



Personal factors in the career development of early career researchers in Kenya and implications for models of mentoring practice

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Abstract

This qualitative study responds to recent calls for decolonisation of research agendas and explores some personal factors impacting the development of research careers in an under-researched context of Africa, more specifically Kenya. Personal factors as well as academic careers are dependent on cultural and institutional contexts, hence findings from studies conducted in Western context cannot be considered fully relevant to inform mentoring practices in Africa. The experience of eighteen Kenyan nationals with PhD degrees was explored retrospectively using semi-structured interviews, followed by thematic analysis. Results point to new perspectives on development of early career researchers (ECRs) in Kenyan context, which differ from those known from studies in the Western contexts. The findings indicate the role of spirituality and faith in bolstering personal agency. It underpins ECR's resilience as well as decision making. Furthermore, commitment to the service of community and wider Kenyan society has been identified as a strong driving factor in shaping career and research identity. Holistic mentoring emerges as a crucial factor in development of ECRs in the Kenyan context. A novel conceptual model of ECR development capturing the above-mentioned influences is presented and recommendations are made for a practical framework for mentoring of ECRs in Kenya.

Keywords Early career researcher · Research identity · Career development · Faith · Mentoring · Africa

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Introduction

A thriving and sustainable research ecosystem depends on a global network of collaborating institutions and new generations of Early Career Researchers (ECRs) taking up research careers. An ECR is defined as a researcher within ten years of starting their PhD (Boeren et al., 2015). A doctorate is normally an entry level requirement for a research career. Postdoctoral level researchers are a vulnerable workforce, and with most employed on short-term contracts, they have little access to career support. Many ECRs are in distress, with one global survey of 7,600 postdoctoral researchers from 93 countries finding that 51% consider leaving because of work-related mental health concerns (Woolston, 2020; Nature Editorial, 2020).

For Africa, the continued development and retention of research talent is particularly important. In 2014, the 23rd Ordinary Session of African Union Heads of State and Government Summit endorsed a ten-year vision that economic and social development be underpinned by science, technology and innovation, enabling a transition to innovation-led and knowledge-based economies (STISA, 2024). For African ECRs pursuing a research career the challenges are steep, often requiring PhD and postdoctoral opportunities outside Africa. Much African research, for example in health, depends on international funding and is subject to decision making outside the continent (Simpkin et al., 2019). A survey of young African researchers looked at the contextual factors which influence individual African research careers (McAlpine et al., 2020; Coussens et al., 2024). The work outlines numerous factors that either discouraged young African researchers from pursuing a research career or encouraged them to seek career progression on another continent. The obstacles to career progress are dominated by the paucity of funding and poor access to infrastructure and knowledge, high teaching loads, gender, racial and hiring inequality, and restrictions on geographical mobility (McAlpine et al., 2020; Coussens, 2021; Coussens et al., 2024).

However, as the literature review below demonstrates, personal factors which shape career development and research identity in African researchers are an under-researched area. Further work is needed to explore the nature of personal factors in career decision-making among African researchers to improve understanding of how personal agency intersects with structural factors at critical points in the career pathway (McAlpine & Amundsen, 2018; McAlpine et al., 2022). Our work responds to this gap in the literature through an explorative study of personal factors which shape the career development and research identity of Kenyan ECRs. It is important to note here that although the study focussed on ECRs from Kenya, the study participants themselves often referred to the continent of Africa, hence references to Africa are included in this paper when it is appropriate to do so.

The article is structured as follows. Firstly, the literature on research identity, faith and agency and research mentoring is reviewed. This structure mirrors the main themes derived from coding the data. Further methodology of the study is described, including details of sampling, data collection and data analysis. Next, findings from the study are presented. The discussion section explores meanings of the findings and takes them forward toward a conclusion and recommendations.

Research identity development

In a research career, the transition to being an independent scholar involves cognitive development, acceptance by the research community and learning to navigate the research ecosystem (Laudel and Glaser, 2008). Carlone and Johnson (2007), who studied experiences

of “people of colour” in the USA, argue that a person with research identity is motivated to understand the world scientifically with competent scientific knowledge (competence), he/she has the skills to conduct science (performance) and has recognition by both self and others as a “science person” (recognition). The concepts of external and internal recognition can help explain how an individual’s sense of identity develops both through acknowledgement from within and externally through social visibility and approval from sources outside oneself (McAdams, 2013).

A nuanced understanding of the development of researcher identity requires appreciation of the influences of both structural factors and individual agency (McAlpine and Amundsen, 2018). Structural factors include the cultural, social and organisational contexts. The latter might include for example how an organisation can shape the learning and development of an individual (Antony, 2002). However, we should not ignore that researchers are active and agentive in constructing their identities (Elliot, 2005). McAlpine and Amundsen (2018, p.20), whose work examined what they called the “identity-trajectory” assign primacy to the influence of individual agency, and whilst acknowledging the influence of structural factors, they focus on an individual’s motivations and agency. Resilience, motivation and a passionate pursuit of goals can be sustained by the combination of affect and agency (McAlpine et al., 2016).

The above section discusses how research identity is developed and shaped by internal and external factors. Meaning and characteristics of research identity have been also explored.

Science, religion and agency

Ecklund et al. (2016) examined how scientists understood religion and compared their religiosity to the local population. Based on the high levels of prayer and attendance at religious services among scientists in a large international study, Ecklund et al. (2016) reject the idea that science and religion are in conflict. Gould (1997) argued that science and religion are in an independent relationship like “nonoverlapping magisteria”, each autonomous, with one dealing with “empirical observation of the natural world” and “the other with meaning” (Ecklund et al., 2016, p.5). The authors make recommendations for future work including qualitative research on how religion and faith shows up in scientists’ lives, and to explore other regional contexts including Africa, a region excluded in their study.

Little empirical evidence exists to unpick the relationship between faith and human agency or an individual’s sense of identity. Liu and Froese (2020) found a relationship between a sense of control, socioeconomic status and beliefs about God. A secure attachment to God, mimicking psychological measures of attachment to friends and family, has been found to be associated with a higher level of sense of control and a more contemporary system of belief or spirituality (Wong, Rew & Slaikeu, 2006). Conversely, a belief in a judgemental God can be associated with a lower level of sense of agency (Liu & Froese, 2020). The effect of belief in God on a person’s sense of control is itself a function of socioeconomic status; the implication being that the nature of belief depends on a person’s level of education, wealth and power (Schieman, Nguyen & Elliott, 2003). A comprehensive study of African ECR development made reference to religion in the context of research career equity, but not about the impact of religion and faith on career decision making (Coussens et al., 2024).

In summary, empirical evidence points to a picture in which science and religion are not necessarily in conflict. It is suggested that those whose faith comes from within have a stronger sense of agency and control, and those who see a judgemental God experience a lower sense of agency.

Research mentoring

Mentoring is understood in this work as a one-to-one developmental relationship between an experienced and more junior person built around advice on career development and psychosocial support (Kram, 1985), and involves “the sharing of skills, knowledge and expertise” (EMCC, 2024). Mentoring is often confused with other helping roles, for example with coaching or research supervision (Sambunjak, Straus and Marusic, 2010). Coaching is characterised by an approach that facilitates the coachee to discover for themselves what works best, through powerful questions and listening (Rosinski, 2003). The range of mentoring functions lead to two broad classifications. Career function describes a sponsorship type model in which the mentor brings expertise, challenge and access to networks whilst psychosocial or developmental mentoring focusses on growth in self-efficacy and broader self-development (Haggard et al., 2011). This duality of approach, which can also be split into directive and non-directive support reflects ongoing debate in the literature (Rosinski, 2003; Garvey, 2018).

Career mentoring supports practical research skills development, including research writing and grant applications (Schriever & Grainger, 2019) as well as outcomes including promotion and networking (Ragins & Kram, 2007; Boeren et al., 2015; Randel et al., 2021). However, it can be considered too instrumental as it may neglect well-being and psychosocial development (Murray et al. 2022). The developmental model by contrast captures a two-way relationship where there is empathetic listening, mutuality and encouragement of a reflective approach to personal growth. The mentor facilitates growth in self-efficacy and self-development (Clutterbuck, 2014; Lancer, Clutterbuck & Megginson, 2016). The developmental model can be seen as more suited to supporting the transition to research independence and integration into academic culture (Brown, Daly & Leong, 2009; Sawatsky et al., 2016). Mentoring outcomes related to personal development and growth, relational competencies for working within organisations and networking, and non-work issues have been found to be equally important for ECRs’ career development (Ragins & Kram, 2007), although it was argued that the role of trust and compassion in the mentoring relationship had received limited attention in research so far (Boyatzis, Smith & Blaize, 2006). Research supervisors, who have the important role of developing ECRs, deploy the skills and approach of both mentors and coaches, but with the important element of the development of critical thinking, which is arguably at the heart of effective research supervision (Lee, 2007). New models are needed, which reflect the cultural and contextual differences between Western and non-Western world whilst building on the best of the career and psychosocial approaches.

This section has described how research mentoring is perceived to include functions ranging from career development through to psychosocial support, with most mentoring relationships expected to offer a combination of both.

ECR development in the African context

The design of mentoring frameworks requires understanding of the organisational and individual cultural context. African research culture tends to be more hierarchical than in the global north and more accepting of seniority, which may negatively impact on the development of a critical approach to research (Lescano et al., 2019) and result in institutional environments being less conducive to professional development (Sambunjak & Marusic, 2009). This observation can be situated within a global study that examined organisational behaviour in the context of country clusters with similar cultural and historical features (Ronen & Shenkar, 2017). The Sub-Saharan African cluster demonstrated medium to high levels of deference, reliance on vertical sources of guidance, intolerance of ambiguity and reliance on specialists. By contrast, the “Anglo Global” cluster had medium to low deference, a high tolerance for ambiguity and a coaching approach to relationships and development (Ronen & Shenkar, 2017). Mentoring approaches and frameworks developed for the Global North may not therefore be appropriately geared towards the research and organisational culture in African contexts (Lescano et al., 2019).

The importance of mentoring in African research contexts was further confirmed in a study of early-and-mid-career transition to research leadership across Africa (Mtwisha et al., 2021). The study participants reported the importance of strong personal commitment to Africa and the importance of mentoring. Consistent with the paragraph above, the authors noted that research on leadership themes and approaches appropriate for the Global North cannot be extrapolated to the African research ecosystem. With reference to the sponsorship and mentoring approaches described in the previous section, African ECRs valued support for publishing, teaching, conference participation and grant applications alongside psychosocial support and empathy (Somefun and Adebayo, 2021).

This section discusses the importance of cultural context in mentoring African researchers and where to situate mentoring on the career - psychosocial spectrum.

Methodology

The participants’ lived experience was explored through an interpretivist, qualitative, retrospective study, based on semi-structured interviews. The sample were eighteen mid-career individuals, all of whom had been born and educated in Kenya. After obtaining PhD they had progressed through the ECR stage onto research-active roles, programme management or other related career directions. At the time of the study 15 participants were resident in Kenya, and other African countries, while 3 resided outside Africa.

Participants were identified through purposive sampling and snowballing. A list of sampling criteria can be found in Table 1.

Participant selection started with a small number and was followed by a snowballing approach. Potential interviewees were contacted by email, acknowledging how they had been identified. After initial interest, potential participants were presented with a Participant Information Sheet and a Consent Form. The study has been reviewed and accepted with the ethics approval procedure at the first author’s academic institution.

Key characteristics of the participants relevant to the investigation are detailed in Table 2. In the context of the study results, it is worth mentioning that no participants were engaged in religious studies.

Table 1 Sampling criteria

Sampling criteria
Participants have been ECRs, up to 10 years post-PhD
8–10 participants who have secured a permanent position at a university or a research institution
8–10 participants who have progressed from ECR into a post in a Kenyan or international organisation, as programme manager or funder
Participants from a range of academic disciplines

Semi-structured interviews were deemed the most suitable for data collection. An interview schedule enabled a consistent structure to ensure that the research question was being addressed, but with the flexibility for prompts to explore interesting or new leads. The interviews were conducted in English, by ZOOM and lasted between 60 and 75 min. All interviews were voice recorded and transcribed verbatim.

A single-country geographical context, Kenya, was selected because it has a strong research ecosystem and to reduce influence of contextual factors. Collected data was analysed using thematic analysis. Transcripts were reviewed for accuracy and coded with support of NVivo software. Each transcript after importing into NVivo was read for text relevant to the research question and these excerpts of text saved as codes and assigned code names, designed to capture the semantic meaning. After four participant cases were coded, codes were reviewed, merged, edited or deleted, reducing the list from approximately 100 to 20 codes. The remainder of the participant cases were coded, resulting in approximately

Table 2 Study participants

Gender	Field of study	PhD training location	Role (at time of interview)
Female	Social Sciences	USA	Senior programme manager
Male	Clinical research	USA	Senior research leader
Male	Clinical research	UK	Centre Director/Researcher
Female	Clinical research	UK	Senior Research Leader
Male	Clinical research	South Africa	Researcher
Female	Social Sciences/Medical Anthropology/Agricultural sciences	Kenya	Associate Lecturer
Female	Clinical Research	UK	Senior Researcher
Female	Molecular Biology	Kenya/Europe	Senior Researcher
Male	Clinical research	Kenya/Europe	Private sector/healthcare
Female	Chemistry/clinical application.	USA	Team Leader, private sector
Male	Natural resources management.	Europe	Programme Leader, international agency.
Female	Social Sciences	South Africa	Social Development Adviser
Male	Social Sciences	Kenya	Lecturer/Social development consultant
Female	Social Sciences	Kenya	Lecturer
Female	Social Sciences	USA	Social Development consultant/adviser
Male	Social Sciences	Kenya	Social Development consultant/adviser
Female	Clinical Research	Kenya	Programme Manager
Female	Agricultural Sciences	Europe	Programme Manager

200 codes. This process continued with codes being grouped together under latent summary codes that captured the meaning of the data. A further review of the codes produced approximately ten summary codes, each with three to four sub-codes. Higher-level themes were then developed through a reflective process as the investigator sought meanings and patterns in the data. At the end of this phase, with ten codes and thirty-three sub-codes, a break was taken to enable fresh eyes on the coding. The themes were then developed through reflection on the data until it was clear what patterns underlay the data, always with the research aim in mind. The final set of themes and summary codes is shown in Fig. 1.

There were practical challenges in executing this study. Appropriate sampling that would offer diversity of research areas amongst participants was challenging, given that the study was conducted remotely, as well as resource constraints and the restrictions during the pandemic. A small number of participants were identified and then numbers increased through snowballing paying particular attention to diversity of academic fields represented by possible participants. Coding the data to then make sense of the themes which emerged, to finally identify the three main themes without losing any important detail represented another challenge. This process was facilitated by taking a 2-week break from the data following the initial analysis, to return to the data with refreshed eyes and approach. Both authors continued cross-checks and critical discussions throughout the whole process.

In summary, the study involved interpretivist, qualitative work based on semi-structured interviews. Purposive criterion sampling was used to identify the participants. Thematic analysis was used for the data analysis.

Various measures have been taken throughout the work to assure credibility, confirmability and transferability of the work. Research question, data collection and analysis have been bounded by the same theoretical underpinning. Rigorous sampling strategy has been devised for the investigation. All data has been methodically coded. Presentation of the findings has been illustrated with quotations from the interviews. Context of the study has been acknowledged and considered in the data interpretation and discussion.

The study has some methodological limitations. For example, a qualitative design with a purposive sample limits the generalisability of the study results. Retrospective data

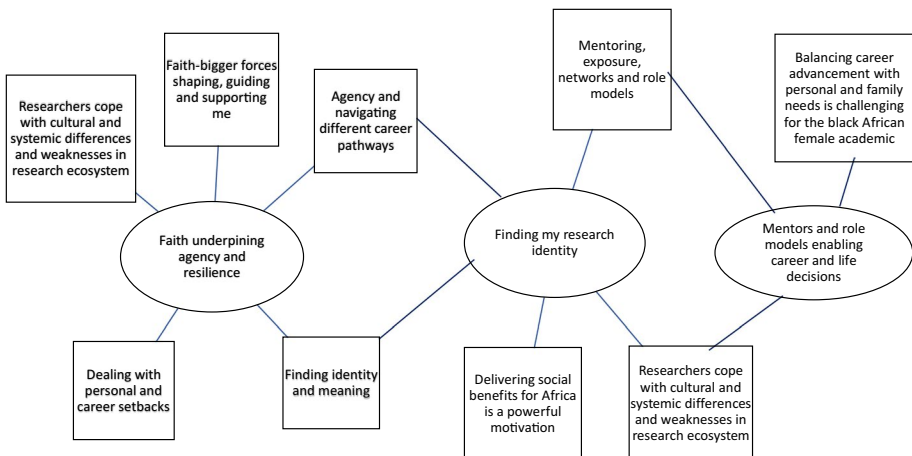


Fig. 1 Summary codes and three themes

collection through a single interview relied on participants' memory. Feelings and attitudes may easily get reinterpreted by the participants through their later life experiences.

Findings

Three main themes have been identified in the coding process, these are 'finding my research identity', 'faith underpinning agency and resilience' and 'the role of formal or informal mentoring'. Research identity is understood as described in the literature review. Agency describes the sense that an individual has control in their life and the power and capability to fulfil their potential (APA, 2018). Resilience is a more reactive quality, defined by an individual's ability to adapt when facing adversity, threats and stress (APA, 2018). These themes provide structure for presentation of the study findings below. The findings are illustrated with quotations from the transcripts.

Research identity

Commitment to serving the continent, the country or the community was the most powerful motivation for developing a research career and thereby a research identity. ECRs were driven to apply their research skills to solving real-life societal problems. We identified ample evidence of career decisions that took ECRs in the direction of serving their society in their research work. Others were brought to programme management or consulting roles, as these would enable them to be decision makers and to have broader positive impact. Some participants prioritised a return to Africa from study outside the continent, sacrificing greater long-term earning. Participants who remained outside Africa made career choices that benefited Africa.

The commitment to improving the lives of Africans was evident in different ways. For some it was a return to Africa with international experience behind them, to become an Africa-based researcher or programme leader contributing to positive development of Africa, as illustrated below:

I needed to come and help like with everything that's going on in Africa. I need to be there. I need to be on the ground. And helping, like that's why I've been getting this education. So I feel like I need to be doing it for Africa (Programme manager, female).

Some who progressed to a research active career were driven by a perception formed early in their careers that science was the route to the greatest impact, as one of the participants explained:

It gives me a lot of motivation that if I could leave this planet having impacted [disease redacted] through [mechanism], man, I'll die happy, you know, because of the huge impact that would have on the lives of so many and downstream problems that come because of [disease redacted]. (Researcher, female).

A strong sense of personal agency pervaded participant narratives as they described their developing research and career identity. It is this agency that enables ECRs to persist in the face of challenges as noted below:

I really fought really hard to get the internship in [name of the institution removed to protect anonymity of the respondent]. I was sent to a different institution by my university, but I camped outside the director's office for over a week. I would show up every day until he eventually let me in. (Entrepreneur and programme manager, male).

Some female participants reported how they had to resist pressure from family to marry, settle and start families when a research career dictated training abroad instead. For others, it was the family pressure to take higher paying jobs when a research career was coveted.

The ECR career narratives demonstrated high levels of agency, passion and determination in pursuing their career paths. In a few cases the journey was not so fulfilling, with an undercurrent of dissatisfaction. In these cases, disappointment was discussed in the context of fate.

Faith underpinning agency and resilience

Faith was reported as a crucial factor in the career decisions of almost all the participants. Belief in God gave participants a greater purpose in life and the fortitude to take decisions matching their aspirations. A strong sense of having faith (16 participants were Christian, 1 Muslim, and one did not declare a religious belief) provides the foundation for everything they do, as can be seen in the following quotation:

You have the capacity to decide what you want to do, I think, like what I believe is that God is the one who guides you through such decisions. You might have that agency, but if God is not with you, then I think you might not end up or you might even have agency towards the wrong direction. (Consultant, female).

Faith is closely aligned with agency and gives meaning to life, helping ECRs to reconcile their good fortune in having a fulfilling career. Again, God is deemed responsible for this fortune. Whilst agency was acknowledged as giving the capacity to decide, God was credited with guiding ECRs through their career decisions. Agency was anchored by belief, certainly not independent of belief. God was somehow intertwined with agency. The quotation below illustrates how vividly participants articulate alignment of faith and agency.

So, for me agency is power to make a choice. And for me, this power is influenced by supernatural power. So, my agency is not independent of my belief, rather it is anchored on my belief. Yeah. So, I'm able to exercise my own will based on the will of the one to whom I ascribe my being, though I wouldn't quite say that in a class, because it is my personal conviction. Yeah. So, for me, my agency is not separated from my existence. And my existence is very defined by my belief. (Lecturer, female).

Faith also underpinned resilience and the ability to cope with setbacks and frustrations, as illustrated below:

Faith has been quite important for me. First of all, it has been able to strengthen me it's a kind of coping amidst all those frustrations. So I can say religion or faith really helped me to become resilient (Consultant, female).

Whilst the participants mentioned influence of God in career decision making, subtle differences were noticed between spirituality and religiosity. Some participants talked about not being at all religious, but prayed in challenging moments, a pattern of behaviour

established in childhood. Even where religiosity was less evident, there was evidence of spirituality, a belief in a guiding supernatural force, as illustrated below:

I would call it meditation now, but it just helps me to calm down, helps me to focus, helps me to believe that there's something bigger than me, that's guiding me.....So I have that faith in fact that, you know, there's some good force out there. And, you know, I could call it God I don't feel so I don't feel particular about the name that I given that force now. (Researcher, female).

A stronger sense of religiosity seemed to be associated with lower levels of personal agency. Participants who spoke about the role of biblical teachings, the importance of discipline or the ten commandments demonstrated more conventional aspects of religiosity, associated with a judgemental God. They trusted guidance by God with a general sense of fatalism, showing less sense of their own agency. A quotation below illustrates this phenomenon:

Of course, there are many things that guide my decision making, but of course, religion is part of them, of course, but when you see my profession, my training, my environment, my career, and also, religion also complements all these depending on the kind of decision I want to make in that, you know, religion, if you follow religious thinking, follow the biblical teaching the 10 commandments, the things that you cannot do, because if you feel that if you do them, you will be it's not, you know, it's against your faith. (Consultant, male)

The role of formal and informal mentoring in research career development

The mentoring experiences reported by the participants spanned the full range of mentoring models reported in the literature review, from sponsorship to developmental, often combining both approaches. Mentoring played a significant role in the career development of the participants ranging from intentional leadership development, supporting access to resources and networks, and advice on how to navigate the research ecosystem. In some cases, the participants credited the mentor with improving and supporting their mental wellbeing. The quotation below highlights the role played by the mentor:

I don't think I would have been where I am today without them supporting me and encouraging me in particular directions (Researcher, male).

First mentoring experiences often took place when participants (now accomplished professionals) were undergraduate students. The PhD supervisor is usually mentioned as a mentor and is often seen as a role model. For example, this participant was encouraged as an undergraduate student to consider a research career:

How about you think of an academic research career, because in research, you can always address a new issue that comes up every time (Researcher, male).

Career and technical mentoring were typical for participants undertaking PhDs outside Africa or in international settings within Kenya. Mentors enabled career development with technical guidance, access to resources, helping to navigate the research ecosystem and sharing personal networks and contacts. Several participants described this sponsorship style support:

It's the mentoring. It's very much around opening opportunities for you as an early career researcher for the next steps, so it's not spoon feeding or anything because it's not possible actually, but it's creating opportunities for you. Because in science, it's who you know, there's so many networks out there that if you're not known, then it's very difficult for you to make progress (Researcher, female).

Several participants referred to and described holistic mentoring through which the mentor took a close interest in the ECRs life and demonstrated deep care and empathy and interest in their life history and experiences. ECRs who reported holistic mentoring were clear about how this was different from career mentoring and in some cases explained how this was instrumental in nurturing broader leadership development. An example of a quotation from an ECR who appreciated holistic mentoring is provided below:

She has been so important, because for me, I feel like the mentorship she gave me was holistic. She didn't give me just a student supervisor mentorship, she understood my history. She understood my past lived experiences..... Anytime she tried to mentor me or support me, she did that holistically (Consultant, female).

Some of the participants faced significant life and work challenges when training on another continent, away from family support. A quotation below illustrates the support received from their mentor and calls for greater support for both career and psychosocial challenges, highlighting challenges with mental well-being:

So I think that any kind of support, you know mechanisms of support to help people's mental wellbeing and their self-esteem should be considered. (Senior researcher, male).

There was recognition that it is not always possible for a mentor to give the full spectrum of support. An ECR might therefore value one mentor who offered support described as personal, and other mentors who provided different kinds of technical and career support. Some intentionality can be observed in identifying and securing mentors. One of the participants noticed:

She covers all bases, personal and overall career but doesn't do much of the technical and then I have other mentors who then focus in on the technical and things like that. So I think it's difficult for one person to do everything as a mentor (Researcher, female).

Mentors were instrumental in the participant's life and career, guiding them through difficult career decisions. They often helped to deal with societal pressures (such as marriage and motherhood). These mentors were consistently present in both the ECR's life and career, as described by one of the researchers:

She encouraged me because at that point in time after doing my masters and now, I needed now to take this the other step in life. I settled, I got married, and immediately I got pregnant with my first child, but I also had to do my PhD. And she was there, you know, supportive. And she told me, you can do it. You can do both. (Researcher, female).

The findings indicate a scope of mentoring functions that range from research oversight to institutional navigation through to psychosocial holistic whole life support.

Discussion

The results presented above identify individual factors that influence how career and research identity develops in Kenyan ECRs. The first theme captures the relationship between the commitment to serving African society and the development of a research identity. Our findings demonstrate how commitment to Africa is an integral part of ECRs' research identity and how it informs their career decision making. Furthermore, our findings indicate that motivation by values of service to African society combined with research curiosity, underpinned personal agency and carried the participants through the challenges of an early research career. These findings extend recent literature that had analysed African research career progression (Mtwisha et al., 2021; Coussens et al., 2024) providing a deeper understanding of personal factors impacting on career progression.

Our second theme is about faith and religion playing an important role in career decision-making of the Kenyan ECRs. Faith gave meaning to their lives and strengthened their sense of purpose. Participants articulated how their agency was anchored in their belief, and how a supernatural force supported them. In the pursuit of their goals and remaining consistent with their values, they perceived no contradiction between the roles of faith and personal agency. However, this didn't lead to relying on fate, instead the participants explained how their agency was reinforced by supernatural forces and faith. This finding sits well with Liu and Froese (2020) who reported that a secure attachment to God is associated with a higher level of agency and with a more contemporary system of belief or spirituality. Conversely, in the cases of participants where religion was associated with discipline, hard work and the ten commandments, it tended to correlate with lower levels of described personal agency and greater challenges in navigating the academic system. This aligns with literature that reports a traditional belief in a judgemental God negatively associated with agency and a lower sense of personal control (Liu & Froese, 2020) and is situated at the religiosity end of the spectrum of belief described by Wong et al (2006).

Given the high prevalence of belief in Kenya and more broadly across Africa (Statista, 2019), it is not surprising that this cohort of researchers held religious belief. Our findings complement the Ecklund (2016) RASIC study by showing how religion and faith show up in the lives and career decision-making of African researchers.

Community plays an important role in shaping Kenyan ECRs' commitment to society, but there is also a relationship between the influences of community and religion. In African culture, God can be seen as an element in how community is seen and experienced, captured by the concept of "moya". Moya is a fundamental idea in African culture that there is a shared life force connecting God, people and community (Baloyi and Ramose, 2016). This interpretation of the relationship between God and community can support our understanding of the link between the role of faith and the desire to serve community.

The third theme derives from the consistent reporting of the importance of mentoring in the lives and careers of our participants. The mentoring experienced and reported by the participants falls into the two broad functions of mentoring (Haggard et al., 2011 and Boeren et al., 2015), these being career functions and support for psychosocial development.

Several participants reflected on the influence of their undergraduate lecturers in Kenya as role models. Mentoring was often critical in initiating the development of a research identity, particularly when that mentor was seen as a role model. Mentors support the identification of resources and opportunities for further study and work (institutional know-how). They generously share and use their own professional and personal

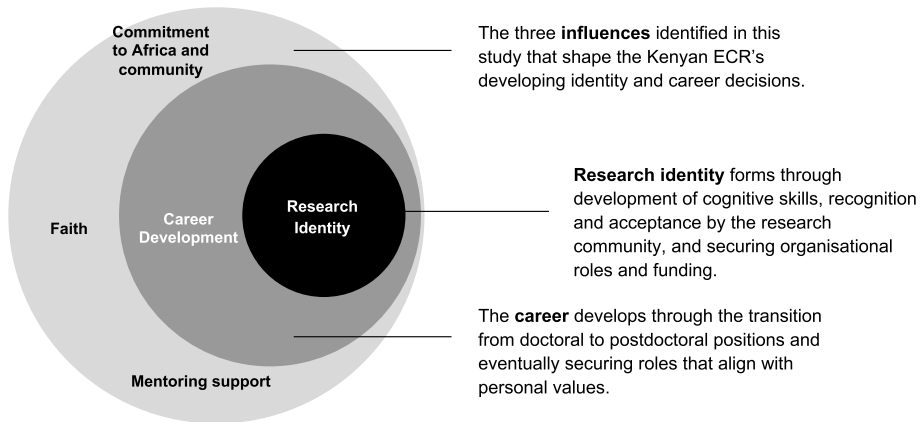


Fig. 2 Conceptual model for early career researcher (ECR) research identity and career development

networks to enable the participant to navigate international research systems and facilitate their international career moves (e.g. finding a supportive community in a foreign country). Mentors also provide support for cognitive development, particularly at PhD level. These benefits of mentoring dovetail with a model of researcher career development which proposed three career developmental pathways that underpin progression towards research independence: institutional know-how, finding a community and cognitive development (Laudel & Gläser, 2008).

The variable accounts of mentoring demonstrate the flexible approach taken by mentors. Although most mentors appear to have offered career functions support, “holistic support” (Murray et al., 2022, p.1) was frequently reported. Just as faith may have been a mechanism of affect, the holistic approach of mentors provided emotional support, bolstering the participants’ confidence in themselves enabling their development. Mentors demonstrated empathy for the family pressures on the researchers, but still provided support and direction for a research career. The mentor’s holistic interest in the researcher enabled ECRs to make a more career-based decision. Such psychosocial functions build on trust between mentor and mentee, and support personal and professional growth, identity and self-efficacy (Ragins & Kram, 2007). The present study builds here on the work of Somefun and Adebayo (2020) who observed both career and psychosocial functions of mentoring and the work of Mtwisha et al. (2021) who noted the importance of mentoring in ECR career transitions. Our study provides greater depth of insights on the long-term nature of the mentoring relationships.

Conceptual model of ECR development

The contribution of the present work to theory is represented by a conceptual model of ECR development illustrated in Fig. 2. At the core of this model is the development of ECR research identity. Research identity is demonstrated and developed through the accumulation of research cognitive skills, the building of a research network

and acceptance within an international research community. This development of a research identity is then reinforced through the progressive securing of organisational roles and funding, not necessarily in a research role. ECRs remain true to their values developed through their research training. This progressive development of research identity and career development in the Kenyan ECRs is influenced and reinforced by personal factors identified in the findings from this study. The institutional and sometimes societal obstacles that a Kenyan ECR would face in developing a research career requires strong personal agency and resilience. The two influences of service to community and faith reinforce the ECRs' agency and give confidence to decision making and a clear sense of career direction. Mentors have an integral role in nurturing research identity and career development, their functions spanning career and development functions.

A framework for mentoring ECRs

A contribution of this study to practice is a recommendation for a framework for mentoring ECRs (see Table 3). The framework has three elements, drawing on the three themes reported in this paper and building on the collected and coded data. The first of these, psychosocial development addresses the emotional development needs of the ECRs including space for recognising the importance of faith, values of service to community and culture. The second element is support for the development of researcher identity, including both self-recognition as a researcher and recognition by the research community. The third element is career navigation which covers support for understanding the research ecosystem, securing resources and career adaptability including non-research careers. We suggest that a mentor would employ all three elements in service of their mentee, whilst recognising that the mentor would need personal development similar to coaching training, in order to support psychosocial development.

Avenues for future research

Further studies could embrace researchers from other African countries, providing comparative analysis based on cultural clustering (Ronen & Shenkar, 2017). A future study could also adopt a longitudinal approach collecting data at critical points of research career development. This approach would provide more detailed data about the trajectory in the ECRs' career development with key decisions and their antecedent. Our recommendations for mentoring ECRs could be tested in future studies to provide generalisable results for specific populations. The findings on faith are novel and worth further exploration. The role of faith at different stages of career choices could be established, as it may vary. Adopting gender, age, ethnicity or subject as variables in broader African studies might bring further insight.

Table 3 Framework for mentoring ECRs in Kenya

Three-domain framework for mentoring ECRs		
One	Psychosocial development	Led by the emotional needs of the ECR and building a long-term relationship: creating space for the importance of faith, values of service and culture, empathy for anxiety.
Two	Researcher identity and skills development	Guiding ECRs in cognitive development, research skills development, becoming a recognised member of a research community, enabling the ECR to self-recognise a researcher identity.
Three	Career navigation	Supporting career and organisational adaptability including navigating the research ecosystem, institutions and resources. Supporting non-research active career pathway options.

Conclusion

This study aimed to explore personal factors which shape the career development and research identity of Kenyan Early Career Researchers and their implications for the mentoring of ECRs in Kenya. These findings informed a model of ECR development which has been presented in Fig. 2. The model captures the influences of commitment to the service of community and Kenyan society, the fundamental importance of faith in underpinning ECRs' resilience and decision making as well as the long-term support of mentors. The study introduces into the literature on ECRs' development the relevance of service and of faith. Further research might explore importance of these factors in other contexts.

The main contribution of the study to practice lies in the application of its results into mentoring for Kenyan ECRs and has been presented in detail above (see Table 3). The results could well inform national and institutional policies aimed at development of research in similar contexts. Kenyan and possibly also African universities as well as research institutes might use the work to provide better focused support for ECRs. Improvement of the career trajectories of ECRs would benefit the entire research ecosystem including their employing institutions which need a pipeline of research talent if they are to prosper and continue to benefit society.

Declarations

Conflict of interest The authors declare no competing interests.

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References

- American Psychological Association (APA). (2018). Retrieved 1 June 2024, from <https://dictionary.apa.org/resilience>
- American Psychological Association (APA). (2018). Retrieved 1 June 2024, from <https://dictionary.apa.org/agency>
- Antony, J. S. (2002). Re-examining doctoral student socialization and professional development: Moving beyond the congruence and assimilation orientation. *Higher education: Handbook of theory and research*, 349–380.
- Baloyi, L., & Ramose, M. B. (2016). Psychology and psychotherapy redefined from the viewpoint of the African experience. *Alternation Journal*, 18, 12–35.
- Boeren, E., Lokhtina-Antoniou, I., Sakurai, Y., Herman, C., & McAlpine, L. (2015). Mentoring: A review of early career researcher studies. *Frontline Learning Research*, 3(3), 68–80.
- Boyatzis, R. E., Smith, M. L., & Blaize, N. (2006). Developing sustainable leaders through coaching and compassion. *Academy of Management Learning and Education*, 5(1), 8–24.
- Brown, R. T., Daly, B. P., & Leong, F. T. (2009). Mentoring in research: A developmental approach. *Professional Psychology: Research and Practice*, 40(3), 306.
- Carlone, H. B., & Johnson, A. (2007). Understanding the science experiences of successful women of color: Science identity as an analytic lens. *Journal of Research in Science Teaching*, 44(8), 1187–1218.

- Clutterbuck, D. (2014). *Everyone needs a mentor*. Kogan Page Publishers.
- Coussens, A. (2021). Challenges for young African Scientists. *Nature*. Retrieved 22 March 2023 from: <https://www.nature.com/articles/d44148-021-00067-4>
- Coussens, A.K., Abdeslam, B., Erastus, F.K., Akindede, A., Khoury, M., Yang, H-C., Geffers, J. & Keane, M. (2024). Global State of Young Scientists (GloSYS) in Africa. Retrieved 14 October 2024, from <https://globallyoungacademy.net/publications/glosys-africa-main-report>
- Ecklund, E.H., Johnson, D.R., Scheitle, C.P., Matthews, K.R., & Lewis, S.W. (2016). Religion among scientists in international context: A new study of scientists in eight regions. *Socius*, 2. Retrieved 10 April 2022, from <https://doi.org/10.1177/2378023116664353>
- Editorial, Nature. (2020). Postdocs in crisis: Science cannot afford to lose the next generation. *Nature*, 585, 160.
- EMCC (2024). Thought leadership and development: Mentoring. Retrieved 09.05.24 from <https://www.emccglobal.org/leadership-development/leadership-development-mentoring/>
- Garvey, B. (2018). Mentoring in a coaching world. In: Cox, E., Bachkirova, T. and Clutterbuck. (eds.) *The handbook of coaching*. Abingdon Oxon: Routledge, 397-413.
- Gould, S. J. (1997). Nonoverlapping Magisterial. *Natural History*, 106, 16–22.
- Haggard, D. L., Dougherty, T. W., Turban, D. B., & Wilbanks, J. E. (2011). Who is a mentor? A review of evolving definitions and implications for research. *Journal of management*, 37(1), 280–304.
- Kram, K. E. (1985). Improving the mentoring process. *Training & Development Journal*, 39(4), 40–43.
- Laudel, G., & Gläser, J. (2008). From apprentice to colleague: The metamorphosis of early career researchers. *Higher Education*, 55(3), 387–406.
- Lescano, A. G., Cohen, C. R., Raj, T., Rispel, L., Garcia, P. J., Zunt, J. R., Hamer, D. H., Heimburger, D. C., Chi, B. H., Ko, A. I., & Bukusi, E. A. (2019). Strengthening mentoring in low- and middle-income countries to advance global health research: An overview. *American Journal of Tropical Medicine and Hygiene*, 100, 3–8.
- Liu, Y., & Froese, P. (2020). Faith and agency: The relationships between sense of control, socioeconomic status, and beliefs about God. *Journal for the Scientific Study of Religion*, 59(2), 311–326.
- McAdams, D. P. (2013). The psychological self as actor, agent, and author. *Perspectives on Psychological Science*, 8, 272–295. Retrieved 10 April 2022, from <https://doi.org/10.1177/1745691612464657>
- McAlpine, L., Chiramba, O., Keane, M., Badre, A., & Kareem, F. (2020). Voices of Early Career Researchers in and out of the Academy: A Pan-African Perspective. *Global Young Academy*. Retrieved 26 October 2021, from https://globallyoungacademy.net/wp-content/uploads/2021/04/Voices_of_Early_Career_Researchers_in_and_out_of_the_Academy.pdf
- McAlpine, L., & Amundsen, C. (2018). *Identity-trajectories of early career researchers*. Palgrave Macmillan.
- McAlpine, L., Chiramba, O. F., & Keane, M. (2022). African experiences of doing PhDs abroad: Negotiating careers within broader life considerations. *Studies in Graduate and Postdoctoral Education*, 13(3), 281–296.
- McAlpine, L., Turner, G., Saunders, S., & Wilson, N. (2016). Becoming a PI: Agency, persistence, and some luck! *International Journal for Researcher Development*, 7(2), 106–122.
- Mtwisha, L., Jackson, J., Mitchel, A., Aikins, A. D. G., Kebirungi, H., Outtara, K., & Viney, C. (2021). Early-and mid-career transition to research leadership in Africa. *Wellcome Open Research*, 6(74), 74.
- Murray, S. A., Shuler, H., Spencer, E. C., & Hinton, A., Jr. (2022). Mentoring future science leaders to thrive. *Trends in Pharmacological Sciences*, 43(6), 457–460.
- Ragins, B.R., & Kram, K.E., (2007). The roots and meaning of mentoring. In: Ragins, B.R., & Kram, K.E (eds.) *The handbook of mentoring at work: Theory, research, and practice*. Sage. 3-15.
- Randel, A. E., Galvin, B. M., Gibson, C. B., & Batts, S. I. (2021). Increasing career advancement opportunities through sponsorship: An identity-based model with illustrative application to cross-race mentorship of African Americans. *Group & Organization Management*, 46(1), 105–142.
- Ronen, S., & Shenkar, O. (2017). *Navigating global business: A cultural compass*. Cambridge University Press.
- Sambunjak, D., & Marušić, A. (2009). Mentoring: What's in a name? *Journal of the American Medical Association*, 302, 2591.
- Sambunjak, D., Straus, S. E., & Marusic, A. (2010). A systematic review of qualitative research on the meaning and characteristics of mentoring in academic medicine. *Journal of General Internal Medicine*, 25, 72–78.
- Sawatsky, A. P., Parekh, N., Muula, A. S., Mbata, I., & Bui, T. (2016). Cultural implications of mentoring in sub-Saharan Africa: A qualitative study. *Medical Education*, 50(6), 657–669.

- Schieman, S., Nguyen, K., & Elliott, D. (2003). Religiosity, socioeconomic status, and the sense of mastery. *Social Psychology Quarterly*, *66*(3), 202–221.
- Schriever, V., & Grainger, P. (2019). Mentoring an early career researcher: Insider perspectives from the mentee and mentor. *Reflective Practice*, *20*, 720–731.
- Science, Technology and Innovation Strategy for Africa (STISA) 2024. Retrieved 22 March 2023, from <https://au.int/en/documents/20200625/science-technology-and-innovation-strategy-africa-2024>
- Simpkin, V., Namubiru-Mwaura, E., Clarke, L., & Mossialos, E. (2019). Investing in health R&D: Where we are, what limits us, and how to make progress in Africa. *BMJ Global Health*, *4*(2), e001047.
- Somefun, O. D., & Adebayo, K. O. (2021). The role of mentoring in research ecosystems in Sub-Saharan Africa: Some experiences through the CARTA opportunity. *Global Public Health*, *16*, 36–47.
- Statista. (2019). *Distribution of the population of Kenya as of 2019, by religion*. Available from: <https://www.statista.com/statistics/1304207/population-of-kenya-by-religion/>
- Wong, Y. J., Rew, L., & Slaikeu, K. D. (2006). A systematic review of recent research on adolescent religiosity/spirituality and mental health. *Issues in Mental Health Nursing*, *27*(2), 161–183.
- Woolston, C. (2020). Postdoc survey reveals disenchantment with working life. *Nature.*, *587*, 505–508.

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