ORIGINAL RESEARCH ARTICLE

Evaluation of the outcomes of a capacity strengthening project on abortion research in Nigeria

DOI: 10.29063/ajrh2026/v30i3s.2

Ademola J. Ajuwon[1], Ojo M. Agunbiade[2], Sunday A. Adedini[3,4], Akanni Akinyemi[5], Adesegun Fatusi[6], Oladimeji Ogunoye[7], Aderonke Fagbemi[7], Sola Asa[5], Melissa Stillman[8], Onikepe Owolabi[8] and Akinrinola Bankole[8]*

Department of Health Promotion and Education, University of Ibadan[1]; Department of Sociology and Anthropology, Obafemi Awolowo University, Ile-Ife[2]; Department of Demography and Social Statistics, Federal University, Oye-Ekiti[3]; Demography and Population Studies Programme, University of Witwatersrand, Johannesburg, South Africa[4]; Department of Demography and Social Statistics, Obafemi Awolowo University, Ile-Ife, Nigeria[5]; Department of Community Health, College of Health Sciences, Obafemi Awolowo University, Ile-Ife, Nigeria[6]; Department of English, Obafemi Awolowo University, Ile-Ife, Nigeria[7], Department of Community Medicine, University of Medical Sciences, Ondo, Ondo State, Nigeria[8]; Guttmacher Institute, New York, United States of America[9]

***For Correspondence**: Email: *ajajuwon@gmail.com*; Phone: +234 803 489 2561

Abstract

Unplanned pregnancy and unsafe abortion are major public health problems in Nigeria. In 2021, the Guttmacher Institute, USA, the Academy for Health Development (AHEAD), and the Centre for Research, Evaluation Resources, and Development (CRERD), launched the Capacity Strengthening for Abortion Research in Nigeria (CSARN) project to equip early-career researchers with the knowledge, attitudes, and skills to conduct and disseminate abortion-related research in Nigeria. Twenty-five mid- and early-career researchers were selected as CSARN fellows. We evaluated the impact of the CSARN program on the fellows' research achievements and professional development. Data were collected through an online survey among 17 out of the 24 fellows trained. Six of the fellows participated in in-depth interviews that further investigated their experiences and scholarly achievements. Most of the survey respondents (12; 70.6%) were female, with a mean age of 37.7±5.8. After the training, most participants (88.2%) had published an article in a scholarly journal, made oral (76.5%) or poster presentations (64.7%) at scientific conferences. In addition, 41.2% had won a research grant, with a combined value of $61,573 USD. There was consensus among in-depth interviewees that the CSARN training has positively impacted their career development, describing the program as '*superb*', '*eye opener*', '*exciting and interesting*'. The CSARN program is a model that can be scaled up and/or adapted in other settings to help meet the research and professional training needs of young researchers interested in sexual and reproductive health. *(Afr J Reprod Health 2026; 30 [3s]: 14-25).*

Keywords: Abortion research, capacity strengthening, prevention of unsafe abortion, Nigeria

Résumé

Les grossesses non désirées et les avortements non médicalisés constituent des problèmes majeurs de santé publique au Nigéria. En 2021, l'Institut Guttmacher (États-Unis), l'Académie pour le développement de la santé (AHEAD) et le Centre de recherche, d'évaluation, de ressources et de développement (CRERD) ont lancé le projet CSARN (Renforcement des capacités de recherche sur l'avortement au Nigéria) afin de doter les jeunes chercheurs des connaissances, des attitudes et des compétences nécessaires pour mener et diffuser des recherches sur l'avortement au Nigéria. Vingt-cinq chercheurs en début et milieu de carrière ont été sélectionnés comme boursiers CSARN. Nous avons évalué l'impact du programme CSARN sur leurs réalisations scientifiques et leur développement professionnel. Les données ont été recueillies au moyen d'un questionnaire en ligne auprès de 17 des 24 boursiers formés. Six d'entre eux ont participé à des entretiens approfondis permettant d'explorer plus en détail leurs expériences et leurs réalisations scientifiques. La plupart des réponses au questionnaire (12 ; 70,6 %) provenaient de femmes, avec un âge moyen de 37,7 ± 5,8 ans. Après la formation, la plupart des participants (88,2 %) ont publié un article dans une revue scientifique, présenté des communications orales (76,5 %) ou des affiches (64,7 %) lors de congrès scientifiques. De plus, 41,2 % ont obtenu une subvention de recherche, pour un montant total de 61 573 dollars américains. Les personnes interrogées lors d'entretiens approfondis ont unanimement reconnu l'impact positif de la formation CSARN sur leur développement professionnel, qualifiant le programme d'« excellent », de « révélateur », de « stimulant et intéressant ». Le programme CSARN constitue un modèle qui peut être étendu et/ou adapté à d'autres contextes afin de répondre aux besoins de formation professionnelle et de recherche des jeunes chercheurs intéressés par la santé sexuelle et reproductive.. *(Afr J Reprod Health 2026; 30 [3s]: 14-25).*

Mots-clés: Recherche sur l'avortement, renforcement des capacités, prévention des avortements non médicalisés, Nigéria

Introduction

Unsafe abortion is a major public health problem in Nigeria. Approximately 1.8 million abortions occurred in the country in 2017[1]. The root cause of abortion is the high number of unintended pregnancies in the country. Most induced abortions in the country are unsafe because the procedures are mostly performed secretly by untrained persons due to the restrictive legal context, and in settings without minimal standards[2]. Unsafe abortion accounts for 30-40% of maternal morbidity and mortality[3,4] and reflects inequity in the country: rural women, low-literate women, and poor women constitute the majority of those who have undergone unsafe abortions in the country[1]. The complications of unsafe abortion are devastating. These include ectopic pregnancy, secondary infertility, uterine perforation, pelvic inflammatory disease, anaemia, and death[3]. Treatment for these conditions exerts a heavy burden on the healthcare system and undermines the health and well-being of affected women and their families[5].

There are several gaps in knowledge and understanding of the dimensions of abortion, mainly because it is a sensitive topic in Nigeria. For example, although the Federal Ministry of Health developed guidelines in 2018 allowing the provision of abortion services when it is indicated to save a woman's life[6], there are currently no robust data on the extent to which health workers provide legal abortion in the country. There is limited and somewhat outdated literature on the issues of abortion and post-abortion care in Nigeria. To address some of the gaps in abortion research in Nigeria, the Guttmacher Institute, USA, the Academy for Health Development (AHEAD), and the Centre for Research, Evaluation, Resources, and Development (CRERD) launched the Capacity Strengthening for Abortion Research in Nigeria project (CSARN)[7] in 2021. Research capacity strengthening is a global approach designed to improve developing countries' ability to tackle the persistent and disproportionate burdens of disease they face[7]. The goal of CSARN was to enhance the technical capacity of early and middle-career researchers to develop high-quality abortion research, promote sustained collaborations among local researchers, support the concerted discussion of evidence gaps and how to address them, and expand the capacity to translate results into policy and programmatic change[7]. In addition, CSARN was developed to create a network among researchers and provide mentoring support for a multidisciplinary group of mid- and early-career researchers, medical professionals, media practitioners, and policymakers working on issues related to abortion in Nigeria.

The selection of CSARN fellows was merit-based. During the selection process, the core team aimed to ensure equitable representation across genders, geographical areas, and fields of expertise. Of the sixty mid- and early-career scholars who responded to the call for applications, twenty-five (42%) were selected. The fellows attended both virtual and in-person physical training over the course of a year. The topics covered during the training included conceptualizing research ideas, research methodology, and communication and knowledge translation. Mentors were selected from the project's database and assigned to the fellows based on their areas of research interest. Fellows developed research proposals, obtained approvals from ethics review committees, collected data, and undertook data analysis and report writing. Fellows received a seed grant and worked under mentors who provided technical assistance in conducting the studies, analyzing data, and reporting the findings.

Fellows were expected to produce a scientific paper from their research by the end of the project year. Almost all (24/25) fellows completed the project on schedule. There has not been any systematic investigation of the CSARN program's impact on the fellows' research achievements and professional development. Understanding this impact and assessing the program from the fellows' perspectives are important for future iterations of the program in Nigeria and can also provide insights into how the program could be adapted and implemented in other settings. We conducted this evaluation from February through March 2025 to address this knowledge gap. The study's overall objective was to determine the impact of the CSARN program on the professional development of the fellows.

Methods

This was a mixed-methods study using desk review, online surveys, and in-depth interviews for data collection.

Quantitative component

Desk review

We contacted the CSARN project officer and retrieved available documents relating to the CSARN project, including the objectives, selection of the fellows, completion rate, types of projects implemented by fellows, and publication record for each fellow. Relevant information was extracted from available documents.

Online survey

We developed a 15-item questionnaire that focused on demographic information, knowledge, and skills derived from CSARN, the achievements attributable to participation in CSARN, challenges encountered, and suggestions for improvement. The instrument was developed specifically for this evaluation and reviewed for content validity by experts in public health and reproductive health research. The questionnaire was administered online using Google Forms. In March 2025, we sent a link to the form to all CSARN graduates using their email addresses, which were obtained from the CSARN office. Seventeen out of the 24 fellows invited completed the questionnaire.

Qualitative component

In-depth interviews

In-depth interviews were conducted with six fellows. We envisaged that we would reach saturation by including six interviewees. We used a sequential approach to select the respondents. This meant that interviews were conducted after fellows had completed the online survey. We purposively identified and invited six fellows for an in-depth interview. One of the authors (AJA) conducted interviews with selected respondents virtually using a Zoom link at a time convenient for them. Interviews were audio-recorded after interviewees had provided informed consent. The topics for the interview were an in-depth exploration of the fellows' experiences participating in CSARN and professional and career achievements attributable to their involvement in the program. Each interview lasted 30-45 minutes.

Data analysis

The analysis of the quantitative data was descriptive. The Statistical Package for Social Sciences (SPSS) software version 21 was used for the analysis of the data, which are presented in numbers and percentages on tables. The voice recordings of the in-depth interviews were transcribed verbatim. The investigators read the transcripts and manually performed thematic analysis of the data. The presentation of this data is descriptive, with evidence supported by verbatim quotations that illustrate the worldview of participants.

Ethical considerations

The University of Ibadan/University College Hospital Ethics Review Committee approved the study protocol before data collection commenced (UI/UCH/24/0966). Each participant was provided with written informed consent before the start of data collection. Participants were also informed that their participation in the study was voluntary, that information collected would be kept confidential, and that they were at liberty to opt out of the study at any time.

Results

Socio-demographic profile of survey respondents

Most of the respondents (12; 70.6%) were female, with a mean age of 37.7±5.8 (Table 1). More than half (52.9%) held a doctorate/or were doctoral students. Of these, 35.3% were in the public health discipline, 29.3% from demography, while others (5.9%) were from nursing, political science, and sociology. The majority (76.5%) were workers; 29.4% worked with non-governmental organizations, universities (23.5%) and government agencies (17.6%). Most were married (70.6%) and are of Yoruba ethnic origin (76.5%).

Table 1: Socio-demographic Characteristics of CSARN Fellows (N=17)

Socio-demographic Characteristics	Frequency	%
Sex	5	29.4
Male	12	70.6
Female		
Discipline		
Public health	6	35.3
Demography	5	29.4
Nursing	1	5.9
Political Science	1	5.9
Sociology	1	5.9
Development Studies	1	5.9
Gender and Social Policy	1	5.9
Agricultural Extension/ Rural Development	1	5.9
Occupation		
Student	4	23.5
Currently work	13	76.5
Current Affiliations (*n=13*):		
Government Agency	3	17.6
Independent consultant	1	5.9
NGOs	5	29.4
University	4	23.5
Marital Status:		
Single, never married	5	29.4
Married	12	70.6
Types of degree		
Doctorate	9	52.9
Master	8	47.1

Most were from Osun state, with only 17.6% residing in countries outside Nigeria (United Kingdom, USA, and South Africa).

Motivation for participating in the fellowship

Three factors motivated the fellows to participate in the CSARN program namely a desire to improve their capacity to conduct abortion research (64.7%), research in general (23.5%), and opportunity for networking (11.8%).

Themes of research conducted by fellows

As shown in Table 2, the research conducted by fellows covered five themes: interventions to reduce complications of abortion, decision-making process to procure abortion services, knowledge, attitudes, and practices relating to abortion, laws, identity, and public perception of abortion and post abortion care. Post abortion care was the most common theme, followed by laws, identity, and public perception of abortion.

Scholarly achievements

The reported achievements of participation in the CSARN project are shown in Table 3. A significant majority of participants (88.2%) reported publishing an article in a scholarly journal; oral (76.5%) and poster (64.7%) presentations at scientific conferences were also common. About one fourth of the total (23.5%) of fellows participated as panelists at a conference. Concerning professional development and recognition, 29.4% of participants won a subsequent fellowship not affiliated with CSARN. In addition, 41.2% were awarded additional research grants, for a combined total of $61,573 USD, and 41.2% secured employment.

In-depth interviewees identified five scholarly achievements attributable to their participation in the CSARN program. The first is scientific publications. All but one of the respondents reported that they have published the research they conducted during the fellowship. '*I have already published a paper from CSARN project*' (Respondent 2). The second is participation and presentation at scientific conferences. This was the most frequently mentioned achievement, as all the interviewees confirmed that they had attended a conference, as illustrated in these quotes:

'I learned how to write an abstract, how to make a PowerPoint presentation to get the attention of the audience' (Respondent 3).
'I have attended four conferences; the most exciting is that of masculinity in Abuja' (Respondent 4). The third is winning fellowships, which have contributed to their career development; '*I have received fellowships from UAPS, IIAS, and SPARKLE*' (Respondent 6). Fourth is receiving grants to conduct research: *I have received funds to research sexual violence* (Respondent 6).

Fifth, they have received professional development in that CSARN *'boosted my confidence to apply for*

Table 2: Themes of research conducted by CSARN fellows

Theme	Title of research
Abortion and post-abortion care	Sexual Violence, Abortion and Post-Abortion Care in Displaced Peoples' Camps: Disclosure Pattern and Sexual Health among the Displaced in Nigeria
	Differentials in Attitudes and Roles of Health Workers in Providing Post-Abortion Services to Medical-Prescribed and Self-Sourced Abortion Patients in Selected Primary Health Facilities in Osun State, Nigeria
	Safety and Effectiveness of self-use of Misoprostol for Abortion and Knowledge of support system available for post-abortion care in Lagos state, Nigeria. A Mixed Method Approach
	Self-managed Abortion Practices and Post Abortion Care Experiences among Young Females (15+) and Healthcare Providers in Nigeria
	Religious Beliefs, Service Affordability and Post-abortion Care Seeking Behaviour among women in Nigeria
	Awareness and acceptability of postabortion contraception among women at a tertiary health centre in North-western Nigeria
	Assessment of Prevalence and Determinants of Catastrophic Post-Abortion Care Costs in a Southwestern State, Nigeria: A Mixed Methods Study
	Depression and post-traumatic stress disorder among women receiving post-abortion care in Katsina, Northwestern, Nigeria
	Prevalence and Outcome of Unsafe Abortion among Women of Child-bearing age in selected Government Hospitals in Bida between 2015 and 2019.
Law, identity and public perception of abortion	'I am not a murderer, aborting the pregnancy was the only option I had!': Identity and Discursive Constructions in Nigerian Women's Abortion Narratives
	Traditional Social Structure and the Crisis of Abortion in South-South Nigeria: A Micro, Meso and Macro Sociological Perspectives
	Live and Let Live! Stigmatization and Male Partner Involvement in Unsafe Abortion and Post-Abortion Complications among Adolescents in Urban Slum Areas of Ibadan, Southwest Nigeria
	Law, Sin, and Death: Social Media Perception and Influence on Abortion Knowledge among Nigerians
	Beyond the Right-based Approach: Rethinking Population Control as a Foundation for Abortion Liberalization in Nigeria
	IDPs Camp isn't a Safe Haven: Exploring Safe Abortion Legalization for safety of displaced women and girls in Nigeria
Knowledge, attitude and practice on abortion	Primary Healthcare Providers' Knowledge, Perceptions of, and Attitudes towards Induced Abortions in Ile-Ife, Osun State, Nigeria

	Awareness, Attitude and Practice of Unsafe Abortion among Undergraduates in Kebbi State, Nigeria
	Self-managed Abortion Practices and Post Abortion Care Experiences among Young Females (15+) and Healthcare Providers in Nigeria
	Availability and facility readiness in the provision of contraceptives and other related sexual and reproductive health services in tertiary institutions' health centres in Ondo State, Nigeria
	Knowledge, Attitude and Practices of Rural Women towards Unsafe Abortion and Post Abortion Care in Osun State, Nigeria
Decision-making about abortion services	Awareness, Attitude, and Practice of Unsafe Abortion among Undergraduates in Kebbi State, Nigeria Socioeconomic Inequalities and Couples' Decision for Abortion in the South-South, Nigeria: A Mixed Method Approach
	Availability and facility readiness in the provision of contraceptives and other related sexual and reproductive health services in tertiary institutions' health centres in Ondo State, Nigeria
	Abortion experiences and procurement behavior among female adolescents in informal settlements in Nigeria
	Perception of risk and preference for abortion service providers by female high school students in Oyo state, Nigeria
Interventions to reduce abortion and its complications	Predictors of where young Nigerian undergraduates choose to access reproductive health products and services Effects of parent-adolescent sexuality communication in reducing teenage pregnancies: Prospective follow-up research among adolescents in selected states in Southwest Nigeria
	Safety and Effectiveness of self-use of Misoprostol for Abortion and Knowledge of support system available for post-abortion care in Lagos state, Nigeria. A Mixed Method Approach.
	Effectiveness of therapeutic routines for bacterial infections following induced abortion amongst women of reproductive age in Southwestern Nigeria

things and receive acceptance and rejection' (Respondent 6). Finally, one respondent said her participation in CASRN created a consultancy opportunity for her, *"I helped MSI in conducting research on abortion on family planning intake in Osun state'* (Respondent 2).

Experience of the training component of the CSARN project

There was a consensus among interviewees that the CSARN training has positively impacted their career development. They used different adjectives

Table 3: Achievements after participating in the CSARN fellowship training (N=17)

Scholarly activities	Yes (%)
Made an oral presentation at a scientific conference	13 (76.5)
Made a poster presentation at a scientific conference	11 (64.7)
Participated as a panelist at a scientific conference	4 (23.5)
Won a fellowship	5(29.4)
Got a job	7 (41.2)
Published an article in a scholarly journal	15 (88.2)
Reviewed a manuscript for a scientific journal	8 (47.1)
Served as an editor for a journal	3 (17.6)
Had won a grant	7 (41.2)
Research findings/policy presentation to stakeholders	1 (20)
Got a clinical posting outside Nigeria	1 (20)
Enhanced skills in PowerPoint presentation	2 (40)
Publication in media newspaper	1 (20)

to illustrate their perception of the training, including '*superb*', *eye opener*', and '*exciting and interesting*'. They identified six components of the training that they found beneficial. The first was that the team of trainers is multidisciplinary. As one respondent put it, training was delivered by '*many professionals that cut across different fields of human endeavours'* (Respondent 1).

Second, the faculty were perceived to be competent because the '*trainers shared personal experiences in their research and the experience they had in supervision'* (Respondent 1). Third, the training created networking opportunities for fellows in the sense that they have met '*people, scholars and mentors'* (Respondent 2). Fourth, respondents gained research-related knowledge and skills on '*everything about writing, presentations, and what is necessary for writing, how policy can be made from your write-up*' (Respondent 2). The fellows also acquired skills relating to the collection of qualitative data. As one respondent put it: '*I will say that is the first training that I had in-depth understanding of what research is all about, specifically in qualitative research, qualitative method of data collection'* (Respondent 3).

Fifth, the training was considered timely in that '*it came at the right time for me when I was ready, I was in my PhD program, almost to the end of the program, then so many of the trainings helped me in developing my thesis'* (Respondent 5).

Finally, the training was considered comprehensive; '*Yes, in terms of preparing research looking for the problem, finding the problem, going about situating the objectives, then going about collecting the data, going about analyzing it, which of the methods is appropriate for your objectives, and preparation to write a manuscript*' (Respondent 6).

Perceived impact of components of CSARN

Participants were asked to rate the impact of the different components of the CSARN program. Among the intersecting components, training workshops and hands-on support with proposal development were rated as the most beneficial components, with 88.2% of respondents assigning them a high impact rating (Table 4). The project team's review and feedback on manuscript writing were also highly regarded, with 82.4% viewing it as having a high impact. The implementation of research was seen as impactful, with 70.6% rating it as high. More than half (58.8%) of participants rated training in data analysis as being moderately impactful, while 41.2% considered it high. Networking opportunities were perceived as highly impactful by 52.9%.

Perception of the mentorship component

Overall, respondents reported positive experiences with their mentors. Mentors displayed four behaviors that respondents found to be helpful.

Table 4: Components of the CSARN training that impacted respondents' professional development as a researcher

	Perceived impact		
Components of the CSARN program	Low	Average	High
Training workshops	00.0 (00.0)	2(11.8%	15 (88.2)
Research proposal development	00.0 (00.0)	2(11.8%	15 (88.2)
Implementation of research	00.0 (00.0)	5 (29.4)	12 (70.6)
Data analysis	00.0 (00.0)	10 (58.8)	7 (41.2)
Manuscript writing	00.0 (00.0)	3 (17.6)	14 (82.4)
Mentoring	1 (5.9)	3 (17.6)	13 (76.5)
Networking among fellows	4 (23.5)	4 (23.5)	9 (52.9)
Networking with facilitators and mentors	5 (29.4)	(23.5)	8(47.1)

Table 5: Challenges encountered in participating in the CSARN program

Challenges	N	(%)
Meeting with Mentor	1	5.9
Inability to complete the study/Meeting deadlines	2	11.8
Inability to network due to poor internet network	1	5.9
Distance of moving from one state to another poor State	1	5.9
Low response rate during data collection	1	5.9
Handling sensitive topics and discussions	1	5.9
Difficulty with a poor network during online training n	2	5.9
Balancing work and academics	1	11.8
Low financial budget/Budget constraints	1	5.9

First, mentors responded promptly to the needs of fellows: '*I could even call or talk to him at any odd hours that ordinarily I knew I was not really entitled to kind of but except for the fact that a fatherly touch of the mentorship*' (Respondent 1). Second, mentors inspired confidence in the mentees. *'It was my mentor who helped me work hand in hand, he was the one who gave me the confidence to go ahead actually*' (Respondent 3). Third, mentors allowed mentees to express themselves freely because '*my mentor was perfectly OK; he accepted me the way I am and did not impose anything on me'* (Respondent 4). Fourth, mentors provided technical support to mentees as illustrated in the quotes below:

'*Without my mentor, I don't think the work would have been successful at all. I don't even know how to go about it*' (Respondent 4).

'My mentor helped me to have a good interaction, and he was present at every point in time, giving advice and all that' (Respondent 5).

'*So throughout the process of writing, [my mentor] was with me all through the process*' (respondent 3).

'Wonderful; my mentor was always present to give me all the advice I needed, and any time I needed help I asked' (Respondent 3).

Challenges encountered in participating in the CSARN program

Respondents listed the challenges they encountered during the fellowship (Table 5). The major ones are inability to complete the study and meeting deadlines (11.8%), difficulty participating online due to poor network (5.9%), and low response rate during data collection (5.9%).

In-depth interviewees identified five challenges they encountered during the fellowship. The first was the fact that some of the training sessions were conducted online, and the internet connection was poor in some areas. The second challenge was the inability to participate in some of the sessions physically due to engagement in other competing activities. Two fellows, for instance, attended all the sessions online. One trainee said she wanted to attend physically, but that '*my organization did not release me*' (Respondent 3),

while the second was involved in another fellowship program outside Nigeria. As she put it, '*I wasn't opportune to be there physically so I joined virtually, that at least I can network more with other mentors*' (Respondent 6). The third challenge stemmed from the sensitive and often stigmatised nature of abortion and abortion-related research. The narratives of the fellows portrayed a common challenge of eliciting candid responses from participants in their research despite their adoption of tools that were methodologically sound. Recounting one such experience, one of the fellows said *'Yes, when I say people are skeptical about it, they are skeptical in the sense that they see abortion as killing. So, responding to your question about abortion was very difficult'* (Respondent 3).

The fourth challenge was related to the delay in receiving feedback from the reviewers of her manuscript. The mentors who supported the fellows provided their support on a *pro bono* basis and are researchers and academics who have other competing demands, which contributed to the timeliness of their feedback and suggestions to the fellows. The challenge was not the same among all the participants as some did not mention such an experience in their narratives. Nonetheless, it was an obvious constraint that could have impacted negatively on the fellow's experience and possible output from their research.

Suggestions for the improvement of the CSARN program

Respondents provided several suggestions for the improvement of the CSARN program. The most frequently mentioned suggestion was that all training sessions should be physical. Other suggestions are listed below.

Permission to publish in a high-impact journal of the fellows' choice should be granted; it should not be limited to the organization's choice. Mentors should be affiliated with an institution different from that of the fellows. Grants should be given to fellows based on the realistic cost of completing their approved research studies. More hands-on workshops for data analysis should be included. More time should be allocated to mentorship as well, for it is vital for early-career researchers. Relevant and timely opportunities (such as fellowships, scholarships, grants, and workshops) should be curated and shared with fellows. There should be follow-up workshops to further improve skills for abortion research.

Other suggestions are that the program should provide opportunities for participants to gain hands-on research experience through involvement in studies that mentors are actively engaged in. In addition to STATA training, sessions on data analysis using software like Power BI or Python should be included. There is also a need to engage reviewers who are more consistently available to meet deadlines. Additionally, there is a need to reach out to early-career scholars with at least a doctoral degree who can provide reviews to ensure a timely process and create an opportunity for early career scholars to serve as reviewers, thereby promoting professional development and fostering a sense of involvement in the academic community. Finally, respondents suggested the need to expand the network of institutions in partnership to include mentees with more research experience as mentors.

Discussion

This study evaluated the CSARN program's impact on the participants' (fellows) research achievements and professional development. Unsafe abortion is a major public health problem, accounting for approximately 30-40% of the maternal morbidity and mortality in Nigeria[3,6]. The incidence of unsafe abortion reflects existing inequity in the Nigerian society; rural women, low-literate women, and poor women constitute the majority of those who have undergone unsafe abortions in the country[1]. Yet, there are several gaps in knowledge about the true burden of abortion and other dimensions of the problem. The goal of CSARN is to enhance the technical capacity of early and middle-career researchers to develop high-quality abortion research, promote sustained collaborations among local researchers, support the concerted discussion of evidence gaps and how to address them, and expand the capacity to translate results into policy and programmatic change[7].

Our findings indicate that the CSARN intervention has met the research and professional training needs of fellows. Both quantitative and

qualitative data confirm that fellows derived adequate research and professional skills needed for their career development, but also as researchers who undertake research to address existing gaps in knowledge on abortion in Nigeria. Several factors contributed to this achievement, including the merit-based and competitive nature of selection, which ensured that highly motivated and suitable candidates were enrolled in the program. The content of the curriculum was also comprehensive, and relevant topics on research methods and abortion research were covered. Studies have shown that a well-designed teaching curriculum is linked to excellence in trainees' learning experiences and performance[8,9]. Before the enrolment of fellows on the program, a week-long workshop was organized to prepare the CSARN curricula. The workshop significantly contributed to the design of robust curricula and training materials well-tailored to participants' needs. A multi-disciplinary team of facilitators developed the curricula and delivered them. At the same time, peer-to-peer learning occurred because fellows with superior experience supported their colleagues in specific tasks, such as the use of STATA. These findings reveal that fellows of the CSARN program acquired vital forms of *embodied capital*[10]—skills, dispositions, and confidence—that may not have been possible without the support and structure of the robust network.

Another unique component of the CSARN project was the guidance fellows received from their mentors. Mentors played important roles, such as providing tools for data collection, reviewing proposals, and providing critical intellectual inputs to manuscripts. Mentoring is an important requirement for a successful and satisfying academic career[11]. Mentees have reported positive outcomes arising from the relationship, including improvement in school performance and research productivity, increased interest in research and aspiration to an academic career[11]. Mentors also have professional satisfaction in ensuring that junior colleagues become productive, successful teachers and researchers, and mentoring enables senior colleagues to leave a legacy when they retire, as their mentees continue their contributions in research or discipline[12]. The mentoring component of the CSARN program significantly enhanced participants' learning experience and contributed to timely completion of the fellowship. This mirrors the often-unspoken norms of academic life—a form of *hidden curriculum* described by Koutsouris and colleagues[13] as essential to shaping professional identities. The ability of fellows to craft compelling abstracts, present confidently at scientific meetings, and secure competitive funding opportunities reflects their internalisation of this academic culture. Ausat, Bana, Gadzali [14] note that such knowledge is practical and functions as a *social asset*, enabling researchers to gain credibility, expand their networks, and access new opportunities.

Some of the fellows have won research and fellowship grants. Grants play an important role in the career development of young researchers. Research grants won or accessed through competitive applications are the main sources of research experience, infrastructure development, conference participation, complementary income, international collaborations, and scholarly publications for researchers from low and middle-income countries[15]. Through opportunities to publish in reputable scholarly outlets and participate in academic conferences, the fellows developed analytical skills, research competence, and scholarly self-assurance. These achievements reflect *embodied* and *objectified* cultural capital, reinforcing Bourdieu's theory of cultural and symbolic capital[10]. Significantly, admission into the CSARN fellowship through a rigorous and competitive selection process enhanced the symbolic value of the experience, positioning fellows more competitively for research grants and professional recognition. These forms of capital have not only strengthened the individual research capacities of the fellows but have also amplified their voices in addressing critical gaps in abortion research. The credibility of their research outputs contributes to expanding the space for open, evidence-based discourse on abortion in Nigeria, an area often limited by social stigma and policy sensitivity. The fellows' experiences demonstrate the transformative power of structured, theme-focused capacity-building initiatives. This resonates with Shim [16] concept of *cultural health capital*, which underscores the importance of socially embedded knowledge and interactional

skills in navigating the complex terrain of healthcare systems and health scholarship. In this context, CSARN provided technical research training and nurtured the linguistic fluency, professional conduct, and epistemic confidence required to engage authoritatively on abortion in academic forums or policy dialogues. The program responds directly to Al-Worafi [17] call for public health initiatives to equip researchers with the cultural tools needed to translate evidence into practice—an area CSARN has addressed.

The publications of graduates of the CSARN program will also contribute to their visibility as scholars, and this is pivotal to their career advancement. There are critical data gaps on the issues of abortion and post-abortion care in Nigeria; hence, the participants' publications represent important contributions to the body of knowledge on abortion-related issues in the country. The CSARN program has gone beyond technical training. It has carved a pathway for academic growth, professional visibility, and social mobility in an area of public health research that remains underexplored and often marginalised. The programme's impact lies in building individual capacities and fostering a new generation of scholars equipped to influence policy, challenge stigma, and produce research that matters.

Study strengths and limitations

There are two strengths of this study. First, it demonstrates the outcomes of an intervention on trainees' knowledge and skills across different topics related to abortion research in Nigeria. Despite the sensitivity of the subject, the trainees applied the knowledge and skills they had acquired by conducting and reporting findings on abortion-related issues, thereby contributing new information on the topic. Second, the integration of both qualitative and quantitative methods has yielded both breadth and depth of information, indicating the value of the intervention, which met the knowledge and skills needs of the trainees.

We acknowledge the limitations of the study. One limitation is that the evaluation was not designed to attribute the project intervention's results fully. Since the study did adopt a quasi-experimental design, it is possible that other factors, rather than the project itself, may have been responsible for the academic achievements reported by the trainees. Additionally, there is a possibility of recall bias due to memory lapses, given the time elapsed between the intervention period and when the evaluation was conducted. Two, due to the short nature of the interval between training and evaluation, we cannot determine the long-term impact of the project on the career trajectory of the trainees.

Conclusion and recommendations

The CSARN intervention has achieved its goal of empowering young researchers with knowledge and skills to research a sensitive topic like abortion in Nigeria. Most of the graduates of the program have published the findings of their research in peer-reviewed journals, thus contributing to the body of knowledge on abortion in Nigeria. As a group, the graduates represent the next generation of researchers who are likely to make important contributions to tackling different dimensions of challenges posed by abortion and its complications in the country.

We provide four recommendations. One, the CSARN program should not only be sustained but also expanded to increase the number of cohorts to be accepted into the program. This will be an important contribution to the creation of a critical mass of researchers. In addition, the trainees of today will become mentors in the future. Two, the training sessions should be conducted in-person to ensure peer-to-peer learning and enhance facilitator-trainee interactions. Three, the mentorship component is one of the unique components of the program, which should be sustained. Finally, more research capacity-strengthening activities are needed as a critical way of addressing research gaps in Nigeria and other sub-Saharan African countries where huge data gaps exist, particularly on sensitive public health issues.

Acknowledgements

We thank all the respondents who participated in this study. The consortium of the Guttmacher Institute, the Academy for Health Development (AHEAD), and the Centre for Research, Evaluation

Resources, and Development provided funding for this research.

References

1. PMA. *Abortion Survey Results: Nigeria. Fact Sheet*2020.
2. Bankole A, Adewole IF, Hussain R, Awolude O, Singh S, Akinyemi JO. The incidence of abortion in Nigeria. *International perspectives on sexual and reproductive health.* 2015;41(4):170.
3. Oye-Adeniran BA, Long CM, Adewole IF. Advocacy for reform of the abortion law in Nigeria. *Reproductive Health Matters.* 2004;12(sup24):209-217.
4. National Population Commission (NPC) [Nigeria] and ICF. *Nigeria Demographic and Health Survey 2018. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF*2019.
5. Allan Guttmacher Institute. *Abortion in Nigeria. Fact Sheet, October 2015*2015.
6. FMOH. *National Guidelines on Safe Termination of Pregnancy for Legal Indications, Abuja, Nigeria*2018.
7. CSARN. Capacity Strengthening for Abortion Research in Nigeria. Unpublished report.2021.
8. Kusmawan A, Rahman R, Anis N, Arifudin O. The relationship between teacher involvement in curriculum development and student learning outcomes. *International Journal of Educatio Elementaria and Psychologia.* 2025;2(1):1-12.
9. Steiner D, Magee J, Jensen B, Button J. What we teach matters: How quality curriculum improves student outcomes. 2018.
10. Lareau A, Weininger EB. Cultural capital in educational research: A critical assessment. *Theory and society.* 2003;32(5):567-606.
11. Frei E, Stamm M, Buddeberg-Fischer B. Mentoring programs for medical students-a review of the PubMed literature 2000-2008. *BMC medical education.* 2010;10(1):32.
12. Mugyenyi P, Sewankambo NK. *Mentors Manual for Health Sciences Training in Africa*. Kampala, Uganda: Fountain Publishers; 2010.
13. Koutsouris G, Mountford-Zimdars A, Dingwall K. The 'ideal'higher education student: Understanding the hidden curriculum to enable institutional change. *Research in Post-Compulsory Education.* 2021;26(2):131-147.
14. Ausat AMA, Bana TA, Gadzali SS. Basic capital of creative economy: The role of intellectual, social, cultural, and institutional capital. Apollo. *Journal of Tourism and Business.* 2023;1(2):42-54.
15. Kedebe G. The ripple benefits of winning grant funding. 2024; wwwhttps://risingscholars.net/en/news/details/1910/
16. Shim JK. Cultural health capital: a theoretical approach to understanding health care interactions and the dynamics of unequal treatment. *Journal of health and social behavior.* 2010;51(1):1-15.
17. Al-Worafi YM. *Public Health Research in Developing Countries: Achievements and Challenges. Handbook of Medical and Health Sciences in Developing Countries*: Springer, Cham; 2024.