Protocol

Successful Grant Awards for Early-Career African Scientists From Mentorship Initiatives: Protocol for a Systematic Review and Meta-Analysis

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Abstract

Background: African sustainability depends on scientific capacity development, which helps the continent address health, climate change, food security, and socioeconomic issues. Many young African scientists face systemic barriers, including limited access to competitive research funding, despite progress in higher education and early-career research. The lack of structured mentorship programs to help with technical guidance, grant writing, and career development contributes to low grant success rates.

Objective: This study aims to inform institutional policy, mentorship program development, and a stronger, more inclusive research culture across the continent by identifying effective models and success factors. The findings are expected to aid research capacity building and the development of new African research leaders.

Methods: Searches will be conducted in the PubMed, MEDLINE, Scopus, Web of Science, Africa-Wide Information, Embase, and African Journals Online databases for studies published between 2000 and 2025 that report on mentorship, early-career researchers, Africa, and grant funding. Two reviewers will independently perform study selection, data extraction, quality assessment, and risk-of-bias evaluation using the Cochrane Risk of Bias 2 tool, the Risk of Bias in Nonrandomized Studies of Interventions tool, and the Joanna Briggs Institute Checklist. Meta-analyses will be conducted to estimate pooled outcomes, with heterogeneity assessed using random-effects models. Heterogeneity will be further examined through visual inspection of forest plots and by evaluating the chi-square test and I^2 statistic.

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Results: This study has no specific grant. Data collection and screening will be conducted from November 2026. Quantitative data analysis, including meta-analytic modeling and subgroup exploration, will be conducted in December 2026, with results anticipated for publication by mid-2026.

Conclusions: This review will highlight how targeted mentorship can address structural barriers to research funding in Africa by improving grant success, retention, and capacity. It aims to inform context-specific, evidence-based strategies that empower early-career scientists to lead impactful research.

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KEYWORDS

systematic review; meta-analysis; mentorship initiatives; early-career scientists; successful grant; Africa

Introduction

The development of scientific capacity in Africa is increasingly recognized as a fundamental driver of sustainable development and innovation, essential for addressing the continent's multifaceted challenges in health, environmental sustainability, food security, and socioeconomic transformation [1]. As Africa grapples with the burden of both infectious and noncommunicable diseases, climate change, resource scarcity, and a rapidly growing population, the need for locally generated knowledge and solutions has never been more critical [2,3]. Developing local scientific expertise is essential not only for Africa's development but also for its long-term resilience and global competitiveness.

Over the past 2 decades, steps have been taken to expand access to higher education across the continent, resulting in increased enrolment in postgraduate programs and a growing cohort of early-career researchers [4]. This growth reflects an increased interest in research careers among African youth and an encouraging shift toward knowledge-based economies [5]. However, structural limitations, such as inadequate research infrastructure, insufficient funding, and fragmented institutional support, continue to impede the progression of many emerging scientists [6]. A particularly persistent challenge lies in their ability to secure competitive research grants, which are crucial for building independent research programs, gaining academic credibility, and advancing scientific careers [7].

Among the countless factors contributing to low grant success rates among young African scientists, the absence of structured and sustained mentorship has emerged as a major constraint [8]. Robust mentorship systems are essential for nurturing early-career researchers, equipping them with the technical skills and strategic insights required to develop compelling grant proposals, and providing career guidance within a competitive and often unbalanced global research ecosystem [9,10]. Effective mentorship not only enhances individual capacity but also strengthens institutional research culture by promoting collaboration, professional networking, and intergenerational knowledge transfer [11].

Evidence from high-income countries has long established mentorship as a foundation of academic success, with strong correlations between mentorship quality and grant productivity, publication output, and academic retention [12]. In African contexts, where disparities in access to experienced mentors, research funding, and academic leadership are stark, mentorship assumes an even greater role. Targeted initiatives, such as the African Academy of Sciences' Developing Excellence in Leadership, Training, and Science in Africa and the Consortium for Advanced Research Training in Africa program, have begun to integrate mentorship into research capacity–building efforts [13]. These initiatives emphasize structured mentorship components, including grant writing workshops, peer support networks, and mentor-mentee pairing, with preliminary findings indicating improved research outputs, increased grant application rates, and enhanced career trajectories [14].

Although these are promising developments, the landscape of mentorship for African researchers remains underdocumented and inconsistently evaluated. Much of the existing literature focuses on general research training or institutional strengthening, with insufficient attention to grant-specific outcomes as an evaluative benchmark [15]. In addition, the diversity of mentorship models across the continent makes it difficult to determine which strategies are most effective and accessible [16]. Thus, this systematic review and meta-analysis protocol seeks to examine the scope, implementation strategies, and measurable outcomes of mentorship initiatives that aim to enhance the grant success of young African scientists. The findings have the potential to influence policy, guide institutional reforms, and eventually contribute to a more inclusive and productive African research culture. Furthermore, by improving access to mentorship and increasing the competitiveness of African researchers in securing grants, the review's findings will support efforts to cultivate the next generation of research leaders capable of driving innovation and development across the continent.

The primary objective of this review is to assess measurable outcomes related to successful grant awards among early-career African scientists who participated in mentorship initiatives. Specifically, it aims to investigate which mentorship models and practices are most successful in fostering grant acquisition among this population. The review seeks to answer the following questions: (1) What specific mentorship practices are associated with increased success in securing research grants? (2) How do factors such as mentorship duration, mentor-mentee relationships, and institutional support influence grant success?

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Methods

Overall Approach

This protocol was developed following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) Protocols checklist [17]. The dummy systematic review PRISMA flowchart for the systematic search process is shown in Figure 1. It will focus on identifying, analyzing, and synthesizing studies that examine the scope, implementation strategies, and measurable outcomes of mentorship initiatives aimed at improving grant acquisition among young African scientists using the population, interventions, comparison, outcomes, and time framework outlined in Table 1. The review process will include a transparent and detailed description of the methods used for study identification, screening, and inclusion. Any protocol modifications made during the review will be clearly documented, along with the corresponding dates of each amendment. The protocol has been registered in PROSPERO (CRD420251053986) [18].

Figure 1. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) 2020 flow diagram for new systematic reviews, which includes searches of databases, registers, and other sources.

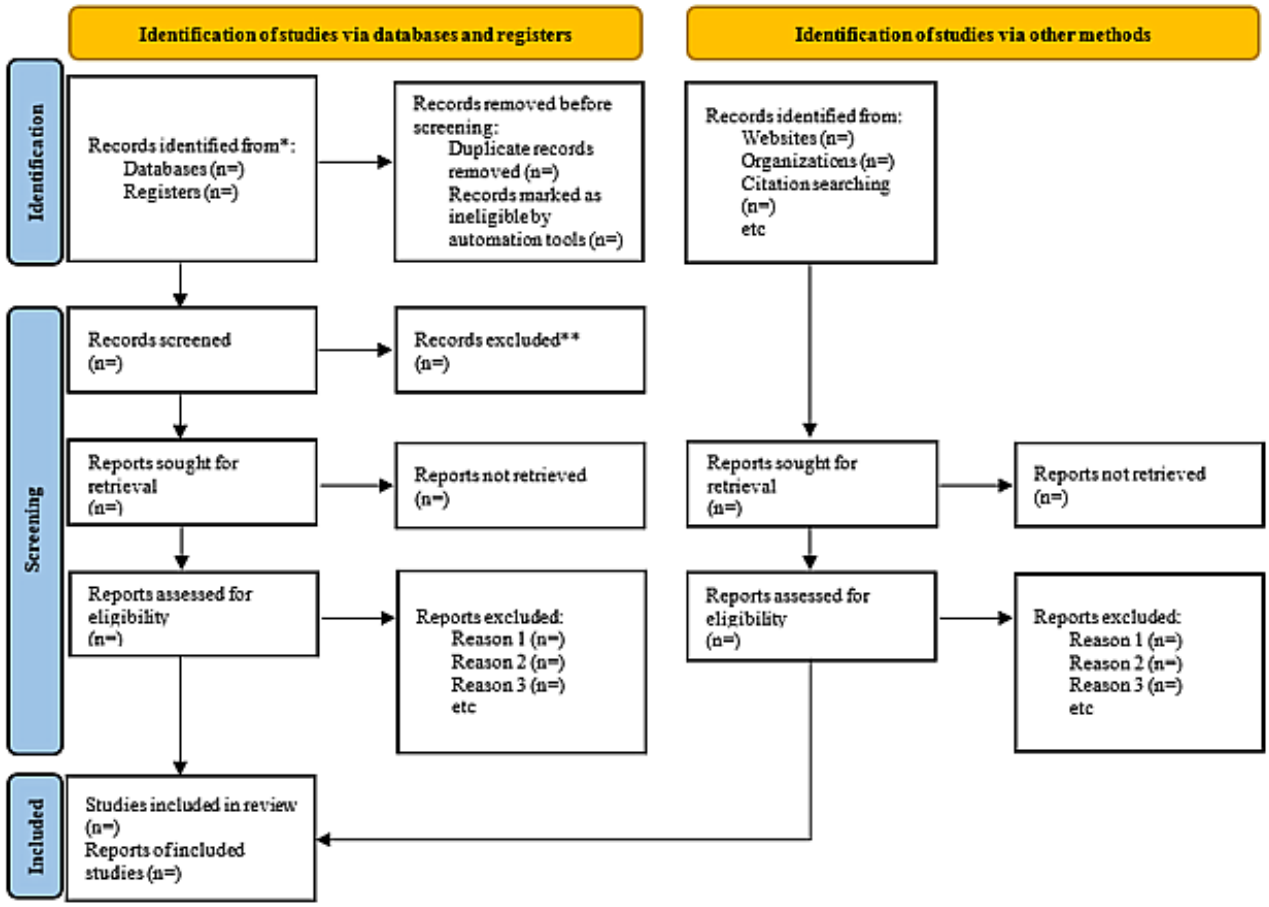


Table 1. Population, interventions, comparison, outcomes, and time framework.

Component	Details
Population	Early-career African scientists
Interventions	Mentorship initiatives
Comparison	Not applicable
Outcomes	Successful grant awards
Time	2000 to 2025

Population of Interest

The population of interest for this systematic review and meta-analysis comprises young African scientists who are in the early stages of their research careers and are actively pursuing or have recently pursued competitive research grant opportunities. This includes individuals enrolled in postgraduate programs (master's and PhD), as well as postdoctoral researchers and early-career faculty members affiliated with universities, research institutions, and development organizations across the African continent. These scientists are typically within 10 years of completing their highest degree and are often at a critical

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stage in their academic or research trajectories, where securing grant funding influences their capacity for independent research, scholarly productivity, and long-term career advancement. The review will consider individuals across a broad range of scientific disciplines, including but not limited to health, environmental science, and social sciences, provided that the mentorship initiatives under investigation explicitly aim to enhance their grant acquisition skills and success. Studies that explore mentorship models targeting this demographic, particularly those reporting on measurable outcomes related to grant applications, funding success, proposal development, or research capacity building, will be included. Emphasis will also be placed on understanding how contextual factors, such as institutional setting, geographic region, and gender, influence mentorship outcomes among these emerging African research leaders.

Primary Outcome and Determinants

The primary outcome of interest in this systematic review and meta-analysis is measurable success in obtaining competitive research grants among young African scientists who have participated in mentorship initiatives. Grant success is defined quantitatively as the attainment of research funding following mentorship engagement and will be assessed using outcomes, such as the number or proportion of grant applications submitted vs awarded, the amount of funding received, or changes in grant acquisition rates before and after mentorship participation. These outcomes provide an objective system of measurement for evaluating the effectiveness of mentorship programs in enhancing the funding competitiveness of early-career researchers across the African continent.

In addition to the primary outcome, the review will examine key determinants that influence grant success in the context of mentorship initiatives. These determinants include program-specific factors, such as the structure of the mentorship (eg, one-on-one vs group mentorship), the duration and intensity of mentorship exposure (defined as the frequency, duration, and depth of mentee interactions with mentors, including the number of mentorship sessions attended, the total time spent in mentorship activities, and the degree of engagement in mentorship tasks or discussions), and the inclusion of grant writing training or proposal development workshops as part of the mentorship package. Individual-level determinants, such as the mentee's academic background, institutional affiliation, gender, and prior grant application experience, will also be considered, where data are available. Furthermore, contextual variables, including regional location, availability of research infrastructure, and the presence of institutional support mechanisms, will be explored as potential modifiers of mentorship effectiveness.

Inclusion and Exclusion Criteria

Inclusion Criteria

This systematic review and meta-analysis will identify quantitative studies that thoroughly evaluate mentorship initiatives aimed at improving grant acquisition outcomes among young African scientists. Eligible studies must explicitly report on structured or semistructured mentorship programs, interventions, or strategies implemented within the African research context and must quantitatively assess grant-related outcomes such as the number of grants awarded, funding success rate, or total grant funding secured after mentorship. The target population must consist primarily of early-career researchers or postgraduate-level scientists affiliated with African institutions, typically within 5 to 10 years of beginning their research careers. Studies must use a quantitative design, such as randomized controlled trials, quasi-experimental designs, cohort studies, or cross-sectional analyses, and must provide sufficient data on both the mentorship intervention and the measurable outcomes related to research funding success. Peer-reviewed articles published in English and information from gray literature sources between 2000 and 2025 will be included to ensure relevance.

Exclusion Criteria

Studies will be excluded if they do not focus on African scientists or institutions or if the primary focus of the mentorship initiative is unrelated to grant acquisition or research funding success. Qualitative studies, mixed methods studies lacking extractable quantitative data on outcomes, commentaries, opinion pieces, editorials, and conference abstracts will also be excluded. In addition, studies that only describe mentorship models without evaluating their effectiveness using measurable, grant-related outcomes will not be considered. Studies focusing on general academic performance, publication output, or broader career development without specific linkage to grant acquisition outcomes will be excluded unless they report disaggregated data directly tied to grant success. These criteria are intended to ensure that the review focuses on robust, data-driven evidence regarding the impact of mentorship on research funding success for young African scientists.

Search Strategy

A comprehensive search strategy will be developed in consultation with an information specialist. The search will cover published and gray literature from 2000 to 2025, considering the emergence of major mentorship initiatives in Africa during this period. Databases to be searched include PubMed, MEDLINE, Scopus, Web of Science, Africa-Wide Information (EBSCOhost), Embase, and African Journals Online, as well as gray literature sources, such as institutional repositories and reports from international development agencies. The search strategy will be developed in consultation with a research librarian and will combine MeSH terms and relevant keywords related to mentorship, early-career researchers, Africa, and grant funding. To successfully retrieve relevant articles, the following key terms will be used during the search: (mentorship OR mentoring OR mentor program) AND (grant writing OR grant success OR research funding) AND (early-career researchers OR young scientists OR postgraduate students) AND (Africa OR African countries). The database search will be conducted from March 2026. Quantitative data analysis, including meta-analytic modeling and subgroup exploration, will be undertaken from March to April 2026, with results anticipated for publication by mid-2026.

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Article Screening

The article screening process for this systematic review and meta-analysis will be conducted in a rigorous and transparent manner to ensure the accurate identification of quantitative studies that evaluate mentorship initiatives aimed at enhancing grant success among young African scientists. Screening will occur in 2 main stages: initial title and abstract screening, followed by full-text screening. All identified articles from the database and gray literature searches will first be imported into reference management software, such as EndNote, and duplicates will be systematically removed to ensure that each study is assessed only once. Title and abstract screening will be conducted independently by 2 reviewers who will assess each record against the predefined eligibility criteria. Studies will be included at this stage if they appear to report on quantitative evaluations of mentorship programs or initiatives with a clear focus on African early-career researchers or scientists and if they assess grant acquisition or funding outcomes as a primary or secondary end point. The reviewers will resolve any disagreements through discussion, and if consensus cannot be reached, a third reviewer will determine eligibility. Following the initial screening, full-text versions of all potentially eligible articles will be retrieved and examined in detail to determine final inclusion. A screening log will be maintained throughout the process to document the number of studies included and excluded at each stage, along with reasons for exclusion at the full-text level. This log will be used to generate the PRISMA flow diagram, which will illustrate the study selection process from the initial identification of records through to the final number of studies included in the meta-analysis.

Data Extraction

Data extraction will focus exclusively on quantitative studies evaluating mentorship initiatives aimed at enhancing grant success among young African scientists. A standardized data extraction form will be developed and piloted by the review team to ensure consistency, accuracy, and completeness across studies. Two independent reviewers will extract data from each included study, with discrepancies resolved through discussion or consultation with a third reviewer. Key information to be extracted will include bibliographic details, such as the title, author(s), year of publication, country or countries where the study was conducted, and the journal in which the study was published. Study characteristics will be captured, including study design, sample size, population demographics (age, gender, academic level, and institutional affiliation), and the specific field of research of the participants. Detailed descriptions of the mentorship intervention will also be extracted, including the nature and structure of the program, duration and intensity of mentorship, format (eg, one-on-one, group, peer, or virtual), mentor characteristics (eg, seniority, discipline, and training), and funding or organizational support. Where data are missing or unclear, attempts will be made to contact the corresponding authors for clarification. Extracted data will be managed and stored using specialized software, such as Microsoft Excel, ensuring a transparent process. This structured and detailed data extraction process will ensure that all relevant quantitative data are available for synthesis and meta-analysis.

Risk-of-Bias Assessment and Quality Assessment

This systematic review and meta-analysis will conduct risk-of-bias and quality assessments using design-appropriate tools. For randomized trials, we will use the Cochrane Risk of Bias 2 tool [19], and the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach will be used for randomized controlled trials. For nonrandomized intervention and quasi-experimental studies, we will use the Risk of Bias in Nonrandomized Studies of Interventions tool [20], and for observational designs (cohort, cross-sectional, and case-control), we will apply the relevant Joanna Briggs Institute Critical Appraisal Checklist [21]. Each included study will be independently assessed by 2 reviewers to ensure consistency and minimize subjective interpretation. The appraisal process will evaluate methodological quality across several domains, including selection bias, measurement validity, comparability of groups, and appropriateness of statistical analyses. Any disagreements between reviewers will be resolved through discussion or consultation with a third reviewer to reach a consensus. Each study will be assigned a quality rating (low, moderate, or high) based on the proportion of criteria met, with detailed justifications documented for each judgment. Studies rated as low quality will not be excluded outright but will be subjected to sensitivity analysis during the meta-analysis phase to assess their influence on overall effect estimates. Furthermore, the GRADE approach [22] will be used to assess the overall certainty of evidence for each outcome across studies, considering risk of bias, inconsistency, indirectness, imprecision, and publication bias. This comprehensive appraisal strategy will enhance the credibility, transparency, and robustness of the review's findings.

Statistical Analysis

The statistical analysis for this systematic review and meta-analysis will focus on synthesizing quantitative data from studies that evaluate the effectiveness of mentorship initiatives in improving grant success outcomes among young African scientists. All statistical procedures will be conducted in accordance with the *Cochrane Handbook for Systematic Reviews of Interventions* and reported in line with PRISMA guidelines. Meta-analytic techniques will be used where there is sufficient homogeneity in study design, interventions, and outcome measures. The effect sizes from individual studies, such as odds ratios, will be extracted or calculated based on reported data. When studies use different scales to measure grant success or related outcomes, standardized mean differences will be computed to allow for comparability across studies. Pooled effect estimates will be calculated using a random-effects model to account for anticipated between-study variability in study populations, mentorship formats, and contextual settings. The DerSimonian and Laird [23] method will be used for the estimation of between-study variance, and 95% CIs will be reported for all pooled estimates. Heterogeneity among studies will be assessed using the I^2 statistic, which quantifies the proportion of total variability due to heterogeneity rather than chance. An I^2 value above 50% will be interpreted as indicating

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substantial heterogeneity. Sources of heterogeneity will be further explored through subgroup analyses and meta-regression, where feasible. Potential subgroups may include the type of mentorship (eg, individual vs group-based), duration of intervention, gender distribution of mentees, or geographic region within Africa. Meta-regression will be used to identify whether specific study-level characteristics significantly predict effect sizes. Publication bias will be assessed visually using funnel plots when at least 10 studies are included in a meta-analysis. In addition, Egger [24] and Begg and Mazumdar [25] tests will be applied to statistically assess the presence of small-study effects or bias. Sensitivity analyses will be conducted to determine the robustness of the findings by removing studies with a high risk of bias, excluding outliers, or applying fixed-effect models to compare results. All statistical analyses will be performed using Stata (version 17; StataCorp) [26].

Ethical Considerations

This systematic review and meta-analysis will use solely secondary data derived from previously published and publicly available quantitative studies; as such, it does not involve the direct involvement of human participants and does not require formal ethics approval. Nevertheless, the review will be conducted in strict adherence to established ethical research standards, ensuring academic integrity, transparency, and respect for intellectual property throughout the research process. All sources will be accurately cited to acknowledge the contributions of the original authors, and care will be taken to present findings responsibly, avoiding any form of data misrepresentation or plagiarism. The review team will follow thorough methodological procedures to ensure that the selection, extraction, analysis, and interpretation of data are conducted with fairness and accountability. Any amendments to the registered protocol will be clearly documented and reported, along with justifications and relevant dates.

In terms of dissemination, the findings of the review will be published in a peer-reviewed, open-access academic journal to ensure broad visibility and unrestricted access to stakeholders across Africa and beyond. In addition, the results will be presented at both regional and international conferences targeting audiences involved in research capacity building, postgraduate training, and science funding. To support the translation of findings into practical action, tailored dissemination products, such as policy briefs, infographics, and summary reports, will be developed and shared with universities, research funders, science policy agencies, and organizations that coordinate mentorship initiatives on the continent.

Patient and Public Involvement

Patients and the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Results

This systematic review and meta-analysis has no specific grant. Data collection will be initiated in March 2026, with data screening and extraction expected to conclude by mid-March 2026. As of this submission, no data synthesis has been completed. Quantitative data analysis, including meta-analytic modeling and subgroup exploration, will be conducted in April 2026, with results anticipated for publication by mid-2026.

Discussion

Overview

The Discussion section of this systematic review and meta-analysis will critically interpret and contextualize the findings related to mentorship initiatives aimed at improving grant acquisition success among young African scientists, with a specific focus on evidence derived from quantitative studies. The results will be examined in light of existing literature on research capacity strengthening in low- and middle-income countries, particularly sub-Saharan Africa, to identify patterns, gaps, and key drivers of successful mentorship interventions. Special attention will be paid to how different mentorship models, such as one-on-one guidance, structured training programs, peer mentorship, and hybrid approaches, have quantitatively influenced grant application outcomes, including submission rates, success rates, and funding amounts awarded.

The discussion will also consider the institutional, geographic, and disciplinary contexts within which these initiatives were implemented, as these factors may significantly influence the effectiveness of mentorship in achieving measurable grant success. For example, findings may reveal differential impacts of mentorship depending on whether programs were embedded in well-resourced vs underresourced institutions or whether they targeted specific research domains more likely to attract international funding. Any statistically significant relationships identified in the meta-analysis will be explored for their practical implications in designing equitable mentorship programs tailored to the needs of early-career researchers across diverse African settings.

In addition, the discussion will highlight the broader significance of the review in addressing long-standing structural barriers to research funding access in Africa. It will explore how targeted mentorship initiatives can contribute not only to increased grant success but also to greater academic retention, institutional capacity building, and the impartial inclusion of African researchers in the global scientific enterprise. The insights generated from this review are expected to inform the development of more effective, evidence-based mentorship strategies that are both context-sensitive and results-oriented, eventually enhancing the ability of African early-career scientists to secure funding, lead impactful research projects, and contribute meaningfully to their fields.

Strengths and Limitations of This Study

A major strength of the study lies in its exclusive focus on measurable outcomes related to grant success, enabling a data-driven assessment of mentorship effectiveness in a region where such targeted evaluations are scarce. The use of standardized methodological guidelines, including the PRISMA framework and validated tools for quality and bias assessment, will enhance the reliability, reproducibility, and transparency of the review process. Moreover, the study's regional focus

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ensures contextual relevance and the potential to inform locally adaptable mentorship interventions.

However, some limitations are anticipated. The review may be constrained by the limited availability of high-quality quantitative studies specifically reporting on mentorship outcomes related to grant success in African contexts, potentially affecting the scope of generalizability. Publication bias and language restrictions may also limit the inclusion of relevant unpublished or non–English language studies. Furthermore, variations in study design, mentorship models, and outcome measures across included studies may introduce heterogeneity that could complicate data synthesis and interpretation. Despite these limitations, the study will contribute valuable insights to a critical but underexplored area of research capacity development in Africa.

Funding

This systematic review and meta-analysis has no specific grant from any funding agencies in the public, commercial, or not-for-profit sectors. OO's protected research time was partially supported by the Incentive Funding for Rated Researchers' Grant from the National Research Foundation (132385). The content and findings reported and illustrated are the sole deductions, views, and responsibility of the researcher and do not reflect the official position of the funder and collaborating institutions.

Data Availability

As this study is a systematic review and meta-analysis protocol, no primary data have yet been collected or analyzed. Upon completion of the review, all extracted data, analysis code, and supplementary materials will be made publicly available in an open-access repository. Links to the repository will be provided in the final published manuscript. Any data not publicly shared due to copyright or database restrictions will be available from the corresponding author upon reasonable request.

Authors' Contributions

OO contributed to the design and conceptualization of the protocol. OO and ML drafted the protocol. NB, IP, JC, ES, MNS, MA, CRH, FO, and NABN reviewed and provided technical input to the protocol. All authors approved the final version of the protocol. OO is the guarantor of the project.

Conflicts of Interest

None declared.

Multimedia Appendix 1

PRISMA-P checklist.
[DOCX File , 33 KB-Multimedia Appendix 1]

References

1. Kahn MJ. The status of science, technology and innovation in Africa. Sci Technol Soc. Mar 27, 2022;27(3):327-350. [doi: 10.1177/09717218221078540]
2. Boutayeb A. The impact of infectious diseases on the development of Africa. In: Preedy VR, Watson RR, editors. Handbook of Disease Burdens and Quality of Life Measures. New York, NY. Springer; 2010:1171-1188.
3. Marquez PV, Farrington JL. The challenge of non-communicable diseases and road traffic injuries in Sub-Saharan Africa: an overview. World Bank Group. Jun 2013. URL: https://hdl.handle.net/10986/16451 [accessed 2026-08-10]
4. Pillai G, Chibale K, Constable EC, Keller AN, Gutierrez MM, Mirza F, et al. The next generation scientist program: capacity-building for future scientific leaders in low- and middle-income countries. BMC Med Educ. Oct 10, 2018;18(1):233. [FREE Full text] [doi: 10.1186/s12909-018-1331-y] [Medline: 30305069]
5. Asongu SA, Odhiambo NM. Building knowledge-based economies in Africa: a systematic review of policies and strategies. J Knowl Econ. Dec 2020;11(4):1538-1555. [doi: 10.1007/s13132-019-00617-0]
6. Thusi X, Mlambo VH. The effects of Africa's infrastructure crisis and its root causes. In: Addressing Poverty in Africa: Thinking Sustainability. Sunyani, Ghana. Universityof Energy& Natural Resources, Sunyani - Ghana; 2024:75-96.
7. Ngongalah L, Wepngong E, Rawlings NN, Musisi JM. Research challenges in Africa–an exploratory study on the experiences and opinions of African researchers. BioRxiv. Preprint posted online on Oct 17, 2018. [doi: 10.1101/446328]
8. Kumwenda S, Niang EH, 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. Mar 2017;29(1):1-4. [FREE Full text] [doi: 10.4314/mmj.v29i1.1] [Medline: 28567188]
9. Sawyerr A. African universities and the challenge of research capacity development. J High Educ Afr. Jan 14, 2003;2(1):211-240. [doi: 10.57054/jhea.v2i1.1687]

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10. Bates I, Phillips R, Martin-Peprah R, Kibiki G, Gaye O, Phiri K, et al. Assessing and strengthening African universities' capacity for doctoral programmes. PLoS Med. Sep 2011;8(9):e1001068. [FREE Full text] [doi: 10.1371/journal.pmed.1001068] [Medline: 21931538]
11. Wekullo CS, Ouda JB, Keseko E, Shiundu JO, Poipoi Moses W. Mentorship for capacity building among young scholars in knowledge translation, research, and practice in universities in Kenya. Mentor Tutoring Partnersh Learn. Mar 05, 2024;32(2):165-183. [doi: 10.1080/13611267.2024.2323475]
12. Moon TM. Mentoring the next generation for innovation in today's organization. J Strateg Lead. 2014;5(1):23-35. [FREE Full text]
13. Burgess HE, Chataway J. The importance of mentorship and collaboration for scientific capacity-building and capacity-sharing: perspectives of African scientists. F1000Research. Mar 1, 2021;10:164. [doi: 10.12688/f1000research.50937.1]
14. Nachega JB, Uthman OA, Ho YS, Lo M, Anude C, Kayembe P, et al. Current status and future prospects of epidemiology and public health training and research in the WHO African region. Int J Epidemiol. Dec 2012;41(6):1829-1846. [FREE Full text] [doi: 10.1093/ije/dys189] [Medline: 23283719]
15. Ng'oda M, Gatheru PM, Oyeyemi O, Busienei P, Karugu CH, Mugo S, et al. Mentorship in health research institutions in Africa: a systematic review of approaches, benefits, successes, gaps and challenges. PLOS Glob Public Health. Sep 23, 2024;4(9):e0003314. [FREE Full text] [doi: 10.1371/journal.pgph.0003314] [Medline: 39312559]
16. Oronje RN, Mukiira C, Kahurani E, Murunga V. Training and mentorship as a tool for building African researchers' capacity in knowledge translation. PLoS One. Mar 31, 2022;17(3):e0266106. [FREE Full text] [doi: 10.1371/journal.pone.0266106] [Medline: 35358255]
17. Moher D, Shamseer L, Clarke M, Ghersi D, Liberati A, Petticrew M, et al. Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) 2015 statement. Syst Rev. Jan 01, 2015;4(1):1. [FREE Full text] [doi: 10.1186/2046-4053-4-1] [Medline: 25554246]
18. Oladimeji O, Londani M, Boaduo N, Patel I, Creswell J, Moyo S, et al. A systematic review and meta-analysis protocol of successful grant awards for early-career African scientists from mentorship initiatives. PROSPERO. 2025. URL: https://www.crd.york.ac.uk/PROSPERO/view/CRD420251053986 [accessed 2026-10-08]
19. Flemyng E, Moore TH, Boutron I, Higgins JP, Hróbjartsson A, Nejstgaard CH, et al. Using Risk of Bias 2 to assess results from randomised controlled trials: guidance from Cochrane. BMJ Evid Based Med. Aug 2023;28(4):260-266. [doi: 10.1136/bmjebm-2022-112102] [Medline: 36693715]
20. Sterne JA, Hernán MA, Reeves BC, Savović J, Berkman ND, Viswanathan M, et al. ROBINS-I: a tool for assessing risk of bias in non-randomised studies of interventions. BMJ. Oct 12, 2016;355:i4919. [FREE Full text] [doi: 10.1136/bmj.i4919] [Medline: 27733354]
21. Munn Z, Moola S, Lisy K, Riitano D, Tufanaru C. Methodological guidance for systematic reviews of observational epidemiological studies reporting prevalence and cumulative incidence data. Int J Evid Based Healthc. Sep 2015;13(3):147-153. [doi: 10.1097/XEB.0000000000000054] [Medline: 26317388]
22. Bezerra CT, Grande AJ, Galvão VK, Santos DH, Atallah ÁN, Silva V. Assessment of the strength of recommendation and quality of evidence: GRADE checklist. A descriptive study. Sao Paulo Med J. Nov 2022;140(6):829-836. [FREE Full text] [doi: 10.1590/1516-3180.2022.0043.R1.07042022] [Medline: 36102459]
23. DerSimonian R, Laird N. Meta-analysis in clinical trials revisited. Contemp Clin Trials. Nov 2015;45(Pt A):139-145. [FREE Full text] [doi: 10.1016/j.cct.2015.09.002] [Medline: 26343745]
24. Egger M, Davey Smith G, Schneider M, Minder C. Bias in meta-analysis detected by a simple, graphical test. BMJ. Sep 13, 1997;315(7109):629-634. [FREE Full text] [doi: 10.1136/bmj.315.7109.629] [Medline: 9310563]
25. Begg CB, Mazumdar M. Operating characteristics of a rank correlation test for publication bias. Biometrics. Dec 1994;50(4):1088-1101. [Medline: 7786990]
26. Stata statistical software: release 17. StataCorp. 2021. URL: https://www.stata.com/stata17/ [accessed 2026-08-10]

Abbreviations

GRADE: Grading of Recommendations Assessment, Development and Evaluation
PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses

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