Original Research Article

The push and pull factors in the retention of health workers in a district in Ghana

Abstract

Aim: To assess the push and pull factors associated with the retention of health workers in a district in Ghana.

Study design: The study was an analytical cross-sectional study using quantitative methods in the collection of data.

Place and Duration of Study: Komenda-Edina-Eguafo-Abirem District of the Central Region of Ghana in October 2022.

Methodology: A structured self-administered questionnaire was used to obtain data from 282 health workers who were consecutively selected from various health facilities in the study. The data collected was cleaned and analyzed using the statistical software STATA version 15. Descriptive statistics were presented in tables and graphs. A Chi-square test and multiple logistic regression analysis were used to assess the association between dependent and independent variables. The significance of association was set at $P<0.05$ at a 95% confidence interval.

Results: Overall, 22.0% of the health workers intended to stay at their current organization. Logistic regression analysis predicted that age more than 35 years (AOR: 3.4, CI: 1.025 - 11.283, $P = .046$) and females (AOR: 0.56, CI: 0.016 - 0.223, $P = .001$) were significantly associated with retention. Institutional factors like lack of supervision of work (AOR: 0.508, CI: 0.176 – 1.472, $P = .021$), lack of in-service training (AOR:0.045, CI: 0.010 - 0.193, $P = .001$), inadequate management support (AOR: 0.288, CI: 0.109 – 0.764, $P = .012$), and poor career progression (AOR: 0.472, CI: 0.019 - 1.873, $P = .028$) significantly reduced the likelihood of staying. Community factors like the absence of family (AOR: 0.138, CI: 0.051 –

0.376, *P* = .001) and the absence of alternative jobs (AOR: 0.051, CI: 0.006 – 0.459, *P* = .008) also negatively predicted retention.

Conclusion: Only a small proportion of health workers in the district intended to stay. Factors related to retention were predominantly organizational like career progression, management support, and incentives.

Keywords: health facilities, health workers, Ghana, retention, retention of health workers, push factors, pull factors.

Introduction

The concept of accessibility to health care is multidimensional involving financial, socio-cultural, and geographic factors. One crucial dimension of accessibility is the geographic distribution of healthcare workers [1,2]. Notably, the measure of inequality in the distribution of the health workforce may depend strongly on the underlying measure of healthcare needs [3]. Munga and Mæstad [3] explain that in cases of a non-uniform distribution of healthcare needs across geographical areas, other measures of healthcare needs apart from population levels may have to be developed to ensure a more meaningful measurement of distributional inequalities of the health workforce.

The World Health Organization (WHO) notes that there is a disparity between developed and poor countries because developed countries tend to have a better distribution of healthcare personnel than developing and third-world countries [4]. The geographical imbalance tends to favor the wealthier and urban areas more than the remote areas [5,6]. The majority of workers tend to be concentrated in the urban areas, leaving the rural areas with poor availability of health services [7].

Even as the African Region of WHO suffers more than 24% of the global burden of disease, it has access to only 3% of health workers and less than 1% of the world's financial resources [8]. The reasons for wanting to leave a health job included perceptions of personal safety, feeling patient outcomes were compromised by poor care, or perceived failed promises. Staying and coping with unsatisfactory conditions was often about being settled into a community, rather than into the post [9].

Ghana is not spared of the low number of healthcare staff and the inequitable distribution of healthcare workers between the rural and urban areas. The healthcare delivery system in Ghana is categorized into five levels of providers: tertiary hospitals, regional hospitals, district hospitals, polyclinics and health centers, and health posts [10]. These levels have different human resource needs. Policy interventions by Government of Ghana through Ministry of Health include increasing the number of training institutions for health workers, expansion of training centers to include private institutions, provision of incentives, compulsory housemanship for medical doctors, and compulsory service for nurses [11].

To bridge the gap between the financial remuneration between the rural areas and urban areas, the Deprived Area Allowance was introduced [12]. Although the Deprived Area Allowance was appreciated, it was also criticized as the definition of "deprived area" was not clear. The money involved was small and payment was too irregular [13]. Ghana had a low doctor-to-population ratio of 1:8481 [14]. Health training institutions have made efforts to increase the density of nurses, doctors, and midwives, improving from 1.07 per 1000 population to 2.65 per 1000 population between 2005 and 2017 [15]. Despite this achievement, it does not meet international standards and it is suboptimal [16]. In addition, there was a disparity between the number of health professionals in the urban and rural areas as a majority of doctors and nurses live in the urban areas [17]. The different factors impeding health worker retention could be attributed to individual, health system, and community or social factors [18]. Mbemba *et al*. [19] stated that the most important factors influencing recruitment include rural background and rural origin, followed by career development while opportunities for professional advancement, professional support networks, and financial incentives were factors impacting retention.

Theoretically, health workers' decision to stay or leave can be attributed to 'push' and 'pull' factors as described in literature [20]. Push factors are conditions that force people to leave their current location. Lehmann *et al*. [20] explain that while push factors exist at the point of stay to act as motivation to leave the area, pull factors are the opposite of push factors. They attract people to a particular area. In the context of retention of health workers, these factors can exist at the personal, organizational, and community levels. Personal or individual factors are essential because the individual's personal attributes are found to impact the decision to remain or leave rather than actual factors of the organization or community in which they work [21].

The structural, social, and financial organization of a health facility is crucial. These factors provide either a conducive or an unfriendly environment for health workers. A conducive work environment would cause health workers to stay while an unfriendly work environment would likely make them leave [21]. Moreover, as health workers are situated within the community, the community/societal factors are key to understanding their decision to move out or stay. For example, the lack of water and electricity generally can cause people to leave their current community [22]. Thus, an unfavorable community is repulsive to everybody, including health professionals.

The analysis of literature showed that the lack of studying the effects of individual, organizational, and community factors on the retention of health professionals were some of the gaps in the context of the application of theoretical perspective in the Komenda-Edina-Eguafo-Abirem (KEEA) District located in the Central Region, one of the regions with poor health indicators in Ghana. Available statistics for the Central Region suggested that the KEEA District had a high prevalence of adolescent pregnancies, estimated at 17.5% [23,24].

However, it appears that not enough studies have examined how individual factors, community factors, and health system factors (including human resource policy and job satisfaction) affect the retention of health workers in Ghana in general and the Central Region in particular. This study would address the gaps in this regard using the KEEA District as a yardstick. The general objective of the study was to assess factors associated with the retention of health workers in the KEEA District of the Central Region using individual, organizational/health system, and community/social factors as key indicators.

Methods

Study Design

The study was an analytical cross-sectional study using quantitative methods with a structured questionnaire to gather data from health workers and using standardized procedures and statistical methods to determine the association between the independent and dependent variables [25]. This design helped in addressing the general objective using these specific objectives; to determine the proportion of health professionals likely to continue practicing/staying in the KEEA District, to examine the association between individual factors (socio-demographic characteristics) and retention of health workers, to assess the association between institutional (health facility/system) factors and retention of health workers, and to examine the association between community/social factors and retention of health professionals in the KEEA District.

Study area

The study was conducted in the Komenda-Edina-Eguafo-Abirem (KEEA) District of the Central Region of Ghana. KEEA is one of the administrative districts of the Central Region of Ghana. The district has a total population of 144,705 and hosts about 6.6% of Central

Region's population [26]. About 60% of the population is rural. The population has more females (51.8%) than males (48.2%) and 29.1% of the residents in the district are migrants. The district covers a total area of 452.5 square kilometers with a population density of 319.8 per sq. km. About 67.6% of the population aged 15 years and above are economically active, but the district does not have substantial large industries. The main economic development activities are fishing, farming, and salt winning. About 85% of the working population are engaged in either fishing or crop production [26]. KEEA has five (5) sub-districts which include Elmina, Ankaful, Kissi, Komenda, and Agona. Health care in the district is provided by 41 health facilities: two (2) hospitals, one (1) polyclinic, three (3) maternity homes, three (3) health centers, and thirty-one (31) community-based health planning and services (CHPS) [27].

Study population

The study population comprised of health workers in the study district. The inclusion critetia included health workers who were willing and able to give informed consent, who had been permanently posted to a health facility, and were resident in the district. The exclusion criteria covered health workers who were unable and unwilling to give informed consent, who were temporarily attached to a health facility (e.g. rotation nurses and health workers on internship programmes) and all health workers in private health facilities in the district.

Sample size determination

The estimated number of health workers for inclusion in the study was based on Yamane's [28] formula for sample size calculation:

$$n = \frac{N}{1 + Ne^2}$$

Where,

n = Sample Size

N = Population size

e = Margin of error which is assumed to be 0.05

The study population was the estimated number of health workers in the public health sector in the KEEA District (N = 815). The required sample size for the study was n = 268. Using an attrition rate of 5%, 282 health workers were sampled and included in the study.

Sampling procedure

A multistage sampling method was applied to recruit participants into the study. The quota sampling technique was applied to sample participants from various health institutions [29]. The first stage of sampling grouped the health workers in the district based on the healthcare delivery level (i.e., hospitals, polyclinics, health centers, and CHPS). The goal was to have equal representation of each of the healthcare levels in the study. After this, a proportion of health workers at each healthcare level was conveniently selected. Arguably, quota sampling has an inherent selection bias and the researcher may not know if the population is well presented [30]. Therefore, generalization of the findings should be done with caution.

Convenience sampling was employed because of the varied work schedules of health workers which did not favor probability sampling approaches. Thus, data collection instruments were administered to participants who were readily available and met the inclusion criteria for the study. Although it is easier to use the convenience sampling method, there may be selection bias and the sample may not be representative [31].

Data collection

Data for the study were collected in October 2022 using quantitative methods. The questionnaire was divided into four sections. Section A included questions on the individual (socio-demographic characteristics) factors of participants. Section B included questions on the organizational (current working environment) factors of participants. Statements were presented and participants were asked to agree or disagree with "yes" or "no" respectively. Section C collected data on the community (current local environment) factors related to where the health professionals stay. In section D, participants were asked to choose whether they intended to stay using the "yes" or "no" format. Questionnaires were developed and administered by two trained research assistants to collect data from the health professionals. The researchers supervised the data collection. The designed questionnaire took a maximum of 15 minutes to administer.

Quality assurance

Quality assurance was achieved by ensuring the authenticity of the data and the trustworthiness of the analysis [32]. Validity refers to the extent to which a concept is accurately measured in a quantitative study. Reliability is concerned with the exactness of a tool having the same findings if used in the same circumstance at repetitive times [33]. To ensure reliability, all research assistants were trained on the designed questionnaire. To ensure content validity, an expert in human resource management in health assessed the questionnaire to ensure that the content appeared logical and covered the scope of the research. Validity and reliability were also enhanced by the inclusion of all healthcare levels in this study.

Data analysis

Quantitative data from answered questionnaires was cross-checked for completeness. Data was checked to identify missing values and entered into a data processing software. STATA version 15, which is a recommended package for the analysis of health research, was used for data analysis. Both descriptive and inferential analyses were performed. The descriptive analysis involved cross-tabulations and a summary of the proportion of health workers' intention to stay and the reasons they intended to stay or leave. A Chi-square analysis was used to determine the association between independent and dependent variables. A logistic regression model was used to determine the magnitude of the effect of independent variables (individual, organizational, and community factors) on the outcome variable (retention). Significance was set at $P < 0.05$ at a 95% confidence interval.

Results

Socio-demographic characteristics of respondents

A total of 282 participants were involved in the study. The majority of the respondents (120 (42.6%)) were in the age range 25-29 years with the lowest number (37 (13.1%)) in ages 35 and above. Female respondents accounted for 191 (67.7%) and male respondents were 91 (32.3%). The majority of the respondents (164 (58.2%)) were single while 118 (41.8%) were married. A total of 139 (49.3%) had no children and the lowest number (30 (10.6%)) had three or more children. Regarding educational qualification, 144 (51.1%) had a certificate and the lowest number (4 (1.4%)) had earned a Master's degree. The majority of the health workers were nurses (178 (63.1%)) and the least number (5 (1.8%)) was in the medical doctors category. The results are displayed (Table 1).

Table 1: Socio-demographic characteristics of respondents (N (282))

Variables	Frequency	Percentage
Age		
20-24	42	14.9
25-29	120	42.6
30-34	83	29.4
35 and above	37	13.1
Marital status		
Single	164	58.2
Married	118	41.8
Gender		
Male	91	32.3
Female	191	67.7
Number of children		
None	139	49.3
One	62	22.0
Two	51	18.1
Three and More	30	10.6
Educational qualification		
Certificate	144	51.1
Diploma	106	37.6
Degree	28	9.9
Master's	4	1.4
Professional category		
Nurse	178	63.1
Midwife	53	18.8
Community health worker	28	9.9
Doctor	5	1.8
Lab scientist	11	3.9
Physician assistant	7	2.5

Proportion of health workers who are likely to stay

The results showed that out of the 282 respondents, the minority (62 (22.0%)) wanted to stay at their current institution for more than three years while 220 (78%) did not want to stay. The results are shown (Figure 1).

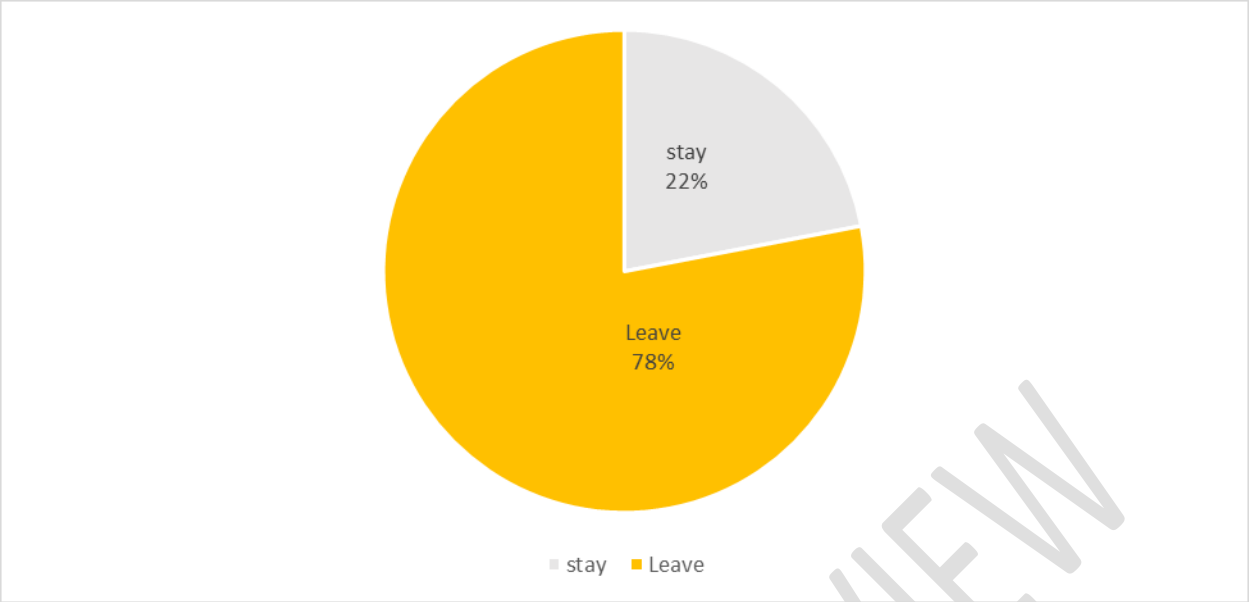

Figure 1: Proportion of health workers who are likely to stay.

Reasons for health workers' decision to leave

Among the reasons attributed to why the 220 respondents wanted to leave their current place of work were inadequate incentives (162 (73.6%)) and poor career progression (168 (76.4%)). Moreover, heavy workloads (9 (4.1%)), lack of schools for children (16 (4.5%)) and lack of opportunities for spouse (16 (7.3%)) were the least stated. The other reasons were lack of alternate jobs (97 (44.1%)), poor leadership from management (76 (34.5%)), no locum in the community (34 (15.5%)), lack of accommodation (35 (15.9%)) and spouse/family not being in the community in which health workers currently reside (58 (26.4%)). The results are shown (Figure 2).

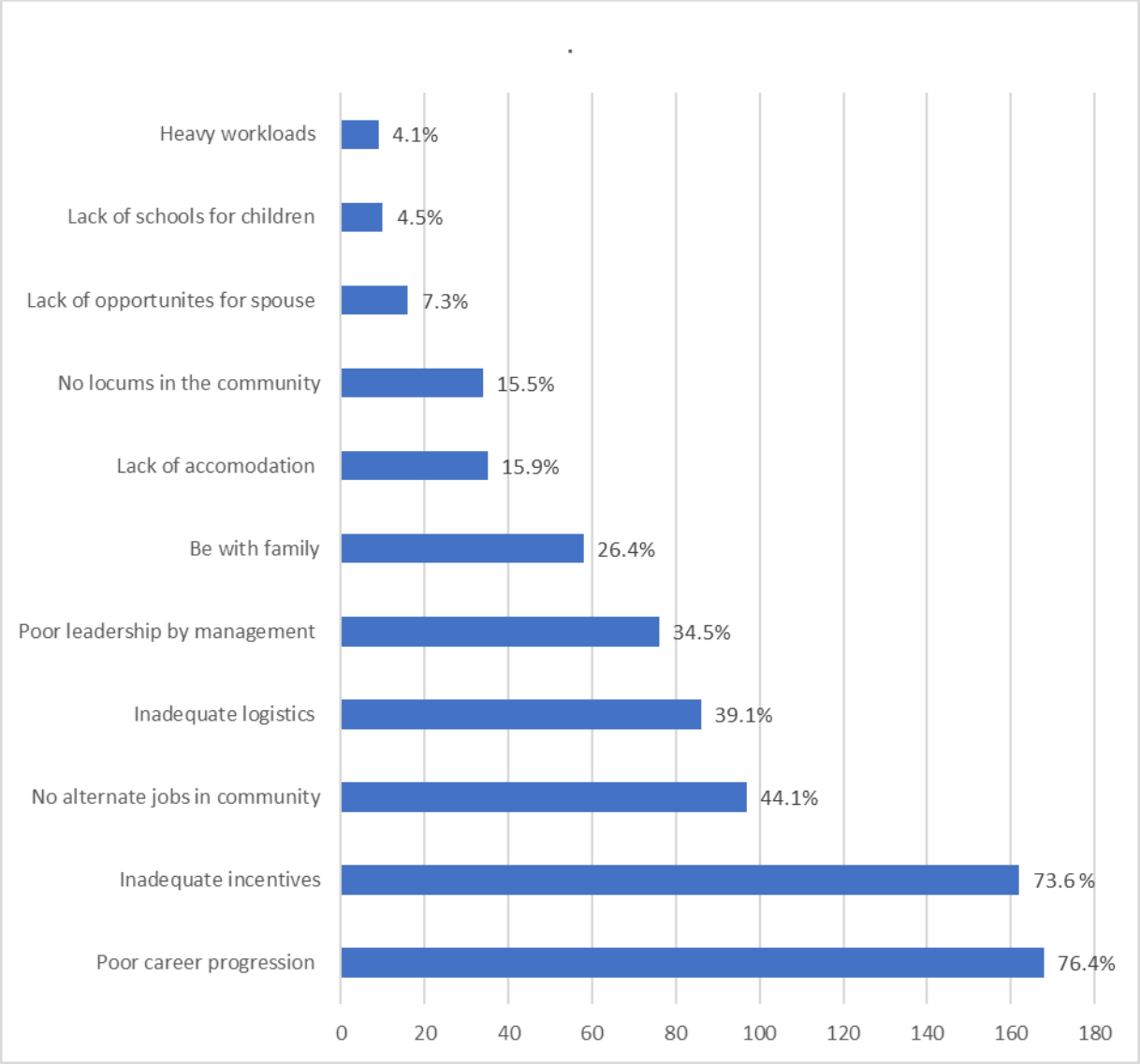

Figure 2: Reasons for health workers' decision to leave.

Association between individual (socio-demographic characteristics) factors and retention of health workers

There were significant associations between age ($\chi^2 = 9.848$, P=.002), sex ($\chi^2 = 27.360$, P =.001) and number of children health workers had ($\chi^2 = 9.192$, P=.027) and retention. However, marital status, educational qualification, and professional category were not significantly related to retention of health workers (P>0.05). The results are presented (Table 2).

Table 2: Association between individual (socio-demographic characteristics) factors and retention of health workers

Variable	Leave (%)	Stay (%)	χ^2-value	P-value
Age			9.848	0.002
20-24	34(81.0)	8(19.0)		
25-29	99(82.5)	21(17.5)		
30-34	55(66.3)	28(33.7)		
35 and Above	32(86.5)	5(13.5)		
Sex			27.36	<0.001
Male	88(96.7)	3(3.3)		
Female	132(69.1)	59(30.9)		
Marital status			3.117	0.077
Single	134(81.7)	30(18.3)		
married	86(72.9)	32(27.1)		
Number of children			9.192	0.027
None	117(84.3)	22(15.7)		
One	49(79.0)	13(21.0)		
Two	34(66.7)	17(33.3)		
Three and More	20(66.7)	10(33.3)		
Educational qualification			3.680	0.298
Certificate	109(75.7)	35(24.3)		
Diploma	82(77.4)	24(22.6)		
Degree	25(89.3)	3(10.7)		
Masters	4(100.0)	0(0)		
Professional category			9.397	0.094
Nurse	142(80.3)	35(19.7)		
Midwife	42(79.2)	11(20.8)		
Community health worker	16(57.1)	12(42.9)		
Doctor	5(100)	0(0.00)		
Lab scientist	9(81.8)	2(18.2)		
Physician assistant	5(71.4)	2(28.6)		

Association between organizational factors and retention of health workers

Results of the descriptive statistics showed that the majority (28 (17.1%)) were working in hospitals while the least (6 (26.1%)) who were health workers in CHPS wanted to stay. With respect to the number of years spent in current organizations, the highest number (23 (19.3%)) who had served between 2-5 years and the least (8 (33.3%)) who had served for more than 10 years wanted to stay. Moreover, 58 (35.6%) who had in-service training, 17 (21.0%) with accommodation, 51 (34.2%) who had adequate supervision of work, 7 (28.0%) who were given an allowance, 11 (55.0%) who had adequate career progression, 9 (24.3%) who had adequate logistics to work, and 43 (48.3%) who had management support wanted to stay.

Results of the Chi-square analysis indicated that there were positive associations between steady career progression (χ^2 =13.679, *P*=.001), oversight of work or supervision of the work of health workers (χ^2 =27.606, *P*=.001), provision of in-service training (χ^2 =41.635, *P*=.001), and management support of health workers (χ^2 =52.557, *P*=.001) and retention of health workers. Nonetheless, the type of organization, number of years spent at the current institution, provision of allowance, provision of accommodation, and provision of logistics were not significant (*P*>0.05). The results are shown (Table 3).

Table 3: Association between organizational factors and retention of health workers

Variable	Leave (%)	Stay (%)	χ^2-value	p-value
Type of organization			6.658	0.084
Hospital	136(82.9)	28(17.1)		
Polyclinic	29(65.9)	15(34.1)		
Health center	38(74.5)	13(25.5)		
CHPS	17(73.9)	6(26.1)		
Number of years at current institution			4.269	0.234
Under 2 years	77(81.1)	18(18.9)		
2-5 years	96(80.8)	23(19.3)		
6-10 years	31(70.4)	13(29.5)		
> 10 years	16(66.7)	8(33.3)		
Provision of accommodation			0.066	0.797
No	156(77.6)	45(22.4)		
Yes	64(79.0)	17(21.)		
Career progression			13.679	<0.001
No	211(80.5)	51(19.5)		
Yes	9(45.)	11(55.0)		
Supervision of work			27.606	<0.001
No	122(91.7)	11(8.3)		
Yes	98(65.8)	51(34.2)		
Given allowance			0.578	0.447
No	202(78.6)	55(21.4)		
Yes	18(72.0)	7(28.0)		
In-service training			41.635	<0.001
No	115(96.6)	4(3.4)		
Yes	105(64.4)	58(35.6)		
Adequate logistics			0.136	0.713
No	192(78.4)	53(21.6)		
Yes	28(75.7)	9(24.3)		
Management Support			52.557	<0.001
No	174(90.2)	19(9.8)		
Yes	46(51.7)	43(48.3)		

Association between community factors and retention of health workers

Results of the descriptive statistics showed that 60 (22.0%) of the respondents who had electricity supply, 59 (22.2%) who had water supply, 41 (42.7%) whose family was present in the community, and 8 (72.7%) who had job opportunities in the community intended to stay**.** Results of the Chi-square analysis showed that the presence of the family of respondents in

the community (χ^2 = 36.33, *P*=.001) and presence of locums and other job opportunities (χ^2 = 17.182, *P*=.001) were significantly associated with health workers' decision to leave or stay. The presence of electricity (χ^2 = 0.001, *P*=.986) and water supply (χ^2 = 0.204, *P*=.748) were not significant. The results are summarized (Table 4).

Table 4: Association between community factors and retention of health workers

Variable	Leave (%)	Stay (%)	χ^2-value	p-value
Electricity			0.001	0.986
No	7(77.8.)	2(22.2)		
Yes	213(78.0)	60(22.0)		
Water supply			0.204	0.748
No	13(81.3)	3(18.8)		
Yes	207(77.8)	59(22.2)		
Presence of family			36.33	<0.001
No	165(88.7)	21(11.3)		
Yes	55(57.3)	41(42.7)		
Job opportunities in the community			17.182	<0.001
No	217(80.1.)	54(19.9)		
Yes	3(27.3)	8(72.7)		

Association between individual (socio-demographic characteristics) factors, organizational factors, community factors, and retention of health workers

Results of the logistic regression showed that individual (socio-demographic characteristics) factors that remained significantly associated with retention were sex and age. The association between the number of children the respondents had, the type of profession and current institution health workers worked in and intention to stay was significant in the simple logistic regression model but was not statistically significant in the final multiple regression model. The estimates of the individual factors revealed that female health workers were less likely to stay compared to males. Females had 0.44 times decrease in odds of staying as compared to males (AOR=0.56, CI=0.016-0.223, *P*=.001). The odds of staying in the age group 35 years and above were 3.4 times as large compared with the age group 20-24

years while the odds of staying were 2.932 (AOR=2.932, CI=0.721-11.918, *P*=.133) and 3.025 (AOR=3.025, CI=0.938-26.905, *P*=.059) as large in age group 30-34 years and 25-29 years respectively compared to age group 20-24 years. The results are displayed (Table 5a).

Table 5a: Association between individual (socio-demographic characteristics) factors, organizational factors, community factors, and retention of health workers

Variable	UOR	95%CI	P-value	AOR	95% CI	P-value
Age						
20-24	Ref			ref		
25-29	1.506	0.446 - 5.086	0.51	3.025	0.938 - 26.905	0.059
30-34	1.358	0.473 - 3.893	0.57	2.932	0.721 - 11.918	0.133
35 and Above	3.258	1.144 - 9.279	0.027*	3.4	1.025- 11.283	0.046*
Sex						
Male	Ref			ref		
Female	0.076	0.023 - 0.251	<0.001*	0.56	0.016- 0.223	<0.001*
Marital status						
Single	Ref			ref		
Married	0.602	0.341 - 1.061	0.079	1.088	0.441 - 2.685	0.855
Number of children						
None	Ref			ref		
One	0.376	0.155 - 0.911	0.03*	0.376	0.100 - 1.407	0.146
Two	0.531	0.200 - 1.406	0.203	0.475	0.139 - 1.625	0.236
Three and more	1	0.384 - 2.603	1	0.989	0.312 - 3.129	0.985
Educational qualification						
Certificate	Ref			ref		
Diploma	0.911	0.504 - 1.650	0.759	0.998	0.512 – 1.409	0.604
Degree	0.374	0.106 - 1.313	0.125	1.066	0.102 – 1. 876	0.100
Master's	0.710	0.610 – 1.826	0.807	0.68	0.342 – 2.684	0.76
Professional category						
Nurse	Ref			ref		
Midwife	1.070	0.501 – 2.288	0.861	0.567	0.185 – 1.739	0.321
Community health worker	3.064	1.330 – 7.061	0.009*	4.539	0.746–27.623	0.101
Doctor	0.000	-	0.999	0.000	-	0.999
Lab scientist	0.908	0.188 -4.391	0.904	2.399	0.176 - 42.66	0.511
Physician assistant	1.634	0.304 -8.777	0.567	14.297	0.592- 345.10	0.102
Current institution						
Hospital	Ref			ref		
Polyclinic	2.512	1.194- 5.288	0.015*	1.113	0.298 – 4.165	0.873
Health center	1.662	0.785 – 0.517	0.184	1.441	0.444 – 4.682	0.543

CHPS	1.714	0.621 – 4.734	0.298	3.040	0.333- 27.784	0.325

Regarding institutional factors, health workers had 49.2% decrease in odds of staying when there was no supervision of work (AOR=0.508, CI=0.176-1.472, *P*=.021), 95.5% decrease in the odds of staying when there was no in-service training (AOR=0.045, CI=0.010-0.193, *P*=.001), 52.8% decrease in odds of staying when there was no career progression (AOR=0.472, CI=0.019-1.873, *P*=.028), and 71.2% decrease in odds of staying when management support was inadequate (AOR=0.288, CI=0.109-0.764, *P*=.012) as compared to when all these variables were present at the current institution. The type of organization, years spent at current organization, and provision of accommodation and financial incentives like allowance were not significantly associated with retention (*P*>0.05). In respect of community factors, health professionals had 86.2% decrease in odds of staying if their families were not present in the community (AOR=0.138, CI=0.051-0.376, *P*=.001) and 94.9% decrease in odds when there were no alternative job opportunities in the community (AOR=0.051, CI=0.006-0.459, *P*=.008). The results are indicated (Table 5b).

Table 5b: Association between individual (socio-demographic characteristics) factors, organizational factors, community factors, and retention of health workers

Variable	UOR	95%CI	P-value	AOR	95% CI	P-value
Years at organization						
Under 2 years	Ref			ref		
2-5 years	1.025	0.516 – 2.035	0.944	0.550	0.169 – 1.794	0.322
6-10 years	1.794	0.785 – 4.099	0.166	0.311	0.060 – 1.621	0.166
> 10 years	2.139	0.793 – 5.766	0.133	0.740	0.108 – 5.077	0.759
Accommodation						
Yes	Ref			ref		
No	0.981	0.527 – 1.826	0.951	1.117	0.344 – 3.633	0.854
Career progression						
Yes	Ref			ref		
No	0.310	0.122 – 0.786	0.014*	0.472	0.019 – 1.873	0.028*
Supervision over work						
Yes	Ref			ref		
No	0.276	0.146 – 0.523	<0.001*	0.508	0.017 – 1.472	0.021*
Given allowance						

Yes	Ref			ref		
No	0.700	0.278 – 1.761	0.449	1.055	0.172 – 6.466	0.953
In-service training						
Yes	Ref			ref		
No	0.101	0.040 – 0.245	<0.001*	0.045	0.010 – 0.193	<0.001*
Adequate logistics						
Yes	Ref			ref		
No	1.025	0.443 – 2.372	0.954	5.202	1.140 -23.749	0.133
Management Support						
Yes	Ref			ref		
No	0.173	0.095 – 0.317	<0.001*	0.288	0.109 – 0.764	0.012*
Electricity						
Yes	Ref			ref		
No	1.014	0.205 – 5.011	0.986	1.741	0.082 -36.969	0.722
Water supply						
Yes	Ref			ref		
No	1.195	0.372 – 3.845	0.765	1.479	0.164 – 30.342	0.727
Presence of family						
Yes	Ref			ref		
No	0.226	0.125 – 0.409	<0.001*	0.138	0.051 – 0.376	<0.001*
Alternative jobs						
Yes	Ref			ref		
No	0.093	0.024 – 0.364	0.001*	0.051	0.006 – 0.459	0.008*

UOR: unadjusted odds ratio. AOR: adjusted odds ratio. CI: confidence interval. ref: reference category. *: $p < 0.05$.

Discussion

Proportion of health workers willing to be retained

Retention of health workers remains a problem and it appears to worsen in developing countries [34]. In this study, only a small proportion (22.0%) of the health workers had the intention to stay on at their respective health facilities. A majority (78%) had no intention to stay. This finding is closer to another study where only 31% intended to stay at their workplace in Ghana [35]. The low proportion was also consistent with other studies in developing nations such as India (33.6%) [36] and Sub-Saharan African countries such as Ethiopia (32.2%) [34]. The findings of a more recent study in Uganda and India showed that a higher proportion (51.4% and 57.6% respectively) of health professionals intended to stay on at their current workplace for the next three years [37,38]. This could be explained by job

satisfaction from adequate salary and incentives and improved quality of management of health systems in these contexts.

Individual (socio-demographic characteristics) factors and retention of health workers

The study observed that age was significantly associated with health workers' retention. Thus, increasing age was significantly associated with retention with the odds of staying recording 2.932 and 3.025 as large in the age groups 30-34 years and 25-29 years respectively compared to the age group 20-24 years. This finding was similar to other studies which observed that older health professionals were more likely to stay than the younger age group in Ethiopia and Ghana [34,35]. Arguably, older health workers were less likely to move because of established families at their current workplace. As such, advancing age can be seen as a major pull factor in the retention of health workers in the district.

There was a significant association between sex of respondents and retention. Females had 0.44 times decrease in odds of staying compared to males. This could be explained by the fact that more females (78.8%) were married in this study than males (21.2%) and were likely to move to where their families were. A study posited that married females were likely to move to where their families were in Niger [39]. A study noted that females in general scarcely live in underdeveloped areas because of security issues, family commitments, and life considerations [6]. However, the study finding contrasted with another study which observed that males were 66.0% less likely to stay as compared to females (54.7%) in Ethiopia [40].

Organizational (health provider) factors and retention of health workers

The study found that retention remained significantly associated with career progression. Health workers had 52.8% decrease in odds of staying when there was no career progression

as compared to when this variable was present at the current institution. Similar to this finding, workers in rural areas had complained of slower career progression in comparison with their contemporaries in the urban areas in Ghana [17]. Another study had earlier shown that health workers considered continuous education and career progression strategies to be inadequate in Malawi [41]. This could confirm the revelation that workers in remote areas lacked opportunities for professional development, course and knowledge upgrade, and new advances in treatments in developing countries [21]. The anticipation is that if workers move to far away remote places, they may be unable to pursue further education. Nonetheless, it could be seen that some workers would generally be willing to stay if the time frame for deployment and career progression is specified in Ghana [17].

In addition, the study revealed that retention remained significantly associated with provision of in-service training. Health workers had 95.5% decrease in the odds of staying when there was no in-service training as compared to when this variable was present at the current institution. Notably, in-service training improves health workers' competencies and knowledge through training opportunities at the workplace [42]. Liu *et al*. [42] show that lack of in-service training prohibits personal growth and development of teams, leading to a high rate of leaving in China. A study intimated that in-service training could improve retention [43]. Hence, the provision of in-service training can be seen as an important pull factor in the retention of health workers.

Moreover, the study discovered that retention remained significantly associated with supervision of work. Health workers had 49.2% decrease in odds of staying when there was no supervision of work as compared to when this variable was present at the current institution. Hence, a study noted that among the four-factor model of non- financial

incentives, only three, including leadership skill and supervision, were predictors of motivation and retention in district hospitals in Ghana and Senegal [18,44]. A study had noted that health workers felt that they were inadequately supervised, with no feedback on performance in Malawi [41]. In another study, the lack of supervision led to a high turnover of health professionals in Ethiopia [40]. Lack of effective supervision, especially in hard-to-reach areas, could lead to professional isolation. This study confirmed the general idea in literature that being professionally isolated makes health workers dissatisfied and less likely to stay [43,44]. The study found that ineffective supervision was a push factor and a significant predictor of retention.

Furthermore, the study observed that retention remained significantly associated with having management support. Health workers had 71.2% decrease in odds of staying when management support is inadequate as compared to when this variable was present at the current institution. This explains why the presence of support was positively correlated with health workers' decision to stay in earlier studies [39]. Notably, management support comes in the form of creating an enabling environment for work and creating a system where respect is upheld in the work environment. Therefore, the lack of respect for a certain cadre of health staff could push them to leave [9,19]. Similarly, standard human resource management practices such as performance appraisal and the provision of job descriptions were not present in many cases in Malawi [41]. Fundamentally, health workers would prefer to work in non-hostile and friendly environments.

Community factors and retention of health workers

The study found a significant association between the presence of family/spouse in the community where the health worker was posted to work and retention. Health workers had

86.2% decrease in odds of staying if their families were not present in the community. This factor seems protective of retention. Previous studies had also noted the importance of both nuclear and extended family/families in the communities where health professionals work as this increased their likelihood of staying [6,34]. There was a significant association between the presence of locums and alternative/other job opportunities in the community and retention. Health workers had 94.9% decrease in odds when there were no alternative job opportunities in the community. Literature cited better opportunities for urban dwellers than rural areas as this could improve retention in Ghana [13,22]. This was also discussed as a push factor for retention and consistent with other studies that observed that the lack of other opportunities in the community increased the turnover of workers [45].

Conclusion

The study assessed factors associated with the retention of health workers in Ghana using the KEEA District of the Central Region as a test case. Generally, the study concludes that only a small proportion (22%) of health workers were willing to stay in the district over the next three years against 78% who did not want to stay. This small proportion predicts a critical shortage of health workers in the near future and should be a matter of concern to policymakers.

With regard to individual factors, the study concludes that there was a significant association between sex and age and retention as health workers were less likely to stay if they were females and were 35 years and above. These are the prompts for policymakers to intensify advocacy for gender-based policy and succession planning. With regard to organizational (health provider) factors, the study concludes that health workers were less likely to stay if there was no management support, career progression, and supervision of work. Health

workers were more likely to stay if there was provision of in-service training. In respect of community/social factors, the study concludes that the presence of family and alternative/other job opportunities had a significant association with retention.

Thus, the various agencies of Ministry of Health should review their policy on promotions to allow recognition of flexible study options such as weekend, sandwich, and evening modes of education which are done without study leave. This would encourage health workers to pursue higher degrees while still being at post without disrupting healthcare delivery. The ministry in collaboration with Ghana Health Service should operationalize and fine-tune the national policy on the provision of both financial and non-financial incentives for health workers who work in hard-to-reach areas [46]. This incentive policy would motivate health workers to remain in the district and compensate for sacrificing to stay. The health workers should continue engaging the management of the various hospitals/health institutions in finding amicable solutions in addressing issues of provision of in-service training and management support.

A similar suggestion has been noted that since the decision to leave or stay in nursing is infuenced by a complex range of dynamic push and pull factors, a key to tackling nursing shortages may be focusing on pull factors and nurse managers listening in particular to the perspectives of junior nurses directly involved in patient care, as giving them opportunity to further develop professionally, reinforcing a strong and supportive workplace relationships, paying an appropriate salary, and improving the public image of nursing profession [47]. Another study recommended that a holistic approach confronting issues of training, availability of an enabling environment as well as the professional progression of doctors should be adopted in tackling emigration of health workers in Nigeria [48].

Limitations to the study and future research

This study had some limitations with respect to the application of the chosen sampling methods with inherent bias, hence, generalization of the findings should be done with caution. Secondly, the study was conducted among different levels of healthcare provision. It is possible that findings from the study may not be generalizable to other districts as each district has its unique challenges with the management of health facilities. Given the above limitations to the study, it is suggested that further studies use a multistage probability sampling technique like stratified sampling or cluster sampling. Future researchers should consider expanding the sample size to include other districts and regions. This would help in sampling a larger population and collecting data on different geographical districts.

Ethical Considerations

Ethical clearance was granted by the Ghana Health Service Ethical Review Committee with protocol number GHS-ERC: 027/02/22 before data was collected. Written permission was obtained from the management of the respective health facilities for participants' engagement in the study. Participation in the study was completely voluntary and participants were allowed to withdraw at any point in time. Written consent was obtained from those who agreed to participate in the study after the procedures had been explained to them. Participants were assured of anonymity and confidentialty of the information provided.

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