THE EFFECT OF PRIVATE WING SET UP ON WORK PERFORMANCE OF HEALTH PROFESSIONALS AT PUBLIC HOSPITALS IN ADDIS ABABA

ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH SCIENCE SCHOOL OF PUBLIC HEALTH

By: - TSIGE METAFERIA MENGESHA

ADVISOR: - Dr ANAGAW DERSEH (PHD)

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Declaration

I, the undersigned, declared that this is my work and that all sources of materials used for this Thesis has duly acknowledged.

Name: Tsige Metaferia

Signature: _____ Date of submission:_____

Place: Addis Ababa, Ethiopia

This thesis has been submitted for examination with my approval as University advisor.

Name of advisor: Dr Anagaw Derseh

Signature_____ Date_____

Signed by the examining committee _____

Name of examiners

Internal Examiner _____ External examiner_____

Signature _____ Signature _____

Date_____ Date _____

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ABBREVIATIONS AND ACRONYM

CMR	Child Mortality Rate
EDHS	Ethiopia Demographic Health Survey
EFY	Ethiopian fiscal year
ETB	Ethiopian birr
FMOH	Federal Ministry of Health
HC	Health center
HCFR	Health Care Financing Reform
HRH	Human resource for health
HRM	Human Resource for Health
HS	Health service
HSDP	Health Service Development Program
HSFR	Health Sector Financing Reform
IMR	Infant Mortality Rate
MDG	Millennium Development Goals
MMR	Maternal Mortality Ratio
NHA	National Health Account
PW	Private Wing
UFM	under Five Mortality Rate
UNDP	United Nations Development Program
USAID	United States Agency for International Development
WHO	World health organization

ABSTRUCT

Introduction Private Wing is an official arrangement implemented as one component of health care financing with the primary objective of improving health workers' retention, providing alternatives and choices to private health service users, and generating additional income for health facilities**.** Despite the government's effort to tackle this problem, the shortage and high turnover of health workers has become a severe setback in Ethiopia.

Objective: To assess the effect of private wing set up on interest to provide service during private wing hours and work performance of health professionals at public hospitals in Addis Ababa.

Methods: Institutional based cross- sectional study was conducted. The total sample size is 299. The data was entered and analyzed using SPSS version 22 statistical package and multiple logistic regression models were used to assess factors driving the interest of health workers to participate in private wing services and the effect of private wing set up on work performance. A 95 % confidence interval and 5% level of precision utilized to check for association between variables of interest.

Results: Based on the results monthly income, occupation and par time working were the major determinant factors for willingness (interest) to participate at private wing. From the total participants who are not working at private wing (n=141), 57(40%) of professionals have interest to participate at private wing and 84(60%) do not have interest. Monthly income, working per time in private clinics, and professions were influencing the interest of individuals to participate in private wing set up. Participating in private wing set up was found to be negatively affecting the regular time activities of the health workers [(AOR=0.25, 95% CI 0.15-0.43)]

Conclusion: This study has gone some way towards enhancing our understanding of the major determinant factors that professionals interest to participate at private wing set up of and effect of private wing set up on their work performance as well. It is found that those professionals have low income have more interest to participate than those have high monthly income and profession also a factor to the interest to participate at private wing thus, medical doctors are more interested to participate at private wing than other professionals and private wing set up participation has a negative effect on professional's work performance.

1. INTRODUCTION

1.1. Background

Ethiopian ministry of health designed and implemented private wing services as part of the bigger health care financing reform aged in 2008, with the primary objective of improving health workers' retention, providing alternatives and choices to private health service users, and generating additional income for health facilities [1].

As described by federal ministry of health, private wing is an official arrangement according to which medical services are provided on a fee-for-service basis during off regular working hours for those patients who can afford for healthcare services. Private wing set up can increase the ownership of the hospital services by health professionals. It also helps to reduce the turnover of skilled manpower through additional compensation, and to motivate staff members to provide more and better service [1, 2].

The performance of health organizations also depends on the knowledge, skills, and motivation of medical staff. Health workers are strategic actors in the health system; and they can facilitate or hinder policy development and implementation; they are the most important part of the recurrent budget for health in low and middle income countries consisting 60-75% of the overall health budget [3].

Currently there are insufficient health personnel in terms of numbers and level of performance, including low motivation and high turnover of experienced and competent medical doctors. According to World Health Organization, it is unlikely to reducing child and maternal mortality rates in low income counties unless human resources crisis are addressed [4].

Estimates of numbers and density of the health workforce currently participating in the health labor market data indicate that, globally, there are 13 physicians per 10 000 populations, with large variations between countries and regions. In the African Region, there are only 2 physicians per 10 000 compared with 32 per 10 000 in the European region. Globally, there are 28 nurses and midwives per 10 000 populations, ranging from a low of 11 per 10 000 in the African Region to a high of 79 per 10 000 in the European Region [5].

1.2. Statement of the problem

Inadequate attention to human resource issues in the health sector has also contributed to serious problems in many health systems, including internal and external brain drain, unequal geographical distribution of health workers, low morale and informal charging [6].

In Africa, low salaries and poor working conditions have a significant role in slowing from the successful implementation of the health system and have powerful impact of the brain drain. Recent literature shows that Africa is losing its skilled health workers at an alarming rate [7]. Consequently, health service provision has been adversely affected, especially in remote localities [7]. According to ECA/IDRC/IOM (2000), Africa is losing its 'best and brightest' to the industrialized world. These 'brains' constitute a significant proportion of the human capital necessary to establish a solid foundation for economic growth. Since it is usually the 'best and brightest 'professionals who are mostly probable to migrate. The brain drain presents socio-economic challenges for developing countries such as Ethiopia [8].

Though there are no gold standards for assessing the sufficiency of the health workforce, WHO estimates those countries with fewer than 23 health-care professionals (counting only physicians, nurses and midwives) per 10 000 populations will be unlikely to achieve adequate coverage rates for the key primary health-care interventions prioritized by the sustainable development goal [5]. Africa also faces all the above challenges including shortage of health workers, increased caseloads for health workers due to migration of skilled health personnel, and the double burden of disease that affect both the general population and health personnel in its health system implementation [6]. When staff members available, their performance is determined by productivity, awareness and competence, even though these elements influenced by absenteeism,

Although Ethiopia is one of the countries with highest number of health workers in sub-Saharan Africa, still it's with a very low health worker to population ratio, 1000 population to 0.84. These results are far less than the standard set by the World Health Organization of 2.3 per 1000 population [9]. Despite the government's effort to tackle this problem, the shortage and high turnover of health workers has become a severe setback and the county is one of 57 countries considered to have a health workforce crisis. The unsatisfactory health service delivery conditions combined with continued high population pressure, high attrition rate and the growing

need for modern health care has led to a widening gap between the demand for care and the financial resources available to satisfy these needs [10].

Thus retention of highly qualified staff has become a major problem also in Ethiopia. Between 1987 and 2006, 73.2% of Ethiopian medical doctors left the public sector mainly due to attractive payment in foreign countries, local NGO's and private sectors. Unless the proper corrective measure is taken, the problem will even get worse in the coming years [11].

Most previous studies done on private wing set up in Ethiopia focuses on the general effects of health care financing reform on quality of health service regarding private wing service and about the practice and challenges of private wing as well as the role of private wing in association with medical professional's turnover but did not examine the effect of health care provision during private wing service hours on the work performance during regular work hours. Therefore, it is important to understand the effect of private wing set up in association with work performance of health workers. This study aims to fill the above mentioned gap by examining the association between private wing set up and regular hour performance of health care professionals at public hospitals in Addis Ababa.

1.3. Significance of the study

From private wing set up service perspective: the key considerations of establishment of PW are that this service shall not negatively affect the services given in the general ward, in addition there should be no difference in quality of care between the PW and the general ward and the establishment of PW must not compromise the drive to reduce waiting times in the general wards [12].

Identifying the effect of private wing set up on work performance of health professionals would help to have a broad and recent picture on private wing set up in association with work performance of professionals regular working hour either negatively or positively and provide some knowledge and insight in to the service providers by giving important information for decision making on service provision and utilization as well as to be used to identify best practices and lessons learned for future practice. Moreover, the paper will provide insightful information for those who would like to conduct further study in the area. It may also contribute to current knowledge of the quality of service provided at the private wings of public hospitals

2. LITERATURE REVIEW

2.1. Theoretical literature review

In the theoretical part of the literature review, the current health situation of Ethiopia in the implementation of health sector reforms will be assessed (since private wing is one of the components of health sector reform). Literatures that can explain the quality of health service are referred and reviewed.

2.2. Current health status of Ethiopia

Ethiopia is the second most populous country in Africa, following Nigeria with a steadily growing population of 102,403,196 million [13]. Which is a mainly rural country with only 17% of the population living in urban areas, the health situation and the percentage of the population with access to primary health care is one of the lowest in the world and estimated life expectancy at birth is 62 for males and 65 for females by 2014. Per capita health expenditure of the country is only $16.1, in 2007/08 which is far less than the World Health Organization (WHO)'s recommendation $34 in 2001, revised to US$ 60 by 2015 which is also low compared with Ethiopia's peer countries [14].

Poor health care financing is one of the major challenges for the health system of Ethiopia. Although the health financing in Ethiopia comes from a variety of sources, direct out-of-pocket spending accounts for a significant portion of health sector spending in the country [15] An increase in out of pocket expenditure can have catastrophic effects and may deplete a household's ability to generate current and future income and have inter-generational consequences as households may be obliged to incur debt, sell productive assets, draw down buffer food stocks, or sacrifice children's education [16].

The World Bank estimation indicates out of pocket health expenditure in Ethiopia was 79.87% in 2011. This figure is higher compared to then 62.2 % in Sub Saharan Africa during the same period, and the total health spending in Ethiopia is still far from adequate to buy good health care [15].

According to FMOH (HSTP) 2015 over the last 20 years, Ethiopia has successfully implemented its strategy of expanding and rehabilitating primary health care facilities. To this effect, 16,440 health posts, 3,547 health centers and 311 hospitals have been constructed [12]. Though these

achievements are encouraging compared to the previous years, Ethiopia's health sector is far from delivering what is required and the health status of the population also still poor. As UNDP 2016 report Ethiopia's HDI (human development index) value for 2015 is 0.448 which put the country in the low human development category positioning it at 174 out of 188 countries and territories [10].

Ethiopia experiences a heavy burden of disease mainly attributed to communicable infectious diseases and nutritional deficiencies. Thus, 90% of child death from different cause's communicable disease accounts more. Even though there is potential health service coverage improvement, utilization rate still remains low at 0.36 outpatient visits per capita [17].

According to FMOH (2015), the country experiences high child and maternal mortality rates. For instance, in 2014/15, infant mortality rate (IMR) was 44 per 1000 live births, under five mortality rate (UFM) was 64 per 1000 live births and maternal mortality ratio (MMR) accounted to 420 per 100,000 live births, which are still high figures as compared to the rest of the world. Access to primary health care and coverage of the Expanded Program on Immunization (EPI) were 90.3 percent, ANC coverage of at least four visits 67.9 percent, prevalence of underweight in less than five years is 25 percent, Delivery attended by skilled attendants 60.7 percent Detection rate of Tb (all forms) is 67.3 percent and the prevalence of HIV is 0.03 percent from the base line of 1990, 2.4 percent [18].

The low level of health service delivery is due partly to the low level of health sector financing, including shortage and high turnover of health professionals, and inadequacy of essential drugs and supplies have contributed to one of the highest maternal and child mortality rates which are vital indictors of health status of a given country [19].

2.3. Health care financing reform in Ethiopia

In the past several decades, overall health budget in Ethiopia was limited which resulted in inadequate access to health services for majority of the Ethiopian population, and particularly for poorest segments of the population. In order to overcome such challenges, by mobilization of health finance from domestic sources and thereby to expand healthcare coverage, the Ethiopian government issued its health policy in 1993 with the vision for the health sector development for the next two decades by recognizing the health services delivery system with the objective of

contributing positively to the overall socioeconomic development effort of the country. Major aspects of this policy focus on financial and political decentralization, expanding the primary health care system, and encouraging partnerships and the participation of nongovernmental actors [14]. In accordance with the Health Sector Development Program (HSDP) was developed in1997/98, as well as a healthcare financing strategy in 1998 [20].

The main objective of the implementation of health care financing reform is to address the overall infrastructural as well the general dysfunctional health care system of the country. This will be done through the goals;

- Identifying and obtaining resources that can be dedicated to preventive, curative, and rehabilitative health service.
- Increasing absolute resources to the health sector
- Increasing efficiency in the use of available resources
- Promote sustainability of health care financing and improve the quality and coverage of health services [21].

The principal components of health care financing reform are revenue retention and utilization at health facility level, systematizing a fee-waiver system, standardizing exemption services, and outsourcing of nonclinical services in public hospitals, setting and revising user fees, initiating health insurance schemes, and establishing private wings in public hospitals and establishing health facility autonomy through the introduction of a governance system [21, 22]. Since the start of implementation of the HCFR, regions formulated proclamation, regulations, directives, and implementation manuals to align with the national strategy.

Prior to the HCF reform, financing rules required that all revenues collected by health facilities be transferred to the Regional Finance Bureau/Ministry of Finance (RFB/MOF). There was no direct benefit for health centers and hospitals from any of the fees collected, suffered from shortages of essential drugs and supplies. It was frustrating to health providers and has no option to unlimited resources to improve quality of care, nor incentives to introduce innovative management practices. There was no formal fee waiver policy and no reimbursement of cost-of-fee waivers. Consequently, waiver grantors had little incentive to control outflow [24].

In 2011, the revenue retained accounted for an average of 36.3 percent of the total health budget in 146 health centers [12]. As a result, the retained revenue has improved the availability of essential medicines, diagnostic equipment and medical supplies. It is also used for renovation and expansions of rooms and staff housing. Additionally, the health facilities were able to cover a significant proportion of their utility bills [24]. The implementation of the new fee waiver system, which targets underserved populations, protects the poor and promotes equity within the system. The standardization and promotion of exemption schemes extends the reach of key preventive and health promotion programs which reduce disease burden. Other important achievements of the reforms include: improved health facility governance, increased outsourcing of nonclinical services in public hospitals, improved capacity in financial management, and increased utilization of health care through the piloting of health insurance schemes [12]. As Ethiopia's(NHA) different years showed, due to the aggressive efforts to mobilize international funding and implementation of the health care financing reform (HCFR) in Ethiopia the total spending on health has been growing steadily from ETB 11.1 billion (US$1.2 billion) in 2007/08, reached to ETB 26.5 billion (US$ 1.64 billion) in 2010/11, and the total health spending on health also grew by 138% in 2010/11 compared to the total budget estimated in 2007/08. Per capita health expenditure also increased from US$ 16.10 to US$ 21 in the same period.

During the reform phase some operational challenges were observed in the governance of health facilities. Most facilities noted a high turnover of governing body/board members as a result of their busy work schedules and absence of incentive mechanisms as their major challenges or constraints that has been solved by taking different Measures including continuous discussion with the concerned bodies [27].

2.4. Private wing set up in Ethiopia

Since medical professionals' turnover is a serious problem in developing countries, different intervention mechanisms to overcome the problem are emerging. Similarly, the Ethiopian government introduced health care financing reform including private wing establishment in public hospitals as one component which was launched in 2008 [1]. According to Federal ministry of health manual, important core frames with the objectives of establishing PW are; -

- Increase motivation and reduce attrition rate of health workers,

- Improve the quality of health services,
- Mobilize additional resources and subsidize the general ward,
- Provide alternative care access for clients and help hospitals to be self-sustaining in the long run and carry out the basic health service and disease prevention policy of the government [27].

Private Wing in public facilities of Ethiopia provides diagnostic and treatment services at market or quasi market rate and offers the opportunity to provide benefits for patients, staff and the health Facility with a higher level of conveniences and customer service. The contribution of private wing set up extends for patients, health workers and health facilities. For the patients, the benefit of using private wing services includes clean, more comfortable and secured environment, more convenient appointment times, personal choice of doctor and a better work environment caring for people with an increased level of patient satisfaction. For eligible employees; working in private wing services hour has a potential to increase earnings. Benefits for the health facility include retaining qualified facility staff, increase revenue for institutional improvement, upgraded equipment, computer systems, new clinical services and additional investment in staff training, etc. [28].

In order to use the existing health equipment and human power, it was planned to establish PW in the compound of the existing health facility. The source of initial capital was from donor finance, credit from the retained health facility revenue without any interest, support from government budget and other sources. On Service Integration/Segregation point of view, PW does not affect the services given in the general ward, it can use at no cost the facility infrastructure, registration and recording formats, request and prescription papers & equipment. The PW should pay at cost for consumables that it uses.

According to the design of the reform, necessary conditions which need to be fulfilled in order to establish a PW are**;**

- The health facility should set up a PW to provide those services that the facility has established a good reputation for or has a comparative advantage providing when compared to other facilities.

- The health facilities should make sure they have the necessary health and supporting staff available, and will not negatively affect the services given in the general ward.
- The health facilities should make sure that the space of the PW is sufficient and convenient to clients and should not crowd out the general ward.
- The establishment of the PW must be approved by the facility governing board or by the legally responsible body with different approaches or options for providing PW service like Technical Advisory Group (TAG) [26,].

Private wings at public health facilities have shown a positive development at federal level as well as at the regional levels. According to (HSDP Mid-Term Review, 2005 EFY) 31 private wings have been operationalized in five regions and at federal hospitals. The average numbers of patients served were ranges from 50 to 2,916, with the overall average being 1,492 patients per quarter [30]. Despite such promising progresses, the progress made in terms of implementing private wing services in the country is so slow.

2.5. Empirical part of literature review

Various studies related directly or indirectly with the objectives of the present study reviewed in this section.

A study done in India on the performance of CHW in 16 villages from two administrative blocks; of Udaipur district in Rajasthan, The result shows that an ASHA's (Accredited Social Health Activists) motivation and performance are affected by a variety of factors that emerge from the complex context in which she works. These include various personal (e.g. education), professional (e.g. training, job security), and organizational (e.g. infrastructure) factors along with others that emerge from external work environment [31].

Another study done in Namibia on the performance of nurses by using a quantitative, descriptive survey of questionnaire based. The result of the study on factors affecting the performance of nurses negatively were identified such as: lack of recognition of employees who are performing well, quality performance outcomes and an absence of a formal performance appraisal system and poor working conditions. Various factors contribute to both the positive and negative performance of professional nurses in Namibia. Strategies were developed for addressing the negative factors that could positively affect the performance of professional nurses in Namibia. The result of the study emphasizes the importance of developing strategies to promote the

performance of nurses; build knowledge and expertise; develop mechanisms for improving the performance of nurses; expand leadership and management capacity; and generate information and knowledge through research [32].

Another study done in Kenya on the performance appraisal on health workers performance in public hospitals using a method of cross sectional descriptive and exploratory research, the sample size of 179 respondents general HWs' performance was determined on scores of competence, productivity, availability and responsiveness dimensions evaluated on a 3-level scale coded as disagree (1), undecided (2) and agree (3); summed up and expressed as a percentage of total possible score. The mean performance was 57.6% with a standard deviation of 4.2%. The average HWs' competence score was 65.9. [33]

In the Ethiopian context, similar work performance assessment was done at Jimma University specialized hospital using 1500 staffs among which 515 were nurses. The authors measured work performance using factors such as attendance and punctuality, sick and emergency leave, improving personal skills, relationship with patients, quality of work, and relationship with superior, relationship with colleagues, improving work methods. The overall performance is rated at mean of 3.75, which indicate that good performance on the five point Likert scale. [29]

Another study done in Ethiopia on the effects of Health Care Financing Reform particularly private wing set up on quality of health service in Addis Ababa public hospitals. It is found that patients were highly satisfied with the services provided by private wing arrangement. Among fully responded patients, 89% of them were satisfied with professionals' courtesy and respect and listening and 98.4% was satisfied with professional's explanation of things in away patients could understand. A relatively low satisfaction of patients which was reported in the professionals' characteristics was professionals' advice and information sharing of clients, 43.8% and 70.6% respectively [36].

Similarly, another study done in Addis Ababa Ethiopia about the role of private wing set up in public hospitals in reducing medical professionals' turnover using (both qualitative and quantitative) or mixed research approach. This study was conducted on that government owned five hospitals under Addis Ababa health bureau that have private wings. The population of the study was all health professionals in the five hospitals with diploma and above academic qualification in their field of work. According to AAHB (2014), there are 1,281 health

professionals in the five hospitals that have diploma and above qualification.15% (192**)** medical professionals were purposively selected as a sample to fill the questionnaires. Then the finding revealed that medical professionals' level of awareness on different aspects of private wing was not satisfactory; however most of them became happy to know about the chances of earning extra income at home. On average, 50% of the doctors' and 40% of other health professionals' total monthly income were earned from private wings. Accordingly, professionals expressed their intention to continue working in their facilities at least for the next 3 years. Hospitals' human resource documents also reveal a slight but a steady decline in turnover. The study found out that the initiation of private wings in public hospitals contributed to motivation and retention of health professionals. Major benefits to private wing staff include rise in sense of hospitals ownership, skill use and better income [26].

Generally different studies in some countries showed factors that associated with work performance of people in different disciplines and some are on private wing set up done in Ethiopia. However, these papers were not investigated private wing as of professionals' regular hour work performance and its effect in our country including Addis Ababa while searching in different journals. Then conducting a study will be helpful to fill partly the existing gap.

3. OBJECTIVES OF THE STUDY

3.1. General objective of the study

- To assess the impact of Private wing setup on regular hour work performance of health professionals and associated factors at public hospitals in Addis Ababa.

3.2. Specific objectives of the study

- To assess knowledge and willingness (interest) of health workers to provide services under private wing program

- To assess the regular hour work performance level of health workers.

- To assess the effect of private wing set up on health professionals regular hour work performance

3.3. Research questions

1. What are the characteristics of health workers who are interested to engage in private wing service provision?

2. Does the regular time work performance level of health workers is similar among those participate in private wing program and those do not participate?

3. What are the effects of private wing set up on professionals' regular hour performance?

4. METHODS AND MATERIALS

4.1. Study area and period

The study was conducted in Addis Ababa, the capital city of Ethiopia and is located in the central part of the country with a total area of 527 km2. This region has an estimated density 5,535.8 people per square kilometer. Based on 2007 figure from Central Statistics Agency of Ethiopia, Addis Ababa has an estimated total population of 3.2 million projected for the year 2014. The city has ten sub city and 116 woredas. There are 51 hospitals of which 6 are owned by Addis Ababa City Administration Health Bureau, 5 by Federal Ministry of Health, 3 by Nongovernmental organization, 3 by Defense Force and Police and 34 by private owners. There are also 84 health centers and around 700 private clinics out of which 75 are higher Clinics [35, 40]. According to (FMOH, 2009) the total number of health professionals in Addis Ababa 18,208among them around 3860 are working at 11 public hospitals of Addis Ababa

The study was conducted in Addis Ababa public hospitals and data were collected between the months of April and May/2018

4.2. Study design

A cross- sectional study design was used to assess the effect of private wing set up on work performance of health professionals from the selected public hospitals

4.3. Source population

All health care professionals working at public hospitals in Addis Ababa

4.4. Study Population

Selected specialists, general practitioners, health officers, nurses, anesthetists, laboratory technologist and technicians, pharmacists from selected public hospitals of Addis Ababa

4.5. Inclusion criteria

Health workers in the selected institutions with 6 months and above work experience

4.6. Exclusion criteria

Health workers in the selected institutions who are not volunteers, on annual leave, and sick leave

4.7. Data collection instrument

Data was collected using a pre-tested and structured questionnaire which is prepared in English. The questionnaire was consisting of three parts which are socio- demographic variables, health workers' involvement and knowledge about private wing services and their work performance.

4.8. Sampling and sample size Determination.

4.8.1. Sample size determination

Sample size is determined by using double population proportion at 95% confidence level, 5% margin of error

4.8.2. Sample size formula

$$n = \frac{(r+1)}{r} \frac{(\overline{p})\,(1-\overline{p})(z\beta + {}^{z\alpha}/_{2})^2}{(p_1 - p_2)^2}$$

Where; r is the allocation ratio of group 2to group 1, i.e. ,n_2: n_1

p_1 For proportion in group 1

p_2 For proportion in group 2

$Z\alpha/2$ Is the quintile of the standard normal distribution for type 1 error

Zβ Is the quintile of the standard normal distribution for type II error /power

n_1 Is the sample size for group 1 (the treatment group)?

n_2 Is the sample size for group 2(Or the control group i.e. hospitals without private wing in this study?)

I want to detect odds of ratio of 2

Since there is no similar study done to take the value for p2, we need to use (0.5) for p2 as a rule

${}^{z\,\alpha}/_{2}$ At 95% confidence level 1.96

Zβ Using 80% power 0.84

r Case control ratio (in this study there is one case and one control)

To get p1 we use the formula $P_1 = \frac{OR \times P_2}{P_2(OR-1)+1}$

$$= \frac{2 \times 0.5}{0.5(2-1)+1}$$

$$= \frac{1}{1.5}$$

P_1 =0.667

$$\bar{p} = \frac{p_1 + p_2}{2}$$

Average proportion for the entire pool is

$$\bar{p} = \frac{0.667+0.5}{2}$$

$\bar{p}$ = 0.58

$$n = \frac{2(0.58)(1-0.58)(0.84+1.96)^2}{(0.667-0.5)^2}$$

n=136 Then 136*2 =272

The total sample size is 272

Therefore sample size for n_1=136 and for n_2=136

With 10% of non-response rate 272+27 =299

4.8.3. Sampling procedure

Out of the 11 public hospitals found in Addis Ababa, six public hospitals were selected for this study based on simple lottery method. Among these, three will be from those hospitals having

private wing services while the rest three were picked from those hospitals were private wing services are not providing.

The total population for this study were all health professionals in the eleven hospitals with diploma and above in academic qualification in their field of work. There are around 3860 health professionals at the eleven hospitals in Addis Ababa. And the total sample size using double population proportion is 299

Table 1Number of medical professionals in public hospitals

Hospitals	Number of health professionals
TiruneshBeging	320
Yekatit 12 Memorial	360
TikurAnbesa	500
Ghandi Memorial	290
Ras desta Damtew	360
Minilik II	420
Zewditu memorial	320
Alert	380
Kiduspetros	290
St paulos	350
Amanuel	270
Total	3860

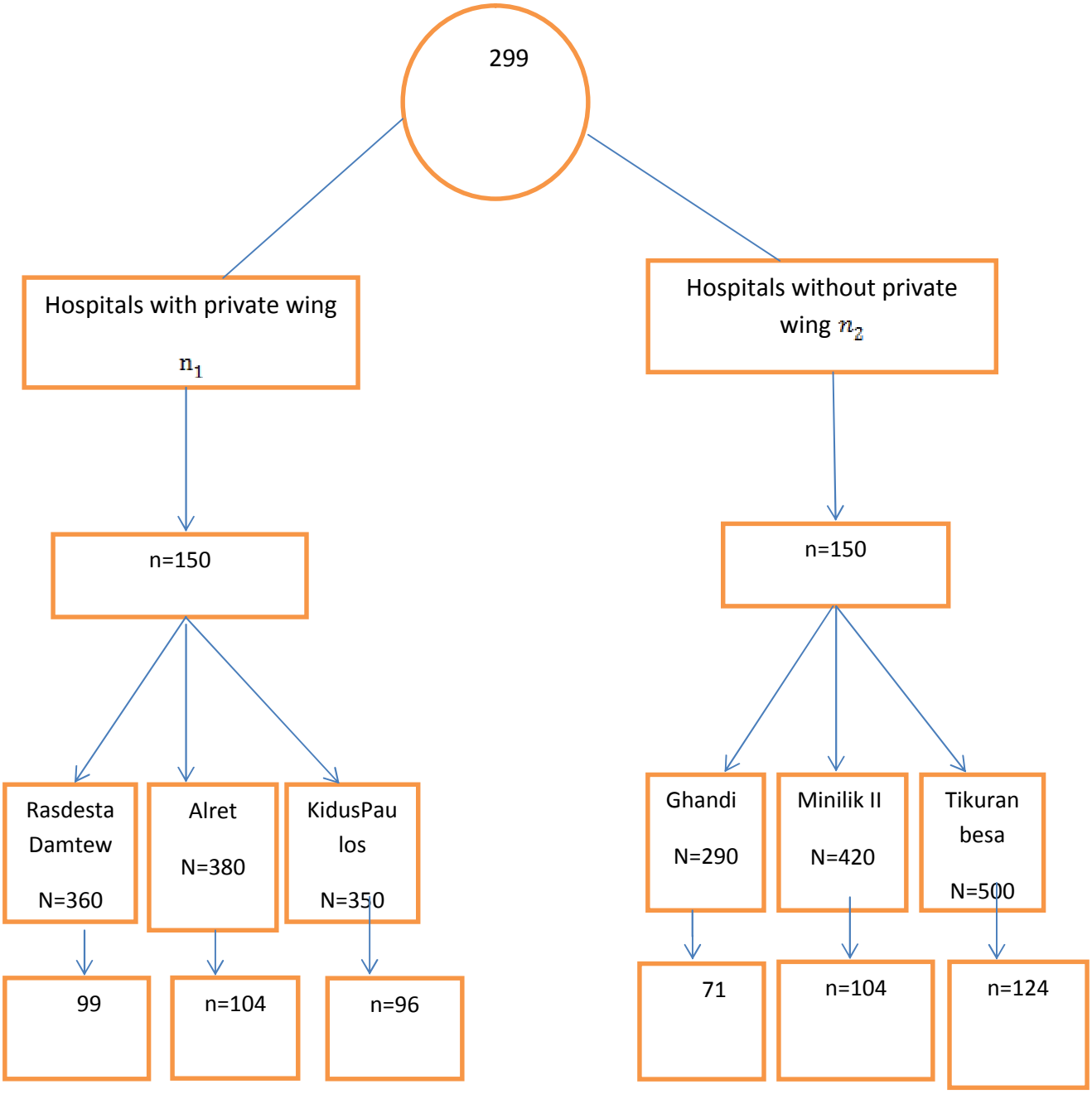

Figure 1 Schematic presentation of the sampling procedure

4.9. Variables

4.9.1. Dependent variables

- Interest to engage in private wing services
- Work performance

4.9.2. Independent Variables

- Age
- umber of hours worked per day
- orking in other health institution owned by private or NGO
- rivate wing service participation status
- Marital status
- Family size
- N Religion
- Sex
- WEducational status
- Type of specialization
- Monthly income
- P

4.10. Operational definitions

Work performance —is expected the work related activities from an employee and how well those activities were executed (Effort to be explored during regular hour working activity by providers). Five Questions was used to measure the performance of the Participants each graded out of 20% with a total of 100%.

- Average working Hour per day (regular 8hrs) (equals or above 8hrs score 20%, below 8 hrs. scores 10%)
- Number of Patient seen (Served) per day which is decided by types of Professional standard (Standard & Below standard) based on HMIS
    - Doctors and Nurses at OPD level Expected number of Patient--------35(we use number of patient served only at OPD) level both for nurses and physicians
    - Pharmacist Expected number of Patient ---------- 100 patients
    - Lab technician/Technologist Expected number of Patient …….. 80-100
- Number of error Committed with in the last one month scores (No error 20%, One times 15%, Two times 10%, Three & above 5%) respectively

- Treatment outcome assessed from professionals (Patient improvement after treatment) (Strongly disagree 4%, Disagree 8%, neither agree or Disagree 12%, Agree 16%, strongly agree 20%)
- Patient satisfaction (Strongly disagree 4%, Disagree 8%, neither agree or Disagree 12%, Agree 16%, strongly agree 20%)

Par time worker: - Those professionals who are working at other private health institution (clinics, hospitals…) out of their hospital compound after their regular hour work activities

Perform Good: - Those professionals' score equals to or above the mean (76.25%) score of five performance question which are graded out of 100% was considered as Good Performer.

Perform Poor: -Those professionals score less than the mean (76.25%) score of five performance question which are graded out of 100% was considered as Poor performer.

Private wing worker: - Those professionals who are working at private wing of the hospital with their hospital compound after their regular hour work activities.

4.11. Data Collection Procedure

Data was collected using structured Amharic interview questionnaire and questionnaire checklist. The questioner and checklist was adopted through reviewing of different literatures and previous studies. The questioner was prepared in English, and checked for its consistency. Main points were included in the questionnaire. There were 6 data collectors and 1supervisor in order to collect the target sample. Supervisor and data collectors were recruited and training was given for one day on the objective, relevance of the study, confidentiality of information, respondent rights, Informed consent, and technique of interview, were applicable.

4.12. Data Quality Assurance

In order to maintain quality of the data, data collectors and supervisors were trained in data collection procedures. Before actual data collection time the questionnaire (tool) was pretested for validity and reliability on 5% of sample size, there by possible adjustment or modification was made on the tool. In order to assure data quality, the supervisor was back check, spot check and every questioner was examined by the supervisor. The collected data were then reviewed and checked for completeness and consistency by the principal investigator on a daily basis.

4.13. Data processing and analysis

The data collected from the hospitals were entered, after being encoded and analyzed using – SPSS version 22. Data cleaning was performed to check for frequencies, accuracy, and consistencies and missed values and variables. Any error identified during data entry was corrected after revision of the original completed questionnaire. Tables used to present and appraise results. All the data obtained from the study population were be entered, cleaned and analyzed by the investigator. To explain the study population in relation to relevant variables descriptive statistics was used. Multiple logistic regression models were used to assess factors driving the interest of health workers to participate in private wing services and work performance of professionals participating in private wing.

The brief description of the model in relation to the objectives of the proposed study is provided below.

4.14. The logit model

Logit models enforce the condition that predicted values must be on the unit interval, and produce consistent covariance matrix estimates assuming the distributional assumptions are correct [37].

Therefore, to use the logit model in this study where the dependent variable is the log of the odds ratio, which is a linear function of the repressor's.

The logit model can be specified as: -

$$y_i = \ln\left(\frac{p_i}{1-p_i}\right) = \frac{e^{Zi}}{1+e^{Zi}} \ldots\ldots\ldots\ldots\ldots 1$$

Where:

$$Z_i = \beta_o + \sum \beta_i x_i + u_i \text{And}$$

y_i= is a dichotomous dependent variable

β_1= constant

β_i= parameter of X_i predictor

X_i= is ith independent variable in the model

u_i= is the error term

More specifically for this study the above stated model can be written as follows to examine factors affecting interest to work in private wing hour.

$$\Pr(\text{IEPS}) = log(\beta_1 + \beta_2 AG_i + \beta_3 EDU_i + \beta_4 NHWOi + \beta_5 WOHI_i + \beta_6 PWS_i + \beta_7 MS_i + \beta_8 FS_i + \beta_9 S_i + \beta_{10} R_i + \beta_{11} TS_i + \beta_{12} MI_i + \beta_{13} OATP_i) \quad \text{.....2}$$

Where;

Dependent variables

- IEPS= Interest to engage in private wing services
- WP= Work Performance

Independent variables

- AG= Age
- NHWD= Number of hours worked per day
- WOHI= Working in other health institution owned by private or NGO
- PWS= Private wing service provision status
- MS= Marital status
- FS= Family size
- R= Religion
- S= Sex
- EDU= Educational status
- TS= Type of specialization

- MI= Monthly income
- OATP= Over all attitude of health care workers towards private wing

From the above stated model the probability of participating in private wing by health workers is given by the expression $p_i = \frac{1}{1-e^{-z_i}}$ where $z_i = \beta_1 + \beta_2 X_i$ and the probability of not participating in private wing is given as $1 - p_i = \frac{1}{1+e^{z_i}}$. Hence, the log of the odds ratio is the natural log of the two probabilities i.e. $(\frac{p_i}{1-p_i})$.

4.15. Ethical consideration

Ethical approval & clearance was obtained from the Institutional Review Board of Addis Ababa university college of health science, school of public health, and (AAHB) Addis Ababa health brio. Communication with Addis Ababa city health bureau was also making through formal letter obtained from college of health science department of public health Addis Ababa University. Permission also obtained from medical director of each selected hospitals to cascade the research

Data collection was conducted after verbal and written consent was obtained from participants, which was taken from each selected participant after explanation of the survey purpose, description of the benefits and an offer to answer all inquiries was made to the respondents. It was explained that answering the interview questions have no harm on the participants and that their participation will help to create awareness concerning the issue. Also confirmation that they are free to withdraw collected information was ensured. The information collected for this research project was kept confidential and information collected by this study was stored in a file, without chart name, but a code number assigned to it. And it was not revealed to anyone except the principal investigator and assistants.

4.16. Dissemination of results

The final result of this paper will be submitted to Addis Ababa University, School of Health Science Department of public Health Postgraduate Program. Besides, the presentation of the research outputs will be delivered to Addis Ababa Health Bureau, Federal Ministry of Health and other concerned stakeholders. It will be also revised and sent for publication to peer review journal.

5. RESULT

5.1. Socio demographic characteristics of the respondents

Among 299 samples a total of 282 participants were responded completely with a response rate of 94.3%. The mean age of the responders was 30 with (±SD 6). From the total participant majority of them, 231(82%) were in the age category of 25-44 years, 41(15%) of them were in the category of 15-24 years and the rest 10 (3.3%) were greater than 44 years of age (figure 2).

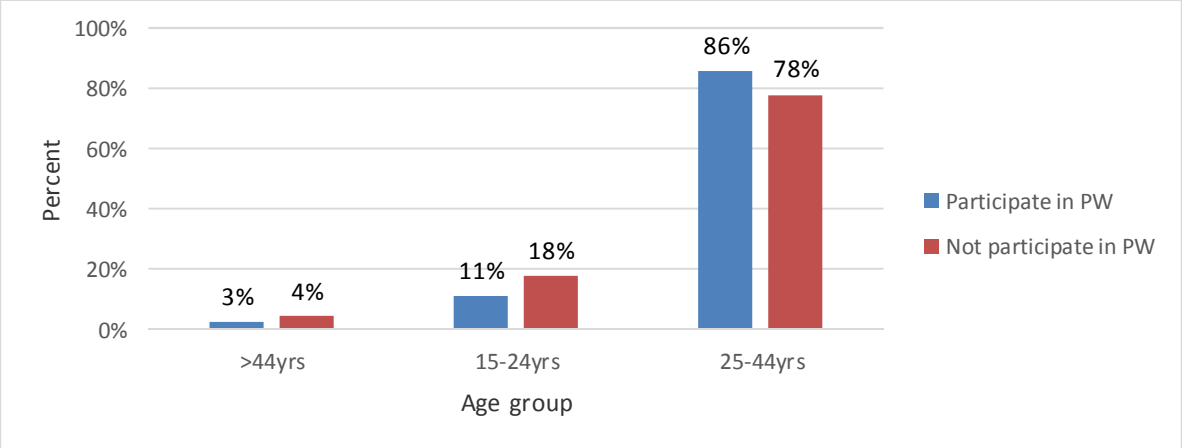

Figure 2 Graphical representation of respondents' age

From the total number of participants Majority of them, 146 (51.8%) were male professionals while 136 (48.2%) were females **(figure 3).**

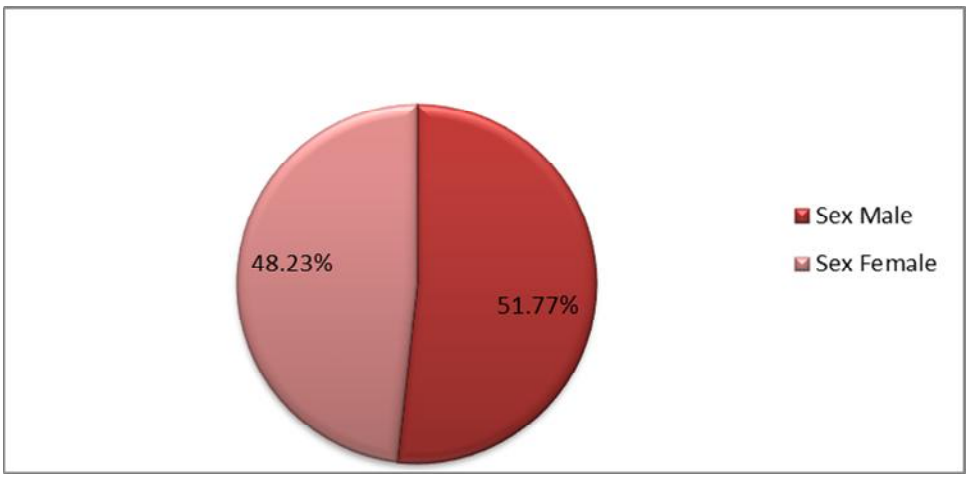

Figure 3 Graphical presentation of sex of respondents

Of the total participants, 166 (59%) of them were not married and other 116(41%) are married. The educational level of the respondents was assessed and 223(79.1%) of them were degree level, 13(4.6%) of them were masters level and above and 46 (16.3%) were diploma level. The median income (salary) of the participants in Ethiopian birr is 4,650 with IQR (2.733). In this study 176 (62.4%) nurses, 26 (9.2%) medical doctors, 16(5.7%) Health Officers, 51(18.1%) laboratory professionals, and 13(4.6%) pharmacy professionals were participated. Greater than half of study participants 183(64.9%) have 0-2 family members while 94 (33.3%) have 3-5 and 5(1.8%) have greater than 5 members **(Table 2).**

Table 2 Socio demographic characteristics of the respondents

Variable	Category	Frequency	Percent	Exact 95% LCL	Exact 95% UCL
Educational level	Degree	223	79.08 %	73.86 %	83.67 %
	Masters & above	13	4.61 %	2.48 %	7.75 %
	Diploma	46	16.31 %	12.20 %	21.15 %
Family size	0-2 member	183	64.89 %	59.01 %	70.46 %
	3-5 member	94	33.33 %	27.86 %	39.17 %
	greater than 5	5	1.77 %	0.58 %	4.09 %
Monthly income	<5001birr	150	53.19 %	47.18 %	59.13 %
	>10,000birr	7	2.48 %	1.00 %	5.05 %
	5001-10000birr	125	44.33 %	38.44 %	50.34 %
Marital Status	Single	167	59.22 %	53.23 %	65.01 %
	Married	115	40.78 %	34.99 %	46.77 %
Work Experience	>15yrs	15	5.32 %	3.01 %	8.62 %
	0-5yrs	171	60.64 %	54.67 %	66.38 %
	11-15yrs	17	6.03 %	3.55 %	9.48 %
	6-10yrs	79	28.01 %	22.85 %	33.65 %
Occupation	MD	26	9.22 %	6.11 %	13.22 %
	HO	16	5.67 %	3.28 %	9.05 %
	Nurse	176	62.41 %	56.47 %	68.08 %
	Pharmacist	13	4.61 %	2.48 %	7.75 %
	Laboratory	51	18.09 %	13.77 %	23.08

5.2. Knowledge of health workers about private wing and their Interest to participate in private wing

The participants those are not involved in private wing were assessed for the information they have about private wing and the interest (willingness) they have to participate in private wing. From 141 participants, majority, 48(34%), of the respondents have good knowledge about PW and regarding to interest, about 84(60%) of them have no interest and the rest 57(40%) are interested to participate in private wing program **(Table 3).**

Table 3 Knowledge and Interest of health workers to participate in private wing program among those do not participate n= (141)

Variables	Category	Frequency	Percent	Exact 95% LCL	Exact 95% UCL
Interest to participate in private wing	Yes	57	40%	32.25%	49.01%
	No	84	60%	50.99%	67.75%
Knowledge of health workers about private wing	Not at all	4	2.84%	0.78%	7.10%
	Some	38	26.95%	19.83%	35.07%
	Average	38	26.95%	19.83%	35.07%
	Good	48	34.04%	26.28%	42.49%
	Excellent	13	9.22%	5.00%	15.25%

5.3. Performance of Participants at regular working hour

The performance of the participants was measured by using different activities in regular working hour performance. Among those activities error committed, working hours per day, treatment outcome, and number of client obtained service per day are the major activities measured. From the respondents 93(66%) of health professionals those participate in private wing and 116(82%) of health professionals those not participate in private wing did not do any mistake during their service provision Working at least for eight hours per day was considered as a standard working hour of the government and almost all, 141(100%), of professionals those do not participate in private wing were working for at least eight hours per day while 98% of professionals those participate in private wing were working at least for eight hours per day.

From the total participants 103(73%) of health professionals those participate in private wing serves expected number of patients per day while 106 (75%) of those not participate in private wing were served expected number of patients per day. **(Table 4)**

Table 4 Regular hour work performance of health professionals

Variables	Category	Participate in PW		Not participate in PW	
		Frequency	**%**	**Frequency**	**%**
Number of committed errors	Only once	**37**	**26%**	**20**	**14.18%**
	Two times	**11**	8%	2	1%
	Three and above	**0**	0%	3	2%
	No error at all	**93**	66%	116	82%
Working time per day	Below standard	**3**	2%	0	0%
	Standard and above	**138**	98%	141	100%
Most of patient got improvement	Strongly disagree	**22**	16%	3	2%
	Disagree	**54**	38%	30	21%
	Neither agree nor disagree	**49**	35%	65	46%
	Agree	**16**	11%	35	25%
	Strongly agree	**0**	0%	8	6%
Average number of patient received service per day	Below standard	**103**	73%	106	75%
	Standard and above	**38**	27%	35	25%
Patients satisfied by given service	Strongly disagree	**2**	1%	1	1%
	Disagree	**6**	4%	3	2%
	Neither agree nor disagree	**53**	38%	34	24%
	Agree	**79**	56%	92	65%
	Strongly agree	**1**	1%	11	8%
Performance level	Good	**51**	36%	93	66%
	Poor	**90**	64%	48	34%

PW= Private wing

5.4. Determinants of (interest) willingness to participate in private wing

Independent Variables such as Age of participants, Sex, Educational levels, Family size, Monthly incomes and others were cross tabulated with dependent variables of Interest (willingness) of the participants to involve in private wing set up. In bivariate analysis significant association was observed between none of the variables. But because in our study we use a power of 80%, variables with p value of less than 0.2 were run in multivariate analysis to minimize the confounding effects of variable. **(Table 5)**

Table 5 Bivariate analysis of socio demographic factors associated with the interest of health workers to participate in private wing of public hospitals in Addis Ababa, 2018 (n=282)

Variables	Category	Interested to participate in Private Wing		COR (95% CI)	P value
		Yes	No		
Age group	**15-24yrs**	25(13.4%)	16(16.8%)	0.6(0.1-2.5)	0.4723
	25-44yrs	154(82.4%)	76(80%)	0.8(0.2-2.9)	0.6903
	>44yrs	8(4.2%)	3(3.1%)	Reference	
Educational Level	**Degree**	148(79%)	75(79%)	Reference	
	Masters and above	7(4%)	6(6%)	0.6(0.2-1.8)	0.355
	Diploma	32(17%)	14(15%)	1.2(0.6-2.3)	0.6747
Family size	**0-2 member**	121(65%)	62(65%)	Reference	
	3-5 member	62(33%)	32(34%)	0.99(0.6-1.7)	0.978
	Greater than 5	4(2%)	1(1%)	2.0(0.2-18.7)	0.516
Monthly Income	**<5001birr**	107(57%)	43(45%)	Reference	
	5001-10,000birr	77(41%)	48(51%)	0.6(0.4-1.1)	0.087
	>10,000birr	3(2%)	4(4%)	0.3(0.1-1.4)	0.107
Sex	**Male**	91(49 %)	55(58 %)	Reference	
	Female	96(51 %)	40(42 %)	1.5(0.9-2.4)	0.1425
Marital status	**Single**	108(58%)	57(60%)	1.1(0.7-1.8)	0.717
	Married	79(42%)	38(40%)	Reference	

COR=Crude Odds Ratio

In addition to socio demographic factors, Work related variables such as Work experience, (occupation) professions, and working in other private health facilities was cross tabulated with the interest of the individuals to participate in private wing. Significant association was observed among working in other private health facilities and interests. Health staffs those are working in private health facilities as over time was more interested to participate in private wing program. There were no significant association among participant's work experience, and profession **(table 6).**

Table 6 Bivariate analysis of work related factors associated with the interest of health workers to participate in private wing of public hospitals in Addis Ababa, 2018 (n=282)

Variables	Category	Interested to participate in Private Wing		COR (95% CI)	P value
		Yes	No		
Work Experience	**0-5yrs**	112(60%)	59(62%)	0.9(0.3-2.9)	0.927
	6-10yrs	50(27%)	29(31%)	0.9(0.3-2.8)	0.8030
	11-15yrs	15(8%)	2(2%)	0.8(0.6-23.2)	0.1428
	>15yrs	10(5%)	5(5%)	Reference	
Profession	**MD**	21(11%)	5(5%)	Reference	
	HO	11(6%)	5(5%)	0.5(0.1-2.2)	0.374
	Nurse	115(62%)	61(64%)	0.4 (0.2-1.2)	0.117
	Pharmacists	7(4%)	6(6%)	0.3 (0.1-1.2)	0.078
	Laboratory	33(18%)	18(19%)	0.4 (0.1-1.4)	0.145
Working in other Health Facility	**Yes**	51(27%)	15(16%)	2 (1.1-3.8)	0.0313
	No	136(73%)	80(84%)	Reference	

COR= Crude Odds Ratio

In multivariate analysis Those professionals with Income of greater than 10,000 birr were less likely to participate in private wing set up than those with monthly income of less than 5000 birr [AOR=0.03, (95% CI: 0.004, 0.274)]. In same manner, professionals those have monthly income of 5001-10,000 birr were also less interested to participate in private wing program compared to those have less than 5000 birr [AOR= 0.6,(95% CI; 0.4-1.1)]. Occupation also showed significant association with interest to participate in private wing, thus nurses were less likely to

participate in private wing than medical doctors [AOR=0.11, (95% CI: 0.024-0.539)], Pharmacy professionals were less likely to participate than medical doctors [AOR=0.08, (95% CI: 0.011-0.533)] and laboratory professionals also were less likely to participate than medical doctors [AOR=0.11, (95% CI: 0.020-0.553)]. On the other hand, working part time in other private health facilities were found to be factor that increase the interest of participating in private wing program in Governmental hospitals. Individuals those were working in private health facilities in their leisure time were more likely to participate in private wing set up than those do not working in other private health facilities [AOR=2.2, (95% CI; 1.089-4.296)]. No significant association was observed among individuals' work Experience and Sex. **(Table 7)**

Table 7 Multivariable logistic regression analysis of factors associated with the interest of health workers to participate in private wing setup, Addis Ababa, Ethiopia 2018.

Variables	Category	**AOR**	**95% CI**	**P-Value**
Monthly Income	>10,000birr	0.03	0.004-0.274	0.0017
	5001-10,000 birr	0.37	0.195-0.700	0.0023
	<5001birr	1(reference)		
Sex	Female	1.65	0.969-2.832	0.0650
	Male	1(reference)		
Par time work in other HF	Yes	2.20	1.089-4.296	0.0275
	No	1(reference)		
Occupation	HO	0.17	0.026-1.082	0.0604
	Nurse	0.11	0.024-0.539	0.0063
	Pharmacy	0.08	0.011-0.533	0.0093
	Laboratory	0.11	0.020-0.553	0.0078
	MD	1(reference)		
Work Experience	0-5yrs	0.45	0.134-1.526	0.2010
	6-10yrs	0.75	0.222-2.525	0.6411
	11-15yrs	3.74	0.575-24.385	0.1675
	>15yrs	1(reference)		

AOR=Adjusted Odds Ratio

5.5. The effect of private wing participation on work performance of health workers

The regular time performance of health personnel may be affected by different factors. Those factors could be Environmental, personal, institutional factors. Private wing set up is the one among institutional factors that may be affect individual's daily performance in health facility, especially in governmental Hospitals. Though the major interest of our study is to assess the effect of private wing setups on the regular hour work performance of health workers and in order to minimize confounding factors, in addition to participating in private wing set up different factors were also cross tabulated with the regular hour performance of health workers which was graded as Good or Poor that measured using five major performance of the individuals in daily activity to identify their association. In bivariate analysis educational level of master and above is significantly associated with the performance of the participant compared to degree level education [COR 13, (95% CI; 1.6-101.7)]. Participating in private wing program also shows significant association with work performance of participants at regular working hour. That is the individuals those were participating in private wing set up was found to be poorly perform their regular hour activities compared to those do not participate in private wing program [COR 0.29, (95% CI; 0.2-0.5)] **(Table 8)**

Table 8 Bivariate logistic regression analysis of factors associated with the work performance of health workers in public hospitals in Addis Ababa, 2018 (n=282)

Variables	Category	Performance level of HW		COR (95% CI)	P value
		Good	Poor		
Age group	**>44yrs**	7(5%)	3(2%)		
	15-24yrs	20(14%)	21(15%)	0.4(0.1-1.8)	0.2280
	25-44yrs	117(81%)	114(83%)	0.4(0.1-1.7)	0.2301
Educational status	**Degree**	107(74%)	116(84%)		
	Masters & above	12(8%)	1(1%)	13.0(1.7-101.8)	0.0018
	Diploma	25(17%)	21(15%)	1.3(0.7-2.4)	0.4316
Family size	**0-2 member**	92(64%)	91(66%)		
	3-5 member	48(33%)	46(33%)	1.0(0.6-1.7)	0.9008
	Greater than 5	4(3%)	1(1%)	3.9(0.4-36.0)	0.1895
Monthly income	**<5001birr**	73(51%)	77(59%)		
	>10,000birr	7(5%)	0(0%)	Undefined	
	5001-10000birr	64(44%)	61(49%)	1.1(0.7-1.8)	0.6756
Work Experience	**0-5yrs**	92(54%)	79(57%)	1.7(0.6-5.1)	0.304
	6-10yrs	35(24%)	44(32%)	1.2(0.4-3.7)	0.757
	11-15yrs	11(8%)	6(4%)	2.8(0.7-11.5)	0.1622
	>15yrs	6(4%)	9(7%)		
Marital status	**Single**	81(56%)	86(62%)	0.8(0.5-1.3)	0.2998
	Married	63(44%)	42(38%)		
Participation in private wing	**Yes**	51(35%)	90(65%)	0.29(0.2-0.5)	0.0000
	No	93(65%)	48(35%)		
Working in other private Health facility	**Yes**	31(22%)	35(25%)	0.8(0.5-1.4)	0.4471
	No	113(78%)	103(75%)		

COR=Crude odds ratio

To minimize confounder, the performance of the health workers was analyzed in multivariate logistic regression with different independent factors with p value of less than 0.2 in bivariate analysis. Among those factors, master level educational status compared to degree level [AOR 8.4, (95% CI; 1.02-69.59)], Family size greater than five members compared to less than two members [AOR 15.9, (95% CI; 1.05-241.09)] work experience of 0-5yrs [AOR=4.9, 95% CI; 1.13-22.17)] and 11-15yrs [AOR 11.0, (95% CI;1.91-63.58)] compared to greater than 15yrs were found to be supportive factors to good performance of health workers in regular working hour. On the other hands participating in private wing program is found to be negatively affecting the regular time performance of health workers**.** The regular working hour performance

of health workers those do not participate in private wing was found to be 75% more likely better than those participating in private wing program. [AOR 0.25, (95% CI; 0.15-0.43)] **(Table 9)**

Table 9 Multivariable logistic regression analysis of factors associated with work performance of health workers in public hospitals in Addis Ababa, 2018 (n=282)

Variables	Category	**AOR**	**95% CI**	**P-Value**
Educational status	Masters	8.4	1.02-69.59	0.0474
	Diploma	1.9	0.90-3.80	0.0922
	Degree	1		
Family size	3-5 member	1.3	0.71-2.42	0.3850
	>5 member	15.9	1.05-241.09	0.0463
	0-2 member	1		
Participation in Private wing	Yes	0.25	0.15-0.43	0.0000
	No	1		
Work experience	0-5 yrs.	4.9	1.13-22.17	0.0343
	11-15 yrs.	11.0	1.91-63.58	0.0073
	6-10 yrs.	3.1	0.69-13.71	0.1389
	>15 yrs.	1		

AOR=Adjusted odds ratio

6. DISCUSSION

The final predictors of those significantly associated with interest of health workers to participate at private wing were sex, occupation, income, and work experience including par time working condition.

As the result indicates, monthly income was found to be significantly associated with interest to participate in private wing. Thus, professionals those have income of greater than 10,000 birr was 97% less likely to participate in private wing than those have monthly income of less than 5000 birr [AOR=0.03, (95%CI: 0.004, 0.274)] and professionals those have monthly income of 5001-10,000 birr were 37% less likely to participate in private wing than professionals those have monthly income of less than 5000 birr [AOR=0.37, 95% CI 0.195-0.700)]. This result indicates that as a general outlook when salary increases people may not much interested to participate in extra work, similarly in this study professionals with high salary may not want to participate at private wing because their salary could be enough for their need.

Working in other private health facility as par timer was found to be significantly associated with interest to participate in private wing. Professionals who are working for other facility par time were 2.2 times more likely to participate in private wing [AOR=2.2, (95% CI: 1.089-4.296)] than the counterpart. This result indicates that since professionals working at office hour during their governmental working time, then there might be an extra time out of eight hour (regular working hour of government) during the evening after 5.30 pm to work for private wing as well as part time to other health institution which could be on week end so as to use their time exhaustively in order to get extra income using their profession.

In this study occupation also showed significant association with interest to participate in private wing, nurses and pharmacy professionals were 89% and 92% less likely to participate in private wing than medical doctors respectively. Laboratory professionals were also found to be 89% less interested to participate in private wing than medical doctors [AOR=0.11(CI: 0.020-0.553)]. This result indicates that since medical doctors are highly paid compared to other professionals when they are participating at private wing that is; their percent of payment may increases when

they are participating at private wing then they will have more interest to work at private wing than other professionals those who have not high percent of payment at private wing

The performance of the health workers was analyzed in multivariate logistic regression with different independent factors. Professionals those have education level of masters and above perform their regular hour work very well 8.4 times more than those have degree level [AOR=8.4, (95% CI 1.02-69.59)]. This result may indicates that when people are educated more their knowledge and performance could be enhanced in many aspects, then in this study professionals those are educated as masters level and above are good performers

On the other hands participating in private wing program is found to be negatively affecting the good performance of health workers' regular hour activities. The regular working hour performance of health workers those participate in private wing was found to be 75% less good than those who do not participate in private wing program [AOR 0.25, (95% CI 0.15-0.43)] this might be because of lack of strong monitoring and evaluation of the professionals participating at private wing from the government side and unattractive salary may also affect their efforts during regular work hours

7. STRENGTH AND LIMITATIONS OF THE STUDY

7.1. Strengths

- The study used primary data
- . Training was given for the data collectors.

7.2. Limitations

- The study did not discuss well due to lack of literature which fits with the study.

8. CONCLUSION AND RECOMMENDATIONS

8.1. Conclusion

Private wing set up is an important choice of health care providing facilities that could benefits the community as well as health workers like other type of services

The main objective of this study was to assess the effect of private wing set up on health professionals' regular hour work performance.

Performance of health professionals could be affected either positively or negatively by different factors, when it is negatively could be resulting from too few staff, or from staff not providing care according to standards and not being responsive to the needs of the community and patients, low salaries, difficult working and living conditions.

The aspects that have emerged from this study include a broad range of negative and positive factors, like education, family size, and par time working respectively as a positive factor for professionals work performance which lay within the individual or the organizational structures and processes as discussed above.

This study has gone some way towards enhancing our understanding of the major determinant factors that professionals interest to participate at private wing and effect of private wing set up on their work performance as well. It is found that those professionals have low income have more interest to participate than those have high monthly income and occupation also another factor for the interest of professionals to participate at private wing thus, medical doctors are more interested to participate at private wing than other professionals.

Another dependent variable work performance of professionals is negatively affected by participation at private wing. Although the work performance of professionals participating at private wing of hospitals affected negatively it has contributed some initiations for better health service in public hospitals according to its policy statement.

8.2. Recommendations

Based on the findings of the research, the following recommendations are developed on major intervention areas responsible bodies to improve and professionals work performance.

- Health professionals should get enough information about the role of private wing so as to enhance participation in the program
- There should be a strong and periodic monitoring and evaluation of the performance of professionals participating at private wing by the FMOH with a standard check list and regular schedule
- It is necessary to make sure that there is no tradeoff between private wing and regular working hour. That is, private wing service should not jeopardize the regular hour work performance.

ANNEXES

ANNEX I

Table 10Description of the explanatory variables and their expected relationships with the dependent variable

Variables	Coding system		Expected sign
Dependent variables			
X15=Interest to engage in private wing service	1 if yes ,0 otherwise	Dummy	+
X16=Regular hour work performance	Average number of daily working hours per day	Continuous	+
Independent Variables			
X1=AGE	Number of years	Continuous	_
X2=SEX	1 if male ,0 if female	Dummy	_
X3=Marital status	1 if married 2 if single 3 if divorced 4 if widowed		_
X4=Family size	Number of family members	Continuous	+
X5=Monthly income	Amount of money	Continuous	+
X6=Educational status	Year of schooling	Continuous	+
X7=Type of specialization	1 if medical doctor 2 if health officer 3 if nurses 4 if pharmacist 5 if midwifery	Categorical	+

X8=Religion	1 if orthodox 2 if Muslim 3 if catholic 4 if protestant 5 others	Categorical	_
X9=Number of hours worked per day	Number of hours	Continuous	+
X10=Overall attitude of health workers towards private wing	1 if negative attitude 2 if neither negative nor positive attitude 3 if positive attitude	Categorical	+
X11= working in other health institution owned by private or NGO	1 if yes ,0 otherwise	Categorical	+
X12=Private wing service provision status	1 if yes ,0 otherwise	Categorical	_

ANNEX II Information and Consent form, English version

Addis Ababa University, College of Health Science School of public health

Department of Health Economics Consent form for the study on the assessment of

The effect of private wing set up on the work performance of health professionals in

Addis Ababa public hospitals

Good morning/after noon. My name is _____, I am working as data collector on a study. This study is about the Assessment of effect of private wing set up on the work performance of health professionals in Addis Ababa public hospitals for an investigator doing her thesis for the partial fulfillment of Master's degree of public health in health economics at Addis Ababa University, Ethiopia. It is my pleasure to notify you that you have been identified to participate in this study. I am doing the research on health care professionals am going to ask you few questions which is very important and related to private wing services Your name will not be written in this form and the information you will give to us is kept confidential. If you do not want to answer all or some of the questions, you do have the right to do so. However, your willingness to answer all of the questions would important to the study and it is appreciated. It doesn't take more than 10 minutes.

Would you participate in study?

Yes No

If the answer is yes, thank the respondent and conduct the interview.

If the answer is no, Thank and go to the next respondent.

Data collector ---------name ---------- signature -------

Date of interview ------ date -------month/20 Supervisor's name -------Signature ----------

Contact person principal investigators name and address Name Tsige Metaferia Mengesha

Telephone 0911455139 Email tsigesaba123@gmail.com

ANNEX III QUESTIONERS FOR RESPONDENTS IN HOSPITALS WITHOUT PRIVATE WING SET UP

PART1: General Information (SOCIO DEMOGRAPHIC DATA)

Fill in the blanks provided by a means of a cross (X) by indicating your correct choice.

1. Gender: Male ---------- 2.Female----------

2. Age (Years)

18-25 years☐ 26-35 years☐ 36-45years☐ 46-55years☐ 56 and above☐

3. Religion

1) Orthodox Christian 2) Muslim 3) Protestant 4) Catholic 5) Other

4. Marital status

1) Single 2) Married 3) Divorced 4) widowed 5) other

5) Family size_____

6) Monthly income in Ethiopian birr_____

3.2. Please indicate your level of education circle the number accordingly.

1 Degree
2 Master and above
3Diploma
4 Other

7. What is your current job position in the organization? _____

1) MD 2) HO 3) Nurse 4) Pharmacist 5) Laboratory 6) If other

Specify-------

8. How many years of work experience do you have in your field of specialization (in this hospital and other facilities)? _____years

9. Do you also currently work for any other health facilities (like private clinic or NGO hospital)?

a) Yes b) No

PART 2: Knowledge and perception about private wing

1. To what extent are you having knowledgably about healthcare services provided under private wing set up?

a) Not at all b) some c) average d) good e) excellent

2. Are you interested to participate in private wing health services (ask respondents in both private wing and non-wing hospitals)?

a). Yes b. No

3. If yes you are interested, how many hours are you ready to work per day for private wing? ____hrs.

4. Do you believe that setting private wing services helps to expand healthcare services for the population?

a) Yes b) no

5. Do you believe that setting private wing services benefits health workers?

a) Yes b) no

PART 3: Work performance related questions

1. How many hours do you work per day during regular working time (excluding time for private wing services)? hours

2. On average, for how many patients do you give services daily during regular service hours? _____patients

3. Most of the patients get completely cured after they get medical services from you

1) Strongly disagree 2) agree 3) disagree 4) neither agree nor disagree 5) strongly disagree

4. Your patients are satisfied by the quality of service they get from you

1) Strongly disagree 2) agree 3) disagree 4) neither agree nor disagree 5) strongly agree

5. In the past one month, how many times did you make errors while providing healthcare services? _____specify (in number)

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