

RESEARCH NOTE

Open Access



# Building research capacity in sub-Saharan Africa: findings from a pilot scientific writing workshop in Cameroon

Solange Dabou<sup>1\*</sup>, Valery Ngo Ngo<sup>1</sup>, Ghyslaine Bruna Djeunang Dongho<sup>1</sup>, Evrard Melvin Képgang Nanséu<sup>1</sup>, Regina Yuka Sinsai<sup>1</sup>, Constantine T. Asahngwa<sup>1,2</sup>, Odette Dzemo Kibu<sup>1,3</sup>, Jessy Goupeyou-Youmsi<sup>1</sup>, Fabrice Zobel Lekeumo Cheuyem<sup>1</sup>, Anna Conner<sup>6</sup>, Ronald M. Gobina<sup>1,4,5</sup> and Denis A. Foretia<sup>1,7</sup>

## Abstract

**Objective** Sub-Saharan Africa produces less than 4% of global scientific output, despite significant health and development challenges. This study evaluated the effectiveness of a pilot scientific writing workshop in Cameroon aimed at building writing skills and publication readiness of early career researchers. We conducted two workshops' sessions in Yaoundé, Cameroon, in April and November 2023. A mixed-methods approach was used. Quantitative data were obtained via pre- and post-workshop questionnaires designed to capture participants' self-assessed knowledge, skills, and confidence related to the workshop content. Qualitative data were gathered through in-depth interviews. Descriptive and inferential statistics were applied to the survey data, and thematic content analysis was used to assess qualitative responses.

**Results** A total of 86 participants completed both the pre- and post-workshop surveys (response rate: 86.9%). The majority had never published scientific papers (62.8%) nor had they received formal writing training (61.6%). The quantitative results showed statistically significant improvements in participants' overall understanding of scientific writing and publishing (mean difference = 0.93,  $p < 0.001$ ) and confidence regarding writing skills (mean difference = 0.94,  $p < 0.001$ ). Thematic analysis of the interviews revealed high satisfaction with the learning environment, perceived knowledge gains, and a strong demand for mentorship and sustained training opportunities.

## Highlights

- Most of the participants (61.6%) had never completed a scientific writing or publication course.
- Almost two thirds (62.8%) had never published a scientific paper before.
- Participants reported increased knowledge, skills and confidence in scientific communication.
- Junior researchers in Africa seek consistent mentorship and training opportunities.

**Keywords** Scientific writing, Academic publishing, Scientific communication, Workshop, Capacity building, Sub-Saharan Africa

\*Correspondence:  
Solange Dabou  
sdabou@foretiafoundation.org

Full list of author information is available at the end of the article



© The Author(s) 2026. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

## Introduction

Sub-Saharan Africa (SSA) faces numerous pressing challenges; yet the region contributes less than 4% of global scientific research output, revealing a significant gap between the severity of its challenges and the volume of locally produced evidence to address them [1–3]. Much of the research conducted in Africa remains unpublished or underutilized in policy and decision-making processes, hindering sustainable development efforts [4]. Even when African-based studies are published, African researchers are frequently underrepresented as first or last authors, diminishing local ownership and visibility in scientific discourse [5, 6]. Although research productivity has increased since 2004, meaningful gains across the continent remain limited [7].

Peer-reviewed publications are widely used as the primary indicator of individual and institutional research capacity and productivity [8]. Patterns of publication and authorship therefore mirror local research capability and leadership [9]. Consequently, African leadership of African research is essential for developing context-appropriate solutions and for ensuring their uptake in policy and decision-making [9]. In addition, actively participating in international scholarly communication can help sub-Saharan Africa acquire the knowledge and information needed to compete and thrive in the global economy [10].

Several factors have been implicated in Africa's low research output, including infrastructural deficits, limited institutional support, inadequate funding, and gaps in research education and training [8]. A capacity assessment of African universities and research institutions highlighted poor academic writing skills as a significant constraint, particularly in SSA [11]. In health research, scholarly writing and publication are critical for driving innovation, improving clinical practice, and fostering the academic advancement of researchers [12]. However, for many early career researchers in Sub-Saharan Africa, the path to academic publication is fraught with challenges ranging from lack of training in scientific writing to limited mentorship and language barriers, especially when writing in a non-native language [13]. Effective manuscript preparation requires a sound understanding of scientific article structure, journal requirements, and scholarly communication practices, areas where many early career African researchers need substantive support [14, 15]. Strengthening these skills and addressing the broader barriers to their scientific productivity is critical for sub-Saharan Africa's development, since young scholars are pivotal to research and innovation ecosystems in today's knowledge-driven economies [16].

Short-term training and targeted capacity-building initiatives are a promising way to narrow early-career researchers' skills gaps in scientific writing and publishing, and such interventions can boost publication output

[17]. However, evidence on their effectiveness remains limited in low- and middle-income countries (LMICs) [17, 18]. In sub-Saharan Africa, notable programs such as Rising Scholars (formerly AuthorAid) and the Training Centre in Communication (TCC Africa) have demonstrated impact but still face constraints in institutional and geographic reach; efforts across the region remain fragmented and often undocumented [19]. As Busse et al. (2022) argue, scientific writing and publishing interventions are an underused opportunity for strengthening research capacity, and implementers should "share their experiences by publishing detailed information about the approach and effectiveness of the interventions" [17]. Other authors likewise call for systematic documentation, evaluation, and publication of findings from research capacity-building initiatives to generate lessons and evidence that inform future programs and research [18].

Evidence from prior studies shows that scientific writing workshops can substantially improve participants' writing competence and confidence, even when their prior experience is limited [20, 21]. Building both skills and confidence aligns with Cooke's six principles for research capacity building in healthcare evaluation [22], and confidence itself is a key factor that can increase interest and success in STEM research [23]. Targeting these two constructs, skills and confidence, therefore offers a practical blueprint for designing effective writing and publishing interventions, particularly in low-resource settings. Guided by this approach, we implemented a pilot scientific and manuscript-writing workshop in Cameroon.

Cameroon exemplifies many of the structural and contextual challenges faced by early-career researchers across sub-Saharan Africa: limited access to funding opportunities and research support structures, minimal mentorship, administrative hurdles, and restricted opportunities for international collaboration [24, 25]. As a bilingual country, it also presents unique linguistic barriers to scientific publishing, particularly for francophone researchers submitting in English [24]. Despite efforts to integrate research courses into formal training, there remains a clear need for targeted interventions that build skills, confidence, and mentorship especially as documented accounts of such interventions are scarce [17]. Against this backdrop, this study examines whether a structured scientific and manuscript-writing workshop can improve the writing skills, confidence, and publication readiness of early-career researchers in Cameroon, with the broader aim of informing scalable capacity-building models for similar African contexts. Specifically, we assess participants' perceptions of the workshop's structure, content, delivery, and facilitation; evaluate their understanding of manuscript structure,

journal selection, and submission processes; and measure pre- to post-changes in self-reported writing confidence and skills.

## Methods

### Study design

An explanatory sequential mixed-methods design was used to evaluate the effectiveness of the workshops in building scientific writing skills and to explore the participants' experiences. Quantitative data were collected before and after each workshop using self-administered questionnaires and qualitative insights were gathered through in-depth interviews with selected participants. Quantitative data from the survey were prioritized to assess participants' self-reported changes in writing competence, confidence, and understanding of publication processes. Qualitative data from in-depth interviews were collected subsequently and used to explain, contextualize, and enrich the quantitative findings.

### Course structure and content

Two independent hybrid (online and onsite) workshops were conducted in April and November 2023 in Yaoundé, Cameroon. Each workshop lasted two days, featured identical content, and was delivered by the same facilitators. The training curriculum includes modules on the fundamentals of scientific writing, manuscript preparation, referencing tools and systems, dissemination strategies, publication ethics and publication process. Each session allowed time for interactive discussion and networking. The training included practical sessions designed to reinforce key concepts shared during the workshop such as referencing techniques, manuscript structure, and journal selection. The workshops were facilitated by multidisciplinary faculty of experts from Cameroon and the United States. A complete outline of the course modules is provided in Additional File 1 (Sect. 2). Participants who submitted draft manuscripts during the registration process (an optional feature) received individualized feedback from facilitators during the workshop. Additionally, a WhatsApp forum was created to foster ongoing peer support and informal exchange, but no structured one-on-one mentorship was provided after the training.

### Course participants

The workshops were open to final-year medical students, recent doctoral graduates, and early career researchers. Registration was done online and there was no minimum experience in scientific writing required for enrolment, with participants accepted from all scientific disciplines. To avoid duplication, participants from the first workshop were excluded from the second workshop.

### Study participants and sampling strategy

All registered participants to the workshops were invited to participate in the quantitative survey. The pre-training questionnaire was administered on the eve of the workshop, and the post training questionnaire was administered immediately after the workshop. A subset of participants was selected for in-depth interviews to obtain diverse perspectives on their training experience, using a simple random sampling technique. A complete list of participants from both workshops was compiled, and individuals were assigned unique identification numbers. Using the "Sample" function of the R software (Version R 4.4.2), a subset of 11 participants was selected to ensure unbiased representation and diversity of perspectives. The total number of interviewees was determined conveniently based on logistical feasibility. When a selected interviewee with a code  $n$  was not available, he/she was replaced by the participant with code  $n + 1$ .

### Data collection tools

This study was framed by the Learning Environment, Learning Processes, and Learning Outcomes (LEPO) framework, as described by Phillips, McNaught, and Kennedy (2010) [26] (Additional File 1, Sect. 1). Quantitative data were collected using pre- and post-training self-administered questionnaires. The questionnaire items were developed using a combination of sources including relevant literature, the objectives of the workshop and inputs from experienced facilitators. The LEPO framework was used to organize the domains of interest (Additional File 1, Sect. 1). The pre-training questionnaire captured prior experience, learning expectations, baseline knowledge and confidence and pre-course process evaluation. The post-training questionnaire captured participant's assessment of the learning environment, processes and outcomes (Additional File 1, Sect. 3). Qualitative data were collected via in-depth interviews conducted in English or French, guided by an interview guide (Additional File 1, Sect. 4).

All data collection instruments were reviewed by a panel of six researchers for face and content validity, based on criteria including clarity, comprehensiveness, and alignment with the study objectives. The instruments were pilot tested with a sample of ten participants to assess the clarity, relevance, and face validity of the questionnaire items before full deployment.

### Data analysis

Quantitative data were analyzed using IBM SPSS version 25. Descriptive statistics are presented using frequencies, means, and standard deviations. A five-point Likert scale was used to measure the participants' self-reported understanding and confidence in scientific writing and publication. Paired sample t-tests were used to compare

pre- and post-training scores, with statistical significance set at  $P < 0.05$ .

Qualitative data were manually analyzed using thematic content analysis. Interviews were recorded and transcribed verbatim. Transcripts were reviewed for completeness and anonymized prior to analysis. Each transcript was read repeatedly by two analysts to identify meaningful textual units (natural units), which were color-coded and organized in Microsoft Excel. Discrepancies were resolved through discussion to enhance reliability and interpretive rigor. Codes were developed

**Table 1** Demographics of study participants, Cameroon, 2023 ( $n = 86$ )

Parameters		Count (n)	Frequency (%)
Age	Mean $\pm$ SD = 30.01 $\pm$ 6.25 years		
Age group (in years)	< 30	47	54.7
	30–39	32	37.2
	40+	7	8.1
Sex	Female	44	51.2
	Male	42	48.8
Country of origin	Cameroon	77	89.5
	Ethiopia	1	1.2
	Chad	4	4.7
	Zambia	2	2.2
	DRC	1	1.2
	Greece	1	1.2
Highest level of education	Bachelor/HND	7	8.1
	Master's degree	64	74.4
	PharmD	1	1.2
	PhD	10	11.6
Employment status	National diploma	4	4.7
	Graduate and unemployed	12	14.0
	Private sector or self employed	25	29.0
	Public sector	13	15.1
Type of organization	Student and not working	36	41.9
	Private for-profit	6	7.0
	Public sector organization	20	23.2
	Private NGO	8	9.3
Specialty	University or higher education institution	52	60.5
	Mathematical, Information & Computing sciences	3	3.5
	Engineering/Applied sciences	10	11.6
	Medical & health sciences	40	46.5
	Social sciences	23	26.7
Years of experience in research	Natural sciences	9	10.5
	Arts & humanities	1	1.2
	0–2	48	55.8
	3–5	27	31.4
	5–10	9	10.5
	$\geq 10$	2	2.3

SD Standard Deviation, DRC Democratic Republic of Congo, HND Higher National Diploma, PharmD Doctor of Pharmacy, PhD Doctor of Philosophy, NGO Non-Governmental Organization

deductively using the LEPO framework and then refined through iterative reading to ensure alignment with the data. The interviewees were quoted verbatim to preserve the authenticity of their responses.

### Ethical approval

Ethical clearance for this study was waived by the Ethics Committee of the Buea Regional Hospital. Participants were briefed on the survey and its objectives. Attendance was voluntary, and confidentiality as well as the right to withdraw at any time without penalty was clearly explained. Participation conferred no special advantages during or after the workshop, and participants could decline to answer any question they found uncomfortable. Written informed consent was obtained for the use of survey responses in research. For interviews, verbal consent was obtained prior to audio recording. Throughout the study, participants' confidentiality, anonymity, and autonomy were respected. All methods were performed in accordance with the relevant guidelines of the Declaration of Helsinki.

### Results

Of the 99 workshop attendees, 86 completed both pre- and post-training questionnaires, yielding a response rate of 86.9%. The majority were female ( $n = 44$ , 51.2%), with a mean age of  $30.0 \pm 6.3$  years. Eleven (11) participants were selected for in-depth interviews to further explore their perceptions of the learning environment, processes, and outcomes. Most respondents had backgrounds in the medical and health sciences (46.5%) and were early career researchers with less than five years of research experience, typically affiliated with academic or higher education institutions (60.5%). Demographics of participants are described in Table 1.

A baseline assessment revealed that 62.8% of the participants had never published a scientific paper, and 61.6% had never received formal training in scientific writing. For many, the workshop represented their first structured exposure to the principles of scientific writing.

When asked about their personal learning objectives, participants most frequently identified the development of critical thinking and writing skills (26.0%), conducting quantitative and data analysis (15.5%), and building a strong research and professional network (13.5%). More information on the pre-course assessment can be found in Additional File 2 (Table 2).

The desire for writing skills, mentorship and continued collaboration emerged as a recurrent theme.

*"My aim is to get tips on how to write really practical articles because, having already written articles, what I really needed was a good How can I improve*

**Table 2** Participants' assessment of learning expectations fulfillment, Cameroon (n = 86)

Evaluation scale	Poor	Fair	Good	Very good	Excellent
	n (%)				
Achievement of learning objectives	2 (2.3)	11 (12.8)	31 (36.0)	37 (43.0)	5 (5.8)
Improvements in the most challenging aspect of scientific writing	2 (2.3)	12 (14.9)	36 (41.9)	31 (36.0)	5 (5.8)
Improvements in the most challenging step of the publication process	1 (8.1)	20 (23.3)	31 (36.0)	27 (31.4)	7 (1.2)

*further in terms of quality in the approach to writing different sections.” (31 years, Male).*

*“I want to have somebody who would direct me on writing my dissertation because I'm not sure that I can do it on my own. Like I will need somebody to be a guide to me.” (23 years, Female).*

*“I think working with others can help a bit. So, if you can create a platform where we can have those exchanges, have free discussions on research, based on the individuals research domain.” (31 years, Female).*

### Learning outcomes

More than two-thirds of participants reported achieving their learning objectives at a good or very good level. Over half of the participants noted good or very good improvements in the aspect they considered the most challenging in both scientific writing and the publication process (Table 2).

The interviewees consistently expressed high satisfaction with their learning outcomes.

*“The teaching I received, for example the method that was explained during the training, it's a method that I didn't really master, I didn't master it and during this training, when it was explained, I understood it well.” (29 years, Male).*

*“Before the workshop I actually had no idea about what a scientific paper is all about, the functions of a scientific paper, the different parts of the scientific paper and the implications of the implementing process in which the scientific paper can be written. But now, I feel more equipped in terms of knowledge and skills.” (21 years, Female).*

For several participants, the workshop exceeded expectations.

*“I achieved even more than my objectives because the training gave me the content I wanted, and I went even further because there was a presentation*

**Table 3** Comparison of mean confidence and Understanding scores before and after the workshop, Cameroon (n = 86)

Parameter	Before	After	Absolute difference Mean (95%CI)	p-value
	Mean ± Standard deviation			
Overall understanding of scientific writing and publication	2.3 ± 0.9	3.2 ± 0.9	0.9 (0.7–1.2)	< 0.001
Confidence level regarding scientific writing skills	2.2 ± 0.9	3.1 ± 0.9	0.9 (0.7–1.2)	< 0.001
Level of comfort regarding scientific writing and publication	2.9 ± 1.0	3.3 ± 1.0	0.3 (0.0–0.7)	0.01

*on how to make presentations. That was the bonus. The icing on the cake, I wasn't expecting that, it was really relevant, very relevant.” (34 years, Male).*

The quantitative data showed a statistically significant increase in the mean scores of scientific writing and publication overall understanding and comfort level as well as in the mean score of confidence regarding writing skills after the workshop compared to the scores before the workshop (Table 3).

Interview responses reinforced these findings, as improvement in participants' confidence in scientific writing and publication was emphasized during the interviews.

*“Now I think I can start a few things [writing projects] without having to run after people for assistance because sometimes at this moment I need to call this person to help me write this part. But now I think I can write and ask for correction [feedback] instead.” (31 years, Female).*

The participants also expressed strong intentions to apply their new knowledge in academic and professional settings.

*“After this I will have to publish an article and thanks to the workshop, I will know how to go about this. But for now, the most important thing for me to finish my dissertation and for me to write a scientific article. That one I will not be having a problem since they already covered it in the workshop and to publish an article for me next year.” (23 years, Female).*

### Learning environment

The respondents generally rated the workshop's structure as good or very good (30.2% and 47.7% respectively) and the course outline as fair or good (26.7% and 40.7% respectively). Participants' evaluation of the course

structure and outline are presented in Additional File 2, Table 1.

The interview participants highlighted the accessibility, comfort, and organization of the venue as particularly positive. However, the necessity to have appropriate places to settle computers was also emphasized.

*"For me the location, was very good, attractive, clean and pleasant and it was also at the center of Yaoundé and accessible." (34 years, Male).*

*"Maybe we'd just underestimated the number of people who were going to take part because, well, not everyone had the opportunity to drop off computers when the sessions had to be practical." (29 years, Male).*

Apart from the physical location, the availability of bilingual interpretation services in English and French was widely appreciated, ensuring inclusivity and comprehension for all attendees.

Interpretation services offered were found beneficial, as they allowed all participants to follow every session in their first language.

*"The course was bilingual. If I may say so, there were many participants who didn't have the opportunity to understand the 2 languages. Fortunately, there were teams who translated the discussions." (29 years, Male).*

### Learning processes

Participants' evaluation of the learning process is summarized in Additional File 2, Table 3. Participants were generally satisfied with the course flow (50%), engagement (61.6%), number of assessments (60.5%) and number of practical sessions (54.7%). It emerges from the interviews that they appreciated the logical flow of sessions, opportunities for hands-on learning, and practical use of tools such as the Zotero citation manager.

*"They [course organizers] were very organized in such a way that they started from the beginning like how to start your paper, going further and explaining the details. For me it was very, very organized." (25 years, Male).*

*"Everything was well organized, especially the practical sessions on manuscript writing and the use of Zotero citation manager." (33 years, Female).*

Aside from the mainly reported satisfaction with the practical sessions, 11.6% of participants were neutral and 10.5% unsatisfied with their number. Insights from the interviews reveal unmet need for practical manuscript preparation sessions and advanced content.

*"I was expecting there to be a subject that we'd all work on together and that we'd gradually start with the introduction, the methodology and so on, like it's a subject that's a practical case and then we'd all look at it together. But the steps from writing to writing an abstract." (24 years, Male).*

*"What I missed was the exchange on articles. For the next one, if there can be moments of discussions. Because when I saw the practical part in the program, I was expecting that we would look at several articles or a subject and have a discussion on it. I think for the next one that can be added. Equally the time to have those articles would have been much." (33 years, Female).*

*"Though it was not much in details but at least just a summary of what we have to know. yes it was not bad." (23 years, Female).*

Although 50,0% of participants reported being satisfied with the duration of the sessions, some reported challenges with the pace of the training and the delay in availability of training materials after the workshop. In addition, some participants expressed the desire to see more emphasis on interactions throughout the course.

*"It wasn't 100% because, given the time, it went rather quickly and after the workshop, we didn't immediately receive either the audio or the power points to enable us to sit down and listen." (34 years, Male).*

*"I have just one suggestion during the training it should be more of interaction, like compulsory interaction. like be obligatory." (23 years, Female).*

*"I had the impression that we were just running and there were also the salient points that, when we were trying to get to them, we were running because there wasn't enough time, like when we had to talk about the elements involved in the introductions and all those things." (34 years, female).*

### Discussion

This study evaluated the effectiveness and participant experience of a pilot two-day intensive scientific writing workshop for early career researchers in Cameroon. Most participants had little to no prior exposure to scientific writing or the publication process and were attending such training for the first time. They reported several barriers to skill development in this area, including fear, lack of confidence, limited knowledge, the absence of mentorship, and inadequate training and financial resources. The findings assessed demonstrated that the course content met participants' expectations. Most participants expressed satisfaction with the learning environment

and processes, and both quantitative assessments and in-depth interviews confirmed perceived improvements in writing skills and knowledge.

This study supports the effectiveness of short-format scientific writing workshops in improving early-career researchers' perceived writing skills, understanding, confidence, and readiness to publish. Although prior literature has underscored the need for research capacity-building in sub-Saharan Africa [19], relatively few studies have systematically evaluated and reported outcomes using mixed-methods designs [17, 18]. Our findings add to the growing evidence for context-sensitive, scalable research-support models [17–19], offer a replicable approach for implementing and evaluating similar initiatives, and inform future efforts to strengthen scientific output in under-resourced settings. The significant increase in confidence and understanding of scientific writing after the workshop is consistent with prior research on short-term training programs in scientific communication. Similar outcomes have been reported in diverse global settings, including the United States, Canada, Pakistan, India, and Tanzania, where workshops led to measurable improvements in participants' writing competencies and confidence [20, 21, 27–29]. For example, Bellicoso et al. (2022) found that scientific writing workshops for clinicians in nursing and health disciplines empowered practitioners to address gaps in practice-based evidence [28]. These findings reinforce the value of targeted capacity-building initiatives as a pathway for increasing scientific output in underrepresented regions. Our study supports this conclusion in an African context and highlights the potential of such workshops to promote academic and professional development.

Participants in our study reported a marked shift in self-perceived skills from below-average to above-average levels following the workshop. This increase reflects both low baseline exposure to scientific writing and the impact of structured, context-relevant training. However, several factors limited achievement of the learning objectives: the workshop's short duration of two days, the rapid pace, and the absence of hands-on writing sessions. Although the training delivered foundational knowledge and increased participant confidence, it did not provide sufficient time for in-depth practice, individualized feedback, or sustained mentorship. Future programs should adopt longer formats that better support manuscript development and submission. While similar initiatives elsewhere have benefited from established academic institutions support with adequate human, material, and financial resources [20, 21, 27, 29], such institutional support remains limited in Cameroon and many parts of Africa. This gap underscores the need for strategic investment in locally led, capacity-building programs that prioritize long-term sustainability and accessibility.

Many participants cited a lack of targeted opportunities in their academic programs and limited access to experienced mentors as key barriers to skill acquisition. The shortage of training opportunities for scientific writing and publishing is a major obstacle for emerging researchers across Africa. Specifically, in Cameroon, this gap contributes to a broader environment that is not conducive to scholarly productivity. Although scholars have pointed to structural barriers, including inadequate mentorship and institutional support, few local programs focus specifically on writing and publishing, and even fewer are sustained over time [30–34]. Insights from this pilot workshop highlight the urgent need to institutionalize regular discipline-sensitive training programs. Universities and research centers must play an active role in scaling up these efforts to address foundational skill gaps at early academic careers levels.

### Study implications

Findings from this study underscore the value of scientific writing workshops in strengthening research capacity among early-career scholars in sub-Saharan Africa. The observed improvements in participants' perceived skills and confidence suggest that even short-format interventions can drive meaningful gains in confidence and skills building. These results support the integration of structured writing workshops into institutional training programs and highlight the need for policies that promote a sustainable research capacity building ecosystem in the region. This includes investment in training and mentorship models, multilingual resources, and follow-up mechanisms to help participants translate learning into publication outcomes. Examples of documented successful training and mentorship models includes the Emerging Voices for Global Health program, the CARTA (Consortium for Advanced Research Training in Africa) initiative, and the MooSciTIC training for West African scientists [35–37].

### Strengths and limitations

This study addresses a significant gap in the literature by assessing and documenting the impact of a pilot scientific writing workshop conducted in a setting in which such training opportunities are scarce. The results provide early evidence of the effectiveness of short-term interventions in improving confidence and perceived scientific writing skills. These insights can help guide future workshop development and support broader growth of research capacity in Africa. This study benefited from a high survey response rate, which enhances the reliability of the quantitative findings and reduces the risk of non-response bias. Additionally, the use of a mixed-methods design allowed for data triangulation, strengthening the

validity of the results by integrating numerical trends with explanatory qualitative insights.

However, the study primarily assessed self-reported outcomes on a small convenient sample and did not capture objective measures such as manuscript submissions or publications. A longitudinal follow-up study could provide a more comprehensive evaluation of the long-term effects of the training. Plans are underway to monitor participants' progress through a mentorship platform, with an eventual assessment of research output by tracking published articles in peer-reviewed journals. The sample may not be representative of broader populations of early-career researchers in Cameroon or sub-Saharan Africa. The results should be interpreted with caution and validated through larger-scale evaluations.

## Conclusion

Early-career researchers in Cameroon demonstrate a strong interest in scientific writing and publication but continue to face significant barriers in accessing the necessary training, knowledge, and mentorship. This study suggests that targeted capacity-building workshops can positively influence participants' confidence, perceived knowledge, and readiness to engage in scientific writing. The positive outcomes reported by the participants support the value of short-term structured interventions in addressing persistent gaps in research productivity across the continent.

To sustain these gains and foster a culture of academic scholarship, regular scientific writing workshops should be institutionalized across African universities and research institutions. Such initiatives should also prioritize the development of mentorship networks and collaborative platforms to support early career researchers. Therefore, it is critical for governments to increase research funding. Strengthening local capacity in scientific communication is essential to increasing Africa's visibility in the global research landscape and advancing evidence-informed policies and practices on the continent.

## Abbreviations

DRC	Democratic Republic of Congo
HND	Higher National Diploma
IBM SPSS	International Business Machines Corporation, Statistical Package for the Social Sciences
LEPO	Learning Environment, Learning Processes and Learning Outcomes
NGO	Non-Governmental Organization
PharmD	Doctor of Pharmacy
PhD	Doctor of Philosophy
SD	Standard deviation

## Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s13104-026-07666-0>.

Supplementary Material 1

Supplementary Material 2

## Acknowledgements

Our gratitude goes to the Denis and Lenora Foretia Foundation, who hosted the workshops, and to all faculty members who facilitated the sessions.

## Author contributions

Study design and conception: SD, VN, DF; Data collection: SD, RS, GD, EK; Data analysis, visualization and interpretation: SD, VN, EK, GD; Drafting of original manuscript: SD, VN; Critical revision of the manuscript: GD, AC, JG, FC, OK, CA, RG, DF; final revision and approval of the manuscript: All authors.

## Funding

This research did not receive any specific grants from funding agencies in the public, commercial, or not-for-profit sectors.

## Data availability

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

## Declarations

### Consent for publication

Not applicable.

### Competing interests

The authors declare no competing interests.

### Ethics approval and consent to participate

Ethical clearance for this study was waived by the Ethics Committee of the Buea Regional Hospital. Participants were required to provide signed informed consent for their responses to be used for research purposes. The confidentiality, anonymity and autonomy of the research participants were respected throughout the study. All methods were performed in accordance with the relevant guidelines of the Declaration of Helsinki.

## Author details

<sup>1</sup>Division of Health Policy and Research, Nkafu Policy Institute, Denis and Lenora Foretia Foundation, P.O. 14315, Yaoundé, Cameroon

<sup>2</sup>Department of Anthropology, University of Yaoundé I, P.O. 755, Yaoundé, Cameroon

<sup>3</sup>Department of Public Health and Hygiene, University of Buea, P.O. 63, Buea, Cameroon

<sup>4</sup>Department of Internal Medicine, Buea Regional Hospital, Buea, Cameroon

<sup>5</sup>Department of Internal Medicine and Pediatrics, Faculty of Health Sciences, University of Buea, Buea, Cameroon

<sup>6</sup>University of Tennessee College of Medicine, Memphis, TN, USA

<sup>7</sup>Department of Surgery, Virginia Tech Carilion School of Medicine, Roanoke, VA, USA

Received: 12 June 2025 / Accepted: 13 January 2026

Published online: 24 January 2026

## References

1. UNDP, United Nations Development Programme. 2024 Africa Sustainable Development Report. UNDP n.d. <https://www.undp.org/africa/publications/2024-africa-sustainable-development-report>. Accessed 15 Apr 2025.
2. Niohuru I. Disease burden and mortality. In: Niohuru I, editor. *Healthc. Dis. Burd. Afr. Impact Socioecon. Factors public health*. Cham: Springer International Publishing; 2023. pp. 35–85. [https://doi.org/10.1007/978-3-031-19719-2\\_3](https://doi.org/10.1007/978-3-031-19719-2_3).
3. Beaudry C, Mouton J, Prozesky H. The next generation of scientists in Africa. *African Minds*. 2018. <https://doi.org/10.47622/978-1-928331-93-3>.

4. Salager-Meyer F. Scientific publishing in developing countries: challenges for the future. *J Engl Acad Purp*. 2008;7:121–32. <https://doi.org/10.1016/j.jeap.2008.03.009>.
5. North MA, Hastie WW, Hoyer L. Out of africa: the underrepresentation of African authors in high-impact geoscience literature. *Earth-Sci Rev*. 2020;208:103262. <https://doi.org/10.1016/j.earscirev.2020.103262>.
6. Mbaye R, Gebeyehu R, Hossmann S, Mbarga N, Bih-Neh E, Eteki L, et al. Who is telling the story? A systematic review of authorship for infectious disease research conducted in Africa, 1980–2016. *BMJ Glob Health*. 2019;4:e001855. <https://doi.org/10.1136/bmjgh-2019-001855>.
7. Confraria H, Godinho MM. The impact of African science: a bibliometric analysis. *Scientometrics*. 2015;102:1241–68. <https://doi.org/10.1007/s11192-014-1463-8>.
8. Ahmed I, Shifraw T. Challenges of being a researcher in africa: a narrative synthesis of literature. *Ethiop J Health Dev* 2019;33(4):229–238. <https://www.ejhd.org/index.php/ejhd/article/view/2532>.
9. Schneider H, Maleka N. Patterns of authorship on community health workers in low-and-middle-income countries: an analysis of publications (2012–2016). *BMJ Glob Health*. 2018;3. <https://doi.org/10.1136/bmjgh-2018-000797>.
10. Ondari-Okemwa E. Scholarly publishing in sub-Saharan Africa in the twenty-first century: challenges and opportunities. *First Monday*. 2007. <https://doi.org/10.5210/fm.v12i10.1966>.
11. Hajj TE, Gregorius S, Pulford J, Bates I. Strengthening capacity for natural sciences research: A qualitative assessment to identify good practices, capacity gaps and investment priorities in African research institutions. *PLoS ONE*. 2020;15:e0228261. <https://doi.org/10.1371/journal.pone.0228261>.
12. Pettoello-Mantovani M, Pastore M, Giardino I, Buonocore G. The importance of scientific writing training courses in enhancing the dissemination of research findings. *Glob Pediatr*. 2024;7:100152. <https://doi.org/10.1016/j.gped.2024.100152>.
13. Fandiño-Parra YJ. Decolonizing English Language Teaching in Colombia: Epistemological Perspectives and Discursive Alternatives. *Colomb. Appl. Linguist. J*. 2021;23(2):166–181. <https://doi.org/10.14483/22487085.17087>.
14. Jha KN. How to write articles that get published. *J Clin Diagn Res JCDR*. 2014;8:XC01–3. <https://doi.org/10.7860/JCDR/2014/8107.4855>.
15. Lescano AG, Cohen CR, Raj T, Rispel L, Garcia PJ, Zunt JR, et al. Strengthening mentoring in Low- and Middle-Income countries to advance global health research: an overview. *Am J Trop Med Hyg*. 2019;100:3–8. <https://doi.org/10.4269/ajtmh.18-0556>.
16. Friesenhahn I, Beaudry C. The global state of young Scientists – Project report and recommendations. Berlin: Akademie; 2014.
17. Busse CE, Anderson EW, Endale T, Smith YR, Kaniecki M, Shannon C, et al. Strengthening research capacity: a systematic review of manuscript writing and publishing interventions for researchers in low-income and middle-income countries. *BMJ Glob Health*. 2022;7. <https://doi.org/10.1136/bmjgh-2021-008059>.
18. Vicente-Crespo M, Agunbiade O, Eyers J, Thorogood M, Fonn S. Institutionalizing research capacity strengthening in Imics: A systematic review and meta-synthesis. *AAS Open Res*. 2021;3:43. <https://doi.org/10.12688/aasopenres.13116.3>.
19. Mahmud AA, Gambo I, Dogara AM, Adam MA. Unequal foundations: publishing challenges for emerging researchers in Sub-Saharan Africa. *Trends Sch Publ*. 2025;4:43–8. <https://doi.org/10.21124/tsp.2025.43.48>.
20. Goyal M, Dua A, Kedia A, Misra D, Santhanam S, Ravindran V. Usefulness of a workshop on scientific writing and publication in improving the baseline knowledge deficit among postgraduates. *J R Coll Physicians Edinb*. 2020;50:316–21. <https://doi.org/10.4997/JRCPE.2020.323>.
21. Wortman-Wunder E, Wefes I. Scientific writing workshop improves confidence in critical writing skills among trainees in the biomedical sciences. *J Microbiol Biol Educ*. 2020;21:30. <https://doi.org/10.1128/jmbe.v21i1.1843>.
22. Cooke J. A framework to evaluate research capacity Building in health care. *BMC Fam Pract*. 2005;6:44. <https://doi.org/10.1186/1471-2296-6-44>.
23. Ahmad Z, Sultana A, Siby N. Building research capacity in higher education: exploring confidence as a mediator of contextual support and research interest. *Innov High Educ*. 2025. <https://doi.org/10.1007/s10755-025-09823-y>.
24. Kanmounye US, Tochie JN, Temgoua M, Mbonda AN, Endomba FT, Nkeck JR et al. Barriers and facilitators of research in Cameroon (Part I) - an e-survey of physicians. *PAMJ Clin Med*. 2020;4. <https://doi.org/10.11604/pamj-cm.2020.4.58.24608>.
25. Kanmounye US, Tochie JN, Temgoua M, Mbonda AN, Endomba FT, Nkeck JR et al. Barriers and facilitators of research in Cameroon (Part II)—an e-survey of medical students. *PAMJ Clin Med*. 2020;3. <https://doi.org/10.11604/pamj-cm.2020.3.179.24649>.
26. Phillips R, McNaught C, Kennedy G. Towards a generalised conceptual framework for learning: the Learning Environment, Learning Processes and Learning Outcomes (LEPO) framework 2010:2495–504.
27. Hussain M, Rehman R, Baig M. Manuscript writing and publication workshop: an invoking pilot study on enhancing cognitive research capabilities in health sciences institutes of Pakistan. *Cureus*. 2020;12:e8802. <https://doi.org/10.7759/cureus.8802>.
28. Bellicoso D, Valenzano TJ, Topolovec-Vranic J. Effectiveness of a manuscript writing workshop on writing confidence amongst nursing and health disciplines clinicians. *J Med Imaging Radiat Sci*. 2022;53:579–84. <https://doi.org/10.1016/j.jmir.2022.06.002>.
29. Shoko AP, Kimirei IA, Sekadende BC, Kishe MA, Sailale IE. Online course in conjunction with face-to-face workshops to improve writing skills leading towards more publications in peer reviewed journals. *Eur Sci Ed*. 2021;47:e54417. <https://doi.org/10.3897/ese.2021.e54417>.
30. Chu KM, Jayaraman S, Kyamanywa P, Ntakiyiruta G. Building research capacity in africa: equity and global health collaborations. *PLoS Med*. 2014;11:e1001612. <https://doi.org/10.1371/journal.pmed.1001612>.
31. Salihu T Shinkafi. Challenges experienced by early career researchers in Africa. *Future Sci OA*. n.d.;6:FSO469. <https://doi.org/10.2144/foa-2020-0012>.
32. Kumwenda S, Niang EHA, Orondo PW, William P, Oyinlola L, Bongo GN, et al. Challenges facing young African scientists in their research careers: A qualitative exploratory study. *Malawi Med J*. 2017;29:1–4.
33. Long KL, Galukande M, Kyamanywa P, Tarpley MJ, Dodgion C. Developing research potential and Building partnerships: A report of the fundamentals of surgical research course at the college of surgeons of East, Central, and Southern Africa. *J Surg Res*. 2021;259:34–8. <https://doi.org/10.1016/j.jss.2020.11.020>.
34. Merritt C, Jack H, Mangezi W, Chibanda D, Abas M. Positioning for success: Building capacity in academic competencies for early-career researchers in sub-Saharan Africa. *Glob Ment Health*. 2019;6:e16. <https://doi.org/10.1017/gmh.2019.14>.
35. Atindehou M, Adéoti K, Loko LEY, Beulé T, Paradis E, Djedatin G, et al. MooSciTIC: training of trainers in West African research and higher education. *PLoS Biol*. 2019;17:e3000312. <https://doi.org/10.1371/journal.pbio.3000312>.
36. Hercot D, Keugoung B, Zerbo A, Appelmans A, Van Damme W. [The emerging voices for global health initiative: an intensive capacity-building effort for young researchers from the South]. *Med Sante Trop*. 2012;22:9–11. <https://doi.org/10.1684/mst.2012.0018>.
37. Uwizeye D, Karimi F, Otukpa E, Ngware MW, Wao H, Igumbor JO, et al. Increasing collaborative research output between early-career health researchers in africa: lessons from the CARTA fellowship program. *Glob Health Action*. 2020;13:1768795. <https://doi.org/10.1080/16549716.2020.1768795>.

## Publisher's note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.