

Note: This is Online Appendix 2 of Ameh PO, McGuire CM, Van Waes A, et al. Research activity, facilitators and barriers amongst trainee and early-career family physicians in sub-Saharan Africa: A cross-sectional survey. Afr J Prm Health Care Fam Med. 2022;14(1), a3367. <https://doi.org/10.4102/phcfm.v14i1.3367>

Appendix 2

2019 AfriWon Research Collaborative Baseline Research Activity Survey Evaluation

The following is a summary of our preliminary findings and example quotes from a qualitative analysis of the AfriWon Research Collaborative (ARC) Baseline Research Activity Survey. It is derived from written responses to open-ended survey questions regarding the most important facilitators or barriers to participants' research activity. We identified the major categories listed below through inductive coding by multiple ARC team members to define eight facilitator categories and seven barrier categories.

[Note: below are the instructions that served as a guide during the inductive coding process]

We appreciate you looking through these preliminary findings and replying with any comments or thoughts regarding:

- Do these findings make sense in terms of my own experience?
- Do the quotes seem accurate, clear, and representative of intended meaning?
- Are there any key aspects that seem missing?
- What do I think are the most important findings here?

Thank you kindly for your time and participation!

[Note: below are the results from initial qualitative analysis]

Facilitators	Frequency Mentioned n
<p><u>Institutional requirement to conduct research</u></p> <p>Many participants cited institutional requirements as a motivator of research, as many institutions require research as a part of the job, training, or career advancement prerequisite. Participants also cited working in academic or tertiary institutions as a facilitator to conducting research.</p> <ul style="list-style-type: none"> ● <i>“Research carries 50% marks for our MMED part 2 exam. So I am compelled to make sure I (...) tackle the research aspect.” (A1.9-41)</i> ● <i>“I work in a research institution where conducting and supervising residents' research is part of my job description.” (A1.35)</i> ● <i>“Working in tertiary health facilities” (A1.71)</i> 	23
<p><u>Network/peer influence</u></p> <p>Many participants mentioned their social network (of peers, colleagues, and</p>	22

<p>supervisors) and the support and inspiration that their networks provided them as key facilitators to conducting research.</p> <ul style="list-style-type: none"> ● <i>“Inspired by the work of young researchers” (A1.3)</i> ● <i>“Interacting with other health care workers who engage in clinical and academic research” (A1. 4)</i> 	
<p><u>Mentorship</u></p> <p>Participants noted that receiving support from mentors and being a mentor to others facilitated their research activity.</p> <ul style="list-style-type: none"> ● <i>“My trainer is research oriented and always encourages me to push on.” (A1. 37)</i> ● <i>“I helped a medical student to carry out his research and collect data, which gave me an accurate idea of the development of a protocol” (A1.68)</i> 	19
<p><u>Availability of research engagement opportunities</u></p> <p>Participants commonly mentioned prior engagement in different research activities, such as training (spanning from short courses to Masters level studies) or participating in research-related events such as conferences and journal clubs as a facilitator to conducting research.</p> <ul style="list-style-type: none"> ● <i>“Journal clubs, attending research presentations, attending conferences where participants presented their research” (A1.11)</i> ● <i>“Attended a training in research” (A1.9-41)</i> 	19
<p><u>Personal motivation or drive to conduct research</u></p> <p>Several participants mentioned that their personal interest in research, desire to grow in research, or desire to address knowledge gaps, increase awareness on topical issues, and find local solutions to community challenges facilitated their research activity.</p> <ul style="list-style-type: none"> ● <i>“Personal interest; I am now determined to have research experience in my work.” (PP.B.A.7)</i> ● <i>“Knowledge gap, quest for knowledge, (...) and [to] provide solutions” (A1. 32.)</i> 	17
<p><u>Access to time, technology, funding, and/or other resources</u></p> <p>Many participants highlighted that access to time, technology, funding, and other resources (such as reference managers, statisticians, and data analysis support or software) were prominent facilitators to conducting research.</p> <ul style="list-style-type: none"> ● <i>“Availability of time and resources” (A1.31)</i> 	15

<ul style="list-style-type: none"> • <i>“I do have access to lecturers and librarians who can help with research.” (PP.B.C.9)</i> 	
<p><u>Supportive work environment</u></p> <p>Several participants cited a supportive work environment, such as an available IRB or protected time to conduct research, as a facilitator to conducting research.</p> <ul style="list-style-type: none"> • <i>“Allocation [by the institution] of time for research [of] 2 hours per week” (A1.9-41)</i> 	6
<p><u>Family support</u></p> <p>Two participants mentioned support and encouragement from family as a facilitator to conducting research.</p> <ul style="list-style-type: none"> • <i>“My family who have been supportive.” (A1. 69)</i> 	2
<p>Barriers</p>	<p>Frequency Mentioned n</p>
<p><u>Lack of access to resources and finances</u></p> <p>Participants noted that a defining barrier to conducting research was the lack of access to physical and technological resources and the lack of available funding for research. Physical resources that were difficult to access included patients’ data, lab space, and properly equipped facilities, while technological resources that were difficult to access included available internet and resources such as reference managers, literature databases, and data analysis software.</p> <ul style="list-style-type: none"> • <i>“Unreliable Internet: makes it difficult for literature searches” (A1.9-41)</i> • <i>“Unavailability of research resources and databases. I have to pay personally to gain access to research materials such as journals” (A1.55)</i> • <i>“No research lab or appropriate reading area at work” (A1.69)</i> 	31
<p><u>Time constraints</u></p> <p>Participants commonly noted a lack of time, as well as poor time management skills, as a barrier to conducting research.</p> <ul style="list-style-type: none"> • <i>“Poor time management and busy schedule” (A1. 4)</i> • <i>“Time constraints” (A1. 50)</i> 	30

<p><u>Competing work, training, and/or clinical duties</u></p> <p>Many participants mentioned competing clinical duties and their work or training schedules as being a barrier to conducting research, in addition to general time constraints.</p> <ul style="list-style-type: none"> • <i>“Everyday work schedule with no dedicated time for research” (A1.14)</i> • <i>“Clinical duties as a doctor [and] administrative duties as a Chief Resident in my department.” (A1.40)</i> 	27
<p><u>Non-conducive research environment</u></p> <p>Many participants noted that one barrier to conducting research was the lack of a conducive environment. Environments that posed a barrier to research activity were described as non-academic or rural institutions that were less research-focused, institutions that did not have proper institutional structure (like an efficient IRB) or protected research time for staff, and work environments that prevented collaboration between colleagues.</p> <ul style="list-style-type: none"> • <i>“Lack of protected time, Working with a team that is not supportive or [with] members not willing to carry their weight” (A1.22)</i> • <i>“Lack of push: If I were in a teaching hospital setting, I [would] need to write papers to get promoted.” (A1.55)</i> 	22
<p><u>Lack of research knowledge, experience, and/or training</u></p> <p>Many participants mentioned the lack of general research knowledge, experience, and/or training in research skills, such as determining a research topic, analyzing data, and writing a proposal, as a barrier to conducting research.</p> <ul style="list-style-type: none"> • <i>“Insufficient training in research, having to learn the ropes as I go along.” (A1.30)</i> • <i>“Lack of knowledge on writing up a research proposal or paper.” (PP.B.D.10)</i> 	16
<p><u>Lack of proper mentorship</u></p> <p>Many participants mentioned that a common barrier to research is the lack of proper mentorship, such as mentors being unavailable in their setting. If participants cited that they had a mentor, some also noted that their mentors were often too busy to dedicate time to mentoring, the mentors provided feedback and advice that was often delayed, or the mentors were more clinically-oriented than research-oriented.</p> <ul style="list-style-type: none"> • <i>“The research mentor has other engagements like theatre sessions for emergency surgical procedures...so the research meeting with the mentor is usually canceled.” (A1.9-41)</i> • <i>“Lack of mentors” (A1.11)</i> 	16

<ul style="list-style-type: none"> ● <i>“Poor or delayed feedback from some mentors” (A1.54)</i> 	
<p><u>Limiting personal factors</u></p> <p>Several participants cited personal factors such as a lack of intrinsic motivation, confidence, or interest in research and other life stressors or family matters as barriers to conducting research.</p> <ul style="list-style-type: none"> ● <i>“Lack of motivation” (A1. 15)</i> ● <i>“Poor work-life balance. I had quite a few challenging social situations and events in a relatively short time. Poor focus - I was not focused enough to pursue the completion of a research protocol, due to the aforementioned point. Poor prioritization - I failed to prioritize the research aspect / creation of a protocol which has not allowed me to move forward with my overall research activity.” (PP.B.C.5)</i> ● <i>“Family emergency” (PP.B.D.10)</i> ● <i>“Kids [and] personal issues” (A1.3)</i> 	<p>15</p>