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Short annotation (approx. 100 words):

This research made the comparison between the National standards of health staff and the existing staff in the Hospitals in both public and private facilities. In most of healthcare providers they were either under staff or completely vacant in both private and public Hospitals and for further comparison private Hospitals were more understaffed than the public. Support and paramedics staff especially in the public General Hospitals were overstaff, which means regional health bureau has recruited more staff out of National Health Service delivery staff standards.

Keywords (minimum 6 - 8 words or phrases):

Health care, Health Facility, Health Workers, Hospital, Human Resource Management, National Standard, Private Health Facility, Public Health Facility

Research question:

The Hospitals' human resource combination and quantities do not comply with national standard.

Text of the paper / article:



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ASSESSMENT OF HUMAN RESOURCE STANDARDS IN PRIVATE AND PUBLIC HOSPITALS IN TIGRAY REGION, ETHIOPIA.

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Date: August 2019

ABSTRACT

Health care is the act of taking preventative or necessary medical procedures to improve a person's well-being. In fact, it is efforts made to maintain or restore physical, mental, or emotional well-being especially by trained and licensed professionals - usually hyphenated when used attributively by health-care providers. Health care can be provided through public and private providers. Private healthcare is more common and is used to describe medical services that are not covered by the government. Sound human resources management practices are essential for retaining effective professionals in Hospitals that are addressing health workforce challenges and developing the health workforce strategy of a country. The overall objective of this study is to assess human resource standards in private and public hospitals in Tigray region, Ethiopia. The collected data was entered into SPSS Software version 25.0 and was cleaned and analyzed. Descriptive analyses of variance and Binary logistic regression and Cross tabulation with Chi-Square was used. The results were summarized as crude and adjusted odds ratios at 95% confidence intervals. The findings of this assessment showed that there was a statistically difference when compared to the national standards of Health staffs in number the existing staffs and level Human resource professionals within both public and private Hospitals.

Keywords: Health care, Health Facility, Health Workers, Hospital, Human Resource Management, National Standard, Private Health Facility, Public Health Facility

1. INTRODUCTION

1.1 Background of the Study



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Health care can be provided through public and private providers. The government through National healthcare systems usually provides public health care. Public health is community health. "Health care is vital to all of us some of the time, but public health is vital to all of us all of the time. "The definition of public health is different from a person to another and from a scholar to another scholar and this is so because every person gives the meaning according to his or her field of study and perspective. Public health can be defined as the science of protecting the safety and improving the health of communities through education, policy-making and research for disease and injury prevention.

Private healthcare is healthcare and medicine provided by entities other than the government. "Private healthcare" is more common and is used to describe medical services that are not covered by the government because it is medical services provided by an entity that is not the government. Unless an individual has some form of private health insurance, the costs for private healthcare services are paid out-of-pocket; also known as "private medicine."

Private health care can be provided through "profit making hospitals, self-employed practitioners and not profit making non-government health providers". There is considerable ideological debate around whether low and middle-income countries should strengthen public versus private healthcare services, but in reality, most low- and middle-income countries including Ethiopia use both types of healthcare provision. (FMOH, 2005).

1.2 Statement of the Research Problem

Global economic depression has put major constraints on government budgets recently. The major funding source for healthcare expenditures in most countries and disputes between the proponents of private and public systems has escalated. Further fueled was by the recommendation of International Monetary Fund (IMF), that countries increase the scope of private sector provision in health care as part of loan conditions to reduce government debt. However, critics of the private health sector believe that public



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healthcare provision is of most benefit to poor people and is the only way to achieve universal and equitable access to health care.

Review of different documents on human resource for health was undertaken. Particular attention was given to documents from Ethiopia. Generally, there is shortage in number of different groups of professionals, mal distribution of professionals between regions, urban and rural setting, and governmental and nongovernmental/private organizations. There is no policy specific to human resource Management (HRM) for health and no proper mechanism to manage the existing health workforce. A number of measures are being taken to alleviate these problems.

1.3 Research Question

Do the Hospitals' human resource combination and quantities comply with national standards?

1.4 Objective of the Study

- i. General objective: Assess the human resource standards on the public and private Hospitals in Tigray Region, Ethiopia.
- ii. Specific objectives
 - To compare the national standards with the number of health professionals and other supportive staffs existed in public and private Hospitals
 - To identify the type and the combinations of health professionals existed in public and private Hospitals

1.5 Research Hypothesis

In other to achieve the objectives of this study, the hypotheses below are considered:

The Hospitals' human resource combination and quantities do not comply with national standard.



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1.6 Significance of the Study

The significance of the studies is:

- i. The primary importance of the study is to assist the policy formulating bodies and decision makers to give due emphasis to HRM in both public and private sectors and devise different mechanisms in order to improve performance in private and public Hospitals in Tigray region, Ethiopia
- ii. The study can be used to address human resource compliance status and improve understanding in the practices of HRM in private and public Hospitals in Tigray region, Ethiopia.
- iii. Finally, the research can be recommended for further study.

1.7 Scope and Limitation of the Study

This study assessed human resource management in private and public Hospitals in Tigray region, Ethiopia by assessing 42 public and private health facilities. The study uses cross-sectional survey and all hospitals and staffs were involved in the study.

2. LITERATURE REVIEW

Doing a review of literature is a critical issue in order to create depth understanding of the research under study and it is used to build a foundation for important ideas. It is also part of research used to describe the results of strongly related studies and to establish the importance of the current study in relation to previous studies. This chapter, presents about different concepts to give comprehensive understanding about HRM.

2.1 Concept Of HRM

HRM is concerned with human beings in an organization. "Management of man is a very important and challenging job because of the dynamic nature of man". Two people are



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not similar in mental abilities, tactics, sentiments, and behaviors; they differ widely also as a group and are subject to many varied influences. People are responsive, they feel, think and act, and therefore they cannot be operated like a machine or shifted and altered like template in a room layout. They therefore need a tactful handling by management personnel.” HRM is the process of managing people of an organization with a human approach. Human resources approach to labor enables the manager to view people as an important resource. It is the approach through which organization can utilize the work force for not only the benefits of the organization but for the growth, development and self-satisfaction of the people concerned (Dr.S.Ganesan, 2014).

2.2 HRM in Private Health Facility in Tigray, Ethiopia

Mainly the government delivers health care. However, the private sector and voluntary organizations also play a significant role in general health care delivery. In Ethiopia the growing size and scope of the private health sector, both for-profit and not-for-profit, offers an opportunity to enhance health service coverage and utilization. The health system development plan (HSDP) has explicitly recognized the complementarities between the two sub-sectors by articulating a strategy to promote the private sector in health-care delivery. The private health sector has expanded rapidly over the past 15 years in line with the government’s privatization policy. Forty (27%) of all the hospitals in Ethiopia are privately owned and 1788 private for-profit clinics are currently providing health services in the country. The majority (94%) of the health workers are in the public sector. However, high-level health professionals, and particularly specialists, are often concentrated in private health facilities. At present, the private sector and voluntary organizations also play a significant role in general health care delivery. However, efforts have been made to increase health service expansion. In Ethiopia, employment by doctors in the private for-profit sector expanded from 1 per cent in 1996 to 17 percent in 2006 and in the not-for-profit sector from 8 per cent to 23 per cent over the same period with more experienced doctors more likely to migrate from the public to the private



sector. This is one of the factors biasing staff in favor of urban placements (Ensor and Soucat et al. 2013).

3. RESEARCH METHODOLOGY

3.1 Research Design

This research work is designed to comparatively assess human resource standards within private and public Hospitals in Tigray region, Ethiopia. The Research design is used to guide the researcher on methods and procedures used in collecting and analyzing measures of the variables.

3.2 Population of the Study

The target population included were all employees working in the private and public Hospitals (General and primary hospitals) in Ethiopia. Since public and private Hospitals existed in Tigray region, employees of forty-two general and primary hospitals (Public and private) found within seven administrative zones were included in the study.

3.2.1 Inclusion criteria

All staffs in the private and public Hospitals who served at least 6 months before the data collection time.

3.2.2 Exclusion criteria

Health extension package worker, all health centers, clinics and private pharmacies was also excluded from the study because it is huge in number but they have small staffed and it is also not proportional with the public health facilities.

3.3 Sample Size

All Public and private Hospitals were assessed



3.4 Instruments of Data Collection

Data were collected using self-administered structured questionnaire. Trained data collectors were used to distribute questionnaires for the employees during their tea or lunch breaks and at the beginning or end of work hours. Written guidelines were given to the administrators of the questionnaire to ensure that each employee receives the same direction and information and the study was utilized both in qualitative and quantitative data collection methods. Primary data were also obtained using questionnaires as well as interviews. Secondary data was sourced from Text books, journals, manuals, national guidelines etc

3.4.1 Quantitative Data

The questionnaires were the method used to generate quantitative data. In handling all the objectives of the study, the researcher used a computer package SPSS where data were entered, edited, cleaned and sorted.

In correlation and regression analysis, the level of significance was, $P=0.05$. Dobson (2002) stresses that, it is important to examine relationships within the data with correlations or regressions.

3.4.1.1 Questionnaire method

The research involves the use of self-administered questionnaires to respondents in relation to human resource management practices in the private and public Hospitals and it was given to Hospital managers.

3.4.2 Qualitative data

To obtain qualitative data, interview and document review was applied. Data analysis of qualitative data in the three objectives of the study was used in content analysis where each piece of work answered in the interview guide was read through thoroughly to identify themes where it belongs.



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3.4.2.1 Document review method

A document review method was used in sourcing for secondary data in all relevant documents in relation to the practices of human resource management on the activity of the private and public Hospitals in Tigray, Ethiopia. These were sourced from federal Ministry of health, Tigray regional health Bureau; Civil service Bureau and other relevant reliable sources. Novak (1996) explain that if secondary research and data is undertaken with care and diligence, it provides a cost-effective way of gaining a broad understanding of research questions and the broader concept under study. Secondary data is also helpful in designing the research and can provide a baseline with which to compare primary data collection results.

3.5 Ethical Considerations

To carry out this research, ethical clearances were requested from the LIGS University and letter of support from Tigray regional health bureau. A letter was issued allowing carrying out the study. Once this is obtained the study was precede. Permission was obtained from each private and public Hospitals of administration office. Then permission from the participants was sought using the permission letter from the head of Tigray regional health bureau. All the participants were required to ascent or sign a letter of information consent. Participants will also be given freedom to withdraw their consent at any time if they are not comfortable. All data and personal information was kept confidential, as no identifying information was required in the questionnaire. Participants may choose not to answer any questions that they may find not comfortable. Returns were given for services and privacy and wishes of the participants is respected at all times.

3.6 Anticipated Limitations to the Study

The businesses being privately owned, employees tend to have limited zeal to participate in the research. Due to such an attitude, it may be cumbersome to locate



some employees and convince them to give extra time to provide some information for the study. However, the researcher fixed as many appointments as he can in order to get the required information from these respondents.

4. DATA ANALYSIS

4.1 Introduction

The study tried to assess the HRM in all general and primary hospitals of public and private health facility in the seven zones of Tigray Regional State, Ethiopia. For this study questionnaires were distributed to human resource managers currently working in 42 public and private general and primary hospitals in the region to assess human resource management. All distributed questionnaires were filled up and returned with response rate of 100%.

Data was cleaned, edited, coded after it was entered into Epi Info version 3.4.3 and exported to SPSS version 25. Using SPSS version 25, descriptive statistics were used to determine indices.

4.2. Comparison between the National Standards of Health Staff and the Existing Staff in the Health Facilities

The hospital shall have Human Resource Department (HRD) which carries out the major functions of Human Resource Management (HRM). Each service units of the hospital shall maintain a sufficient number of staff with the qualifications, training and skills necessary to meet patient needs as per the standard in this research according to national health staff standard try to compare with the existing staffed in the study health facilities and the result was showed as below tables.

Table 4.19: Under staffing Private general Hospital

professionals and staffing: GHP	Required staffs for 3 privet General	Existed staffing for 3 privet General	Difference(e xisted -	Under staffing (existed -
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	Hospitals	Hospitals	required)	required)in%
Accident/Emergency specialist	3	0	-3	100.00
Ophthalmologist (Optional)	3	0	-3	100.00
Pathologist (Optional)	3	0	-3	100.00
Oncologist (Optional)	3	0	-3	100.00
Dermatologist (Optional)	3	0	-3	100.00
ENT specialist (Optional)	3	0	-3	100.00
MD	42	0	-42	100.00
Nurse anesthetist	12	0	-12	100.00
Ophthalmic and Cataract nurse	3	0	-3	100.00
Microbiologist	3	0	-3	100.00
Environmental Health	6	0	-6	100.00
Bio-Medical Engineer	6	0	-6	100.00
Social workers	3	0	-3	100.00
Pharmacist	21	2	-19	90.48
Nurse (Diploma) [ER (6), OPD (17),IPD(12), OR (14), ICU (0)]	147	15	-132	89.80
Midwives	39	4	-35	89.74
BSc anesthetist	12	2	-10	83.33
Radiology technologist	12	2	-10	83.33
Nurses(BSc)[ER(6), OPD (10), IPD (12), OR (14), ICU (6)]	144	26	-118	81.94
Laboratory technologist	21	4	-17	80.95
Pharmacy technician	9	2	-7	77.78
General Surgeon	3	1	-2	66.67
Obstetrician and Gynecologist	6	2	-4	66.67
Internist	3	1	-2	66.67
Pediatrician	3	1	-2	66.67
Orthopedic surgeon	3	1	-2	66.67
Dental Specialist/	3	1	-2	66.67



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Laboratory technician	9	3	-6	66.67
Health Information	6	2	-4	66.67
Supportive staff	189	72	-117	61.90
Anesthesiologist	3	2	-1	33.33
Psychiatrist	3	2	-1	33.33
Physiotherapist	6	4	-2	33.33
Dental professional	6	5	-1	16.67

Source: Ethiopian standard General Hospital– Requirements ES 3614:2012 and from each hospitals document

As shown in the above table 4.19, Accident/Emergency specialist, General practitioner, Nurse Anesthetist, Ophthalmic/Cataract nurse, Microbiologist, Environmental Health, Bio-Medical Engineer and Social workers show 100% totally under staffed.

Staffs which were under standard (80 to 90 %) also were, Pharmacist, Nurse (Diploma) [ER (6), OPD (17), IPD (12), OR (14), ICU (0), Midwives, BSc anesthetist, Radiology technologist, Nurses (BSc) [ER (6), OPD (10), IPD (12), OR (14), ICU (6)] and Laboratory technologist, under staffed.

The percentage 77.78 % were included to under staffed of Pharmacy technician were as the majority type of staff under the standards were included like, General Surgeon, Obstetrician and Gynecologist, Internist, Pediatrician, Orthopedic surgeon, Dental Specialist, Laboratory technician and Health Information and Supportive staff were with the 61.90%.

Whereas the Professional types which were the same percentile (33.33%) Anesthesiologist, Psychiatrist, Physiotherapist and relatively dental professionals (16.67%) were better deviated from standards. In this explanation, the optional were not included.

Table 4.20: Under staffed Public general Hospital

professionals	and	Minimum	Required	Existed	Difference)(existed	Under
staffing: GHP		number	staffing	staffing	-required)public	staffing
		required in	for 14	for 14	General hospitals	(existed -
		one public	public	public		required



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	General hospitals	General hospitals	General hospitals		Public General hospitals in%
Orthopedic surgeon	1	14	0	-14	100.00
Pathologist (Optional)	1	14	0	-14	100.00
Oncologist (Optional)	1	14	0	-14	100.00
ENT specialist (Optional)	1	14	0	-14	100.00
Nurse anesthetist	4	56	0	-56	100.00
Microbiologist	1	14	0	-14	100.00
Ophthalmologist (Optional)	1	14	1	-13	92.86
Anesthesiologist	1	14	2	-12	85.71
Psychiatrist	1	14	3	-11	78.57
Dermatologist (Optional)	1	14	3	-11	78.57
Accident/Emergency specialist	1	14	4	-10	71.43
Obstetrician and Gynecologist	2	28	9	-19	67.86
BSc anesthetist	4	56	24	-32	57.14
Social workers	1	14	6	-8	57.14
Nurse (Diploma) [ER (6), OPD (17), IPD (12), OR (14), ICU]	49	686	352	-334	48.69
Pediatrician	1	14	9	-5	35.71
Dental Specialist/	1	14	9	-5	35.71
Environmental Health	2	28	19	-9	32.14
Health Information	2	28	20	-8	28.57
Dental professional	2	28	21	-7	25.00
Internist	1	14	11	-3	21.43
Bio-Medical Engineer	2	28	26	-2	7.14
MD	14	196	184	-12	6.12
Radiology technologist	4	56	54	-2	3.57



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Physiotherapist	2	28	27	-1	3.57
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Source: Ethiopian standard General Hospital– Requirements ES 3614:2012 and Tigray health bureau document

As shown in the above table 4.20, orthopedic surgeon, Nurse Anesthetist and Microbiologist, showed 100% under staffed. Staff, which were under standard (80 to 90 %), also were, Anesthesiologist under staffed except the optional.

The percentages (70-80%) were included to under staff of Psychiatrist and accident/Emergency specialists were under staffed. The 67.86% also understaffed for the Obstetrician and Gynecologist profession and 57.14% of the professionals, BSc anesthetist and Social workers were under staffed. In addition, 48.69% of Nurse (Diploma) [ER (6), OPD (17), IPD (12), OR (14), ICU] were also under staffed and 35.71% of the professionals of Pediatrician and Dental Specialist were under staffed. The other professionals like, Pediatrician and Dental Specialist were under staffed by 32.14% and the Health Information was under staffed by 28.57 %. The Dental professionals were under staffed by 25.00% and the Internist by 21.43% was under staffed. Whereas the Professional types which were the relatively from 1-10% were included, Bio-Medical Engineer, MD, Radiology technologist and Physiotherapist was under staffed.

Table 4.21: Over staffing public General Hospital

Professionals and staffing: Hospitals	General	Minimum number required in one hospital	Required staffing for 14 public General hospitals	Existed staffing for 14 public General hospitals	Difference(existed -required)	Over staffing (existed - required)public General hospitals %
Specialized nurses (pediatric Master)			0	13	13	Out of standard
Pharmacy technician	3	42	109	67	259.52	



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Supportive staff	63	868	2138	1270	246.31
Nurses (BSc) [ER (6), OPD (10), IPD (12), OR (14), ICU (6)]	48	672	1301	629	193.60
General Surgeon	1	14	24	10	171.43
Midwives	13	182	265	83	145.60
Pharmacist	7	98	118	20	120.41
Laboratory technician	3	42	50	8	119.05
Laboratory technologist	7	98	116	18	118.37
Ophthalmic and Cataract nurse	1	14	15	1	107.14

Source: Ethiopian standard General Hospital– Requirements ES 3614:2012 and Tigray health bureau document

As shown in the above table 4.21, Pharmacy technician were over staffed by 259.52%, Supportive staff were over staffed by 246.31%, Nurses (BSc [ER (6), OPD (10), IPD (12), OR (14), ICU (6)] were over staffed by 193.60%, General Surgeon were over staffed by 171.43% and Midwives were over staffed by 145.60%.

Staff which were over standard (100 to 120%) are also mentioned in the above table, while Pharmacist, Laboratory technician, Laboratory technologist, Ophthalmic and Cataract nurse over staffed. whereas the above mentioned as Specialized nurses (pediatric Master) 10 were employed out of standards.

Table 4.22: Under staffing for public primary Hospitals

Professionals required	Minimum number required standard	Required staffing for 22 public primary hospitals	Existed staffing for 22 public primary hospitals	Difference staffing for 22 (required-existed)public primary hospitals	Under staffing for 22 (required-existed)public primary hospitals in %
MD (licensee)	1	22	0	-22	100.00
Radiology	1	22	0	-22	100.00



professional					
Physiotherapist	1	22	0	-22	100.00
Ophthalmic nurse	1	22	1	-21	95.45
Dental professional	2	44	4	-40	90.91
Pharmacist	4	88	8	-80	90.91
Radiographer	2	44	6	-38	86.36
Laboratory	4	88	19	-69	78.41
technologist					
Psychiatric nurse	1	22	10	-12	54.55
BScanesthetist/nurse	2	44	22	-22	50.00
anesthetist					
Supporting staff	40	880	644	-236	26.82
Emergency surgical	1	22	19	-3	13.64
officer					
Health Information	1	22	20	-2	9.09
Laboratory	2	44	41	-3	6.82
technician					
Environmental	1	22	21	-1	4.55
Health					

Source: Ethiopian standard primary hospital – Requirements ES 3617:2012 and Tigray health bureau document

As shown in the above table 22, Radiology professional and Physiotherapist shows 100% under staffed. Staff which were under standard (90 to 99 %) also were ophthalmic nurse, Dental professional and Pharmacist.

The percentage 86.36% were listed in under staffed of Radiographer and Laboratory technologist by 78.41%, Psychiatric nurse by 54.55% and BSc anesthetist/nurse anesthetist by 50.00% were under staffed. The others supporting staff were under staffed 26.82%, Emergency surgical officer were under staffed 13.64%, whereas the Professional types which were, Health Information, Laboratory technician and Environmental Health are under staffed by the percentage of 10-20%.

Table 4.23: Over staffing for public primary Hospitals



Professionals required	Minimum number required standard of hospital	Required staffing for 22 public primary hospitals	Existed staffing for 22 public primary hospitals	Difference staffing for 22 (required-existed)public primary hospitals	Over staffing for 22 (required-existed)public primary hospitals in %
Health officer (HO)	2	44	118	74	268.18
Midwives	4	88	148	60	168.18
Pharmacy technician Druggist	2	44	65	21	147.73
Nurses (BSc)	5	110	147	37	133.64
MD(specialist)	3	66	85	19	128.79
Nurse (Diploma)	20	440	496	56	112.73

Source: Ethiopian standard primary hospital – Requirements ES 3617:2012 and Tigray health bureau document

As shown in the above table, the Health officer (HO) was with 268.18% over staffed which was over standard in the public primary Hospitals. In addition Midwives 168.18% are also over staffed.

The percentages of 147.73% in Pharmacy technician (Druggist) were included to over staff in public primary hospitals.

Whereas the Professional types which were, Nurses (BSc) 133.64%, MD (specialist) 128.79% and Nurse (Diploma) 112.73% in the public primary Hospitals were over staff.

Table 4.24: Under staffing for private primary Hospitals

Professionals required	Minimum number required standard	Required staffing for 3 privet primary	Existed staffing for 3 privet primary	Difference staffing for 3 (required-existed)Private primary	under staffing for 3 (required-existed)Private primary
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Emergency surgical officer	1	3	0	-3	100.00
Ophthalmic nurse	1	3	0	-3	100.00
Psychiatric nurse	1	3	0	-3	100.00
Dental professional	2	6	0	-6	100.00
Environmental Health	1	3	0	-3	100.00
Health Information	1	3	0	-3	100.00
Pharmacist	4	12	3	-9	75.00
Supporting staff	40	120	35	-85	70.83
Health officer (HO)	2	6	2	-4	66.67
BScAnesthetist/nurse anesthetist	2	6	2	-4	66.67
Laboratory technologist	4	12	4	-8	66.67
Nurse (Diploma)	20	60	21	-39	65.00
Midwives	4	12	8	-4	33.33
Physiotherapist	1	3	2	-1	33.33
Nurses (BSc)	5	15	11	-4	26.67
Radiographer	2	6	5	-1	16.67
Pharmacy technician (Druggist)	2	6	5	-1	16.67
Radiology professional	1	3	3	0	0.00

Source: Ethiopian standard General Hospital– Requirements ES 3617:2012 and from each hospitals document

As shown in the above table 24, Emergency surgical officer, ophthalmic nurse, Psychiatric nurse, Dental professional, Environmental Health and Health Information of private primary Hospitals show 100% under staffed.



Staff which were under standard (70 to 80 %), also were Pharmacist. Supporting staff were also under staffed.

The percentage (60-70%) were included to be under staffed of Health officer (HO), BSc anesthetist/nurse anesthetist, Laboratory technologist. Nurse (Diploma) of private primary Hospitals were under staffed and the staff percentage (30-40%) of Midwives, Physiotherapist were under staffed. Moreover, 26.67 % Nurses (BSc), Staffs which were under staffed.

Whereas the Professional types Radiographer and Pharmacy technician (Druggist) relatively better deviated from standards in the range of percentiles (10-20%). Whereas the Radiology professional in the private primary Hospitals were in the normal standard.

Table 4.25: Over staffing for private primary Hospital

Professionals required	Minimum number required standard	Required staffing for 3 private primary hospitals	Existed staffing for 3 private primary hospitals	Difference staffing for 3 (required-existed)Private primary hospitals	Over staffing for 3 (required-existed)Private primary hospitals %
MD(specialist)	3	9	17	8	188.89
Laboratory technician	2	6	7	1	116.67

Source: Ethiopian standard General Hospital– Requirements ES 3617:2012 and from each hospitals document

As shown in the above table 4.25, MD (specialist) was over staffed with 188.89% in the private primary Hospital. Whereas the Professional types Laboratory technician, which were 116.67% are over staffed.

4.3 Hypothesis Testing



➤ **H0₁: THE HEALTH CARE FACILITIES' HUMAN RESOURCE COMBINATION AND QUANTITIES DO NOT COMPLY WITH NATIONAL STANDARD**

Table 4.28 Human resource combination

Correlations		Pearson Correlation	P value
Human resource combination with quantities with national standard	privet General hospitals *	.973	.000
	Public General hospitals **	.968	.000
	Public Primary hospitals ***	.954	.000
	Private Primary hospitals ****	.907	.000

Source: Own computation (2019)

Direction: there is Positive correlation between privet General hospitals and Human resource combination with quantities with national standard.

Interpretation: our significant level is less than 0.05 which is .000. So, we have evidence that to reject the null Hypothesis which means that there is a difference in Human resource combination with quantities from national standard in privet General hospitals. *

Conclusion: privet General hospitals did not meet Human resource combination with quantities from national standards *

Direction: there is Positive correlation between Public General Hospitals and Human resource combination with quantities with national standard.

Interpretation: our significant level is less than 0.05 which is .000. So, we have evidence that to reject the null Hypothesis which means that there is a difference in Human resource combination with quantities from national standard in Public General Hospitals**



Conclusion: Public General Hospitals did not meet Human resource combination with quantities from national standards.

Direction: there is Positive correlation between Public Primary Hospitals and Human resource combination with quantities with national standard.

Interpretation: our significant level is less than 0.05, which is .000. Therefore, we have evidence that to reject the null Hypothesis which means that there is a difference in Human resource combination with quantities from national standard in Public Primary Hospitals.

Conclusion: Public Primary hospitals did not meet Human resource combination with quantities from national standards.

Direction: there is Positive correlation between Private Primary Hospitals and Human resource combination with quantities with national standard.

Interpretation: our significant level is less than 0.05 which is .000. So, we have evidence that to reject the null Hypothesis which means that there is a difference in Human resource combination with quantities from national standard in Private Primary Hospitals

Conclusion: Private Primary hospitals did not meet Human resource combination with quantities from national standards.

4.4 Discussion of Findings

4.4.1 Discussion on Comparison of Health Professional's Competence, Compliance with the National Guideline in the Public and Private Health Facilities

➤ General Hospitals

When we see the result on the table 4.19, table 4.20, and table 4.21, Staff like Accident/Emergency specialist, General practitioner, Nurse Anesthetist,



Ophthalmic/Cataract nurse, Microbiologist, Environmental Health, Bio-Medical Engineer and Social workers in Private General Hospital are totally absent which means they do not have such professionals. But compared with Public General Hospitals there were 28.57% Accident/Emergency specialist, 107.14% Ophthalmic/Cataract nurse , 93.88% General practitioner, 67.86 % Environmental Health, 92.86% Bio-Medical Engineer and 42.86% Social workers.

From this finding we can realize that Public General Hospitals met the national standards specially professionals like General practitioner and Ophthalmic/Cataract nurse.

Pharmacist, Nurse (Diploma) Midwives, Radiology technologist, Nurses (BSc) and Laboratory technologist in Private General Hospital accounts from 10 to 20% meet the national standards. Whereas in Public General Hospitals 120.41% Pharmacist, 51.31% Nurse (Diploma), Midwives, 145.60% Midwives, 96.43 % Radiology technologist, 193.60% Nurses (BSc), 118.37% Laboratory technologist.

From this output, we can declare that professionals like Pharmacist, Midwives, Nurses (BSc), Laboratory technologist were over staffed or Public General Hospitals employed more staffs out of national standards during the study period.

Health professionals like General Surgeon, Obstetrician and Gynecologist, Internist, Pediatrician, Orthopedic surgeon, Dental Specialist, Laboratory technician, Health Informatics and Supportive staff meet 38.1% from national standards in Private General Hospitals. When we see those professionals in public general Hospital General Surgeon (171.43%), Obstetrician and Gynecologist (32.14%), internist (78.57%), Pediatrician (64.29%), Dental Specialist (64.29%), Laboratory technician (119.05%), Health Informatics (90.91%) and Supportive staff (73.18%).

From this output also I can announce that General Surgeon and Laboratory technicians were employed over standard. Others like internist, Pediatrician, Dental Specialist,



Health Informatics and Supportive staffs met more than 60% for national standards, and I found there was no orthopedic surgeon employed in Public General Hospital.

The study conducted in title of Comparative Performance of Private and Public Healthcare Systems in Low- and Middle-Income Countries: Assessing for Comparative Performance of Private and Public Healthcare showed similar results with my research output that there was difference about the comparison of health professional's competence, compliance with the national guideline in the public and private health facilities. (Basu, S., Andrews, J., Kishore, S., Panjabi, R. and Stuckler, D., 2012).

➤ Primary Hospitals

When we see the result on the table 4.23, table 4.24, table 4.25 and table 4.26, Staff like Emergency surgical officer, Ophthalmic nurse, Psychiatric nurse, Dental professional, Environmental Health and Health Information in the private primary Hospitals were totally vacant. Compared with public primary Hospitals; General practitioner, Radiology professional and Physiotherapist also were absent which means they do not have such professionals in the hospitals.

Emergency surgical officer (86.36%), ophthalmic nurse (4.55%), Psychiatric nurse (45.45%), Dental professional (9.09%), Environmental Health (95.45%) and Health Information (90.91%) staffs were employed in public primary Hospitals as per standards of National human resource guidelines.

From this finding we can realize that Public primary Hospitals met the national standards specially professionals like Emergency surgical officer (86.36%), Health Information (90.91%), Environmental Health (95.45%), Laboratory technician (93.18%), Supporting staff(73.18) and BSc anesthetist/nurse anesthetist. Whereas private primary Hospitals met to the national standards like Radiology professional (100%), pharmacy technician (Druggists) (83.33%) Radiographer (83.33%), Nurses (BSc) (73.33%), Physiotherapist (66.67%), Midwives (66.67%), Nurse (Diploma) (35%), Laboratory technologist



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(33.33%), Supporting staff (29.17%) Health officer (HO) (33.33%), BSc Anesthetist/nurse Anesthetist (33.33%) and Pharmacist (25%).

The output of this research also showed that professionals like health officer (HO) (268.18%), Midwives (168.18), Pharmacy technician (Druggist) (147.73%), Nurses (BSc) (133.64%), MD (Specialist (128.79%) and Nurses Diploma (112.73%) were over staffed in Public Primary Hospitals. Whereas when we saw professionals in Primary Hospitals Private, MD specialist (188.89%) and Laboratory Technician, (116.67 %) were over staffed in which means they employed more staffs out of the national standards during the study period.

4.9.2 Discussion on Comparison of Health Professional's Competence, Compliance with the National Guideline in the Public and Private Health Facilities

➤ General Hospitals

When we see the result on the table 4.19, table 4.20, and table 4.21, Staffs like Accident/Emergency specialist, General practitioner, Nurse Anesthetist, Ophthalmic/Cataract nurse, Microbiologist, Environmental Health, Bio-Medical Engineer and Social workers in Private General Hospital are totally absent which means they do not have such professionals. But compared with Public General Hospitals there were 28.57% Accident/Emergency specialist, 107.14 % Ophthalmic/Cataract nurse , 93.88% General practitioner, 67.86 % Environmental Health, 92.86% Bio-Medical Engineer and 42.86% Social workers.

From this finding we can realize that Public General Hospitals met the national standards specially professionals like General practitioner and Ophthalmic/Cataract nurse.

Pharmacist, Nurse (Diploma) Midwives, Radiology technologist, Nurses (BSc) and Laboratory technologist in Private General Hospital accounts from 10 to 20% meet the national standards. Whereas in Public General Hospitals 120.41% Pharmacist, 51.31%



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Nurse (Diploma), Midwives, 145.60% Midwives, 96.43 % Radiology technologist, 193.60% Nurses (BSc), 118.37% Laboratory technologist.

From this output, we can declare that professionals like Pharmacist, Midwives, Nurses (BSc), Laboratory technologist were over staffed or Public General Hospitals employed more staffs out of national standards during the study period.

Health professionals like General Surgeon, Obstetrician and Gynecologist, Internist, Pediatrician, Orthopedic surgeon, Dental Specialist, Laboratory technician, Health Informatics and Supportive staff meet 38.1% from national standards in Private General Hospitals. When we see those professionals in public general Hospital General Surgeon (171.43%), Obstetrician and Gynecologist (32.14%), internist (78.57%), Pediatrician (64.29%), Dental Specialist (64.29%), Laboratory technician (119.05%), Health Informatics (90.91%) and Supportive staff (73.18%).

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➤ Primary Hospitals



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The output of this research also showed that professionals like health officer (HO) (268.18%), Midwives (168.18), Pharmacy technician (Druggist) (147.73%), Nurses (BSC) (133.64%), MD (Specialist (128.79%) and Nurses Diploma (112.73%) were over staffed in Public Primary Hospitals. Whereas when we saw professionals in Primary Hospitals Private, MD specialist (188.89%) and Laboratory Technician, (116.67 %) were over staffed in which means they employed more staffs out of the national standards during the study period.



5. CONCLUSION

5.1 Conclusion

This research made the comparison between the National standards of health staff and the existing staff in the Hospitals in both public and private facilities. In most of healthcare providers they were either under staff or completely vacant in both private and public Hospitals and for further comparison private Hospitals were more understaffed than the public. Support and paramedics staff especially in the public General Hospitals were overstaff, which means regional health bureau has recruited more staff out of National Health Service delivery staff standards.

5.2 Recommendation

The National human resources standard was set for better health care provision in both public and private Hospitals but the output of this research showed that there is a big gap between National human resource standard and real set up so due to such reasons I recommended the following points.

- National health system guidelines should be inspected or revised.
- There should be an equilibrium human resource combination and professionals competency between public and private Hospitals
- Further research should be conducted to strengthen the findings of this research.

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Doctoral Supervisor's feedback (approximately 100 words):

The supervisor critically reviewed the thesis and the purpose was clearly and concisely stated. The hypotheses were tested and it served to help explain the problem while the refereeing processes also contributed to the thesis accuracy.

The methods used to gather the data for this article were clearly explained. The instruments and development were explained, and the reliability coefficients of all possible tests were given.

The content, structure and strengths were analyzed and the article has contributed to the literature in terms of its valuable critique of current research study, 'Assessment of human resource standards in private and public hospitals in Tigray region, Ethiopia'.

I enjoyed the learning experience and the thesis is well written.