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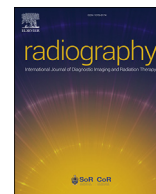
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Migration intentions and influencing factors among clinical radiography students in 14 African countries: A quantitative survey



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ABSTRACT

Introduction: Understanding students' intentions regarding migration is crucial, as migration intentions are strongly correlated with future actions. This study aimed to evaluate the migration intentions of radiography students in Africa and assess the push and pull factors influencing their decisions.

Methods: This quantitative study employed an online cross-sectional survey. Descriptive and inferential statistics were conducted using Stata 13. For the students who confirmed their desire to migrate, an additional exploratory factor analysis (EFA) was performed using principal component analysis (PCA).

Results: A total of 614 students drawn from 14 African countries participated in the study, with a significant majority (93 %) expressing a desire to work in another country. The desire to fulfil self-aspirations was the most common push factor identified by students (Agree – 35.2 %, Strongly agree – 43.96 %; Overall – 79.16 %). In the exploratory factor analysis, five factors were identified, explaining 58.84 % of the variation in the data. These factors included social, Health System, economic, Political, and Professional factors. The opportunity to gain better clinical experience was the major pull factor identified, with 56.39 % of students strongly agreeing with this statement.

Conclusion: The potential emigration of future skilled healthcare professionals poses major ramifications for Africa's healthcare workforce. Understanding these migration intentions could allow policymakers to develop strategies that improve local opportunities, strengthen healthcare facilities, and foster an environment that retains talent and stimulates career development in the region.

Implication for practice: Addressing the migration intentions of radiography students in Africa requires a proactive, multifaceted approach. By implementing the strategies outlined in this article, African healthcare systems can more effectively retain future radiography professionals and enhance the sustainability of the workforce.

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Introduction

Healthcare professionals, including radiography professionals, are critical in enhancing health outcomes.¹ However, the emerging global migration trends of these professionals, particularly from relatively less developed to more affluent nations, have become a significant concern.² The migration from Africa to Europe and the West exacerbates existing healthcare challenges in African countries which are already dealing with limited resources amid an increasing disease burden.^{1,2} Even though, Africa bears 24 % of the global disease burden, it is home to only 2 % of the world's health workforce.^{1,2} This imbalance further inhibits productivity and economic development in this region and others with similarly low human development indices.^{3,4}

In African countries, radiography education typically follows a 3–4-year pre-registration bachelor's degree programme, although some institutions offer a 5-year programme. The curricula vary by country but generally consist of pathways in diagnostic radiography, therapy radiography, or sonography. This educational landscape creates both opportunities for professional development and potential incentives for migration, as students gain internationally marketable qualifications.⁵

Recent research has underscored a growing trend of radiography professionals migrating from low- and middle-income countries to more developed regions.^{5–7} This phenomenon has contributed to heightened stress and burnout among the remaining radiography workforce, adversely affecting their personal well-being and professional performance.⁷ Furthermore, the diminishing radiography workforce has been associated with compromised quality of healthcare services, delays in diagnosis and treatment, and increased financial strain on healthcare institutions attempting to recruit and train replacement staff.⁵ Alarmingly, there appears to be no immediate resolution to this issue, as a recent study revealed that 92.2 % of surveyed radiography professionals in one African country for example, expressed intentions to pursue employment abroad, driven by a combination of push and pull factors influencing their decisions.⁵ Push factors are negative conditions in a student's home country that drive them to seek opportunities elsewhere, such as poor healthcare infrastructure, limited career growth, or low wages. Pull factors are attractive opportunities in destination countries, including better salaries, advanced training, and more stable working condition.^{2,5,6}

To address this issue, more educational institutions are training radiography professionals intending to fill the gaps left by those who have migrated. However, it remains unclear whether these students will remain in their home countries after graduation or follow in the footsteps of their predecessors who have migrated. Understanding students' intentions regarding migration is crucial, as migration intentions are strongly correlated with future actions.⁸ Research shows that 70 % of individuals who expressed intentions to migrate had already made progress toward that goal.¹

The phenomenon of migration is particularly relevant to students in health-related fields, as they represent a ready pool of potential labour migrants.² Studies have shown a growing preference for migration among graduates and students in health disciplines.^{2,9–12} However, there is a lack of research specifically addressing the migration intentions of radiography students in Africa. This raises the question: Do radiography students wish, intend, or plan to migrate after graduation, and what are the push/pull factors influencing their decisions?

This study aimed to evaluate the intentions of radiography students in Africa to migrate to other countries and to assess the push and pull factors driving their decisions. This will provide a deeper understanding and inform policies designed to retain and attract skilled healthcare professionals.

Methods

A cross-sectional study design utilising a survey was used to assess radiography students' intentions about migration after graduation. The study population was made up of radiography students from African countries with responses from Egypt, Ethiopia, Ghana, Guinea, Kenya, Libya, Malawi, Morocco, Nigeria, Rwanda, South Africa, Tanzania, Uganda and Zimbabwe. Participants were recruited through three primary methods¹: online professional networks including the Africa Radiography Forum (ARF),² snowball sampling where participants shared the survey with peers, and³ targeted social media outreach via radiography student forums and groups. Eligible respondents were required to be currently enrolled in a radiography degree programme at an African institution and willing to provide informed consent.

The data collection tool used was a survey questionnaire, adapted from a previous study,⁵ and refined to include student-related questions. It included questions on demographics, intention to migrate, push and pull factors of migration among radiography students, as well as the effects of migration on the radiography profession in African countries. A pilot study was conducted among student radiographers in Ghana to assess the validity and clarity of the questionnaire, leading to necessary revisions before the main study. A total of 21 push factors were included in the questionnaire: economic factors (4 items), health system factors (4 items), professional factors (4 items), social factors (5 items) and political factors (4 items). For pull factors, a total of 27 items were included: economic factors (5 items), health system factors (5 items), professional factors (6 items), social factors (7 items) and political factors (4 items). The questions were scored on a 5-point Likert scale; 1 = strongly disagree to 5 = strongly agree. The Cronbach's alpha of the push and pull factors combined was 0.94.

The questionnaire contained a research information sheet that outlined the study's objectives and methodology and provided direct links to the survey. It specified that only radiography students could participate in the research and explained how consent could be provided. Consent was obtained from the students before data collection began.

A convenience sampling method was used to distribute survey questionnaires to students through online platforms of the students' bodies, including WhatsApp and Telegram, allowing participation based on availability and interest. The questionnaire was hosted on Google Forms¹³ (Google, Mountain View, CA) to facilitate this process. Additionally, more questionnaires were shared online using a snowball sampling technique.¹⁴

Data analysis

Data were scanned for outliers using frequency distribution tables and box-and-whisker plots. Continuous variables were summarised using mean and standard deviation for normally distributed data, or median and interquartile range for non-normally distributed data. Categorical variables were summarized using frequencies and percentages. Statistical significance was set at the 95 % level ($p = 0.05$). Data were analysed using Stata 13.1.

For students who had confirmed their desire to migrate ($n = 571$), additional exploratory factor analysis (EFA) using principal component analysis (PCA) was conducted on the data looking at the push and pull factors of migration. Data were divided into push factors (21 items) and pull factors (27 items). Data were checked to see if it was suitable for factor reduction. The first assumption to be checked was correlation, with the resultant correlation matrix for both push and pull factors showing several coefficients with $r \geq 0.3$ thus indicating a high correlation among

factors for factor analysis.¹⁵ The Bartlett test of sphericity had a p -value of <0.001 for both push and pull factor items, confirming a strong correlation for the application of dimensionality reduction.¹⁶ The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.88 for push factors and 0.93 for pull factors, confirming the sample's adequacy for factor analysis.¹⁷ Factor extraction was performed using principal component analysis, and factors with Eigen values > 1 were retained as per Kaiser's criterion.¹⁵ Eigen values represent the amount of variance explained by each factor, and they are crucial in determining the number of factors to retain, with factors having eigen values greater than 1 traditionally considered significant.¹⁵ Scree plots were used to visualise the factors and determine the number of factors to retain. Varimax rotation was used for factor rotation and items with factor loadings of at least 0.4 were considered to contribute to the factor.^{17,18} Internal consistency was assessed using Cronbach's alpha with a threshold of 0.7.¹⁹ The overall Cronbach's alpha for the 21 push factors was 0.87 and for the 27 pull factors was 0.93.

Exploratory factor analysis is a statistical technique that is used to reduce data to a smaller set of summary variables and to explore the underlying theoretical structure of a phenomenon under study.¹⁵ EFA combines questions that are related (highly correlated) to derive a smaller set of factors (i.e. dimensionality-reduction) that retain a high proportion of the information in the original questions, to create more robust measures as compared to reporting the questions individually.¹⁸ These factors provide more meaningful results by capturing overall intrinsic characteristics and qualities, rather than individual, separate questions. Data analysis was done by LM & BO.

Ethical approval for this study was obtained in 2022 from the Ethics and Protocol Review Committee of the University of Ghana School of Biomedical and Allied Health Sciences (SBAHS/AA/RAD/21847/2022–2023).

Results

Demographics

A total of 614 students took part in this study. The median (interquartile range) age was 22^{20–24} years with more than half of the students (57.82 %) being aged between 21 and 25 years. Males constituted 58.47 % of the study participants. Second-year students (26.55 %) and third-year students (26.22 %) made up more than half of the study participants (52.77 %) as shown in Table 1. Students from 14 African countries participated in the study, with Nigeria and Kenya contributing the highest proportion of participants ($n = 171$ [27.85 %] and $n = 147$ [23.94 %], respectively) as shown in Fig. 1. Further details on the distribution of radiography students by country name are presented in Appendix 1.

Intention to migrate

Most students ($n = 571$; 93 %) expressed their desire to practice in another country after completing their studies (Table 2) with Canada being selected by 23.29 % ($n = 133$) of the students as their preferred country. The United Kingdom and the United States of America were selected by 18.39 % ($n = 105$) and 17.16 % ($n = 98$) of the students, respectively (Fig. 2). Further details on the distribution of preferred destination countries for radiography students are presented in Appendix 2. Direct application (69.02 %) was the preferred mode of migration, with agencies (20.6 %) and invitation to the destination country (6.51 %) being the other alternative mode of migration preferred by students.

Table 1
Demographics ($n = 614$).

Variable	Categories	Frequency (%)
Gender	Male	359 (58.47)
	Female	248 (40.39)
	Other	1 (0.16)
Age group	Prefer not to say	6 (0.98)
	20 years or less	157 (25.57)
	21–25 years	355 (57.82)
	26–30 years	63 (10.26)
	31 years and above	39 (6.35)
Specialty	Diagnostic	370 (60.26)
	Diagnostic & therapy	202 (32.90)
	Sonography	2 (0.33)
	Therapy	40 (6.51)
Study stage	Intern ^a	62 (10.10)
	Year 5	32 (5.21)
	Year 4	124 (20.20)
	Year 3	161 (26.22)
	Year 2	163 (26.55)
	Year 1	72 (11.73)
Marital status	Married	43 (7.00)
	Single	567 (92.35)
	In a relationship	4 (0.65)

^a In this context, interns are individuals who have recently completed their academic programme but must complete a supervised internship to fulfill educational and professional requirements in their country.

Push factors

Overall, most students agreed/strongly agreed (>50 % after combining the two categories) on almost all the push factors as to why they would like to migrate after completing their studies. The desire to fulfill self-aspirations was the most common push factor identified by students (Agree – 35.2 %, Strongly agree – 43.96 %; Overall – 79.16 %). The two least push factors identified were the influence of colonial connections (Agree – 17.69 %, Strongly agree – 13.31 %; Overall – 31 %) and the influence of bilateral agreements (Agree – 21.19 %, Strongly agree – 14.19 %; Overall – 35.38 %). These findings are presented in Table 3.

Push factors exploratory factor analysis findings

In the exploratory factor analysis, five factors were identified, explaining 58.84 % of the variation in the data. These factors were identified as: Social, Health system, Economic, Political and Professional factors. Social factors had the highest Eigenvalue (5.99) explaining 28.51 % of the variation in the data. The desire to fulfill self-aspirations, with a factor loading of 0.82, had the highest factor loading among all the items. Health system factors had an Eigen value of 2.36, explaining 11.22 % of the variation in the data. Professional factors had the least proportion of variation (5.51 %) in this five-factor model, with an Eigenvalue of 1.16, with lack of promotion having the highest factor loading (0.74) among professional factors.

Pull factors of migration among students

The opportunity to gain better clinical experience was the most identified pull factor of migration as 56.39 % of the students strongly agreed with this statement. Other common pull factors which more than half of the students strongly agreed with include better living conditions (54.99 %), better salaries (54.82 %), several career advancement and training opportunities (54.82 %), adequate equipment and supplies (53.77 %) among others. These are presented in Table 4.

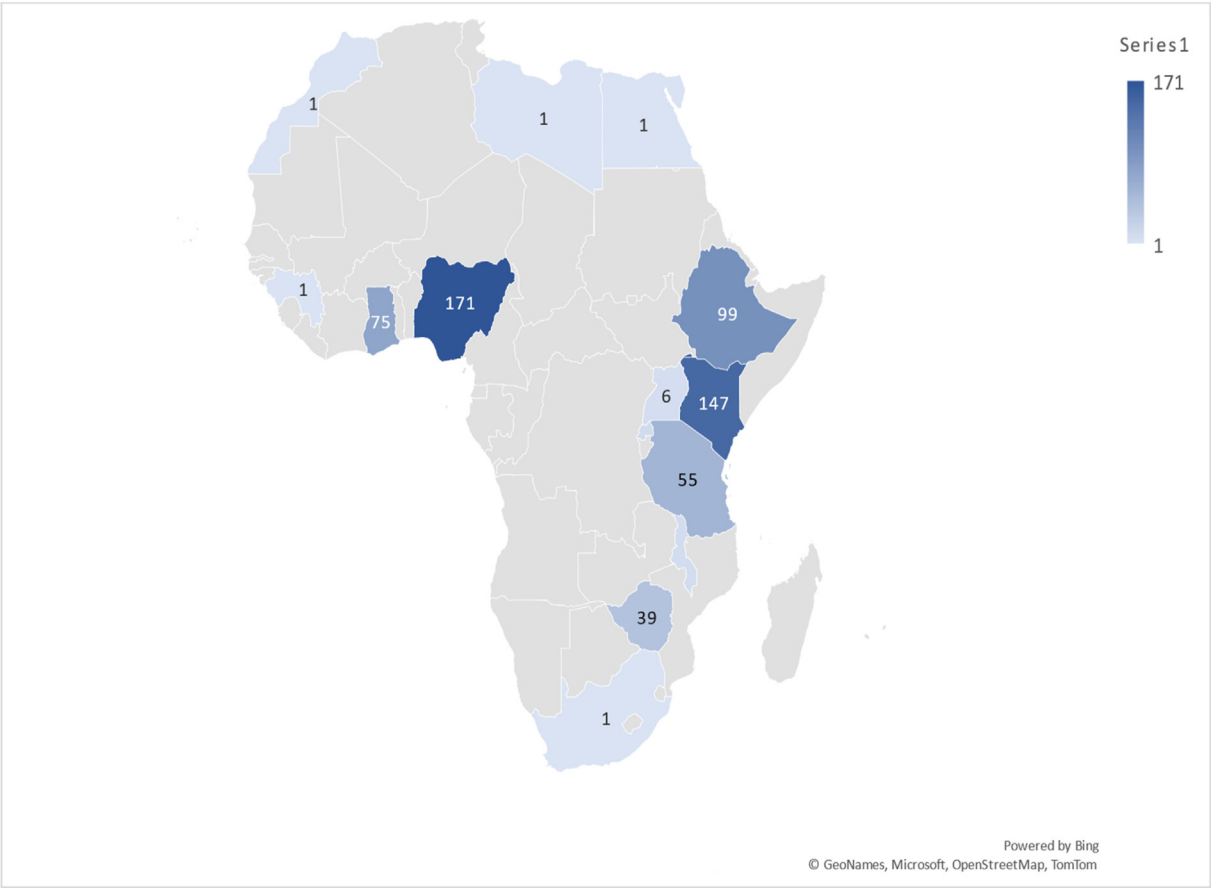


Figure 1. Distribution of radiography students by country (n = 614).

Table 2
Intention to migrate (n = 614).

Variable	Categories	Frequency (%)
Intend to practice in another country after school (n = 614)	Yes	571 (93.00)
	No	30 (4.89)
	Not sure	13 (2.12)
	Direct application	392 (69.02)
Preferred mode of migration to the country of choice (n = 568)	Through agency	117 (20.60)
	Invitation	37 (6.51)
	Scholarship	7 (1.23)
	Through marriage	7 (1.23)
	Sponsorship	2 (0.35)
	Any of the above	3 (0.53)
	Don't know yet	3 (0.53)

Pull factors exploratory factor analysis findings

Exploratory factor analysis of pull factors identified four factors. Factor 1 with an eigen value of 9.85 and explaining 36.47 % of the variation in the data had economic and health system factors loading on it. Better living conditions (factor loading 0.79) and better salaries (factor loading 0.77) had the highest factor loadings on factor 1, and they are economic factors. Professional related items loaded onto factor 2 with an eigen value of 3.65 and explaining 13.51 % of the variation in the data. Opportunity for professional networking (factor loading 0.81) and desire to gain a foreign professional qualification (factor loading 0.79) had the highest factor loadings on factor 2. Overall, this four-factor model explained 61.97 % of the variation in the data.

Discussion

Human resources in health are essential for effective health systems and have a significant impact on population health outcomes.⁶ However, there is a global shortage of radiography professionals, with countries competing to retain their healthcare workers and attract foreign talent by offering better working conditions, competitive remuneration, and other incentives.^{5,7} Africa, along with other low-income regions, faces a substantial challenge in retaining skilled healthcare professionals amidst this global competition.⁵ It is hoped that radiography students in various training institutions and universities will transition from their studies into the workforce, filling critical vacancies to ensure that the continent's health systems are equipped to support effective

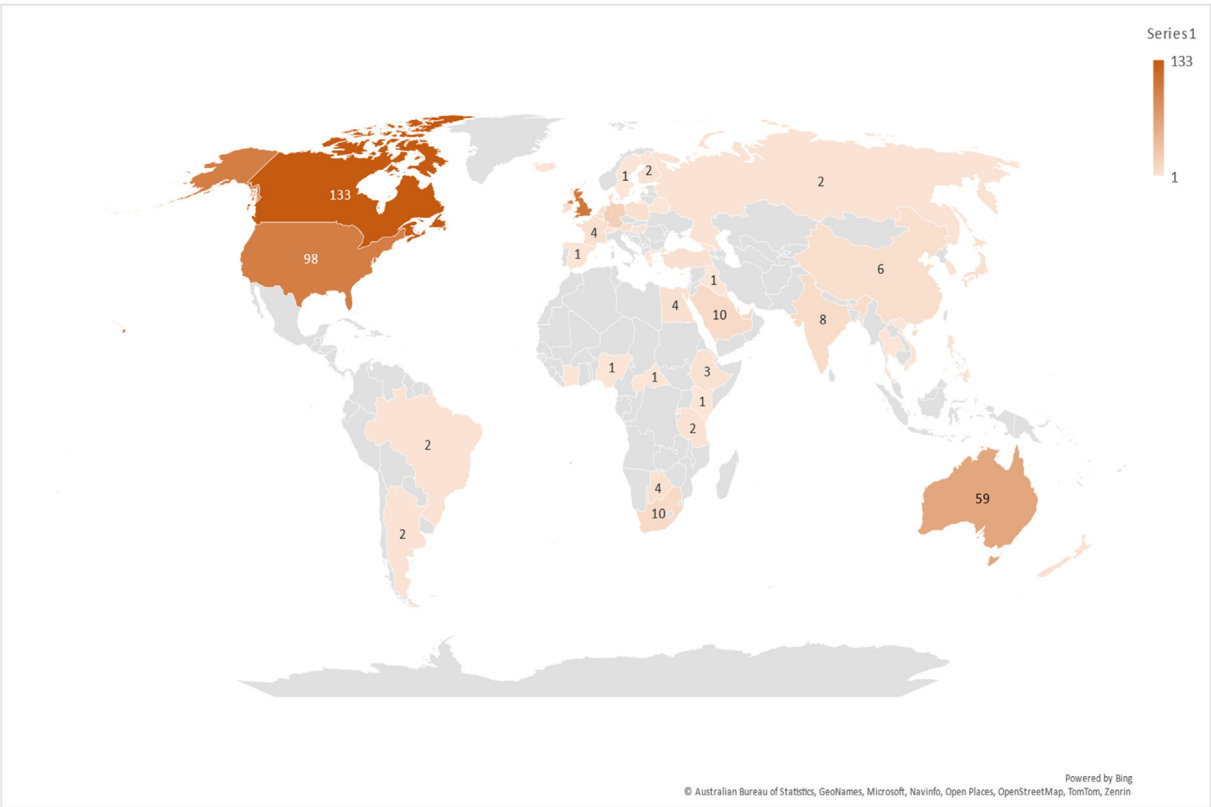


Figure 2. Preferred destination country for radiography students (n = 614).

Table 3
Push factors of migration (n = 571).

Push factor	SD ^a	D ^a	N ^a	A ^a	SA ^a
Poor salaries	43 (7.53)	30 (5.25)	91 (15.94)	186 (32.57)	221 (38.70)
Poor living conditions	47 (8.23)	53 (9.28)	102 (17.86)	190 (33.27)	179 (31.35)
Devaluation of the country's currency	42 (7.36)	37 (6.48)	110 (19.26)	171 (29.95)	211 (36.95)
Taxes	38 (6.65)	40 (7.01)	121 (21.19)	174 (30.47)	198 (34.68)
Poor working conditions	40 (7.01)	57 (9.98)	127 (22.24)	195 (34.15)	152 (26.62)
Poor health infrastructure	48 (8.41)	49 (8.58)	114 (19.96)	199 (34.85)	161 (28.20)
Inadequate equipment and supplies	41 (7.18)	46 (8.06)	88 (15.41)	199 (34.85)	197 (34.50)
Poor management and supervision	47 (8.23)	65 (11.38)	124 (21.72)	188 (32.92)	147 (25.74)
Lack of training opportunities	52 (9.11)	87 (15.24)	109 (19.09)	176 (30.82)	147 (25.74)
Lack of promotion	35 (6.13)	69 (12.08)	133 (23.29)	188 (32.92)	146 (25.57)
Underutilisation of skills	41 (7.18)	55 (9.63)	129 (22.59)	196 (34.33)	150 (26.27)
Perceived power differences between physicians and radiography professionals	39 (6.83)	67 (11.73)	149 (26.09)	179 (31.35)	137 (23.99)
The desire for life change	27 (4.73)	22 (3.85)	81 (14.19)	210 (36.78)	231 (40.46)
Desire to fulfill self-aspirations	23 (4.03)	21 (3.68)	75 (13.13)	201 (35.20)	251 (43.96)
Corruption in everyday life in the country	57 (9.98)	40 (7.01)	127 (22.24)	176 (30.82)	171 (29.95)
The desire for life adventure	22 (3.85)	23 (4.03)	112 (19.61)	216 (37.83)	198 (34.68)
Influence from working radiography professionals	28 (4.90)	78 (13.66)	153 (26.80)	165 (28.90)	147 (25.74)
Safety and security reasons	51 (8.93)	104 (18.21)	142 (24.87)	140 (24.52)	134 (23.47)
Governmental mismanagement	43 (7.53)	72 (12.61)	127 (22.24)	163 (28.55)	166 (29.07)
Influence of colonial connections	67 (11.73)	125 (21.89)	202 (35.38)	101 (17.69)	76 (13.31)
Influence of bilateral agreements	44 (7.71)	104 (18.21)	221 (38.70)	121 (21.19)	81 (14.19)

^a SD strongly disagree, D disagree, N neutral, A agree, SA strongly agree.

healthcare delivery. However, the migration intentions of these students remain unclear. This study sought to address this gap by providing valuable insights that can help policymakers plan strategies to improve local opportunities for talent retention and enhance healthcare across the continent.

The study's findings revealed that a significant majority of students (93 %) expressed a desire to practice in another country after graduation. These results align with similar studies across Africa that show a trend of migration intentions among healthcare

students.^{1,2,12,20,22} However, this current study reports a relatively higher percentage of migration intentions among radiography students compared to other healthcare professions, as shown in Table 5. The increased intention to emigrate among radiography students can be attributed to the push and pull factors identified in this study.

The most significant push factor identified in this study is the desire to fulfil personal aspirations, with a combined agreement rate of 79.16 %. The pull factors influencing student migration reveal that the primary motivations for migration are driven by

Table 4
Pull factors of emigration.

Pull factor	SD ^a	D ^a	N ^a	A ^a	SA ^a
Better salaries	25 (4.38)	17 (2.98)	46 (8.06)	170 (29.77)	313 (54.82)
Better living conditions	20 (3.50)	23 (4.03)	39 (6.83)	175 (30.65)	314 (54.99)
Value in the destination country's currency	26 (4.55)	22 (3.85)	70 (12.26)	176 (30.82)	277 (48.51)
Better insurance policies	22 (3.85)	25 (4.38)	73 (12.78)	195 (34.15)	256 (44.83)
Demand for labor	25 (4.38)	32 (5.60)	91 (15.94)	199 (34.85)	224 (39.23)
Better working conditions	22 (3.85)	20 (3.50)	56 (9.81)	178 (31.17)	295 (51.66)
Better health infrastructure	22 (3.85)	27 (4.73)	45 (7.88)	172 (30.12)	305 (53.42)
Proper management and supervision	27 (4.73)	39 (6.83)	74 (12.96)	184 (32.22)	247 (43.26)
Adequate equipment and supplies	25 (4.38)	23 (4.03)	48 (8.41)	168 (29.42)	307 (53.77)
Active overseas recruitment	22 (3.85)	32 (5.60)	95 (16.64)	181 (31.70)	241 (42.21)
Several career advancement and training opportunities	21 (3.68)	24 (4.20)	44 (7.71)	169 (29.60)	313 (54.82)
Opportunities to gain better clinical experience	21 (3.68)	27 (4.73)	37 (6.48)	164 (28.72)	322 (56.39)
Opportunity for research	23 (4.03)	25 (4.38)	43 (7.53)	174 (30.47)	306 (53.59)
Desire to gain a foreign professional qualification	23 (4.03)	29 (5.08)	64 (11.21)	173 (30.30)	282 (49.39)
Opportunity for professional networking	22 (3.85)	21 (3.68)	52 (9.11)	174 (30.47)	302 (52.89)
High professional satisfaction	25 (4.38)	18 (3.15)	52 (9.11)	174 (30.47)	302 (52.89)
To join family and friends	69 (12.08)	153 (26.80)	202 (35.38)	85 (14.89)	62 (10.86)
Desire to experience working in a different environment	18 (3.15)	29 (5.08)	87 (15.24)	233 (40.81)	204 (35.73)
Offer of a better quality of life	22 (3.85)	20 (3.50)	72 (12.61)	203 (35.55)	254 (44.48)
Desire to gain foreign citizenship	46 (8.06)	89 (15.59)	180 (31.52)	131 (22.94)	125 (21.89)
Access to social networks	25 (4.38)	51 (8.93)	112 (19.61)	209 (36.60)	174 (30.47)
Religious acceptance	74 (12.96)	111 (19.44)	197 (34.50)	97 (16.99)	92 (16.11)
Identity acceptance	67 (11.73)	95 (16.64)	196 (34.33)	109 (19.09)	104 (18.21)
Safety and security reasons	40 (7.01)	57 (9.98)	154 (26.97)	146 (25.57)	174 (30.47)
Proper governmental management	27 (4.73)	37 (6.48)	127 (22.24)	198 (34.68)	182 (31.87)
Smooth political transitions	26 (4.55)	52 (9.11)	150 (26.27)	182 (31.87)	161 (28.20)
Peaceful co-existence of political parties	24 (4.20)	55 (9.63)	152 (26.62)	174 (30.47)	166 (29.07)

^a SD strongly disagree, D disagree, N neutral, A agree, SA strongly agree.

Table 5
Comparison of the percentage of migration intentions among radiography students and other healthcare professions.

Study	*Current study	Ojo et al. ²	George & Reardon ²⁰	Ossai et al. ¹²	Akinwumi et al. ¹	Laari et al. ²¹	Adeyinka et al. ²²
Healthcare profession (students)	Radiography	Medicine/Dentistry, nursing, pharmacy, occupational therapy and physiotherapy	Nursing and medical	Clinical medical	Doctors	Nursing	Medical
Intention to migrate (%)	93	81	77	74	74	64	63

aspirations for professional and personal betterment, particularly in the healthcare and educational sectors. The primary pull factor is the opportunity to gain better clinical experience, which is essential for hands-on practical learning and professional development. These findings indicate that students are motivated by personal growth, professional fulfilment, and the pursuit of life goals, highlighting the psychological and aspirational aspects of migration. This motivation is particularly relevant to the radiography profession, which is heavily influenced by technological advancements.²³ Innovations in modalities such as computed tomography (CT), magnetic resonance imaging (MRI), positron emission tomography (PET), hybrid imaging (PET-CT/PET-MRI) and artificial intelligence (AI) are at the forefront of this field^{24,25}

However, several studies have indicated a lack of access to these advanced technologies on the African continent, resulting in the underutilisation of radiography professionals' skills and unfulfilled professional aspirations.^{26–32} Additionally, this situation may contribute to lower social standing for radiography professionals compared to other healthcare professions.³³ Consequently, many radiography students may consider seeking employment in developed countries after graduation to achieve their professional goals.

The findings from the factor analysis support this conclusion, revealing five distinct factors influencing migration: Social, Health System, Economic, Political, and Professional. Among these, health system factors encompass concerns related to inadequate health infrastructure, which resonates particularly in the field of

radiography. Additionally, professional factors highlight issues such as a lack of promotional opportunities and access to advanced training. Research involving radiography students on the continent has reported the same challenges.^{34–36} This indicates that students have an awareness of their professional environments.

Among their preferred migration destinations, Canada stood out, with 23.29 % of radiography students selecting it as their top choice. This preference may stem from Canada's high quality of life, robust educational systems, diverse culture, and favourable immigration policies.^{37–39} The United Kingdom and the United States were also notable choices, with 18.39 % and 17.16 % of students selecting these countries, respectively, due to their prestigious universities and potential career opportunities.

Similarly, a Nigerian study examining the emigration plans of clinical medical students found a strong interest in international training, particularly in Canada, the UK, and the US, in that order.¹² However, the relatively lower percentages for the UK and US in this study might reflect concerns regarding immigration policies or socioeconomic conditions. According to a Forbes report, the denial of visas by US consular officers and uncompetitive immigration policies have contributed to a decline in international students attending U.S. institutions.⁴⁰ Between the 2016/17 and 2020/21 academic years, the number of international students in the U.S. dropped by 15 %, equivalent to 164,727 students. In contrast, during the same period, Canadian colleges and universities experienced a significant increase in international students, with a rise of 46 %, adding 117,039 students.⁴¹

The findings of this study suggest that policies fostering better opportunities within the home country might reduce the push factors driving students abroad. Stakeholders in education and policy-making can leverage these insights to develop initiatives to enhance clinical training opportunities, improving salaries, and creating enriched living conditions within the domestic context.^{42,43} Understanding the professional aspirations of students can lead to the alignment of curricula with industry demands, promoting better-prepared graduates who may be better prepared for the job market.⁴⁴ Future research could delve deeper into the intersection of these factors, perhaps exploring how specific demographics might prioritise different push factors and whether this varies significantly across disciplines and countries.⁴⁵ Understanding these dynamics is essential for both policymakers and educational institutions aiming to address the needs of students while fostering the retention of skilled talent in their home countries.

Limitation of study

Despite the multilingual demography of Africa, due to resource constraints, the study is limited as the questionnaire was not translated into other languages, restricting participation to radiography students from non-English-speaking countries. However, the large sample size allows the study's findings to apply to various African contexts. Furthermore, the survey's online format may exclude students with limited internet access, thereby biasing the results toward those with more technological access.

Conclusion

This study emphasizes the significant migration intentions of African radiography students, with 93 % reporting a wish to work abroad. Motivated by personal aspirations and the quest for advanced training opportunities, these students encounter challenges, including a lack of access to cutting-edge technology and limited professional advancement within their native nations. The possible brain drain has major ramifications for Africa's healthcare workforce. Understanding these migration intents allows policymakers to develop policies to improve local opportunities, strengthen healthcare facilities, and foster a supportive atmosphere that will retain talent and stimulate professional progress in the region. Future research should further explore these dynamics to inform effective policy-making and educational practices.

Ethics and declarartions

The Ethics and Protocol Review Committee of the University of Ghana School of Biomedical & Allied Health Sciences (SBAHS/AA/RAD/21847/2022–2023) accorded ethical approval for this study, which is part of a larger project.

Conflict of interest statement

None.

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Appendix

Appendix 1

Further details on the distribution of radiography students by country

Variable	Categories	Frequency (%) <i>n</i> = 614
Country	Egypt	1 (0.16)
	Ethiopia	99 (16.12)
	Ghana	75 (12.21)
	Guinea	1 (0.16)
	Kenya	147 (23.94)
	Libya	1 (0.16)
	Malawi	8 (1.30)
	Morocco	1 (0.16)
	Nigeria	171 (27.85)
	Rwanda	9 (1.47)
	South Africa	1 (0.16)
	Tanzania	55 (8.96)
	Uganda	6 (0.98)
	Zimbabwe	39 (6.35)

Appendix 2

Further details on the distribution of preferred destination country for radiography students

Variable	Categories	Frequency (%)
Country of choice (<i>n</i> = 571)	Argentina	2 (0.35)
	Australia	59 (10.33)
	Austria	6 (1.05)
	Bahrain	1 (0.18)
	Belarus	1 (0.18)
	Belgium	7 (1.23)
	Botswana	4 (0.70)
	Brazil	2 (0.35)
	Canada	133 (23.29)
	Central African Republic	1 (0.18)
	China	6 (1.05)
	Cote d'Ivoire	1 (0.18)
	Cyprus	1 (0.18)
	Denmark	3 (0.53)
	Egypt	4 (0.70)
	Ethiopia	3 (0.53)
	Finland	2 (0.35)
	France	4 (0.70)
	Georgia	1 (0.18)
	Germany	20 (3.50)
	Greece	1 (0.18)
	Hungary	2 (0.35)
	Iceland	1 (0.18)
	India	8 (1.40)
	Iraq	1 (0.18)
	Ireland	7 (1.23)
	Japan	3 (0.53)
	Kenya	1 (0.18)
	South Korea	2 (0.35)
	Kuwait	5 (0.88)
	Netherlands	7 (1.23)
	New Zealand	3 (0.53)
	Nigeria	1 (0.18)
	Norway	1 (0.18)
	Oman	1 (0.18)
	Philippines	2 (0.35)
	Poland	4 (0.70)
	Qatar	8 (1.40)
	Russia	2 (0.35)

(continued on next page)

Appendix 2 (continued)

Variable	Categories	Frequency (%)
	Rwanda	1 (0.18)
	Saudi Arabia	10 (1.75)
	Seychelles	1 (0.18)
	Singapore	1 (0.18)
	South Africa	10 (1.75)
	Spain	1 (0.18)
	Sweden	1 (0.18)
	Switzerland	2 (0.35)
	Tanzania	2 (0.35)
	Thailand	1 (0.18)
	Trinidad and Tobago	1 (0.18)
	Turkey	4 (0.70)
	United Arab Emirates	11 (1.93)
	United Kingdom	105 (18.39)
	United States of America	98 (17.16)
	Vietnam	1 (0.18)

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