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The role of mentoring in research ecosystems in Sub-Saharan Africa: Some experiences through the CARTA opportunity

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ABSTRACT

Mentoring is important for improving capacity development in population and public health research in sub-Saharan Africa. A variety of experiences have been documented since Consortium for Advanced Research Training in Africa (CARTA) admitted the first cohort in 2011. However, the experience of mentoring opportunities in CARTA has not been studied. Our study focused on the perceptions, experiences and challenges of mentoring among CARTA fellows. We adopted a descriptive design based on data collected from the fellows using an online semi-structured questionnaire. Out of 143 fellows in the programme, a total of 52 fellows from seven cohorts completed the questionnaire. Fifty-three percent of the respondents were females, more than half belonged to the health sciences while 35% were in the social sciences. Fellows received mentoring from CARTA graduates and experienced researchers in the CARTA network, but they also engaged in peer-mentoring with one another. Teaching, publishing, conference attendance and grant application were considered particularly important in mentoring, but mentors and mentees highlighted personal and social issues such as networking, work-family life balance, and managing stress and time, as challenges. There is a need for more formalised but flexible mentorship initiative in the CARTA fellowship to facilitate enduring relationships for career development.

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Africa; capacity-building; Consortium for Advanced Research Training in Africa (CARTA); doctoral training mentorship; multidisciplinary; teaching and research

Background

Although there may be some difficulties in finding mentors as an early career scholar, the significance of mentoring for research and leadership capacity has been well developed in developed settings. Extant literature has demonstrated that scholars who have mentors are more likely to remain confident, be visible in research networks, collaborate more and have higher prospects of professional development compared to their counterparts without mentors (Caruso et al., 2016). This is supported by the influence social interaction has on learning and behaviour change. In addition, several systematic reviews have highlighted the importance of mentoring for career development, faculty retention and research capacity strengthening (Kashiwagi et al., 2013; Sambunjak et al., 2010).

While there is investment in capacity development in Africa through graduate training initiatives (see Ezeh et al., 2010; Fonn et al., 2016), the importance and experience of mentoring is only beginning to attract attention. For instance, a number of human resource training initiative for population and public health research are making reference to, and integrating mentorship activities as a vital tool for enhancing research capacity on the continent (Nakanjako et al., 2011; Sawatsky et al., 2016; Ssemata et al., 2017). Nevertheless, there is a paucity of studies on the extent to which existing

capacity building programmes in sub-Saharan Africa (SSA) support mentorship nor do we have adequate evidence about mentoring experience of mentees in such programmes. The present study fills this important gap in the literature as it focuses on the mentoring experiences of doctoral fellow enrolled in the Consortium for Advanced Research Training in Africa (CARTA). Specifically, this study examines mentoring experiences from the point of view of CARTA fellows who at times are mentees but due to the structure of the programme can also play the role of mentors.

What is mentoring? Many conceptions of mentoring or mentorship emphasise that it involves the transmission of knowledge, social and professional support and capital, usually informally and face-to-face, over a period of time between more experienced (the mentor) and less experienced (the mentee) persons (Cole et al., 2016). Although mentorship is more beneficial to mentees, a good mentor-mentee relationship also helps mentors professionally (Cole et al., 2016), which makes mentoring a form of partnership (Nakanjako et al., 2011). In some sense, therefore, mentoring shares some features with supervision, a formal practice which has been central to strategies aimed at improving the quality of PhDs in SSA (Manderson et al., 2017).

However, supervision and mentoring are not the same. Supervision is mainly formal, within a training system and includes some form of assessment by senior faculty (Mellon & Murdoch-Eaton, 2015). Mentoring on the other hand does not have to occur within a formal system. Mentoring can take place outside formal networks. Also, unlike supervision in which a senior person guides a doctoral student towards completing a research, mentoring relationship could be in form of peer mentoring where mentees serve as mentors one another. This makes mentoring an exercise in both vertical and horizontal learning. What is more, in a mentoring relationship, the mentor helps the mentee in various ways which could be professional or personal with the overall aim of learning and professional development (Mellon & Murdoch-Eaton, 2015).

Despite the growing interest in mentoring across the fields of public and population health research in Africa (Cole et al., 2016; Daniels et al., 2015; Ezeh et al., 2010; Halpaap et al., 2017; Izugbara et al., 2017), certain factors impinge on the practice in the continent's research ecosystem. Apart from the scarcity of mentors, the mentoring system in Africa's institutions of higher learning faces a myriad of challenges, from ambiguity in mentor-mentee relationship and role definitions to supervisor-mentor role conflict, limited mentoring knowledge and skills, and lack of formal structure (Ssemata et al., 2017). Also, a cultural environment that is supportive of mentoring has been found to be critical to the overall implementation and experience of mentoring in varied contexts (Cole et al., 2016). However, the cultural atmosphere in some African institutions of higher learning was found to be a barrier to establishing and maintaining productive mentoring relationship, particularly the culture of politeness and respect for elders (Sawatsky et al., 2016). Given these documented challenges, mentoring is not common in SSA institutions. In places where they exist, mentoring is not well developed as it could be.

In the present study, we explore fellows' experience of mentoring under the CARTA initiative. The next section describes the CARTA programme and the mentoring opportunities suggested by its structure. The methods section comes next, after which the results are presented and discussed. Before concluding in the final section, we highlight the limitations of the study.

CARTA fellowship and mentoring

The CARTA programme was established to build local research capacity in population and public health by creating a network of locally trained but globally recognised scholars through a PhD training fellowship (Ezeh et al., 2010). In achieving this goal, CARTA trains Africa-based doctoral fellows who are admitted in cohorts. Each cohort has fellows from varied disciplinary fields, provided that their doctoral research topics address population and public health issues. The programme views the determinant of health through a multidisciplinary lens and approaches the health challenges in Africa from a holistic point of view. Apart from biomedical, population studies and public health

fields, CARTA has admitted fellows from disciplines such as civil engineering, political science and graphics design.

Since the first cohort was admitted in 2011, a variety of experiences have been reported in academic outlets, both from the perspectives of fellows (Adedokun et al., 2014) and programme designers/facilitators (Fonn et al., 2016). However, none of the reflections on the CARTA programme have considered the in-built mentoring opportunities of the programme and how fellows have engaged and experienced them.

Mentorship has always been implied if not actively stated as part of the approach that CARTA uses to develop researchers. This assertion is based on how the methodology of CARTA delivery gives ample opportunities to fellows to cultivate mentoring relationships. Specifically, through the four Joint Advanced Seminars (JASes), described in Ezeh et al. (2010) and Fonn et al. (2016), CARTA fellows have unique interactional opportunities to establish mentor-mentee relationships. The JASes bring fellows face-to-face with facilitators with a cumulative of several hundreds of years of research and mentoring experience in universities from the global North and South. Also, with an understanding that the fellows also possess potentially shareable knowledge, skills, and capability among themselves, the JASes allow development of peer-mentoring relationships as well.

Figure 1 displays the three main modes of mentoring opportunities suggested by the CARTA framework, including the possible categories of people involved and the points where mentoring relationships may develop. In Mode 1, there is vertical mentoring involving the facilitator-fellow pairs. There is an opportunity to cultivate relationship throughout the four JASes that all fellows are mandated to attend. In Mode 2, fellows in the same cohort can mentor one another through the exchange of their multidisciplinary knowledge base, and throughout the four JASes. Mode 3 is particularly interesting because it is intergenerational, with major and minor opportunities for

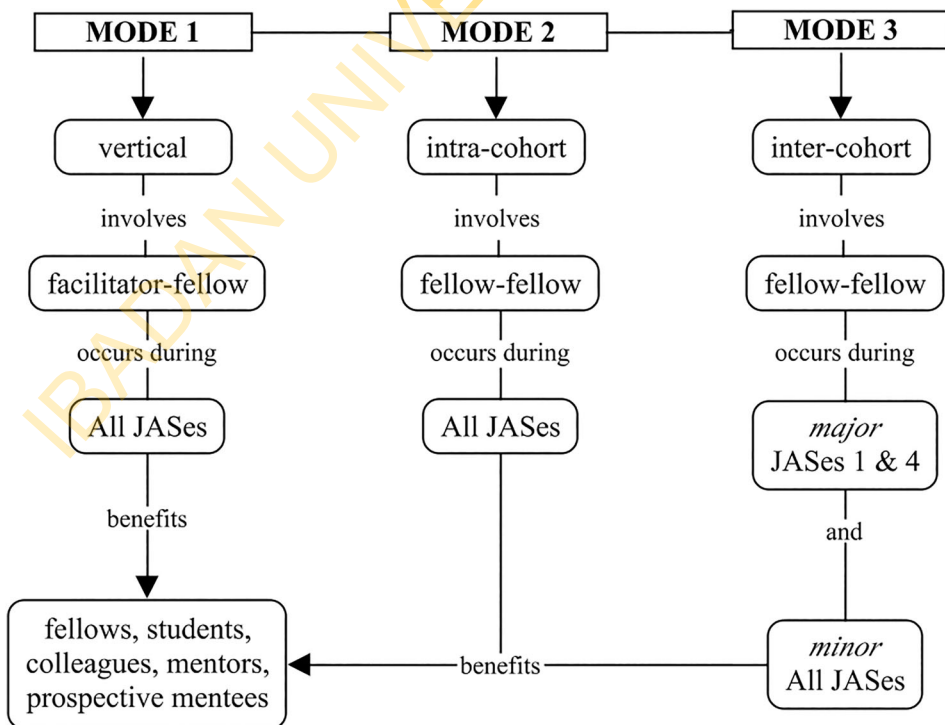


Figure 1. Modes of mentoring opportunities in the CARTA framework.

mentoring. In the major mentoring opportunity, newly admitted CARTA fellows attend JAS 1 at the same time and in the same venue as final-year fellows who are attending JAS 4. In minor mentoring of Mode 3, selected CARTA graduates are re-engaged on the programme as facilitators during the JASes, based on expertise, experience and ability to mentor junior fellows.

Once the practise of mentorship is cultivated in CARTA fellows and graduates through the available mentoring opportunities, it can create a culture shift whereby mentoring becomes part of the usual practise of academics who have been through the CARTA training. Apart from the fellow themselves, colleagues at home institutions, mentors and prospective mentees of CARTA fellows would likely benefit as well. The culture shift aligns with the expectation that fellows become change-agent as expressed in the CARTA theory of change.

However, we do not know how well fellows leverage these mentoring opportunities to facilitate and build a dense network of mentors and mentees. This knowledge can reveal how well the 'tacit' mentoring intentions of the CARTA programme is being met. Also, knowing more about the mentoring experience across cohorts can provide opportunities for identifying mentoring gaps and recommending ways of improving the process. The knowledge will strengthen the overall effectiveness of the CARTA programme in achieving the goal of building a network and critical mass of research leaders on the continent. The study also contributes to the literature as it represents a timely addition to the currently scant knowledge-base on how mentoring takes place in various doctoral programme initiatives in sub-Saharan Africa.

Methods

We collected data from fellows in seven CARTA cohorts from September 2017 to December 2017. Although CARTA currently has more than seven cohorts, there were only seven cohorts when we were collecting data. Each cohort had between 24 and 27 members from diverse academic disciplines and backgrounds. More than half of the fellows in cohorts 1 and 2 had completed their doctorate degrees. Most of the fellows in cohorts 3 and 4 were in the data analysis stage, and about half of the fellows in cohorts 5 and 6 were in the data collection stage. All of the fellows in Cohort 7 were in the protocol development stage.

The data collection lasted for about four months. We sent out invitations first week in September 2017 through the RedCap platform that we used to design the survey. We followed up with fellows using CARTA group email in October, but the number of responses did not improve significantly. At the end of October, we started reaching out to fellows we knew personally on social media platform (WhatsApp) to fill form and also help inform their colleagues who have not filled the form. Another reminder was sent in October and November with more urgency. By the first week, in December, we reminded some of our colleagues in cohort 6 to fill the form and sent a last reminder to all CARTA fellows.

We did not anticipate that the data collection will take long as we had expected that colleagues would be more responsive given their experience with data collection. By the second week in December, we decided we had a desirable sample size and closed the survey. The online questionnaire contained questions on fellows' demographics – gender, cohort, academic discipline, and probed their perceptions and experiences of mentoring and challenges associated with the mentoring process. Some of the questions include: 'Do you have a mentor in the CARTA network'. 'Do you have a mentee in the CARTA network', how easy it was finding a mentor in the network and what research activities did they perceive as important to need mentorship for. Appendix 1 shows the complete list of questions.

Descriptive statistics were obtained with RedCap, and all open-ended questions were downloaded from the RedCap online and transferred to NVivo 11 for content analysis. The data was analysed by cohort. This is because fellows in cohort 6 and 7 may have least exposure to CARTA and may be less likely to have opinions about mentorship but more experience in being a mentee.

The themes used in the presentation of results were created from the variables in the relevant survey questions. The open-ended responses are presented using summaries and direct quotes of the respondents.

Ethical considerations

Study procedures were approved by the National Health Research Ethics Committee of Nigeria (NHREC/01/01/2007-16/04/2019). The survey was set up in a way that potential participants had to click on a 'button' to indicate that they have read the consent and are willing to participate. Each participant signed the informed consent form on the survey portal. Respondents were guaranteed utmost confidentiality, privacy and anonymity. The voluntary nature of participation was highlighted to all the participants.

Results

Fifty-two fellows completed the online semi-structured questionnaire out of a total of 143 fellows participating in the programme at the time of data collection. This is a response rate of 36% which was lower than we anticipated. Majority of the fellows in Cohort 1–3 did not respond to the survey.

The percentage distribution of respondents by cohort has been presented in Table 1. Out of the 52 respondents, 53% were females while 47% were males. This is slightly different from the distribution of females (55%) and males (45%) across the entire cohort.

More than half of the respondents belonged to the health sciences while 35% were in the social sciences which is similar to discipline distribution of CARTA fellows as at time of data collection.

Most of the fellows that responded to the survey were in Cohort 6 (33%) and Cohort 7 (27%). We believe that belonging to a WhatsApp group with the cohort 6 members could be a reason we had a higher response from the cohort. It is possible that fellows in cohort 7 felt filling the form would be beneficial to them getting mentors in the programme.

Mentoring

Forty-seven (47%) percent of the respondents had mentors in the CARTA network, and 20% had mentees in the network. More than half (63%) of the fellows who had mentors in the CARTA network were in cohort 6 and 7 with only 30% of fellows in cohort 6 and 7 having mentees in the network.

Many CARTA fellows perceived mentorship to be a responsibility. Although not all of them have mentors or mentees within the CARTA network, they were unanimous in agreeing that offering mentorship to others is a responsibility. This fundamental belief in the idea of 'mentorship as responsibility' is reflected in expression shared by a respondent, 'to whom much is given, much is expected' (Male/cohort 6) and a statement by another that fellow that 'the immense knowledge

Table 1. Percentage distribution of respondents by cohort.

Cohort	Frequency (%)
1	4 (7.7)
2	3 (5.8)
3	1 (1.9)
4	8 (15.4)
5	5 (9.6)
6	17 (32.7)
7	14 (26.9)
Total	52

benefitted from CARTA is needed to be passed on to mentees' (Male/ Cohort 5). According to most of the respondents, it is in fulfilment of this 'mentorship as responsibility' that they live up to their duty to scholarship, their mentors, and the society at large. As a responsibility to scholarship, a female participant in Cohort 5 said that mentoring is the means 'to build a network of capable and skilled people who will be the next generation of professionals'. As a responsibility to mentors, another said:

We owe it to up-coming mentees to provide our time and resources to make a difference ... We have stood on the other people's shoulders to get where we are ... There is a need to make a difference in other scholars' lives.
(Female/Cohort 6)

Yet, more than half (64%) of the respondents reported difficulty finding a mentor within the CARTA network of fellows and facilitators. By cohort, 67% of the fellows who encountered difficulties in finding a mentor in the network were in cohort 6 and 7.

About 35% of the fellows on cohort 1–5 have never received a mentoring request. Of those who got request for mentoring, 50% received mentoring requests once a month while 33% received such requests once in three months.

Perceived importance of research activities for mentoring

More than three-quarters of the respondents perceived teaching, publishing, conference attendance, and grant application to be very important for mentoring. As shown in Figure 2, more respondents discussed research with mentees, followed by publications and collaborations. Based on the open-ended response to the question 'what mentors discussed with mentees', we found that fellows talk about career development, research and writing and 'personal and social issues'. Career development topics range from general professional guidance to ethical behaviour, goal achievement, shaping future research interest and avoiding burnout. Almost as important as career development exchanges between mentors and mentees were discussions on personal and social issues, including networking, work-family life balance, and the management of stress, time, and supervisors. Research and writing related discussions revolved around thesis and general academic writing, methods, and research progress management.

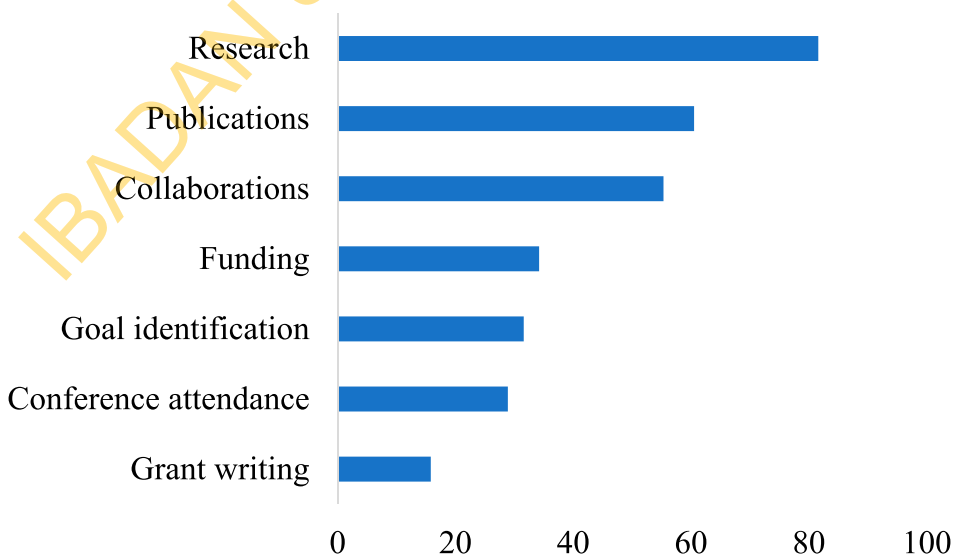


Figure 2. Issues discussed with mentees.

We further probed respondents' perceptions of what constitutes success in mentoring. A majority of respondents thought that success in mentoring depends on the extent to which mentoring relationship focuses on meeting the needs of the mentee. To these respondents, success has been recorded when mentees achieve their career goals. The career goals are academic, from getting grants to conference attendance, and publishing in reputable journals. In other words, '... when mentees are able to do credible research, publish in reputable journals, and teach well, one could conclude mentoring is a bright success' (Male/Cohort 6). More so, achievement of career goals includes steering mentees to completing studies and graduating while being there to see them achieve their dreams. Other dimensions of 'mentee-focusness', as a measure of success are when mentors make networking and career development opportunities available to mentees, prioritise mentees, help them build their confidence, and keep mentees on track. The presence of symbiotic learning, mentors leading by example and providing supportive guidance were also mentioned.

Challenges of mentoring

The challenges of mentoring was explored using an open-ended question. The most mentioned challenge faced in mentoring young scholars was time. The factors that place a significant demand on time, resulting in limited time for mentoring include, having multiple roles, as a lecturer, doctoral student, and mentor, and administrative work. Some also complained that mentees might not manage the limited time allotted to them efficiently.

A commonly mentioned issue is the attitude of mentees. Some fellows said that mentees sometimes lack confidence and have no interest in the field they are working in. Others seem unwilling to seek help. In surmising the attitudinal challenge, a male respondent in Cohort 2 said that 'sometimes it is difficult getting them [mentees] to understand the needful. ... Patience is also a problem. There is the mad rush to quickly get things done without much concern for excellence and quality output'.

Another significant challenge was that both mentors and mentees expressed frustration about lack of responsiveness. Mentors described mentees as being nonresponsive but equally mentees said that mentors did not always respond. One fellow, a mentee, complained that 'I have never received comments on the draft I sent my mentor before JAS 1' (Male/Cohort 6). The same way, some fellows who currently mentor younger colleagues said some mentees do not respond to feedbacks on time. Irrespective of who is on the receiving end, irresponsiveness is a challenge in a mentor-mentee relationship. Other challenges mentioned were – lack of mentoring skills, lack of motivation or zeal on the part of mentors and mentees, getting mentees to understand their roles, low achievement of set goals, and lack of or limited funding and resources.

Enabling factors for becoming good mentors

Given these challenges experienced by fellows, we wanted to learn what CARTA fellows perceive will make it easier for them to be good mentors. These are enabling factors for easier mentoring. Based on the responses gathered, we categorised the factors as institutional, interpersonal and personal factors. At the institutional level, fellows agreed that certain institutional factors make mentoring easier for mentors, particularly the availability of an enabling and supportive environment. Factors such as burdensome administrative roles, inaccessibility of needed facilities, minimal opportunities to interact with young researchers, lack of structured mentoring programme and unavailability of mentoring guidelines were considered as barriers to good mentoring. Also worthy of note, though mentioned by only one respondent, is the lack of funds to compensate for the time and effort that mentors commit to mentees.

At the interpersonal level, some fellows said that it would be easier to mentor others if experienced researchers had mentored them. Perhaps, this view is based on the assumption that it is difficult to

pass on what someone has not experienced. At the other end, fellows mentioned that, at the interpersonal level, mentees must be responsive and reach out for help.

Personal enabling factor that would make it easier to be a good mentor relates to mentors' knowledge, qualification, skills, capability, exposure, attitude and psychosocial disposition. Regarding knowledge, for example, fellows perceive that it would be easier to be a good mentor if would-be mentors are up-to-date with happenings in their field, possess improved capacity due to their exposure, which often derives from participating in conferences and attending relevant training, and being committed to continuous learning. More importantly, acquiring more knowledge about what mentoring entails by attending training on the subject would make the task less difficult for prospective mentors. Making it easier to be a good mentor also means that mentors should be dedicated, able to motivate young researchers and be of good character while also possessing emotional intelligence.

For sure, these enabling factors do not operate in isolation. They interact in complex ways to shape the atmosphere within which mentoring occurs and the way both mentors and mentees experience it. However, putting them in their respective categories helps to illuminate their respective domains and the possible ways that each may be tackled – without necessarily ignoring their interconnections and interactivities.

Improving mentoring in CARTA

We further asked respondents to suggest ways of improving mentoring within the CARTA programme. One recommendation emerging from the survey is the need to integrate a formal mentorship initiative into the CARTA fellowship. Most of the fellows that participated in the survey recognise that holding JASes 1 and 4 at the same time is a veritable opportunity for mentoring. However, there is a concern that the informality and spontaneity that drives the establishment of mentorship relationship between junior and senior fellows during the combo-JAS, leaves mentoring to chance. Many fellows perceive that assigning junior fellows to senior fellows before the combo-JAS and facilitating interactions between mentors and mentees will be more productive and lead to a more enduring mentor-mentee relationship within the CARTA network. Respondents suggested further that there should be freedom and flexibility of choice.

They also recommended setting up of CARTA Mentorship Network (CMN), which among others, will contain information about available mentoring opportunities and details of willing mentors and mentees, including experience, expertise, research interests and possible areas of exchange between mentorship parties. The CMN can operate primarily as a mentoring match-making platform.

Further recommendations were made to improve mentoring training, monitoring, and evaluation. On the one hand, fellows recommend that there should be dedicated training sessions on mentoring. That is, mentors should be trained to mentor. Relatedly, a mentoring guideline should be developed and made accessible. Such a guide should specify the roles and expectations of mentors and mentees and contain an outline of outcomes against which the parties can assess their progress. The guideline must not be rigid so that new and useful ideas can be incorporated as necessary. On the other hand, fellows recommend that the CARTA secretariat should undertake periodic monitoring and evaluation to ascertain how mentoring relationship is evolving and to introduce changes when required.

Meanwhile, as the network of CARTA Alumni grows, it was suggested that local CARTA hubs be established to bring in-country fellows together on a regular basis. This way, denser fellow interaction will emerge and, with it, more opportunity to cultivate an enduring local mentoring relationship. Other important recommendations are facilitation of inter-school/inter-country collaboration that will expose CARTA fellows to prospective mentees in universities other than their own; identification of mentors within home universities; facilitating effective mentor-mentee communication; compensating and encouraging mentors.

Discussion

The uncertainty in the academic career environment, instantiated by rapid career transitions and global developments, in addition to other forces, contributes to the attention that mentoring is generating. Although the CARTA fellowship has been described and subjected to evaluation by those who have been part of it in one way or another (Adedokun et al., 2014; Ezeh et al., 2010; Fonn et al., 2016), our survey explored the in-built mentoring opportunities in the CARTA programme to understand how fellows engage and experience them. This is timely because many now perceive mentoring to be critical for academic development and professional success. Our study also closes the knowledge gap in the literature on how mentoring is experienced in graduate training programmes on the continent.

The vast majority of CARTA fellows agree that mentoring is a responsibility even though more than half of fellows reported having difficulty in finding a mentor. In addition, majority of the fellows who had mentees were in the older cohorts. This implies that older fellows may have gained skills during workshops and seminars and are more confident and willing to give back to other fellows. It also shows that fellows in younger cohorts are more likely to seek out mentors rather than act as mentors in the network.

The possibility that fewer number of mentees reach out to potential mentors may also be responsible for this phenomenon. Despite this, the extent of mentoring relationships in the CARTA network is encouraging. Research, collaborations, and publications are the three most discussed issues between mentors and mentees. Most of the ongoing mentoring in CARTA takes the form of academic mentoring. Jointly, they can promote career success and skills development which can be translated into positive career outcomes. Moreover, we also found that having had an experienced mentor was important in making someone into a good mentor. This position presumes that there is a demand side to mentoring and good mentees should make an attempt to seek out mentors. There should also be a mutual understanding between the parties in the relationship.

Interestingly, the CARTA network in itself forms a social (or organisational) structure which can help in facilitating great mentoring relationships. We also observed, however, that the general institutional context remains critical for ease in becoming a good mentor to others. This finding aligns with the view of researchers who claim that mentoring relationships do not occur outside the larger societal environment (Cole et al., 2016; Sawatsky et al., 2016). In our study, respondents, many of whom were from different institutions, faced the challenge of establishing a mentoring relationship due to the nature of the prevailing social organisation of work in their universities. The institutional environment drains time and burdens fellows with administrative duties. Additionally, it did not provide the resources that can help them in mentoring. There is no doubt that such institutional pressures may have prevented prospective mentees from reaching out to potential mentors.

It is also interesting to note that fellows highlighted institutional, interpersonal and personal enabling factors for becoming good mentors. From their understanding, it is especially striking that at personal level, fellows expect mentors to be someone possessing up-to-date knowledge in their fields. This certainly raises some concern about the fellow's understanding of, and expectations from, mentors. While this suggests a gap about respondents' understanding of mentoring, an issue that more training can mitigate, it also suggests that mentees perhaps prefer to have mentors in the field of research.

Furthermore, in consonance with previous studies (Nakanjako et al., 2011), our respondents believe that formalising and institutionalising mentoring is necessary. However, some of them emphasised that formalisation should not eliminate 'freedom to choose' and flexibility. The cautious view on formalisation is significant when we consider it in the light of the fact that having a formal mentoring system did not translate to more effective or enhanced engagement with mentoring opportunities (Ssemata et al., 2017). Some studies show that more formalisation may not even eliminate the institutional and interpersonal (Nakanjako et al., 2014) and cultural (Sawatsky et al., 2016) barriers that may affect the mentoring practice in a resource-poor setting. It is for this reason that an

effective mentoring initiative would be one that connects mentors and mentees formally while also establishing a structure that makes it easy for mentees to freely connect informally with willing mentors.

Limitations

While we aimed to explore mentoring within the CARTA network, it is possible that being part of this network and skills acquired during trainings exposed some fellows to mentoring outside the network. Our data did not explore mentoring among fellows outside the network which is a limitation of this present study. Another limitation of this study is our response rate, which was lower than expected, however, our sample size was still representative. Finally, our data did not account for the mode of communication used during mentoring which is an area to be considered for future research.

Conclusion

The research ecosystem of sub-Saharan Africa faces a myriad of issues. Training opportunities such as the CARTA fellowship are addressing some of these issues. In addition to helping the continent to build a critical mass of expert researchers in the area of public and population health for development, the CARTA programme anticipates a future in which fellows will remain on the continent to transmit knowledge and research capacity, thereby building the next generation of competent and highly skilled investigators. Mentoring is central to this endeavour, and as we observed in the CARTA methodology, the Joint Advanced Seminars are avenues through which a dense network of mentor-mentee relationship can evolve. Our study suggests that fellows are taking on mentoring opportunities, although experience varied. A majority of them desire a more formalised mentoring initiative. However, the initiative must not be rigid but be structured to link mentors and mentees and facilitate enduring relationships for academic and professional career growth and development.

Declarations

Abbreviations

CARTA: Consortium for Advanced Research Training in Africa

Consent for publication

Not Applicable.

Availability of data and material

The datasets generated for the current study are available from the corresponding author on reasonable request.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

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Appendix 1

Data dictionary

- (1) What is your gender?
- (2) What is your academic discipline?
- (3) What cohort do you belong to?
- (4) Do you have a mentor in the CARTA network?
- (5) Do you have a mentee in the CARTA network?
- (6) Was finding a mentor in the CARTA network relatively easy?
- (7) How do you perceive the following? ('Not important', 'fairly important', 'important', 'very important')
 - (a). Teaching
 - (b). Publishing
 - (c). Mentoring
 - (d). Conference attendance
 - (e). Grant application
- (8) How often do you get request from mentees? ('Once a month', 'Once in three months', 'Once a year', 'Never')
- (9) Estimate how much time you spend mentoring ('Once a week or more', '2–3 times a month', 'Once a month', 'Less than once a month', 'Never')
- (10) Issues discussed with mentees ('Conference attendance', 'Funding', 'Publications', 'Research', 'Goal identification', 'Grant Writing', 'Collaborations', 'Others')
- (11) What other issues do you discuss with mentees
- (12) What have you considered to be a success in mentoring?
- (13) What challenges have you faced with regarding to mentoring young scholars?
- (14) Do you consider mentoring as an obligation or responsibility? Please provide reasons for your response.
- (15) What would make it easier for you to be a good mentor?
- (16) What should be done to improve mentorship in CARTA program?