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Factors influencing Ghanaian midwifery students' willingness to work in rural areas: A computerized survey

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Abstract

Background—Lack of midwives in rural and remote areas of Ghana is a national concern as the country attempts to reach targets set by Millennium Development Goals to reduce maternal and child mortality by 2015.

Objectives—To understand factors influencing third-year Ghanaian midwifery students' willingness to work in rural areas.

Setting—Two of the largest midwifery schools in Ghana.

Participants—Third-year midwifery students (n = 238) about to graduate and enter the workforce.

Methods—Based on focus group discussions with midwifery students, we refined a computerized survey to assess students' preferences for rural posting after graduation. We then administered this survey to midwifery students in Ghana. We used Pearson's chi-squared to compare the top reasons for choosing job location between those students likely and not likely to work in a rural area. Logistic regression models were used to calculate the odds ratios.

Results—An opportunity to gain additional education was the most important factor for the midwifery students in deciding where they would eventually work (72%). Poor quality of clinical facilities (26%), poor quality of education for children (19%), and lack of social amenities (17%) were major deterrents to working in rural communities. For student midwives willing to work in rural areas the top reasons cited included to serve humanity (74%), and increased opportunities to gain clinical experience (62%). More experiences overall with rural communities resulted in

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greater odds of being willing to work in a rural area. Being born in a rural area (OR: 1.95, 95% CI: 0.736, 5.16) and living in a rural area after age 5 for one-year or more (OR: 1.52, CI: 0.857, 2.70). An exception to this was midwifery students who performed health work for six weeks or more in a rural area during training. These students were found to have 0.83 lower odds of willingness to work in a rural area (95% CI: 0.449, 1.55).

Conclusion—By better understanding the motivating factors for rural healthcare workers, specific policy interventions can be established to improve the distribution of midwives thereby decreasing the burden of maternal and infant mortality.

Keywords

Africa; Health care workforce; Midwifery; Recruitment; Retention; Rural

1. Introduction

Midwives are critical providers of reproductive health care in Ghana and across sub-Saharan Africa. According to a United States Agency for International Development funded study of midwifery in Ghana (Prosser et al., 2006) an aging midwife population, few incentives for rural posting, and inadequate salaries are contributing to the lack of progress in reducing maternal and child mortality by limiting access to healthcare professionals. Following the release of this report, the Ghana Ministry of Health identified the need to expand and improve the cadres of health providers who possess the qualification of skilled birth attendant and committed to expand midwifery training across the country by supporting the opening and expansion of fourteen schools of midwifery.

Lack of midwives in rural and remote areas of Ghana is a national concern. The recruitment and retention of midwives to remote and rural areas is a key priority of the Ghana Health Service, with a call to increase the number of midwives in Ghana by 192% between 2006 and 2011 (UNFPA, 2011). The rural/urban divide impacts access to both basic and comprehensive obstetrical care, family planning services, and skilled attendance at childbirth. Although over 50% of the population of Ghana resides in rural areas, most skilled birth attendants' work in urban centers (Prosser et al., 2006). This maldistribution contributes to poorer access and higher rates of maternal mortality in the upper and western rural regions of the country (Ghana Statistical Service, GHS, and ICF Macro, 2009). To combat this shortage of skilled birth attendants, the Ghana Ministry of Health is working to improve employment conditions in the most remote provinces (UNFPA, 2011).

A variety of barriers including low wages, lack of infrastructure and equipment, poor working conditions and lack of supervision contribute to the challenge of recruiting health professionals to rural and remote communities (Lehmann et al., 2008). Evidence suggests health professionals with a rural background are more willing than their urban counterparts to accept rural postings or incentives to work in rural areas (Lievens et al., 2010; Serneels et al., 2010). The factors that influence choice of employment to rural and remote areas have come to be known as push/pull factors. Some of these factors are driven by financial motives (e.g. the benefits of the work outweigh the opportunity costs) while others are a more

complex decision process such as the importance of job satisfaction (Dolea et al., 2009; Lehmann et al., 2008).

Various strategies have been implemented in an attempt to recruit and retain health professionals to rural and remote areas (Dolea et al., 2010; Henderson and Tulloch, 2008; Serneels et al., 2007). In a Cochrane systematic review by Grobler et al. (2009) a variety of policy interventions revealed significant improvements in the recruitment and retention of health workers in rural areas throughout different countries. However, none have been tested in a sufficiently valid way to control for bias and confounders. Additionally, the authors found multiple factors (both economic and non-economic) influence health care workers' choices to work in rural areas. These factors vary by individual and may vary by culture or country.

Midwifery education in Ghana is a three-year diploma within a post-secondary education program. Fourteen midwifery training schools are currently accredited by the Ghana Ministry of Health. Of the ten regions in Ghana, each is home to at least one midwifery education program. A national curriculum exists with the first three semesters focused on general nursing and the final three semesters devoted to midwifery knowledge and skills. Students typically spend at least one clinical rotation at a rural district hospital.

The purpose of this study is to understand factors influencing third-year Ghanaian midwifery students' willingness to work in rural areas. The results provide policy planners and government officials the foundation to establish and test identified interventions for rural recruitment and retention in Ghana. Our study consisted of three parts: (1) a qualitative analysis of 6 focus groups with 49 second year midwifery students; (2) a computerized survey to examine third-year midwifery students' backgrounds, motivations for becoming a midwife, plans for future employment, and individual experiences with rural communities and; (3) within that survey a discrete choice experiment (DCE). This paper focuses on the findings from the computerized survey examining the factors affecting midwifery students' willingness to practice in a rural, deprived area.

2. Methods

2.1. Setting and sample

For the computerized survey we chose third-year midwifery students about to graduate and considering employment perspectives. Students at two of the largest midwifery training schools in Ghana, located in Accra and Kumasi, were invited to participate in the study. Third-year students were chosen because they are in their final year and considering future career options. The research was approved by the Ghana Health Service Ethical Review Committee; the Kwame Nakrumah University of Science and Technology Committee on Human Research, Publications and Ethics; the University of Ghana Medical School; and the University of Michigan Institutional Review Board.

2.2. Survey design

Data collection was preceded by a review of the literature and discussions with midwifery faculty, practicing midwives, and representatives from the Ghana Ministry of Health. Forty-

nine, second-year midwifery students participated in six focus groups to identify the attributes and incentive packages. Focus group sessions lasted 60–90 min and were led by one Ghanaian and one US investigator using a standard script. Questions focused on students' top preferences for places to work after graduation, the barriers for accepting a rural posting, motivators and incentives for rural posting, and rural experiences. Major themes identified from the focus group discussions included: (1) the importance of social amenities; (2) infrastructure and services within a facility to support professional life; and (3) the ability to advance one's career through further education. These qualitative data were then used to revise a computerized survey originally conducted with medical students in Ghana (Kruk et al., 2010).

The survey contained 58 questions on demographics, rural experiences, future career plans, as well as barriers and motivators for rural practice. The DCE contained within the survey asked respondents to select their preferred option between two rural postings, each containing a different configuration of attributes. The seven attributes identified during focus groups as potential incentives to practice in rural areas included; salary, allowance for children's education, infrastructure development, supportive management, study leave, housing and access to a car.

The DCE is a methodology used to analyze the preference of health workers for various job characteristics (Lagarde and Blaauw, 2009). It forces respondents to choose between two scenarios of employment packages, thereby making trade-offs and identifying hierarchical preferences (Orme, 2006). When resources are limited, DCE gives weighted relevance to distinguish which attributes are the most highly incentivizing (Orme, 2006) to motivate individuals to locate to rural areas. Well established in the use of inferring patients' preference, this technique has recently been used to test providers' preferences as well (Kruk et al., 2010).

2.3. Data collection

Informed consent was obtained prior to participation in the study. The computerized survey took approximately 30–45 min to complete. Students were given an incentive of 10 Ghana Cedi (approximately 7 US dollars) upon completion of the survey. Posters describing the research were posted on campuses and announcements were made in various instructional classes. The place and time for the survey was provided and students were told they would receive a cash incentive following the survey. The survey questions were pre-loaded onto computers in the schools' computer labs. Following the informed consent process, students signed into the computer lab. Names were compared to a class list generated by the head of each school to determine response rate. Names were not attached to responses. Respondents were informed they could refuse to answer any question or stop the survey at any time.

2.4. Variables of interest

The purpose of the structured survey was to learn about the incentives and motivating factors that drive health care providers to move to deprived, rural areas. The survey questions attempted to capture the way current midwifery students considered different incentives and

opportunities to practice in diverse settings. For this study we used the Ghana Ministry of Health definition of deprived area.

After demographic data were collected, midwifery students were asked the following question: “Please rate how likely you are to work in a deprived area at some point in the future (select one)? By deprived area, we mean a rural area that is distant from the big cities with few social amenities such as schools, roads, pipeborne water, etc.” Respondents then reported their willingness to work in a rural, deprived area by choosing one of the following five categories: “I will definitely not work in a deprived area,” “I am unlikely to work in a deprived area,” “I am likely to work in a deprived area,” “I will definitely work in a deprived area,” and “Rather not say.” We excluded those who reported “rather not say” from our analysis.

Those individuals who reported being likely or definitely planning to work in a deprived area were then asked to rank their top three reasons from the list of pull factors developed a priori from our focus group discussions. Pull factors included reasons why a respondent may be drawn to work in a deprived area (Lehmann et al., 2008; WHO, 2009). Similarly, those individuals who reported being unlikely or definitely not planning to work in a deprived area where asked to rank their top three reasons among a list of push factors. Push factors included those which act to repel the individual from a particular location (Lehmann et al., 2008; WHO, 2009).

All students were then asked the following question, “Thinking about where you might eventually want to work, what factors are most important in selecting that location (please rank your top 3, with 1 being the most important)?” A list of 19 options was presented to them for ranking. Responses were clustered in the analysis by four main categories of interventions similar to those used in the Cochrane systematic review by Grobler et al. (2009) and identified in the World Health Organization (2010) report on increasing access to health workers in remote and rural areas. The main categories include: (1) educational or regulatory; (2) professional and personal support; (3) financial incentives; and (4) other (a broad category including being advised against rural work, language barrier and lack of travel opportunities).

Exposure to rural communities was measured by six questions. The first question asked whether the student was born in an urban area (settlement with population greater than 5000), a peri-urban area (adjacent to an urban area), or a rural area (settlement with population less than 5000). A binary variable was created and used for analysis classifying students as being born in an urban/peri-urban area or a rural area. Students were then asked if they ever lived in a rural area from age five and above, and if so for what length of time. A binary variable was created comparing students who reported living in a rural area for a year or longer from age five and up and those who had not. Binary variables were similarly established for students currently living in a rural area; students under obligation to return to work in a rural area; students under obligation to return to work in urban/peri-urban area; and those students who reported doing outreach or service in a deprived area for six weeks or longer. For all six variables, respondents who reported “don’t know” or “rather not say” were excluded from the analysis.

2.5. Data analysis

Predictive Analytics Software (PASW) Statistics 18 was used to conduct the analysis (PAWS Company, Chicago, IL). Basic frequencies and percentages where calculated for the descriptive variables under the top three push and pull factors cited by students to work in a deprived area. Similarly, frequencies and percentages were calculated for the top three factors identified by the students when choosing the location of a job.

Students were limited to one primary, secondary, and tertiary choice. Pearson's chi-squared test was performed to examine whether a student's primary, secondary or tertiary reason for choosing a location was independent of their willingness to work in a deprived area. A chi-squared test of independence was chosen to allow comparison of the top reasons for choosing a location of job between those likely and those not likely to work in a rural area. Odds ratios were then calculated using separate logistic regression models to analyze the relationship between experience with rural communities and willingness to work in a deprived area. The odds ratios were used to compare the likelihood of working in a rural area for students with experience in rural communities (as out-lined by each variable) to those without experience in a rural community. A logistic regression model was also established to test the magnitude of the odds ratios independent of each other.

3. Results

3.1. Demographics

A total of 238 third-year midwifery students completed our survey, out of a total of 298 enrolled in the upper level class at the two schools, giving a 79.8% response rate. The vast majority of our sample were young (median 22, mean 22.5), unmarried (96.6%), and women (100%). Ninety-two percent stated they plan to have children in the future.

From our sample, 54.1% of respondents reported they were unlikely or definitely would not work in a rural area compared to 37.4% reporting they were likely or definitely likely to work in a rural area upon graduation. Because technical training schools are often an entry point into the work force for young students, we also asked the respondents what they saw as their primary job in ten years. Complete demographic data is presented in Table 1.

In order to cast the widest net possible, we included push and pull factors identified in our focus group discussion. Sixteen push factors and ten pull factors comprised the list of factors for respondents to choose from with two additional categories in each for 'other reasons' and don't know/rather not say'.

3.2. Push factors

Respondents were asked to rank the top three reasons they are unlikely to work in a deprived area following graduation. Results are shown in Table 2.

The most important push factors included: poor quality of clinical facilities (26.2%) was chosen as the number one or primary reason; poor quality of education for children (18.6%) was chosen most often as the secondary reason, and lack of social amenities in rural deprived areas (17.2%) was ranked most often as the third or tertiary reason. The majority of

responses fell into the intervention category of professional and personal support. Additionally, the response ‘difficulty to return to school for further education’ was chosen as the primary response by 18.6% of our sample, while 13.1% chose ‘lack of training opportunities’ as the primary reason they are unlikely or definitely would not work in a deprived, rural area in Ghana.

This is consistent with the overarching theme ‘quality of life’ identified in the focus group discussions and used by midwifery students to describe the importance of professional and personal support. The results from the structured survey are also supported in the findings from the DCE, providing concurrent validity. The major predictors of preference for a rural posting in the DCE were study leave after two years and having an “advanced” work environment such as reliable electricity, ultrasound, and a constant drug supply.

3.3. Pull factors

The most common primary reason for students’ willingness to work in a deprived area following graduation was to serve humanity (74.3%). This opportunity, to make a difference in peoples’ lives, was by far the strongest factor identified by respondents in our study. The majority of pull factors or reasons for being likely to work in a deprived area fell under the professional and personal support intervention category as well. However, these were different aspects than those reported as push factors. Having more opportunities to gain clinical experience was listed most frequently as both the secondary (37.1%) and tertiary response (24.8%) for pull factors. Other reasons commonly reported included: the work is more exciting and challenging in rural areas (14.3%), and there is more cooperation from the community (10.8%) (Table 3).

3.4. Factors in choosing a work location

Students were then asked the following question, “Thinking about where you might eventually want to work, what factors are most important in selecting that location (please rank your top 3, with 1 being the most important)”. The ability to return to a university to pursue a degree was consistently listed as the most important primary, secondary and tertiary factor (35.2%, 22.2%, and 14.8%) respectively (see Table 4).

The availability of materials and resources such as supplies and equipment ranked high for respondents in our study (19.1% of primary votes, 13.9% of secondary votes, and 11.7% of tertiary votes). A chi-squared test of independence revealed that responses to the question of primary factor for job location were not dependent on whether students were willing to work in a rural area ($p = 0.221$). This was similar for respondents’ secondary and tertiary factors as well ($p = 0.338$, $p = 0.190$ respectively).

3.5. Experience with rural communities

Students reporting experience with rural communities were, in general, more likely to be willing to work in a deprived area (Table 5).

Those born in a rural area (odds ratio [OR]: 1.95, 95% confidence interval [95% CI]: 0.736–5.16), had lived in a rural place after age five for a year or more (OR: 1.52, 95% CI: 0.857–

2.70), and those currently living in a rural area all had greater odds of being willing to work in a deprived area (OR: 1.49, 95% CI: 0.363–6.14). The wide confidence interval of these estimates reveals uncertainty in the actual magnitude of the effect of these exposures. Similarly, individuals obligated to return to work in a rural area had greater odds of reporting they were likely to work in a deprived area (OR: 10.8, 95% CI: 1.30, 89.1).

The one group least likely to work in a deprived area were those students posted during their educational program in deprived area for six or more weeks (OR: 0.83, 95% CI: 0.449, 1.55). This finding deserves further attention in future studies. Why does work exposure, during the educational process, to a rural area act as a deterrent?

4. Discussion

This study provides important implications for the future direction of Ghana and other countries in their effort to equally distribute midwives and reduce the burden of maternal and child mortality. By understanding the factors that motivate or deter midwifery students from wanting to work in rural areas, policies can be established to leverage the positive motivating (pull) factors and minimize the deterring (push) factors.

The importance of accessibility and advancement in education was consistently an important factor for the midwifery students in our study. The ability to return to a university to pursue an advanced degree was the most important factor determining where students were most likely to work, which is similar to results found in Vietnam (Dieleman et al., 2003). This desire is a potential area of intervention; trading service in an under-served area for further education (Barnighausen and Bloom, 2009). For some respondents, the additional opportunity for clinical experience in rural settings was seen as an important pull factor.

The World Health Organization (2010) in its report on increasing access to health workers in remote and rural areas highlights access to continuing education as a factor to improve retention of health workers. An additional benefit of continuing education is that it allows the health care worker to be part of a larger professional community even while working in a remote area (WHO, 2010).

Our findings corroborate those of Kotzee and Couper (2006) on the importance of professional support through good facilities and sufficient medical supplies. They reported essential medical equipment and medicines were important factors for retention in rural areas to doctors in South Africa (Kotzee and Couper, 2006). For midwife students in our study, the availability of material resources and the quality of clinic facilities were reported as important factors for selecting a future work location. Similarly, poor quality of facilities and a lack of social amenities were a major reason midwifery students were deterred from working in a deprived area. Improving facilities and the availability of medical supplies may be resource intensive; however, it is a long-term investment that can have positive results especially when accompanied by additional professional support (Dussault and Franceschini, 2006; WHO, 2010).

Financial incentives did not appear to be of much importance to midwifery students in our study in their willingness to work in rural areas. Other studies have reported varying degrees

of the effect of financial incentives on working in rural areas (Grobler et al., 2009; Wilson et al., 2009). In general, financial incentives have a positive effect; however the sustainability and cost effectiveness of financial incentives is debatable.

A consistent finding in the health worker distribution literature shows individuals with a rural background are more likely to practice in rural areas (Grobler et al., 2009; WHO, 2010; Wilson et al., 2009). Our study did not find sufficient evidence to support this claim; however the direction of the relationships we examined were generally consistent with this finding. Midwifery students in our study who worked in a deprived area for 6 weeks or more expressed less willingness to work in a rural area. All midwifery students in our study population were expected to spend at least one clinical rotation at a rural district hospital, however, only 27% had worked in a rural area for over 6 months and only 50.0% reported working in a rural area for any amount of time. This is a common issue when measuring the effect of clinical rotations in rural areas and may contribute to mixed findings regarding the effectiveness of remote clinical rotations in increasing the number of health workers in rural areas (WHO, 2010).

4.1. Limitations

There are a number of limitations to this study. Selection bias may be present in our results since our sample was drawn from urban midwifery schools where students have already taken a step away from rural communities even if they have prior exposure to rural life. Additionally, without a policy experiment, we do not know whether the preference data revealed in this study will actually produce a change in the distribution of midwives in Ghana.

5. Conclusion

This study is unique in that it targeted a future midwifery workforce whereas many other studies have focused on physicians or nurses (Gupta et al., 2003; Kruk et al., 2010; Serneels et al., 2007). In Ghana, rural communities depend heavily on midwives for healthcare. Our findings provide Ghana and other countries that similarly rely on midwives to provide care to rural populations a better understanding of the motivations for rural work. Whereas other studies have examined similar motivations and push and pull factors that attract or deter health care workers to rural areas (Lehmann et al., 2008; WHO, 2009), we asked respondents to rank these preferences in order to better understand which factors are most influential in midwifery students' willingness to work in rural areas.

A better understanding of the factors that influence midwifery students' willingness to work in rural areas will assist Ghana in development of effective policy interventions to increase access to health workers in rural areas. In particular this study found that continuing education, the quality of clinics, social amenities, and the availability of medical supplies were some of the most important factors deterring midwives from postings in rural areas.

A desire to serve humanity, experience more challenging work, and the opportunity to gain clinical experience were identified as pull factors to work in rural areas for midwifery students in our study. By establishing policy interventions that leverage these desires, the

midwifery workforce distribution in rural areas may be improved and attaining the Millennium Development Goals for 2015 of reduced maternal and child mortality a closer reality.

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What is already known about the topic?

- Staffing of rural health facilities in low- and middle-income countries is a challenge.
- There is a mal-distribution of the health care workforce.
- There is a critical shortage of midwives.
- A complex interaction of factors impact health workers' decisions to work in a rural area.

What this paper adds

- Our findings illuminate the factors which are most influential in Ghanaian midwifery students' willingness to work in rural areas.
- Our findings provide policy makers and governmental bodies a better understanding of the motivations for midwives to engage in rural work.

Table 1

Select demographics of students.

Characteristics (*n* = 238)	**%**
Place of birth	
Urban	73.4
Peri-urban	18.3
Rural	8.6
Lived in a rural area one year or longer after age 5	32.7
In 10 years would like to be working in	
General midwifery	50.0
Administration	23.4
Public health	13.6
Teaching	7.5
Other	5.6
Likely to work in a rural area	
Definitely not	19.3
Unlikely	34.9
Likely	32.8
Definitely yes	4.6
Rather not say	8.4

Table 2

Push factors or reasons midwifery students are unlikely or definitely would not work in deprived rural area in Ghana.

Push factors	Primary	Secondary	Tertiary	Intervention category
1. Lack of training opportunities	13.1%	4.1%	11.0%	Educational or
2. Cut off from information sources (e.g. scholarships, promotion opportunities)	2.1%	3.4%	10.3%	regulatory
3. Difficult to return to school for further education	18.6%	10.3%	9.0%	
4. Little access to centralized employment-related support	1.4%	2.1%	1.4%	
5. Insufficient professional support and mentorship	0.0%	5.5%	2.1%	Professional and personal support
6. Poor quality of clinical facilities	**26.2**%	13.8%	6.9%	
7. Poor housing	6.2%	9.7%	6.9%	
8. Lack of opportunities to meet potential partner	2.1%	2.8%	4.1%	
9. Little employment opportunities for spouse/partner	0.0%	0.7%	3.4%	
10. Poor quality of education for children	6.2%	**18.6**%	11.0%	
11. Lack of social amenities	8.3%	13.1%	**17.2**%	
12. Limited career progression opportunities	2.8%	6.9%	6.9%	
13. Insufficient financial incentives	9.7%	6.9%	4.1%	Financial incentives
14. Lack of travel opportunities	1.4%	1.4%	2.1%	Other
15. Mentors and teachers advise against it	0.0%	0.0%	0.0%	
16. Language barrier	1.4%	0.7%	2.8%	
17. Other reason	0.7%	0.0%	0.0%	
18. Don't know/Rather not say	0.0%	0.0%	0.7%	
	100.0%	100.0%	100.0%	

Bold values indicate the top three reasons cited by participants.

Table 3

Pull factors or reasons midwifery students are likely or definitely likely to work in deprived rural area in Ghana.

Pull factors	Primary	Secondary	Tertiary	Intervention category
1. Deprived service increases my chances of going for further studies	1.9%	5.7%	15.2%	Educational or regulatory
2. Feeling of connection and appreciation from community	2.9%	4.8%	6.7%	Professional and
3. More cooperation from the community	3.8%	11.4%	3.8%	personal support
4. Work is more exciting/challenging	4.8%	23.8%	14.3%	
5. More opportunities to gain clinical experience	6.7%	**37.1**%	**24.8**%	
6. Cost of living in the city is very high and I can live more comfortably in the deprived area	0.0%	2.9%	15.2%	Financial incentives
7. A deprived area community has supported me financially during my training	1.9%	1.0%	1.0%	
8. Deprived area incentive	1.9%	0.0%	0.0%	
9. To serve humanity	**74.3**%	11.4%	3.8%	Other
10. I come from a rural area and feel at home there	0.0%	1.0%	0.0%	
11. Other reason	1.0%	0.0%	0.0%	
12. Don't know/Rather not say	1.0%	1.0%	1.9%	
	100.0%	100.0%	100.0%	

Bold values indicate the top three reasons cited by participants.

Table 4

Top three factors in selecting a location for future employment.

	Primary	Secondary	Tertiary	Intervention category
1. Access to training opportunities	5.7%	5.7%	6.1%	Educational or regulatory
2. Ability to return to University to pursue a degree program	**35.2**%	**22.2**%	**14.8**%	
3. Ability to return to school to obtain an advanced diploma in a specialized area (e.g. ENT, Ophthalmic nursing)	1.3%	1.3%	2.6%	
4. Quality of housing	5.2%	6.5%	6.5%	Personal support
5. Proximity to city	0.0%	3.0%	2.2%	
6. Opportunities to meet a spouse/partner	0.4%	1.7%	2.2%	
7. Employment for spouse/partner	0.0%	0.4%	0.9%	
8. Quality of education for children	2.2%	8.3%	10.0%	
9. Personal safety and security	2.6%	5.2%	7.4%	
10. Professional support and mentorship	3.0%	3.9%	3.9%	Professional support
11. Promotion prospects	1.7%	2.2%	3.0%	
12. Autonomy	0.4%	0.9%	1.7%	
13. Availability of material resources (supplies, equipment)	19.1%	13.9%	11.7%	
14. Access to technology	3.5%	4.8%	6.5%	
15. Quality of clinic facilities	8.7%	10.9%	8.7%	
16. Exposure to a challenging work environment (clinical skills)	3.0%	5.2%	6.1%	
17. Income Potential	7.8%	3.9%	4.8%	Financial incentives
18. Other	0.0%	0.0%	0.4%	Other
19. Don't know/Rather not say	0.0%	0.0%	0.4%	
	100.0%	100.0%	100.00%	

Bold values indicate the top three reasons cited by participants.

Table 5

Experience with rural area and odds of willingness to work in a deprived area for midwifery students in Ghana.

	% Answering yes	Unadjusted odds ratio	95% Confidence interval
Born in a rural place	8.6%	1.95	(0.736, 5.16)
Lived in a rural area after age 5 for a year or more	32.7%	1.52	(0.857, 2.70)
Currently lives in a rural place	3.7%	1.49	(0.363, 6.14)
As a nursing student did work in a deprived area for 6 or more weeks	27.1%	0.83	(0.449, 1.55)
Under obligation to return to work in a rural area	3.8%	10.8	(1.30, 89.1)
Under obligation to return to work in a rural or peri-urban area	6.6%	2.75	(0.887, 8.50)