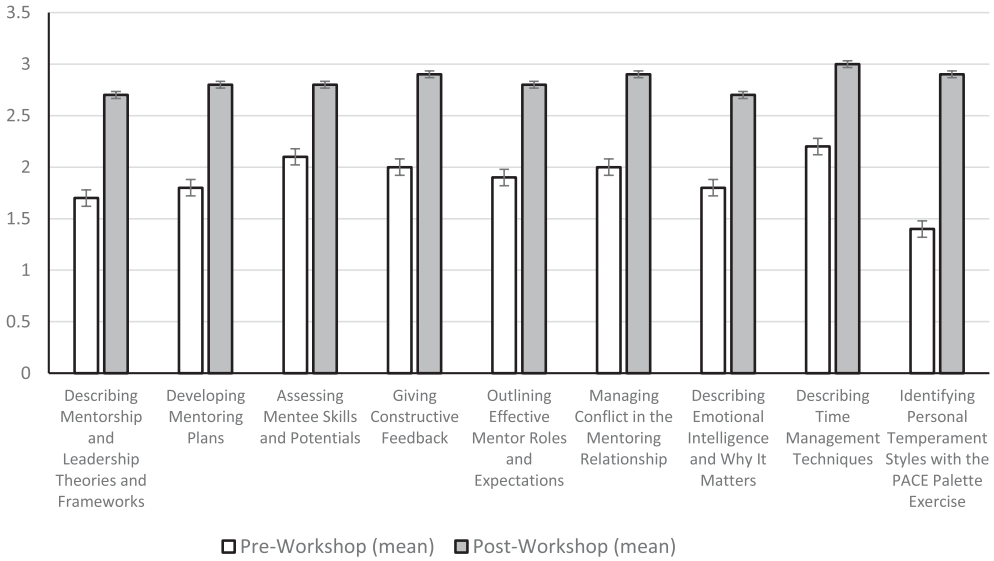


FIGURE 1. Preworkshop and postworkshop mean scores for participants' level of confidence (Likert scale, 1 = not confident and 3 = very confident) in implementing selected mentoring skills, Kano, Nigeria. Error bars represent the standard error of the mean.

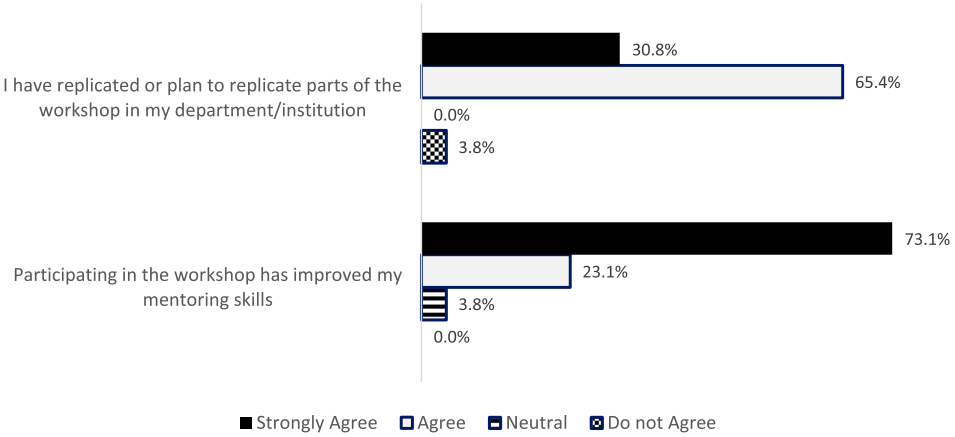


FIGURE 2. Six months postworkshop survey scores (percentages).

confidence level of trainees across multiple mentoring domains, and an overwhelming majority of participants rated their overall workshop experience as "excellent" or "very good." Open-ended responses indicated appreciation for the interactive nature and inclusion of a leadership case series, permitting close interactions between trainees and national health leaders. Given the dearth of structured mentoring programs in academic institutions in SSA, mentoring and leadership workshops like this provide a useful framework to build the capacity of future mentors. In addition, such workshops could be easily scaled to include other institutions with the potential for greater impact over time.

A common barrier to implementing mentoring programs in Nigeria is the pressure of competing professional duties and personal demands.[16] It is therefore imperative that institutional management is included in such initiatives, as this increases awareness of the importance of mentoring among organizational leaders and secures their support for development of structured mentoring programs within their institutions. We solicited and obtained the active involvement of host institution leaders throughout the planning and implementation of our workshop, solidifying management buy-in and high-level support for future workshops.

A limitation of our report is its focus on a select group of early-stage Nigerian academicians, potentially restricting generalizability to other professional groups. However, the workshop was open to early-career researchers from multiple disciplines and therefore shows promise as a scalable training activity that can meet the learning needs of early-career researchers from a range of disciplines. We also conducted the training once and failed to include a control comparison group who did not attend the training. A strength of the study is our ability to capture postworkshop feedback regarding participants' intent to use their new skills in new or existing relationships, reflecting short-term sustainability of impact.

CONCLUSION

Effective mentoring training initiatives targeting future academic leaders have the potential to create a cohort of skilled investigators who can also pass on mentoring skills and competencies to their mentees. The workshop presented can serve as a useful template for similar initiatives.

Lessons for Practice

- A 4-day workshop for building mentoring and leadership in HIV and NCD research for early-stage Nigerian physician scientists was well received by trainees.
- The workshop showed improvement in participants' level of confidence in identifying personal temperament styles, describing mentoring and leadership theories/frameworks, and developing mentoring plans.
- The interactive nature of the workshop and the leadership case series were listed by participants as strengths, suggesting that future training initiatives should be similarly structured.

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