Factors Affecting Turnover Intention among Nurses in Ethiopia

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Abstract

Background: Reducing turnover is essential to address health worker shortages in the public sector and improve the quality of services. This study examines factors associated with Ethiopian nurses' intention to leave their jobs. **Methods:** Survey respondents (a sample of 425 nurses at 122 facilities) rated the importance of 20 items in decisions to leave their jobs and reported whether they intended to leave their jobs in the next year. Descriptive and inferential statistical analyses were used to identify predictors of nurses' intentions to leave their jobs. **Results:** Half (50.2%) the nurses said they intended to leave their jobs in the next year. A multivariate analysis identified three significant predictors of nurses' intention to leave their jobs: holding a university degree rather than a diploma (adjusted odds ratio (OR)=2.246, 95% confidence interval (CI)=1.212, 4.163; $p<0.01$), having worked fewer years in the public health system (adjusted OR=0.948, 95% CI=0.914, 0.982; $p<0.01$) and rating the importance of limited opportunities for professional development more highly (adjusted OR=1.398, 95% CI=1.056, 1.850; $p<0.02$). **Conclusion:** Interventions to increase the retention of nurses at public health facilities in Ethiopia should target young nurses who are completing their compulsory service obligation and nurses with a university degree. They should include both non-financial and financial incentives.

Background

Although Ethiopia has the highest number of health workers in sub-Saharan Africa, its large population has left it with a very low health workforce density of 0.84 per 1,000 people (Feysia et al. 2012), well below the minimum of 2.3 health workers per 1,000 recommended by the World Health Organization (2006). Hence, Ethiopia's 2009–2025 Human Resource for Health Strategic Plan calls for sharply increasing the number of health workers as well as the quality of services they offer. Government workforce objectives, revised in 2015, include posting 63,325 additional nurses by 2025 (Government of Ethiopia Ministry of Health 2014); the government has also vigorously expanded pre-service education and training programs for health workers (Feysia et al. 2012). As a result, there has been a surge in the nurse-to-population ratio, from 1 per 5,000 in 2009 (the World Health Organization's benchmark) to 1 per 2,132 in 2014 (WHO 2006; Government of Ethiopia Ministry of Health 2014).

However, even as Ethiopia and other low-income countries work to produce additional nurses, they must also struggle to motivate and retain the nurses they have already deployed. Studies have assessed the extent of the retention problem by asking nurses whether they intend to leave their current jobs in the next year; these "turnover intentions" are widely acknowledged as the best predictor of actual turnover (Kaur et al. 2013). Regional studies conducted in Ethiopia have found that 50% to 61% of nurses say they intend to leave their current positions in the next year (Asegid et al. 2014; Engeda et al. 2014; Getie et al. 2015).

Other studies conducted across low- and middle-income countries have linked health worker retention with a variety of factors, including financial incentives, working and living conditions, management and supervision, opportunities for career development and workers' personal characteristics and

work history (El-Jardali et al. 2013; Engeda et al. 2014; Kaur et al. 2013). Governments have used this evidence to design a variety of incentive packages to motivate and retain health workers (Dambisya 2007). However, it is vital to tailor interventions to the local context, as multi-country studies have demonstrated that the determinants of job satisfaction and turnover intentions vary between countries (Blaauw et al. 2013; Fogarty et al. 2014). In Ethiopia, direct evidence on nurses' turnover intentions is limited to three studies of small, scattered geographic areas. While there is some overlap in their findings, there is also considerable disagreement, in part, because they employed different sample designs and data collection instruments with different variables and operational definitions of key concepts. In East Gojam zone, Amhara region, inadequate payment, poor training opportunities, poor organizational commitment, unfair treatment, lack of transport and job dissatisfaction were associated with nurses' turnover intentions (Getie et al. 2015). In Sidama zone, Southern region, predictors included marital status, type of health facility, working environment and training opportunity (Asegid et al. 2014). In referral hospitals in Amhara region, predictors included nurses' age, marital status, organizational commitment and educational level (Engeda et al. 2014).

The Strengthening Human Resources for Health Project (2012-2017), funded by the United States Agency for International Development, is working with the government of Ethiopia to pilot retention mechanisms in selected regions, with the aim of identifying a feasible and effective combination that can increase retention of public sector health workers. A nationwide survey of job satisfaction, motivation and retention was conducted among nurses in Ethiopia in 2014 to provide policy makers and human resource managers in Ethiopia with the information needed to develop and implement effective policies and strategic interventions to reduce turnover among public sector nurses. This article looks at the results of the survey and addresses three questions: What proportion of nurses intend to leave their current jobs in the next year? What factors do nurses consider important when making decisions to stay or leave the job? What factors are associated with nurses' turnover intentions?

Methods

Study Design and Sample

The 2014 nationwide survey employed a cross-sectional study design to provide nationally representative information for nurses working in the public sector. A total of 45,006 nurses were serving in 2,782 public health facilities in Ethiopia's 11 regions in 2013. Calculations showed that a sample size of 500 nurses was required, based on a statistical parameter of 95% level of confidence, 50% assumed intent to leave, and 10% nonresponse rate for safeguarding the minimum sample size (Turner et al. 2001). The tolerated margin of error was set at plus or minus five percentage points. The design effect was set at a default value of 1.2, since there is no similar study to estimate the design effect for adjusting the loss in precision of estimates by using cluster sampling instead of simple random sampling.

A two-stage stratified cluster sampling technique was used, first randomly sampling 125 public health facilities and then randomly sampling four nurses in each facility. Participating facilities were randomly selected from a list of all health facilities in the region. Facilities in the sample were allocated proportional to the total number of facilities in each region and also to the number of hospitals and health clinics, in order to obtain heterogeneous information.

Nurses perform similar services at hospitals and health centres, but hospitals are larger facilities, located only in urban areas and offer tertiary care; health centres are present in both urban and rural areas. When data collectors arrived at each facility, they requested a list of all nurses working there and then used a

random table to select four nurses to participate in the study. Nurses were eligible for the study if they had at least six months of work experience, were available during the data collector's visit and were willing to participate.

Data Collection

A structured questionnaire was used to collect data on nurses' job satisfaction, motivation and retention. Items covered respondents' demographic characteristics and work history, working and living conditions and turnover intentions. The questionnaire was adapted from a health worker's job satisfaction and motivation tool developed by the Capacity Project (2006), which has been used in Uganda but lacks systematic studies on reliability and validity. The questionnaire was customized and pre-tested with 10 health workers at one hospital. Some questions were reordered, but no major modifications were made.

A total of 24 interviewers who had a university degree in a health or related social science field were recruited and 11 supervisors, one per each region, were hired. Interviewers and supervisors attended two days of training on the consent procedure, research ethics, the data collection tool and interview techniques. Practice interviews using role play were part of the training.

To assess nurses' perceptions of 20 items that the literature suggests may affect decisions to stay or leave the job, interviewers asked: "If you were planning to leave your job, how important would each of the following items be in that decision?" Respondents rated each item on a five-point Likert-like scale (5=extremely important, 4=very important, 3=important, 2=somewhat important, 1=not important). Nurses' turnover intentions were assessed by a yes-or-no question: "Are you planning to leave your job in the next one year?"

Individual interviews were conducted with each respondent in a private space, using the Amharic language. Interviews were scheduled for times that were convenient for respondents and did not disrupt patient care. Data were collected from May 28 to June 14, 2014 in nine regional states and two city administrations.

Data Analysis

Data were entered into an Epi-Info database and exported to STATA 13.1 for cleaning and statistical analysis. Exploratory factor analysis (data not shown) and the literature (Hayes et al. 2012) were used to group the 20 items into six uncorrelated factors that may affect decisions to leave the job: living conditions, conditions at the workplace, relationships with supervisor and co-workers, work burden, opportunities for professional development and basic salary. Cronbach's alpha coefficient (ranges from 0 to 1) was used to check the reliability and internal consistency of items in each factor, with a cut-off value of 0.7 (Pallant 2007).

An independent sample t-test and analysis of variance (ANOVA) were used to test differences in the importance of perceived factors by gender, facility type, education qualifications and years of services; a chi-square test was used to find associations between nurses' demographic and work-related characteristics and turnover intentions; and logistic regressions were used to identify predictors of turnover intentions. A bivariate logistic regression analysis examined the independent effect of potential predictors on intention to leave; these included personal and facility characteristics (gender, age, marital status, dependents, birthplace, educational qualifications, years of service, compulsory service obligation and facility type and location) and mean scores for the six factors affecting decisions to leave the job. Then a multivariate logistic regression model was fitted using a stepwise (backward) variable selection process to extract potential predictors of turnover intentions. All factors were entered into the multivariate model and then stepwise selection with a criterion for variable removal was used with p=0.3 from the full model; this process reduced the number of variables included in the multivariate model to two personal characteristics (education and

years of service) and four decision-making factors. The outcome variable was intention to leave the current job in the next one year (1=yes, 0=no). Multicollinearity among predictors (correlation between predictors) was assessed to ensure reliability of the multivariate model. Adjusted odds ratios (OR) and 95% confidence intervals (CI) were calculated to show the magnitude of associations. A p-value ≤0.05 was used to decide statistical significance for all tests.

Ethical Considerations

The study protocol was approved by the Johns Hopkins University Institutional Review Board. Permission to conduct the study was obtained from the Ministry of Health and Regional Health Bureaus in Ethiopia. Informed consent was obtained from participating nurses using an oral consent script in the national language, Amharic, and respondents were assured that their identities would not be disclosed.

Results

Characteristics of Respondents and Turnover Intentions

A total of 424 nurses participated in the study; 15% of the 500 nurses selected for the study were not present at the health facility for interviews when data collectors visited. About half of the nurses surveyed were female (52.8%) and currently married (52.8%). A large majority (92.0%) worked at health centres (Table 1). Most (86.6%) had graduated from three-year programs at technical and vocational education and training colleges that lead to a diploma, but 13.4% had a Bachelor of Science degree from a four-year university program. Small proportions had worked for two years or less in the public health system (19.2%) and were fulfilling their government-mandated compulsory service obligation (12.3%).

Half (50.2%) of all nurses surveyed said they intended to leave their jobs in the next year (Table 1). Three characteristics were significantly associated with nurses' intentions to leave the job: being younger than 30 years old, holding a bachelor's degree and having two to five years of work experience.

Importance of Decision-Making Factors

Five of the six decision-making factors assessed exceeded the standard applied to assess their reliability (Cronbach's alpha coefficient ranged from 0.74 to 0.85), indicating that the items in each factor were internally consistent. The one exception was conditions at the workplace; these items were not strongly internally consistent or reliable (Cronbach's alpha=0.64).

Table 2 shows that nurses rated basic salary as the most important factor in decisions to leave the job (mean score=4.46; SD=1.07), followed by opportunities for professional development (mean score=4.15; SD=0.99). Over 90% of nurses agreed that three of the 20 individual items were important in their decision: low pay, limited opportunity for promotion and poor access to higher education.

Table 3 depicts the finding that there were no significant differences in nurses' ratings of the importance of each factor by gender, educational qualification or facility type. Ratings of work burden increased significantly with the number of years served (p ≤0.05).

Factors Associated with Nurses' Intention to Leave the Job

Bivariate analysis found that nurses' turnover intentions were significantly associated with their age, educational qualification and years of service and also with the perceived importance of living conditions, relationship with supervisor and co-workers, opportunities for professional development and basic salary (Table 4).

Six variables appeared in the multivariate model after the stepwise selection process and three were significant predictors of turnover intention. Nurses with a university degree were twice as likely as nurses with a diploma to

Table 1. Distribution of respondents and percentage who intend to leave their jobs in the next year, by socio-demographic and work-related characteristics

Characteristic	Total number of respondents	Percent distribution of respondents	Respondents who intend to leave their job in the next year		
			n	% of total	*p*-value[a]
TOTAL	424	100	213	50.2	NA
Gender					
Male	200	47.2	106	53.0	0.282
Female	224	52.8	107	47.8	
Age					
≤30 years	301	71.0	165	54.8	**0.003**
>30 years	123	29.0	48	39.0	
Marital status					
Single	193	45.5	100	51.8	0.760
Currently married	224	52.8	109	48.7	
Divorced/widowed	7	1.6	4	57.1	
Dependents/family members					
Yes	306	72.2	148	48.4	0.215
No	118	27.8	65	55.1	
Birthplace					
Urban	181	42.7	90	49.7	0.856
Rural	243	57.3	123	50.6	
Educational qualification					
Bachelor of Science	57	13.4	36	63.2	**0.036**
Diploma	367	86.6	177	48.2	
Years of service in public health system					
6 months – 2 years	81	19.2	35	43.2	**0.036**
>2–5 years	189	44.8	108	57.1	
>5 years	152	36.0	69	45.4	
Currently fulfilling compulsory service obligation[b]					
Yes	52	12.3	27	51.9	0.795
No	372	87.7	186	50.0	
Type of facility					
Hospital	34	8.0	17	50.0	0.977
Health centre	390	92.0	196	50.3	
Location (region) of facility					
Oromia	145	34.2	13	53.8	0.173
Amhara	116	27.4	65	56.0	
Southern Nations, Nationalities and People	88	20.8	78	44.3	
Tigray	35	8.2	39	37.1	
Other	40	9.4	18	45.0	

[a] Chi-square test.

[b] The government requires nurses who graduate with a diploma or Bachelor of Science degree to work for two to four years in the public sector, depending on the region where they work.

Table 2. Factors in decisions to leave the job: Percentage of nurses who consider an item important, mean and median scores

Factors and items	*n*	% who say factor is important[a]	Score[b]	
			Mean (SD)	Median
Living conditions				
Poor/lack of utilities (water, electricity) at home	421	73.4	3.45	4
Lack of housing facilities	418	78.5	3.81	4
Transportation problems	415	68.4	3.39	4
Lack of access to telephones to stay in touch with family and friends	411	63.0	3.09	3
Work is far from home	398	55.5	3.02	3
Poor educational facilities for children	280	73.2	3.54	4
High cost of living	423	84.2	4.09	5
Overall factor score (7 items)			*3.49 (1.02)*	*3.67*
Conditions at the workplace				
Poor/lack of utilities (water, electricity, Internet) at work	422	74.2	3.44	4
Concerns about safety at work	423	84.9	3.87	4
Poor access to supplies and equipment at work	418	67.2	3.13	3
Overall factor score (3 items)			*3.56 (1.02)*	*3.67*
Relationship with supervisors and co-workers				
Poor supervision and feedback	422	66.1	3.13	3
Social conflicts in the workplace	421	63.4	2.95	3
Unfair treatment by a supervisor	419	76.8	3.61	4
Lack of recognition for good work done	421	77.9	3.55	4
Overall factor score (4 items)			*3.42 (1.02)*	*3.50*
Work burden				
Heavy workload	422	62.8	3.17	3
Long hours of work	423	66.2	3.17	3
Overall factor score (2 items)			3.16 (1.24)	3
Opportunities for professional development				
Limited opportunities for promotion	423	90.3	4.17	5
Poor access to higher education	424	90.3	4.24	5
Limited opportunities for in-service training	424	81.8	3.70	4
Overall factor score (3 items)			*4.15 (0.99)*	*4.33*
Basic salary				
Low pay	424	91.8	4.46	5
Overall factor score (1 item)			*4.46 (1.07)*	*5*

SD=standard deviation

[a] Includes responses of: extremely important, very important and important.

[b] Maximum score is 5.0; minimum score is 1.0.

Table 3: Mean scores for importance of factors in decisions to leave the job, by gender, educational qualification, facility type and years of service

	n	Living conditions	Conditions at work place	Relationship with supervisor and co-workers	Work burden	Opportunities for professional development	Basic salary
Gender							
Male	200	3.53	3.63	3.49	3.14	4.23	4.55
Female	224	3.45	3.51	3.36	3.19	4.08	4.41
p-value[a]		*0.437*	*0.232*	*0.210*	*0.686*	*0.101*	*0.179*
Educational qualifications							
Bachelor of Science	57	3.56	3.70	3.60	3.20	4.05	4.44
Diploma	367	3.48	3.54	3.39	3.16	4.12	4.49
p-value[a]		*0.551*	*0.242*	*0.137*	*0.823*	*0.438*	*0.738*
Facility type							
Hospital	34	3.41	3.42	3.12	3.35	4.07	4.62
Health centre	390	3.50	3.57	3.45	3.15	4.16	4.69
p-value[a]		*0.650*	*0.400*	*0.070*	*0.351*	*0.616*	*0.432*
Years of public health service							
6 months – 2 years	81	3.37	3.66	3.50	2.88	4.01	4.41
>2–5 years	189	3.45	3.49	3.41	3.19	4.20	4.53
>5 years	154	3.60	3.59	3.40	3.27	4.16	4.46
p-value[b]		*0.106*	*0.688*	*0.480*	***0.020***	*0.286*	*0.729*

[a] p-values are generated from independent sample t-test.
[b] p-values are generated from ANOVA.

intend to leave their jobs in the next year (adjusted OR=2.246, 95% CI=1.212, 4.163; p<0.01). Nurses were 40% more likely to intend to leave with each one-point increase in their rating of the importance of opportunities for professional development (adjusted OR=1.398, 95% CI=1.056, 1.850; p<0.02). Intentions to leave the job decreased by 5% with each additional year of service (adjusted OR=0.948, 95% CI=0.914, 0.982; p<0.01).

Discussion

Half of nurses said they intended to leave their jobs in the next 12 months. This is consistent with previous studies of nurses in southern and western Ethiopia, which found turnover intentions of 50% and 59.4%, respectively (Asegid et al. 2014; Getie et al. 2015). Like the study in southern Ethiopia (Asegid et al. 2014), no significant difference in turnover intentions by gender was found. However, the analysis also found no difference by facility type, while turnover intentions in the southern Ethiopia study were higher in hospitals than in health centres.

Three significant predictors of turnover intentions among nurses were identified in the multivariate analysis: work experience, educational qualifications and opportunities for professional development. Nurses were more likely to intend to leave their jobs if they had fewer years of experience. This is consistent

Table 4. Bivariate and multivariate logistic regressions: intention to leave job in the next year, by socio-demographic characteristics and importance of decision-making factors

Predictors	Bivariate logistic regression			Multivariate logistic regression[1]		
	Crude OR/ Coefficient	p-value	95% CI of crude OR	Adjusted OR/coeffi-cient	p-value	95% CI of adjusted OR
Age in years	0.953/-0.049	**0.002**	0.924–0.982	–	–	–
Gender						
Male (ref.)	–	–	–	–	–	–
Female	0.811/-0.209	0.282	0.554–1.188	–	–	–
Marital status						
Single (ref.)	–	–	–	–	–	–
Currently married	0.881/-0.126	0.521	0.600–1.296	–	–	–
Divorced/widowed	1.240/0.215	0.782	0.270–5.689	–	–	–
Dependents/family members						
No (ref.)	–	–	–	–	–	–
Yes	0.764/-0.269	0.216	0.499–1.170	–	–	–
Place of birth						
Rural (ref.)	–	–	–	–	–	–
Urban	0.965/-0.036	0.856	0.657–1.418	–	–	–
Educational qualification						
Diploma (ref.)	–	–	–	–	–	–
Bachelor of Science	1.840/0.610	**0.038**	1.035–3.273	2.246/0.809	**0.010**	1.212–4.163
Years of public health service	0.956/-0.045	**0.008**	0.924–0.988	0.948/-0.054	**0.003**	0.914–0.982
Currently fulfilling compulsory service obligation						
No (ref.)	–	–	–	–	–	–
Yes	1.080/0.077	0.795	0.604–1.930	–	–	–
Type of facility						
Hospital (ref.)	–	–	–	–	–	–
Health centre	1.010/0.010	0.977	0.501–2.036	–	–	–
Importance of decision-making factors						
Living conditions	1.265/0.235	**0.016**	1.045–1.531	1.202/0.184	0.215	0.898–1.608
Conditions at workplace	1.202/0.184	0.057	0.995–1.453	0.779/-0250	0.129	0.563–1.076
Relationship with supervisor and co-workers	1.294/0.258	**0.008**	1.070–1.565	1.153/0.142	0.263	0.899–1.479
Work burden	1.066/0.064	0.419	0.913–1.244	–	–	–
Opportunities for professional development	1.434/0.361	**0.001**	1.165–1.766	1.398/0.335	**0.019**	1.056–1.850
Basic salary	1.210/0.190	**0.043**	1.006–1.455	–	–	–

[1] All factors were entered into the multivariate model and then stepwise selection was used to remove from the full model those with a $p>0.3$.
OR=odds ratio; CI=confidence interval.

with studies of nurses in southern Ethiopia (Asegid et al. 2014), Ghana (Bonenberger et al. 2014), Tanzania, Malawi, South Africa (Blaauw et al. 2013; George et al. 2013) and Lebanon (El-Jardali et al. 2013). Notably, significantly lower turnover intentions among nurses over age 30 were found in the bivariate analysis, although this association did not remain significant in the multivariate analysis. Younger, inexperienced nurses may be more mobile because they are less likely to be married and have children and more likely to seek advanced education to further their careers. In Ethiopia, this pattern may also be linked with the government's compulsory service scheme, which is designed to retain new graduates in the public sector. Depending on geographic location, the government requires nurses who graduate from diploma- or bachelor's-level programs to work for two to four years in the public health system before they can receive their diploma or degree. This may explain why turnover intentions peaked among nurses with two to five years of experience. However, study results show that turnover intentions are just as high among nurses currently fulfilling their compulsory service obligation as other nurses, suggesting that the scheme may not be having the desired impact.

University graduates were more likely to intend to leave the job than nurses who held a diploma from a technical and vocational education and training college. This finding is consistent with a study in Lebanon (El-Jardali et al. 2013) and may be due to the greater job opportunities open to university graduates. Their credentials make it easier to get a better job with a higher salary at private health facilities or with international nongovernmental organizations. This poses a serious challenge for the public health system because nurses with advanced education and training are required for many essential services (FMHACA 2013).

The more highly nurses rated the importance of opportunities for professional development, the more likely they were to intend to leave their jobs. This confirms prior studies in Ethiopia that linked nurses' intention to stay in the job with professional opportunities (Engeda et al. 2014) and their intentions to leave with a lack of training opportunities (Getie et al. 2015). During in-depth interviews in Malawi, nurses explained that further educational opportunities were a primary motivation for remaining in the public health system (Schmiedeknecht et al. 2015).

Although just three variables remained significant in the multivariate analysis, the findings suggest that Ethiopian nurses consider many elements of their work and home life when making decisions to leave their jobs. Low pay and poor living conditions were the two most important factors in the bivariate regression. The Ethiopian government recognizes the importance of these factors and recently established a package of transportation, duty and professional allowances, housing benefits and salary adjustments to retain and motivate health workers. The government does not offer all of these benefits to all cadres in all regions because of budget constraints. Nurses are not eligible for housing benefits and top-ups on salary when they transfer to certain locations and only university graduates receive professional allowances; however, nurses with a diploma or degree do receive duty allowances. Yet results from this study suggest that financial incentives may be less important to retention than non-financial incentives, as salary and living conditions (which include items that may be part of government compensation packages) did not remain significant in the multivariate analysis.

Prior studies offer mixed evidence on this point. One South African study found that low salaries were *not* associated with turnover intentions of health workers, including nurses (George et al. 2013). However, systematic reviews and another study in South Africa have concluded that uncompetitive salaries, along with other factors, do have a negative

impact on nurses' retention, suggesting that integrated packages of financial and non-financial incentives are needed to retain health workers (Mokoka et al. 2010; Schmiedeknecht et al. 2015; Willis-Shattuck et al. 2008).

Policy Implications

The Ethiopian government is investing a considerable amount of money in the education of new nurses and other health workers. Results from this study suggest that many of them are dissatisfied with their jobs and want to leave their postings, which would be a major loss for government workforce development schemes and ultimately for the provision of quality health services in the country. Admittedly, changing jobs is not easy and many, or even most, dissatisfied workers do not act on their intentions to quit. For example, a longitudinal study in Senegal found that 59% of midwives said they intended to leave their current jobs, but only 37% actively looked for a new job and actual annual turnover was just 9% (Rouleau et al. 2012). While evidence is limited, actual attrition in Ethiopia is also likely to be less than 10% (Hailemichael et al. 2010). However, even this level of turnover, when it occurs annually, represents a huge cost to the health system. In addition, the literature suggests that turnover intentions are associated with job dissatisfaction, low motivation and poor performance, which potentially undermine productivity and the quality of care (Blaauw et al. 2013; Bonenberger et al. 2014; Franco et al. 2002).

These findings are a clear call to action for Ethiopia's Ministry of Health to create more effective, evidence-based strategies to increase motivation, job satisfaction and retention among nurses. The World Health Organization (2010) and Lehmann et al. (2008) have summarized the experiences of middle- and low-income countries with strategies to attract and retain health workers, particularly in postings to remote and rural areas. They argue that there is no single ideal intervention and suggest developing a broad human resource management strategy that encompasses both non-financial and financial incentives and addresses living conditions, work environment and professional development opportunities. Our findings support this approach. The Ethiopian Ministry of Health (2014) finalized a comprehensive new human resource management policy in 2014. This policy is designed to expand pre-service education and in-service training for health workers, increase retention and performance and take geographic balance and professional mix into consideration in deployment, among other goals. However, the Ministry of Health has not yet developed an implementation strategy that translates these policy goals into actionable plans for local jurisdictions. These study findings can help in the development and implementation of effective retention strategies.

The findings demonstrate that the current compulsory service requirement does not reduce turnover intentions among nurses; however, they can be used to more closely tailor proposed interventions and incentives to meet the needs of Ethiopian nurses, for example, by targeting financial incentives to the items that are most important to nurses, namely salary, housing, educational facilities for children and transportation. Special attention should be directed to two groups who have a particularly high risk of quitting their jobs but are critical to the long-term performance of the public health system: young nurses who are fulfilling their compulsory service obligation and university-educated nurses.

As professional development opportunities were highly important in nurses' decisions to stay or quit, they may offer a more effective retention strategy. Creating short- and long-term continuing and higher educational opportunities for nurses at local universities affiliated with the clinical sites where they work could help attract, motivate and retain nurses and open up opportunities for advancement in the profession. A hospital in the United States was able to reduce extremely high turnover

among newly graduated nurses with a comparable strategy; new nurses were offered continuing education and mentorship as part of a residency program (Ulrich et al. 2010).

Strengths and Limitations

A particular strength of this study is that it is the first to provide nationally representative information for designing retention strategies for nurses in Ethiopia. The loss of 15% of the intended sample did not reduce the power of the study because a 10% non-response rate was assumed in the calculation of sample size. Nor did it bias the results because the nurses did not refuse to participate; they were simply absent from the facility on the day of interview. A major limitation of the study is that, like similar cross-sectional studies, nurses were asked about their turnover intentions but there was no follow-up in the following year to determine whether they actually left the position. Similarly, nurses were not asked whether they intended to leave the profession, move to another organization or facility, or leave the country.

Conclusions

Half of nurses working in public hospitals and health centres in Ethiopia in 2014 stated their intention to leave their jobs in the next 12 months, suggesting widespread problems with job satisfaction, motivation and retention. Two important groups are at especially high risk of leaving their jobs: young nurses who are fulfilling their compulsory service obligation and university-educated nurses. Retaining these nurses is essential to maintaining a skilled workforce at public sector facilities and therefore should be a priority for the public health system. Reducing attrition among these and other nurses will require non-financial incentives, especially strategies to promote nurses' professional development, along with efforts to bolster compensation.

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