Magnitude and associated factors of health professionals’ attrition from public health sectors in Bahir Dar City, Ethiopia*

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ABSTRACT

Background: Attrition of health professionals from public health sectors is found to be a barrier to effectiveness of health systems and to provide essential health service to population. In Ethiopia, the public health system is the major provider of health care service to the people. In particular, the poor segment of community uses public hospital, health centers and clinic, since the private health facilities are inaccessible and unaffordable to them. The aim of this study was to determine the magnitude and factors associated with health professionals’ attrition from public health sectors in Bahir Dar city. Methods: A Facility based cross-sectional study was conducted in September-October 2012. All inclusive sampling techniques of five years document reviews were used to select 727 health professional documents. Quantitative and qualitative data were collected using structured questionnaires and in-depth-interview guides respectively, by trained data collectors. Descriptive statistics (frequencies, proportion and chi square test) were used to describe the study population in relation to relevant variables. To identify independent predictors of attrition, only variables that were statistically significant during bivariate analysis were entered into multiple logistic regression models to control the effects of confounders. P-values <0.05 were considered as statistically significant. Result: The attrition rates of health professionals from public health sectors in Bahir Dar city were found to be 39.6%. Age, sex, marital status, educational status, workplace, current salary, professional category and work experience were the main factors associated with health professionals’ attrition from public health sectors. Conclusion: The findings showed that the level of health professionals’ attrition is high in the study area. Policy makers and health managers should design appropriate retention strategies for health professionals at public health sectors in terms of most associated factors with attrition of health professionals to reduce the prevalence of health professionals’ attrition from public health sectors in collaboration with development partners and concerned body.

Keywords: HRH; Health Professionals; Attrition; Public Health Sectors

1. BACKGROUND

The global shortage of human resources for health (HRH) limits access to effective health services for many, particularly the poor and the most vulnerable, and hinders progress towards health and development goals. Yet, estimates suggested that there is a shortage of 4.2 million health workers worldwide. Africa has been facing unprecedented human resource for health crisis for years. Out of 57 countries experiencing critical shortage of human resource for health in the world 36 are located in Africa. The shortage is most severe in Sub Saharan African countries; thus, these countries will meet few of the health (MDGs) by 2015 [1].

Health workers in Africa have been very low and unable to match the rapidly growing population and need. Indeed, Sub Saharan Africa (SSA) has the least ratio of health workers to population in the world. Although, benchmark with regards to what should be an adequate
health workers density level is difficult. The WHO report states that 2.3 Health workers per 1000 people are required to attain the coverage of essential health service and Core MDG related health service [1,2].

The joint learning initiative (2004) estimated the average number of Health workers in SSA countries to be about one health workers per 1000 people compared to 10 per 1000 in Norway and Finland. Concerning the density of doctors and nurses, the regional difference enormous is too low to be 0.022 per 1000 in Malawi, and nurse midwifery density ranges from 22 per 1000 in Finland to only 0.22 nurse and midwife per 1000 in Ethiopia [3].

In Ethiopia, as it is also the case elsewhere in the developing world, shortage of health workers, geographical imbalance in the number of health workers and increasing attrition are among the most pressing problems of health system. Ethiopia has about 0.027 physician per 1000 people. This is 3.5 times lower than the Sub-Saharan country which has the average of 0.1 per 1000 people [4].

Ethiopia has a total of 66,314 health workforce currently in service which including 30,950 health extension workers. The extension program is one of the strategies used to narrow the gap of health workforce shortage and access the preventive service to the community at grass root level. The national health worker ratio per 1000 people is 0.84. This result is far less than the standard set by the WHO of 2.3 per 1000 people [5,6].

The health workforce shortage is linked with decreased student enrollment in health training institution, failure of employing professional at the right time and high attrition among those already employed. A key contributor to the human resource for health crisis is attrition of health workforce measured by the numbers of health workforces who permanently leave their posts [7-14].

The attrition of health professionals from public health institution is aggravated by inadequate pay, sex, and weak performance management, place of work and experience of health professionals [8,9,15].

All types of health professionals are needed to deliver health intervention from public to clinical health service, from primary to tertiary care. After all, without a motivated, competent, protected and well-founded health workforce, there is a danger that the achievement of health related MDGs addresses health problem of the nation. In spite of a main view that studies on human resource for health attrition are scarce, many diverse statistical sources at different levels of our health system showed that the attrition of health professionals from public health sectors is high. In Ethiopia, the public health system is the major provider of health care service to the people. In particular, the poor segment of community uses public hospital, health centers and clinic, since the private health facilities are inaccessible and unaffordable to them. Therefore, managing such problems should be evidence-based and this study aims to assess the magnitude and factors associated with health professionals’ attrition from public health sectors.

2. METHODS

2.1. Study Setting and Sample

A health facility based cross-sectional study was conducted in Bahir Dar City, Northwest Ethiopia. The sample size was calculated using single population proportion formula using the following parameters: 95% confidence level (1.96), Margin of error (0.05), Expected prevalence of health professional 50%. All inclusive sampling technique was used to select public health institutions and health professional’s documents from public sectors in Bahir Dar. A total of 727 health professionals documents were reviewed from Sep-Oct, 2012.

2.2. Data Collection and Processing

Structured questionnaire was originally prepared in English according to the objective of the study and translated in to the local language (Amharic) and back to English again in order to maintain the validity of instrument. The questionnaires were pre-tested for its understandability by 5% of sample size in similar population which was not included in the study. Ten diploma graduated data collectors were recruited and trained on the sampling procedure, technique and data collection methods. Principal investigators and two BSc nurse trained supervisors monitored the overall quality of the data collection. The data were entered and analyzed using SPSS version 16. Descriptive statistics (frequencies proportion and chi-square test) were used to describe the study population in relation to relevant variables. Odds ratio was computed to see strength of association. To identify independent predictors of health professional attritions, only variables that were statistically significant during bivariate analysis were entered into multiple logistic regression models to control the effect of confounders. The test was two-sided and P < 0.05 was considered statistically significant. We reported the results as adjusted odds ratio (AOR) and 95% confidence intervals.

2.3. Ethical Considerations

Ethical clearance was obtained from Ethical Review Board of Bahir Dar University. Permission was obtained from Amhara Regional health Bureau. Written informed consent was obtained from human resource head after clear explanation about the purpose of the study.

3. RESULTS

3.1. Socio-Demographic Characteristics of the Study Participants

A total of 727 health professional documents were re-
viewed from public health facilities resulting a response rate of 100%. The study included all the health care professional’s documents who were working at different administrative, RHB, Woreda health office, Regional laboratory, and Health facilities in the study area. The mean age of the study subjects was 35.01 years (+SD), SD = 8.27, and the age ranged from 21 to 60 years. Three hundred sixty four (50.1%) of the study subjects were Female. Three hundred forty three (47.2%) had Diploma, 479 (59.3%) married and 306 (42.1%) were all type of Nurses in professional category. While 213 (29.3%) of the study subjects had work experience 0 - 5 years and 446 (61%) were working in Feleghiwote referral Hospital where as 576 (79.6%) of health professional categorized under mid-level health professional who have diploma and first degree (Table 1).

<table>
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<th>%</th>
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</tr>
<tr>
<td>Medical Dr.</td>
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<td>13.1</td>
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<tr>
<td>Pharmacy professional</td>
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<td>8.9</td>
</tr>
<tr>
<td>Environmental health professional</td>
<td>26</td>
<td>3.6</td>
</tr>
</tbody>
</table>

Table 1. Socio-demographic characteristics of health professional in Bahir-Dar health sectors from January 1, 2007 to December 30, 2011 (N = 727).

3.2. The Magnitude of Health Professional Attrition from Public Sectors (January, 2007-December, 2011)

The attrition rate of Health professionals from public sector was 39.6% to all professionals category/cadre. The attrition rate with Health professional category was Medical Doctors 77.90%, MPH 72.1%, environmental Health 46.2%, Pharmacy 44.2%, Health officer 44.2%, Laboratory 32.3), Nurse 22.9%. Whereas the attrition rate was substantially different by type of health facility they work in Amhara Regional Health Bureau and Feleghiwote referral Hospital lost 66.9% and 40.6% of their Health professionals respectively, compared with HCs in Bahir Dar 9.8%, Bahir Dar city administration woreda Health office 26.1% and Bahir Dar Regional Laboratory 26.3% for last five years (2007-2011) these showed to us
there was marked difference in the attrition rate of Health professionals by working facility (Figures 1 and 2).

3.3. Attrition of Health Professionals by Cadre for Last Five Years (2007-2011)

The attrition of Health professional from public Health sectors were high in the year 2007, 2011 and 2008, 2009 for nurse and Medical Dr. respectively and seems the attrition for year 2011. But the attrition of health professional category like laboratory professionals and MPH still increasing. The possible reason for these may be in year 2007-2009 ART sites expanded to more Health centers. So that more nurse and Medical Dr have jobs opportunity at NGOs for mentoring (Figure 3).


The main means of Health professionals’ attrition at each level of Health professionals and facility, when reviewed from the HRH document was at all cadres combined resignation accounted 79.5% from the total attrition of Health professionals from public Health sectors which was followed by 7.6% for transferred out, 6.9% for education upgrade, 2.1% for dismissal, 0.7% for death and 3.1% for others like (pension and etc). Resignation was the leading reason for loss of Health professionals from public Health institutions, Pharmacy 100%, environmental health 91.7%, Medical Dr. 81.1, Nurse 78.6% and Laboratory professionals 76.2%, while the leading cause of attrition among Health officers and others (like x-ray, nutrition, and health education) was transferred out and upgrade education (Figure 4).

3.5. Factors Associated with Health Professionals’ Attrition from Public Health Sectors

After doing bivariate analysis for socio-economical characteristics with respected to health professional attritions; variable which were significant (p-value < 0.05) during bivariate analysis were further considered in to multivariate analysis was employed in order to control

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potential confounding factors by putting important co-

vatiates, step by step, in to model. The adjusted odds
ratio (AOR) and the p-value after multivariate analysis
were used to determine significance.

Age, Sex, Education, Marital status, Workplace, Health
professional’s category, Work experience and current-
salary of Health professionals was a strong predictor of
Health professionals’ attrition from public Health sec-
tors.

The age of Health professionals was significantly as-

sociated with attrition. Health professionals whose age
30 - 39 years old, 40 - 49 years old, 50+ years was 2.15,
7.39 and 5.05 times more likely to leave their jobs from
public Health sectors than Health professionals with the
age of 20 - 29 years old (AOR = 2.15, 95% CI: 1.12,
4.16), (AOR = 7.39, 95% CI: 2.59, 21.04), (AOR = 5.05,
95% CI: 1.25, 20.42) respectively. The attrition finding
of Health professional for sex showed that male left their
jobs 2.45 times as compared to Female (AOR = 2.45,
95% CI: 1.529, 3.965). Similarly, Health professionals
whose education first degree (AOR = 5.04, 95% CI: 2.42,
10.49) and Second degree (AOR = 22.72, 95% CI: 6.95,
74.22) were leaving public Health institutions in study
period as compared to the Health professionals that have
ducational at diploma level. The Health professionals
attrition in study period was statically associated with
marital status; those Health professionals never married
and married 27.58 and 11.45 times more likely to leave
the public Health sectors as compared to Divorced Mar-
tal status with AOR (27.52, 95% CI: 6.69, 113.62 and
11.45, 95% CI: 2.94, 44.58) respectively. In addition, the
attrition of Health professionals was more significant and
associated with Health professionals working place,
working in Hospitals, Regional laboratory and RHB.
They were 11.02, 8.43 and 12.98 times more likely to
leave their job as compared with Health professionals
working in HCs AOR and 95% CI (11.02, 4.51, 26.97),
(8.43, 1.36, 51.79), (12.98, 4.33, 38.90)); respectively.
The finding of attrition was more significant with Health
professional’s category. All type of Nurses (AOR = 4.76,
95% CI: 1.35, 16.80), Health officers (AOR = 20.25,
95% CI: 4.53, 90.55), Medical (AOR = 60.71, 95% CI:
13.64, 270.21), Laboratory Professionals (AOR = 4.71,
95% CI: 1.03, 21.52), Pharmacy (AOR = 7.94, 95% CI:
2.03, 31.03), Environmental professional (AOR =
6.75, 95% CI, 1.20, 37.92) and MPH (AOR = 7.12, 95% CI,
1.34, 37.92) these findings showed that being medi-
cal Dr and HO in Health professionals category was
60.71 and 20 times at risk to leave the public Health sec-
tor as compared as other Health professionals (like X-ray
technician, nutrition, physiotherapy and Health educa-
tion).The other factors associated with health profes-
sional attrition from public Health sectors in the study
period was work experience of Health professionals, as
multivariate analysis result showed as Health profession-
als with work experience 6 - 10 years and 11 - 15 years
were 4.08 and 4.22 times at risk as compared with Health
professionals work experience 0 - 5 years with AOR and
95% CI (4.08, 2.13, 7.82 and 4.22, 1.85, 9.64) respec-
tively, where as the work experience above 16 years was
not associated with Health professionals attrition from
public Health sectors. Salary showed a statistically
strong association with Health professional’s attrition.
Those whose current monthly salary from 48$ - 88$ and
from 89$ - 134$ were 85.99 and 10.66 times exposed to
leave their jobs from public Health sectors as compared
with Health professionals earn monthly salary of 191$ and
above in study period (Table 2).

4. DISCUSSION

The prevalence of health professional’s attrition from
public health sectors was 39.6% in the study area. The
attrition rate among health professional category was
77.9% for Doctors, 72.1% for MPH, 22.9% for Nurse,
44.2% for Pharmacy, 44.2% for Health Officer, 32.3%
for laboratory. This figure was relatively higher when
compared to other similar study finding from East Wol-
lega, which was 47.2% for high level professionals like
Doctors, 19.3% mid-level like health officers and Nurse
and Kenya, 38% for Doctors, but the attrition of nurse in
Kenya was high than this study 40% [8,9]. But the attri-
tion of health professionals from public health sectors
was almost similar with study conducted in East Harer-
ge zone, Ethiopia that revealed 76% for Doctors and 54%
for midlevel health professional like nurse and health
officers [16]. This finding was also supported with
qualitative data findings. The Key-informant said that;
“Like any Ethiopian Region, proportion of health profes-
sional that left from public health institution in Bahir Dar
city was high, the problem was sever for high profes-
sional level like Doctors and Master. Most health profes-
sions left the public health sectors with short period of
experience to work for private and NGOs sector”.

According to their level of education, the proportion of
health professionals left the public health sectors were
5.04 and 22.72 times higher for degree and second de-
gree with AOR (5.04, 95% CI: 2.42, 10.48) and AOR
(22.72, 95% CI: 6.95, 74.22), respectively compared to
other similar study finding from East Wol-
lega, which was 47.2% for high level professionals like
Doctors, 19.3% mid-level like health officers and Nurse
and Kenya, 38% for Doctors, but the attrition of nurse in
Kenya was high than this study 40% [8,9]. But the attri-
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was almost similar with study conducted in East Harer-
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sional that left from public health institution in Bahir Dar
city was high, the problem was sever for high profes-
sional level like Doctors and Master. Most health profes-
sions left the public health sectors with short period of
experience to work for private and NGOs sector”.

In this finding, the attrition of Health professionals
from public health sectors was substantially differing by
type of Health facility they work. Amhara Regional
Health Bureau 66.9%, Felegehiwote referral hospital
40.6%, HCs in Bahir Dar 9.8%, Bahir Dar city district
26.1%, Bahir Dar Regional Laboratory 26.3%. But the
finding of Health workforce attrition in public Health
sector of Kenya revealed that there is no substantial va-
Table 2. Factors associated with attrition of Health professionals from public Health sectors in Bahir Dar Health institutions, January 1, 2007 to December 30 2011 (N = 727).

<table>
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<th>OR (95% CI)</th>
<th>p-value for AOR</th>
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<td>No (Number)</td>
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<td>200</td>
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<td>30 - 39</td>
<td>137</td>
<td>141</td>
<td>3.47 (2.38, 5.07)</td>
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<tr>
<td>40 - 49</td>
<td>76</td>
<td>68</td>
<td>3.99 (2.57, 6.21)</td>
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<td>50+</td>
<td>19</td>
<td>30</td>
<td>2.26 (1.18, 4.32)</td>
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<td>169</td>
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<td>First degree</td>
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<td>156</td>
<td>2.17 (1.53, 3.07)</td>
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<td>23</td>
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<td>1.00</td>
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<td>6 - 10</td>
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<td>84</td>
<td>4.39 (2.79, 6.91)</td>
<td>4.08 (2.13, 7.82)</td>
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<tr>
<td>11 - 15</td>
<td>99</td>
<td>85</td>
<td>4.89 (3.12, 7.64)</td>
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<td>16 - 20</td>
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<td>43</td>
<td>4.49 (2.62, 7.68)</td>
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<td>55</td>
<td>1.07 (0.54, 2.10)</td>
<td>0.74 (0.20, 2.75)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Higher institution training site</th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>266</td>
<td>353</td>
<td>2.91 (1.77, 4.77)</td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>22</td>
<td>88</td>
<td>1.00</td>
<td></td>
</tr>
</tbody>
</table>

The result of the present study depicted that sex of health professionals had significant association with health professional attrition from public health sectors. In this finding showed that male left their jobs 2.45 times as compared to Female (AOR = 2.45, 95% CI:1.53, 3.96). Similarly study in Kenya showed that the attrition rate for gender showed that more Males left their job as compared to Females (AOR = 2.07, 95% CI: 1.67, 3.74) [8,17].

In this finding, the attrition of health professionals from public Health sectors was highly associated with current salary of Health professionals. This result was similar with study conducted in Ghana in 2010 [18-21]. This finding was also supported by finding of qualitative data. Key informant said; “most health professional leave the public health sectors to get fair salary to cover the cost of living”. This due to the salary paid at public health institution is not enough to cover the current living cost.

In this finding, the main reason of health professional attrition from public Health sectors at each level of facility and professionals was resigned accounted 79.5% from the total reasons given followed by 7.6% for transferred out, 6.9% for upgrade education, 2.1% for dismissal, 0.7% for death and 3.1% for pension. But a study conducted in Kenya, 2005, differed from this study. The main reason in Kenya was at each level of Health facility and when looking at all cadres combined were retirement (accounting for 48% to 58% of the total attrition at average facility, followed by resignation and death). This difference may be due to the difference of socio-demographic character of the study area or Kenya Ministry of health might pay adequate salary for public Health professionals [9,22].

In both FGD and in-depth interview session, Health professionals, managers and human resource mangers stressed on push and pull factor of Health professionals’ attrition from public Health sectors. The most common push factors listed by FGD and in-depth interview participants were inadequate salary and remuneration, weak performance management of Health sectors, poor working environments, lack of professional development and career, lack of transfer and promotion, lack of recognitions for good work, infrequent supervision and support, stress to heavy work overload. In addition, the most common pull factors of recipient organization are the reverse of these. This finding was also similar in a study conducted in East Harerge [16], in Addis Ababa (2004) [11], and in Ghana (2010) [21,23-25].

### 5. LIMITATIONS

Even though health professionals’ attritions expected to be high in rural area of public health institutions, this study was done in urban public health institutions and the study was based on cross-sectional data, which means...
that the direction of causal relationships between attritions and predictor variables can’t be determined. In addition, despite retrospective document review was used, which was difficult to get all documents of after leaving the health institution that may underestimated the magnitude of health professionals attrition.

6. CONCLUSION

From this study we can conclude that the prevalence of health professionals’ attrition from public health sector is high (39.6%). The health professionals’ attrition highly varies across professional categories. Age, sex, education, marital status, workplace, health professional’s category, work experience and current-salary of health professionals were strong predictors of health professionals’ attrition from public health sectors. Overall, the findings have important policy implications for health professional retentions and support the view that investing in health professionals may have substantial benefits to the health system effectiveness. Reducing health professional’s attrition from public health sectors involves providing better essential health service for the entire population and achieving MDGs at large.

7. ACKNOWLEDGEMENTS

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