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DEPARTMENT OF NURSING AND MIDWIFERY

ASSESSMENT OF INTER-PROFESSIONAL COLLABORATION BETWEEN NURSES AND PHYSICIANS WORKING AT TIKUR ANBESSA SPECIALIZED HOSPITAL ADDIS ABEBA, ETHIOPIA, 2015.

BY - LIDIYA TSEGAY (BSc NURSE)

A THESIS SUBMITTED TO SCHOOL OF GRADUATE STUDIES, ADDIS ABEBA UNIVERSITY, COLLEGE OF HEALTH SCIENCES, SCHOOL OF ALLIED HEALTH SCIENCE, DEPARTMENT OF NURSING AND MIDWIFERY FOR PARTIAL FULFILLMENT OF REQUIREMENTS FOR MASTER'S DEGREE IN ADULT HEALTH NURSING.

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Abbreviations/acronyms

AAU: Addis Ababa University

DC: Data Collector

DF: Degree of freedom

DNs: District Nurses

GPs: General Practitioners

ICP: Interdisciplinary collaborative practice

ICU: Intensive care unit

IRB: Institutional Review Board

JCAHO: The Joint Commission on Accreditation of Health care Organizations

NPCS: Nurse physician collaboration scale

NPs: Nurse Practitioner

OPD: Out Patient Department

PI: Principal Investigator

SD: Standard Deviation

SEM: Standard error of the mean

SPSS: Statistical package for social Sciences

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Abstract

Introduction: Collaboration between Nurses and Physicians is important in health institutions where most activities are team-performed. Ineffective nurse-physician collaboration affects patient outcome, nurses' job satisfaction and organizational cost and is challenged by personal, interpersonal and organizational factors.

Objective: The aim of this study was to assess inter professional collaboration between nurses and physicians working at Tikur Anbessa specialized Hospital.

Method: Institution based descriptive cross sectional study was employed from March to April, 2015 using self- administered questionnaire. Systematic random sampling technique was used to select 293 professionals. Data was entered using epi info version 3.5.3 and exported to SPSS version 20 for cleaning and farther analysis. Descriptive statistics was presented by frequency tables, percentages and measures of central tendency and dispersion. Student t-test was used to evaluate mean difference and p-value <0.05 was considered as significant.

Result: Nurses demonstrate more favorable total Jefferson scale of attitude than physicians (p – value 0.003) with mean score of 49.18 (SEM 0.39) and 46.64 (SEM 0.89) respectively. Nurses demonstrate more frequent collaborative behavior than physicians with mean score of 76.79(SEM 1.09) and 73.49(SEM 1.98) respectively but it was not significant (p - 0.12). There was no significance difference based on sex, age, and service year with regard to total Jefferson scale of attitude towards nurse-physician collaboration. The younger age group showed more frequent collaborative behavior compared to old age groups with mean value 78.61±16.70, 72.58±15.36(p value - 0.002). And the respondents with short service year showed more frequent collaborative behavior compared to respondents with long term service year with mean value 80.00±17.28, 69.81±12.64 (t=5.44 and p value - 0.000).

Conclusion: This study identified that majority of the respondents have favorable total attitude towards nurse-physician collaboration and infrequent collaborative behavior in overall NPCS.As compared with physician nurses had more favorable attitudes towards collaboration specifically toward "shared education". And also as compared with physicians, nurses had more frequent collab orative behavior, in subscales of "Decision making process".

1. Introduction

1.1. Background

Collaboration is a process of common work with acceptable goals and philosophy, while the comprehension of particular characteristics of the individuals (such as competencies, knowledge, personality, and behavior) is essential. Collaboration has been defined as an interaction between doctor and nurse that enables the knowledge and skills of both professionals to synergistically influence the patient care being provided[1].

Collaboration and teamwork between physicians and nurses is crucial for patient care and morale. Each team member has his own perspective regarding assessment and plan of care for a patient and only through collaboration and exchange of information can appropriate treatment plans be made[2].

Collaboration between professionals is important in health institutions where most activities are team-performed. Ineffective nurse-physician collaboration affects patient outcome, nurses' job satisfaction and organizational cost and is challenged by personal, interpersonal and organizational factors[3].

Nurses and doctors have worked together to manage patients for many years. During the last decade, strategies to enhance doctor-nurse collaboration in the provision of health care has become commonplace in many healthcare facilities, especially, in hospitals. As doctors and nurses differ in the degree of their professional goals – clinical care delivery and patient care and advocacy – they face great challenges to their collaboration[4].

Doctor-nurse collaboration has been the focus of much attention in recent years due to its impact on care delivery and outcomes. Satisfactory doctor-nurse collaboration has a positive relationship with many outcomes, such as high job satisfaction, low turnover rates, cost saving and higher productivity[5].

By tradition, doctors occupy a dominant position in the doctor-nurse relationship. Limited by tradition and expectation, doctors and some nurses do not clearly understand the nurses‟ responsibility. As such the doctor-nurse working relationship may revert to the traditional order-obey mode. Although there have been many advances in medical science, changing definitions of health, as well as changes in tasks and responsibilities of healthcare professionals and the scale, role and function of the hospital, the “doctor-nurse game” remains very traditional. Such relationships impact the efficiency and effectiveness (especially clinical performance) of the healthcare system[6].

Nurses report rarely advising the doctor about the patients‟ condition as doctors will not take their advice and conversely doctors seldom discuss the patients‟ situation with nurses, because of they think it is unnecessary. Nurses, who insist on being involved in clinical decision-making, run the risk of insulting or belittling the doctor[7].

In addition, junior nurses report they seldom learn from senior nursing colleagues or doctors in their ward as there was little communication and collaboration between nurses or nurses and doctors. Moreover, in the doctor-nurse relationship, the doctors often plays the dominant role, if the doctors do not want to improve the relationship, the change between doctors and nurses in the team is almost impossible[8].

An increasing volume of literature reports that deficiencies in collaboration and communication between healthcare professionals have a negative impact on the provision of healthcare and on patient outcomes. The consequences reach far beyond stress and frustration levels experienced by professionals; they can result in adverse events such as medication errors and failure to rescue[9].

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) is a voluntary organization that monitors critical incidents and sentinel events in healthcare settings in the USA, which have been defined as “unexpected occurrences involving death or serious physical or psychological injury, or the risk of thereof”. In 2003 JCAHO reported that communication failures among team members are a contributory factor in 60% of sentinel events[10].

The factor most influential in reducing these events and their potentially negative effects on clinical outcomes is improvement of relationships among clinicians[11].

Policymakers, managers and clinicians therefore have a growing interest in intervening in these relationships through two major approaches: 1) quality and safety improvements by systematically analyzing care processes, and 2) inter-professional education and interventions to foster collaboration[12].

In Nigeria, researchers observed that patients and/ or their caregivers occasionally are the nurses' source of information on doctors' plan of patient care. Similarly, nurses sometimes fail to communicate client problems identified during assessment to the doctors. One, therefore, wonders if the doctors and nurses perceive collaboration as an important tool in their patient care[13].

Though there is scarce in published data regarding nurse - physician collaboration in Ethiopia, the health system currently exercised indicates nurses are not fully exercising their autonomy while working with physicians and physicians demonstrate total dominant role almost in every step of patient care. This minimizes the contribution of nurses to health care delivery system[1].

To improve quality of patient care and increase the satisfaction and retention of nurses and physi cians there is a need to investigate the challenges of nurse- physician collaboration as well as assessing its impact on quality of care delivered. In Ethiopia, investigations regarding this issue are almost unavailable. Therefore, the purpose of this study is to assess inter professional collaboration between nurses and physicians working at Tikur Anbessa hospital.

1.2. Statement of the problem

Collaboration is a complex process that requires intentional knowledge sharing and joint responsibility for patient care. Sometimes it occurs within long-term relationships between health professionals. Within long-term relationships, collaboration has a developmental trajectory that evolves over time as team members leave or join the group and/or organization structures change. On other occasions, collaboration between nurses and physicians may involve fleeting encounters in patient areas. In these settings there is no second chance to collaborate effectively, and a given interaction may leave lasting positive or negative impressions on those involved or on those who witness a particular nurse-physician interaction. The challenge, then, is to make the most of all interactions in order to utilize the best knowledge and abilities of all health team members and produce positive patient outcomes[14].

Despite the evolution of professional nursing practice and the advent of inter disciplinary care, there still exists strong public concern about the ability of nurses and physicians to provide purposeful, effective patient centered care. The role of the registered nurse in acute care settings continues to be discussed; with nurses being challenged by nursing administers to establish collegial relationships with their physician partners. However, physicians often react in a confused, betrayed and sometimes angry manner because of their learned role expectations that nurses are sub servant and they don't understand the need for equality in collaborating to obtain positive patient outcomes.

The World Health Organization stated that "in caring for patients, the nurse collaborates with other members of the health care team. The nurse works closely with the doctor, as well as with other nurses, physical therapists, and any other professionals involved in the patient's care. In many hospitals today the team members together plan the care of the patient." The physician-nurse relationship is stressful. Both perceived that the differences in power and status between physicians and nurses can lead to problems if these health care provides do not agree on a patient's plan of care. Traditionally, the profession of medicine has emphasized expertise, autonomy, and responsibility more than interdependence, deliberation, or dialogue. Nursing, on the other hand, has emphasized hierarchy and bureaucracy, though emphasis on these has diminished along with deference to physicians[2].

Although in the past, nurses were used to following orders and not giving them, they have learned to adapt their approaches with physicians to accomplish their patient care goals. This difference emphasizes that physicians and nurses have towards patient care may lead to strained physician-nurse relationships, which may in turn compromise patient, unless the physicians and nurses develop collaborative relationships[1].

It has been stated that nurses experience high levels of verbal abuse by physicians in the study conducted in University of Pretoria in 2005 the results showed that 79% of the nurses admitted that verbal abuse. Moreover, tension among physicians and nurses is a significant factor of nursing stress at the work place. The tense environment and the verbally abusive behaviors, lead to lower working status, lower power at work, poor working conditions and therefore there is a high risk for accidents and mistakes during care provision[15].

There have been various studies highlighting the challenges in implementing inter professional collaboration between physicians and nurses, some of which are the ambiguity of roles, limited understanding of nurses' scope of practice, and a varying degree of willingness to collaborate on the part of physicians. In Clarin's review of barriers and strategies to the implementation of effective collaboration between physicians and nurse practitioners, most of the strategies proffered were related to educating physicians and providing exposure to the role of nurses during training[1].

A study in Nigeria in 2013 showed that patient and/ or their caregivers occasionally are the nurses' source of information on doctors' plan of patient care. Similarly, nurses sometimes fail to communicate client problems that identified during assessment to the doctors[13].

A study conducted in institution based cross-sectional study in Felege hiwot and Gondar University Referral Hospitals identified that neither nurses nor physicians were satisfied with their current collaboration and nurses demonstrated less satisfaction with the current nurse physician collaboration. As compared with physicians nurses had more favorable attitudes towards collaboration specifically toward nurses' contributions to the psychosocial and educational aspects of patient care, and stronger rejection of a totally dominant physician role[2].

To improve quality of patient care and increase the satisfaction and retention of nurses and Physi cians there is a need to investigate the challenges of nurse physician collaboration and communication as well as assessing its impact on quality of care delivered[2].

In Ethiopia, investigations regarding this are scarce. Even though there is scarce it showed us unsatisfactory current collaboration between nurses and physicians. This condition affects quality of patient care in many ways. Therefore, the purpose of this study is to assess intre professional collaboration between nurses and physicians.

1.3. Significance of the Study

First, this study will provide base line information about inter professional collaboration between nurses and physicians, regarding their current collaboration between them.

As we know if there is a positive or good attitude of nurses and physicians towardscollaboration between nurse-physician it plays great role on achieving clinical outcomes high quality particularly in health institutions where most activities are team-performed.so, studying their inter professional collaboration helps to find the problem and to solve it.

To date, most of the published research on nurse-physician relationships and collaborative practice has focused on the structural characteristics hospitals that enhance or inhibit professional nursing practice, increase staff nurse input into patient care decision making, and promote more effective communication and positive working relationship between nurses and physicians. Very few studies have focused on the personal attributes of nurses and physicians that may influence collaborative practice behaviors such as attitudes, self-efficacy, professional identity, and role socialization.

Finally, this study was undertaken as a beginning attempt to extend current understanding about the phenomena of nurse to physician collaboration beyond the macro-organizational level to an interpersonal level. Thus study will have relevance for multiple audiences. Among the most important are the following:

- Nurses and physicians in acute care practice because of the mandates for interdisplinary collaboration and team work and changing technology, which has redefined nursing and medical practice;
- Chief Nurse Executives and Chief Executive Medical Officers who will be required to provide evidenced based leadership in the creation of environments that are safe for patients and support collaborative practice among nurses and between nurses and physicians;
- Deans and faculty of colleges of nursing and medicine to assist in understanding, designing, and implementing the required curricular changes to include interdisciplinary education and training opportunities.

- Researchers who are looking to demonstrate the efficacy of the changes in professional practice and the educational curricula, as well as to engage in collaborative research; and
- Consumers of health care services who have expressed concern about the quality and cost effectiveness of care and are expecting providers to meet the safety, cost, and quality imperatives to provide the public with a reason to reinvest their trust in health care system.

2. Literature review

2.1. Nurse – Physician collaboration

Collaboration is a process of common work with acceptable goals and philosophy, while the comprehension of particular characteristics of the individuals (such as competencies, knowledge, personality, and behavior) is essential[2].

There is evidence that communication and collaboration are central elements of good nurse-physician relationships. Boyle and Kochinda define collaboration as "nurses and physicians working together cooperatively to achieve shared problem solving, conflict resolution, decision making, communication and coordination"[16].

Inter professional collaboration is a key factor in initiatives designed to increase the effectivenes of health services currently offered to the public. It is important that the concept of collaboration be well understood, because although the increasingly complex health problems faced by health professionals are creating more interdependencies among them, we still have limited knowledge of the complexity of inter professional relationships[17].

Relationships between nurses and physicians are important to study because how well nurses and physicians work together affects the quality of care that patients receive. In a study of all intensive care units (ICUs) in 13 large hospitals, reports showed that ICU patients cared for by nurses and physicians who worked collaboratively had lower "acuity adjusted"mortality rates than did patients cared for by less collaborative nurses and physicians. Fewer deaths and transfe rs back to the ICU are positive outcomes for patients that have been cited in other studies. Collaborative nurse-physician relationships also lead to better patient and organization outcomes such as decreased length of stay and net reduction in treatment costs without reduction in functi onal levels or decrease in satisfaction among patients. In addition to patient outcomes, high quali ty nurse physician relations result in increased satisfaction among nurses and physicians and increased autonomy for nurses[18].

The results of the study conducted in Northern Greece have shown once again that collaboration between nurses and physicians has problems, while collaboration among nurses is satisfactory in Greece. It is well-known that the nursing work environment has a critical impact on patient

safety, so nurses and physicians should make an effort to collaborate well in order to provide quality services[19].

Barriers to nurse-physician collaboration still exist in a variety of different health care settings. The barriers are reported to occur due to: role misunderstanding; real and perceived differentials in power, position and respect; and varying perceptions of decision-making input and autonomy. Negative nurse-physician relationships have proven to strain the role of the nurse, resulting in job dissatisfaction, and more nurses leaving the profession. Negative patient outcomes related to the decrease in nursing staff and/or lack of collaboration between nurses and physicians. The shortage of nurses does not affect only nurses, rather services have been reduced. Consequently, patient satisfaction has decreased, the quality of care and patient safety have been compromised, and the rate of medical errors has been raised. Current reports attest to a mild "acceptance" by some nurses that the power level between nurses and physicians will always be unequal because physicians generally have more education than most nurses. Nurses who have this attitude may be confusing differences in educational levels with differences in professional philosophy, roles, and functions, professional knowledge, and clinical focus and experience between the two professions. The roles, functions, and kinds of expertise nurses and physicians may be having difference, but they're equally important to patient care. In many Countries, doctors determine the scope of nursing practice and education, and can directly define the limits of nursing knowledge[20].

Communication is one form of collaborative behavior; when collaborative behaviors are not optimally practiced in acute care hospitals the recovery of patients is impaired. So that people die due to communication failures. Communication failures are responsible for 70% of 2455 annual sentinel events, and 76% of persons having a sentinel event die Joint Commission on Accreditation of Healthcare Organizations (JCAHO)[21].

A study conducted in northwest Ethiopia showed that more than one third of nurses 72(41%) as well as physicians 21(40%) rated their current collaboration as "poor" and only 5(3%) nurses and none of the physicians rated as excellent. This shows that neither nurses nor physicians satisfied with their team work. The same trend was observed by study conducted in Hawassa Teaching Referral Hospital, Ethiopia[22].

2.2. Nurse – physician attitudes toward collaboration

Symbolic interaction theory provides an insightful way to understand how communication among health care professionals (both verbal and nonverbal) can affect attitudes that either hinder or create support for collective action or collaborative behavior. According to this theory, people are motivated to act based on the symbolic meanings they assign to people, things, and events. These meanings arise out of social interactions and are communicated through the language that people use with others. Language enables people to develop a sense of self and to interact with others in their society or their environment. The theory assumes that people symbolize things in order to simplify and make sense of their experiences, interactions, and other aspects of their world[23].

The growing body of literature suggests nurses and physicians have different perceptions of collaborative interactions, which hinders future efforts to investigate their significance. This is backed up by an exploratory study carried out by Larson into nurse–physician relationships. Results from questionnaires and interviews showed that while nurses and physicians share a similar opinion of the importance of communication within the hospital, they have different views on their respective group's contributions to the process.Nurses perceived that they gave information to physicians more often than they received it,they made suggestions as often as physicians, and they provided information to physicians regarding nursing care as often as physicians provided information regarding medical care. Statistically the physicians did not agree with the nurses' perceptions. Barriers to nurse physician collaboration exist in a variety of different health care settings.The barriers are reported to occur due to: role misunderstanding; real and perceived differentials in power, position and respect; and varying perceptions of decision are making input and autonomy. Patients are also becoming more knowledgeable about their conditions and possible treatments, which have led to requests for more information from the healthcare professionals treating them.This greater involvement of consumers in their health care decisions demands increased, inter disciplinary communication in order to provide the necessary information[16].

The findings of the study conducted in Mansoura University Hospital indicated that there is significant differences existed between nurses and physicians in the medical surgical patient care setting with regard to attitude toward nurse-physician collaboration. This mean total score on the

selected survey tool indicated that nurses in this study demonstrated significantly more positive attitudes toward collaboration than did the physicians. This is due to a significant barrier to nursing autonomy is related to the attitudes of health care practitioners. Factors such as tradition, the subordination of nurses to physicians, socialization within health care facilities , sexism and stereotyping, and the apprenticeship model of nursing education are found to affect the attitudes of physicians and nurses alike. Traditionally, the predominately male physician group gives the orders for patient care, and the predominately female nursing group carried out the orders. Physicians were "in charge", and nurses learned to defer to them and follow their lead. These traditional views on the nurse-physician relationship can affect caregiver's[24].

Communication between the professions does not flow as it should. In the classic study on the outcomes of intensive care, communication between nurses and physicians was the single factor most significantly associated with excess hospital mortality. In more recent research, verbal miscommunication between nurses and physicians was responsible for 37% of all errors. Almost in the world 40% nurses in hospitals had less satisfaction in relations with physicians. Nurse–physician relationships have been shown to have a significant impact on the job satisfaction and retention of nurses[25].

Conflict with physicians has been identified as one stressor in the nurse work environment. Nurses may face both verbal and physical abuse when conflict arises with physicians. Physician behavior and adverse events, errors, and poor patient outcomes[26].

A study conducted in the United States, in 2002, showed that disruptive physician behavior was cited as a contributor to the nursing shortage. A survey of 1,200 nurses, physicians, and health care executives revealed that 92% of the respondents had witnessed "disruptive physician

Behavior,such as in appropriate conflict involving verbal or even physical abuse of nurse". Simil arly: approximately 60% say that physicians don’t communicate with them about their concerns for a patient, roughly 50% said that physicians don’t listen to what they have to say about patients[24].

A study conducted in Nigeria in 2006 about working relationships between nurses and doctors, showed that nurses (79.5%) were more likely than doctors (59.4%) to complain that staff

shortage is a significant cause of poor doctor-nurse working relationships. Furthermore, more nurses than doctors wanted the post of the chief executive of hospitals to be open to all professionals in the health care system, in the belief that this will positively influence the conditions of service of health care workers and their sense of belonging[26].

Many have concluded that nurses are more interested in physician-nurse collaboration than physicians. Nurses have authored most of what is written on the subject and have been more involved in the associated research activities than their physician counterparts. The lower anesthesiologist response rate (19% compared with 57% for nurse anesthetists) in this study is consistent with that of physicians in other studies[27].

District nurses were slightly more positive about collaboration than GPs. A positive attitude towards collaboration did not seem to be a part of the GPs' professional role to the same extent as it is for DNs. Professional norms seem to have more influence on attitudes than do gender roles. DNs seem more confident in their profession than GPs[22].

Study conducted in Nigeria showed that doctors and nurses have a positive perception of ICP which was not dependent on one's profession and gender. However, length of experience in clinical practice was seen to enhance collaborative practice; the higher the years of experience, the more willing doctors and nurses are likely to collaborate. While clear communication, role specification and good working relationship were perceived to enhance ICP, status differentiation and decision making power imbalance, knowledge hoarding on the other hand was perceived as hindrances. Measurements to decrease hindrances and improve on the enhancers should be put in place for efficient and effective patient outcomes[13].

Nurses who were working in Public Hospitals in Tigray Region, Northern Ethiopia reported That they had low nurse-physician relationships, team work and collaboration and poor conflict management methods and higher number of nurses replied that nurses were subordinates of physicians. A considerable number of nurses indicated that they were dissatisfied with overall nurse-physician relationships. Greater than half of the nurses were dissatisfied with administrativ e support in nurse- physician relationships, recognition of nurses' role and responsibilities by physicians. Work environment, clinical autonomy of nurses, administrative support in nurse-

physician relationship and recognition of nurses' role by physicians were the major predictors' nurse-physician relationships[28].

addressing the issue of factors affecting nurse–physician relationship as well as its impact on patient outcome through research, education, and development of corrective action may help inr etaining medical and nursing staff members, decrease negative patient careoutcomes, minimize practice error, and control costs for an organization[29].

3. Conceptual framework

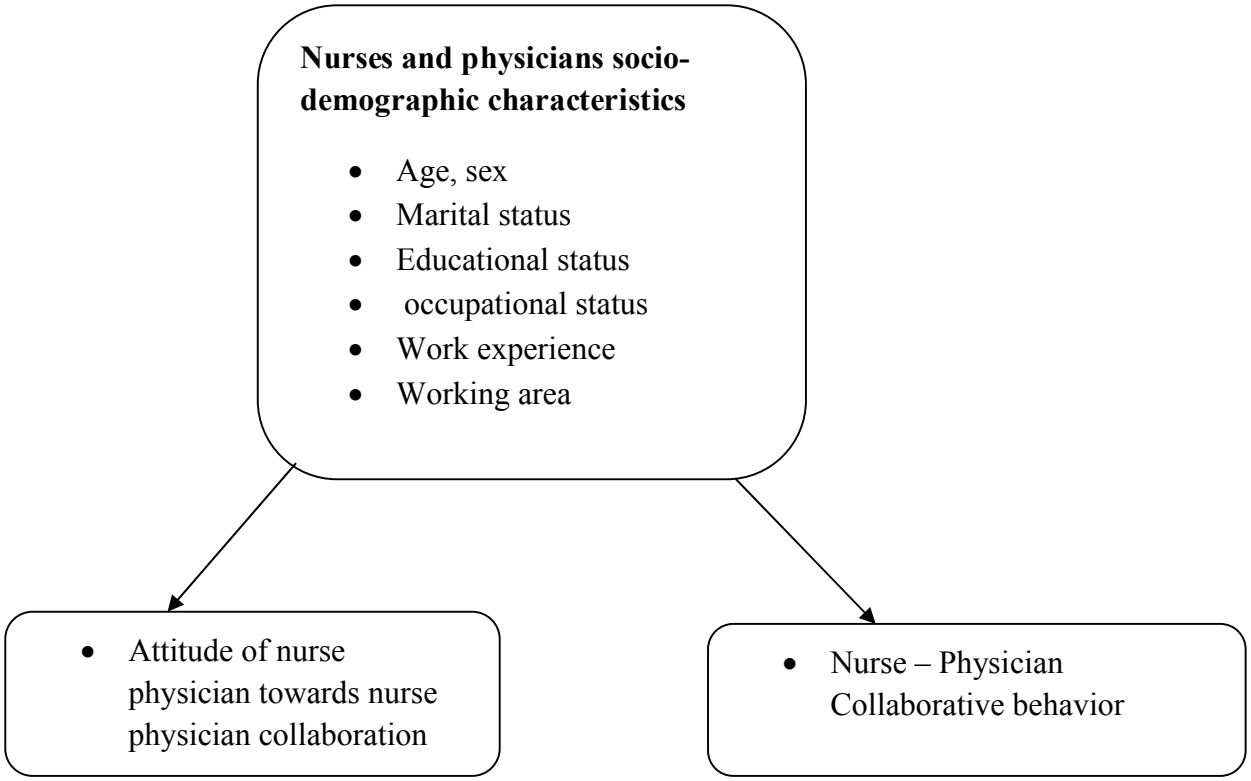

Figure 1 this self-developed conceptual frame work done by using concepts from dependent and independent variables after reviewing literatures.

4. Objective

4.1 General objective

The general objective of this study was to assess inter-professional collaboration between nurses and physicians working at TikurAnbessa referral specialized hospital, Addis Ababa, Ethiopia

4.2 Specific objectives

The specific objectives of this study were to:

- Assess the attitude of nurses and physicians towards nurse-physician collaboration.
- Assess the nurses and physicians collaborative behavior.

5. Methods and materials

5.1. Study Area

Black Lion Specialized Hospital is found in Addis Ababa City, Kirkos Sub City which is the last referral hospital in Ethiopia. This hospital sees approximately 370,000 – 400,000 patients per year but the exact number is not known. They have 800 beds with 130 specialists, 81 non-teaching doctors and 714 staff nurses. This is the largest teaching hospital for the University of Addis Ababa Medical School in Ethiopia. There are about 350 residents and 600 interns, and has modern planned and accommodated and facilitated with the outpatient department (OPD), has seven x-ray, nine surgical and two diagnostic laboratory rooms. The hospital has provided the appropriate medical services in the internal medicine, gynecological and obstetrics, surgical, pediatrics and emergency departments. The hospital also have special units (Referral clinics), those are Chest, Renal, Neurology, Cardiology, Dermatology and Sexually Transmitted Diseases, Gastrointestinal, Infectious Diseases, Orthopedics, General Surgical, Gynecologic and Obstetrics, Diabetic, Hematology and Medical ICU.

5.2. Study Design

A health institution based descriptive cross sectional study was employed to assess inter-professional collaboration between nurses and physicians in Tikur Anbessa Specialized Hospital.

5.3. Study Period

The study period was from March to April, 2015 during routine working hours of the hospital.

5.4. Source Population

The source populations for this study were all staff nurses and physicians who were working in Tikur Anbessa specialized hospital during the study period.

5.5. Study population

The study populations for this study were all staff nurses & physicians who work in Tikur Anbessa specialized hospital at the time of data collection who were selected systematically and met the inclusion criteria.

5.6. Inclusion and Exclusion criteria

5.6.1. Inclusion criteria

Staff nurses who are working >6 months with physicians in patient's care and willing toparti cipate in the study in Tikur Anbessa specialized hospital during the study periodand Staff Physicians who are working >6 months and residents in Tikur Anbessa specialized hospital during the study period, working with nurses in patients care, and willing to participate in the stu dy.

5.6.2. Exclusion criteria

Nurses and physicians with length of service <6 month wasn't included. In addition nursing students and medical students except residents wasn't also included in the study.

5.7. Sample Size

The overall minimum sample size, was determined using single proportion formula sample Size calculation formula: $n = [(Z\alpha/2)^2 p (1-p)/d^2]$

$n o = [(Z\alpha/2)^2 p (1-p)/d^2] = (1.96)2 (0.41) (0.59) / (0.05)2 = 371.71 \approx 372$

n = Sample Size,

p = prevalence, taking 41% from previous research conducted[3].

Z = standard normal deviation usually set at 1.96 which correspond to the 95% confidence interval.

d = is a tolerable margin of error (d=0.05)

N = total population

Since the study was conducted on finite population which is < 10,000

Therefore, using single population correction formula:

$$n = 1 + \frac{no}{N} = \frac{no}{1 + \frac{372}{925}} = 265.7 \approx 266$$

Taking non-response rate as 10% the final sample size were 293.

By using proportion formula:

$ni = \frac{Nixn}{N}$, where , ni –sample size of n category, Ni – total population of ni category , n –total sample size and N – total population

Numbers of nurses were:

$\frac{714}{925} \times 293 = 226$

And number of physicians:

$\frac{211}{925} \times 293 = 67$

5.8. Sampling technique

The reason why Tikur Anbessa Specialized hospital selected is because this hospital is the highest level referral hospital in the country which gives health care for patient's fromall part s of the country. Since large number of Ethiopian population is served by this hospital it is appro priate to apply this study in order information from this study can be utilized to improve quality of service delivered to citizens visiting this public hospital.

Systematic random sampling technique was employed (k=3) taking every three nurses and every three (k=3) physicians in the hospital and the first number was selected by lottery method from the first three. List of staff nurses and physicians was used as sampling frame.

K = N/n, for nurses = 714/226= 3.2 ≈ 3 for physicians = 211/67 = 3.2 ≈ 3

5.9. Data Collection Instrument/Method

To assess nurses and physicians characteristics the data collection instrument prepared in Englishbecause the participants were nurses holding at least diploma and physicians.

The questionnaires was pre-tested in10% (in 29 sample size with 7 physicians and 22 nurses) of

the sample size in Zewditu hospital in the same participants but different study area to check whether the questions are simple, clear and easily understandable. The data for the study was collected by using Jefferson scale of attitudes towards nurse-physician collaboration and NPCS. The Jefferson scale was developed by researchers at Jefferson medical college, Philadelphia, Pennsylvania[30].

Which it consists of two parts: First part: personal data of nurses and physicians. It includes age, sex, marital status, and educational level, title of work, area of work and years of service. Second part: It included 15 items, which were grouped under four sub scales, i.e., shared education and team work (7 items), which includes items such as "During their education, medical and nursing students should be involved in teamwork in order to understand their respective roles", caring versus curing (3 items), which includes "Nurses have special expertise in patient education and psychological counseling", nurses' autonomy (3 items)which includes "Nurses should clarify a physician's order when they feel that it might have the potential for detrimental effects on the patient", and physician's dominance (2 items), including "Doctors should be the dominant authority in all healthcare matters".

The response was on a four-point, Likert-type scale from strongly agree (4) to strongly disagree (1): The two items identified as "physician's dominance" questions are reversed scored, with a higher factor score given to a lower numerical answer and vice versa. The higher the total scores on this scale, the more positive the respondent's attitude toward nurse-physician collaboration. A higher factor score on "physician's dominance" indicates a rejection of a totally dominant role by physicians in aspects of patient care. A higher factor on the "nurse's autonomy" dimension indicates more agreement with nurses' involvement in decisions about patient care and policy. A higher factor score on "shared education and teamwork" indicates a greater orientation toward interdisciplinary education and inter professional collaboration. Finally, a higher factor score on the "caring versus curing" dimension indicates a more positive view of nurses' contributions to psychosocial and educational aspects of patient care[31].

The other questionnaire used was nurse-physician collaborative scale (NPCS) this scale contains 27 items divided into three subscales: sharing patient information contains 9 items,

decision-making process contains 12 items and the relationship between nurse and physician contains 6 items. The items were scored using a five-item Likert scale (1 - always, 2 - usually, 3 - sometimes, 4 - rarely and 5 - never). A lower score indicates a higher level of nurse–physician collaborative behavior reported to occur [32].

5.10. Data collection procedure

Data was collected by 3 BSc holders other than health profession. The data for the study was collected using structured self administered questionnaire prepared to address inter professional collaboration between nurses and physicians. The questionnaire was administered to all volunteer nurses and physicians who fulfill the inclusion criteria while they were at their workplaces (Tikur Anbessa specialized hospital).The nurses and physicians was contacted by the as signed trained data collectors. More over non respondents was revisited at least two times and more. The respondents were couraged to answer the questions within the time they devoted.
Data was collected by three trained individuals. The researcher was stated the aims, objectives, motivations and the methodology and during data collection they were clarifying any area the respondents did not understand. They were given the consent form to sign after explanation and making sure they understood the content of the consent form. Data collectors went to different departments and provide questionnaire every three nurses and physicians using their lists as a frame.

5.11. Data quality control

Training was given for three data collectors (BSc holders in non health related fields) about the objectives and process of the data collection by the principal investigator. Pre-test was done on 10% of sample size of nurses and physicians in zewuditu hospital which is different from the study area. Depending on the result of the pre- test, correction and modification was made on the questionnaire before applied on the study population. Three trained instructors recruited and the principal investigator was supervising data collection processes, check for completenes of the data, correctness of the data collection procedure, and correction was made as necessary.

5.12. Procedure for data processing and data analysis

The collected data was entered using epi info version 3.5.3andexported to SPSS version 20 for cleaning and further analysis. Descriptive statistics was presented by frequency tables,

percentages, measures of central tendency & dispersion. Student t-test was used to evaluate difference of mean and p-value <0.05 was considered as significant.

5.13. Study Variables

5.13.1. Dependent variables

- Nurse's and physician's attitude towards nurse-physician collaboration
- Nurse – physician collaborative behavior

5.13.2. Independent variables

- Nurses & physicians characteristics /Socio demographic variables : age, sex, marital status, level of education , occupational title, service year and area of work

5.14. Operational Definitions

Frequent Nurse-physician collaborative behavior: Higher factor mean score on overall nurse-physician collaboration scale (NPCS).

Infrequent Nurse-physician collaborative behavior: Lower factors mean score on overall nurse-physician collaboration scale (NPCS).

Favorable attitudes towards nurse physician collaboration: Higher factors mean score on overall score of Jefferson scale of attitudes towards nurse-physician collaboration.

Unfavorable attitudes towards nurse-physician collaboration: Lower factor mean score on overall score of Jefferson scale of attitudes towards nurse-physician collaboration.

5.15. Ethical consideration

Ethical approval and clearance was obtained from Institutional Review committee (IRC) of Addis Ababa University, College of Health Sciences, Department of Nursing and Midwifery.

Letters of cooperation was issued from department of nursing and midwifery then delivered to respective health institution/ Tikur Anbessa specialized hospitals hospital director, ward head, and department officials and obtained permission. In addition, informed consent was obtained from every study participant that confirm their willingness for participation, after we provided them clear information about the objectives of the study, its self administered harmlessness and about its confidentiality maintenance.

5.16. Dissemination of the result

Finally the findings of the study are presented to Addis Ababa University, department of Nursing and Midwifery as partial fulfillment of master's degree in Adult Health Nursing.

It will be also communicated to Tikur Anbessa specialized hospital.

The findings will also be presented indifferent seminars, meetings and workshops as well as further effort will be made to publish the findings on national and international peer reviewed journal. Hard and soft copies will be made available in the library of AAU, for graduate students as well as for other researchers and readers.

6. Result

6.1.Descriptive statistics of the study populations

6.1.1 Response rate

From Tikur Anbessa Specialized referral hospital a total of 293 health professionals among them 226 (77%) nurses and 67 (23%) physicians were involved in the study with the response rate of 100% as consecutive respondents (K=3) were recruited until sample size was reached and they did not have problems with participating in the study.

6.1.2. Socio-demographic characteristics of nurses and physicians

Among the total of 293 nurses and physicians about half 153(52.2%) of them were females. The mean age of respondents was 32.15 ± 7.25 (SD) years with the mean age of 31.42 ±7.31 (SD), 34.61±6.52 (SD) respectively for nurses and physicians. And majority 76(25.9%) of them were in the age group 31-35 years followed by72 (24.6%) from26-30yearsofage group.
Majority 135(46.1%) of the nurses and physicians were single, 116(39.6%) were married, 17(5.8) divorced, 12(4.1) widowed and 13(4.4) separated.

Concerning service year of nurses and physicians, the mean service year of respondents was 7.3 ± 5.56(SD) years with 7.26±5.47 (SD), 7.37±5.90 (SD) of service years for nurses and physicians respectively. Their majority 119 (40.6%) have served for<5 years. Followed by107(36.5%) of respondents served for5-10years.

Regarding of the professional title of respondents, majority 187(63.8%) of them were staff nurses, 67 (22.9%) were medical doctors, head nurse and matron which accounts 36(12.3) and 3(1%) respectively.

The result on level of education showed a large proportion of participants 143 (46.8%) were Bsc nurses, 46(16%) were diploma nurses,42(14.3) were specialist medical doctors, 37(12.6%) Msc nurses, 20(8.5%) general practitioner medical doctors and 5(1.7) subspecialist medical doctors.

As to working area of nurses and physicians, 43 (14.6%), 31 (10.6%), 38(13%), 4 1 (14%), 31(10.6%),27(9.2), 42(14.3), and 40(13.7%) of them have been working in medical unit,surgical unit,critical care unit, emergency unit, operation room, obstetrics/gynecology unit, pediatrics unit and OPD respectively.(SeeTable1, Fig 2 and Fig 3 below)

Table 1 Socio-demographic characteristics of nurses (n = 226) and physicians (n = 67) in Tikur Anbessa specialized referral hospital, Addis Ababa, Ethiopia, 2015, (total n=293)

Characteristics	Number of Nurses (%)	Number of Physicians (%)	Total No. (%)
Sex			
Male	99 (43.8)	41 (61.2)	140 (47.8)
Female	127 (56.2)	26 (38.8)	153 (52.2)
Age			
<25	56 (24.8)	7 (10.4)	63 (21.5)
26-30	61 (27)	11 (16.4)	72 (24.6)
31-35	52 (23)	24 (35.8)	76 (25.9)
36-40	27 (11.9)	13 (19.4)	40 (13.7)
>40	30 (13.3)	12 (17.9)	42 (14.3)
Marital status			
Single	105 (46.5)	30 (44.8)	135 (46.1)
Married	84 (37.2)	32 (47.8)	116 (39.6)
Divorced	14 (6.2)	3 (4.5)	17 (5.8)
Widowed	12 (5.3)	0.00 (0.00)	12 (4.1)
Separated	11 (4.9)	2 (3)	13 (4.4)
Length of service			
<5	94 (41.6)	25 (37.3)	119 (40.6)
5-10	81 (35.8)	26 (38.8)	107 (36.5)
11-15	33 (14.6)	9 (13.4)	42 (14.3)
>15	18 (8.0)	7 (10.4)	25 (8.5)
Professional title			
Staff nurse	187 (82.7)	-	187 (63.8)
Head nurse	36 (15.9)	-	36 (12.3)
Matron	3 (1.3)	-	3 (1)
Doctor	-	67 (100)	67 (22.9)
Level of education			
Diploma	46 (20.6)	-	46 (16)
BSc	143 (63)	-	143 (46.8)
MSc	37 (16.4)	-	37 (12.6)
GP	-	20 (29.9)	20 (8.5)
Specialist	-	42 (62.7)	42 (14.3)
Sub specialist	-	5 (7.5)	5 (1.7)

Characteristics	Number of Nurses (%)	Number of Physicians (%)	Total No. (%)
Area of work			
Medical unit	28 (12.4)	15 (22.4)	43 (14.6)
Surgical unit	21 (9.3)	10 (14.9)	31 (10.6)
Critical care unit	29 (12.8)	9 (13.4)	38 (13)
Emergency unit	36 (15.9)	5 (7.5)	41 (14)
Operation room	26 (11.5)	5 (7.5)	31 (10.6)
Oby/gyn	21 (9.3)	6 (9)	27 (9.2)
Pediatrics	35 (15.5)	7 (10.4)	42 (14.3)
OPD	30 (13.3)	10 (14.9)	40 (13.7)

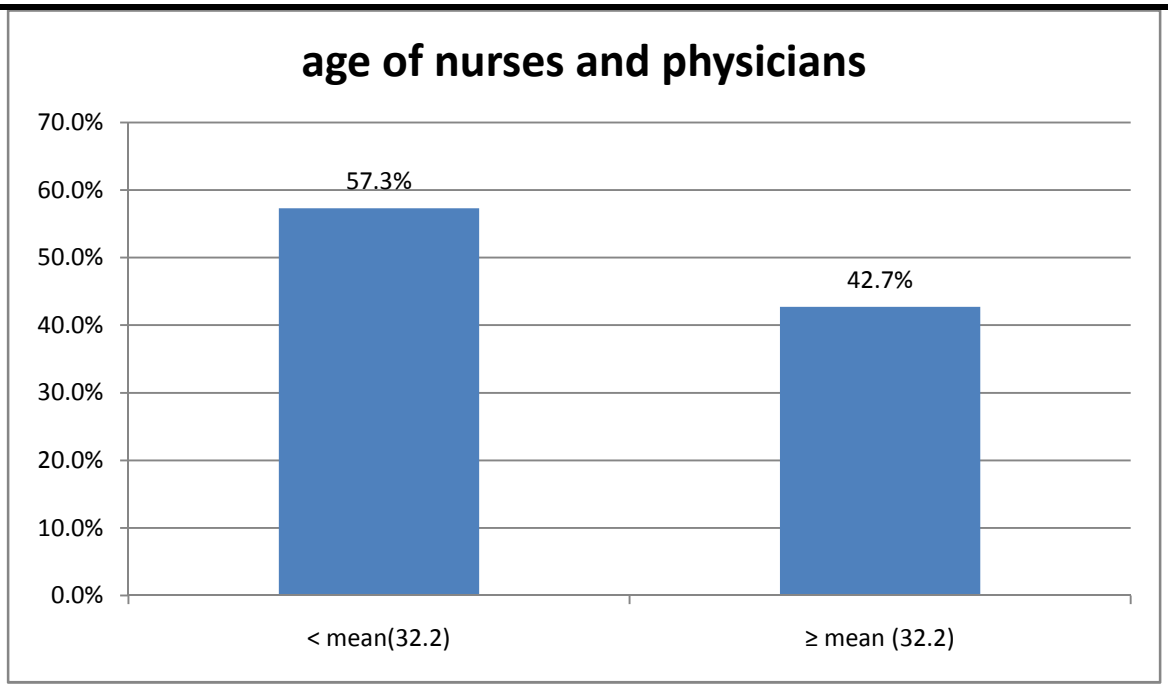

Figure 2 Age of nurses and physicians in percent in Tikur Anbessa specialized referral hospital, Addis Ababa, Ethiopia, 2015, (n = 293).

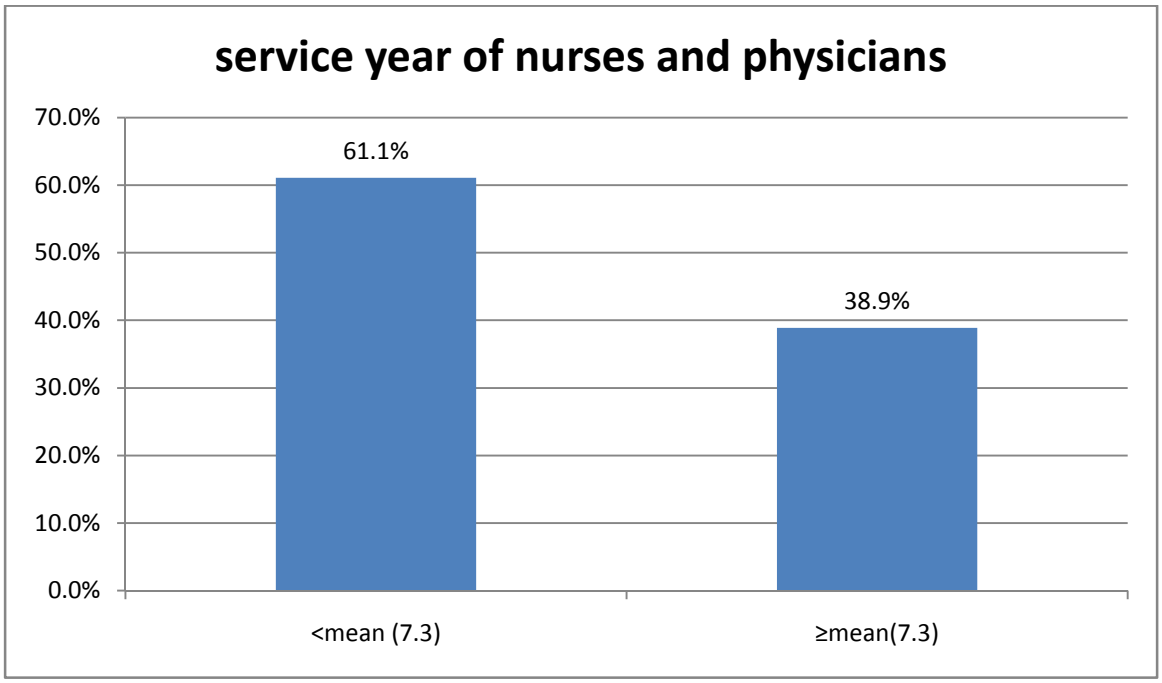

Figure 3 Service year of nurses and physicians in percent in Tikur Anbessa specialized referral hospital, Addis Ababa, Ethiopia, 2015, (n = 293).

6.1.3. Descriptive Characteristics of Nurse- Physician Attitude towards collaboration

The mean scores in relation to four subscales of Jefferson scale [1) shared education and teamwork, 2) Caring vs. curing, 3) nurses autonomy and 4) physician dominance] are obtained and used to measure favorable and unfavorable attitudes of nurses and physicians towards nurse-physician collaboration.

In the "shared education and team work" factor (i.e., a higher score indicates greater orientation towards inter disciplinary education and inter professional collaboration), so there is 163(55.6%) favorable attitude followed by 130(44.4%) unfavorable attitude with mean score 23.4 ± 3.38(SD).

Results for the most favorable attitude of nurse–physician collaboration reported in Subscale "Caring versus curing" with mean score 9.84 ± 1.8 (SD) in this factor (i.e., higher score indicates a more positive view of nurses contributions to the psychosocial and educational aspects of patient care), there are 188(64.2%) favorable attitude and 105(35.8%) unfavorable attitudes.

In the "nurses autonomy" factor (i.e., a higher factor score indicates more agreement with nurse's involvement in decisions pertaining to patient care and policy), there is 182(62.1%) favorable attitude and 111(37.9%) unfavorable attitude with mean score of 9.86± 1.72 (SD).

In the final factor score the "physician's dominance" dimension (i.e., a higher factor score indicates a rejection of a totally dominant role by the physician in aspects of patient care), in this case 170(42%) unfavorable and 123(58%) favorable attitude with mean score 5.5± 1.74 (SD). Nurses scored higher in all subscales except sub scale four which means they have favorable attitude on all subscales whereas physicians scored higher only on sub scale four which means they have unfavorable attitude towards 'physician dominance'. In overall attitude scale nurses score higher than physicians. (See Table 2. below)

Table 2 Descriptive Characteristics of Nurses (n=226) and Physician (n=67) Attitude towards collaboration in Tikur Anbessa specialized referral hospital, Addis Ababa, Ethiopia, 2015, (total n=293)

Characteristics	Number of Nurses (%)	Number of Physicians (%)	Total No. (%)
Shared education and team work			
Favorable	135 (59.7)	28 (41.8)	163 (55.6)
Unfavorable	91 (40.3)	39 (58.2)	130 (44.4)
Caring vs. curing			
Favorable	151 (66.8)	37 (55.2)	188 (64.2)
Unfavorable	75 (33.2)	30 (44.8)	105 (35.8)
Nurse autonomy			
Favorable	141 (62.4)	41 (61.2)	182 (62.1)
Unfavorable	85 (37.6)	26 (38.8)	111 (37.9)
Physician dominance			
Favorable	128 (56.6)	42 (62.7)	170 (58)
Unfavorable	98 (43.4)	25 (37.3)	123 (42)
Over all attitude			
Favorable	133(58.8)	32 (47.8)	165(56.3)
Unfavorable	93 (41.2)	35 (52.2)	128(43.7)

6.1.4. Descriptive Characteristics of Nurse- Physician collaborative behavior

In order to identify the frequently and infrequently used collaborative behaviors, mean item scores were calculated within each subscales. According to this in "Sharing patient information " subscale it shows 125(42.7%) frequent and 168(57.3%) infrequent collaborative behavior with mean score of 26.42±6.84.

Results for the most frequently used nurse–physician collaborative behaviors reported in Subscale "Decision making process" with 133(45.4%) frequent and 160(54.6%) infrequent and mean score of 33.97±8.06.

In "Relationship between nurse and physician" category there is 131(44.7%) frequent and 162(55.3%) infrequent collaborative behavior with mean score of 15.95±4.52.

In overall nurse-physician collaborative scale (NPCS) nurses and physicians showed that infrequent collaborative behavior. But nurses showed more frequent collaborative behavior as compared to physicians (See Table 3.below)

Table 3Descriptive characteristics of Nurse - physician collaborative behavior in Tikur

Anbessa specialized referral hospital, Addis Ababa, Ethiopia, 2015, (total n=293)

Characteristics	Number of Nurses (%)	Number of Physicians (%)	Total No. (%)
Sharing patient information			
Frequently	99 (43.8)	26 (38.8)	125 (42.7)
Infrequently	127 (56.2)	41 (61.2)	168 (57.3)
Decision making process			
Frequently	109 (48.2)	24 (35.8)	133 (45.4)
Infrequently	117 (51.8)	43 (64.2)	160 (54.6)
Relationship between nurse and physician			
Frequently	97 (42.9)	34 (50.7)	131 (44.7)
Infrequently	129 (57.1)	33 (49.3)	162 (55.3)
Over all collaborative behavior			
Frequently	101 (44.7)	24 (35.8)	125 (42.7)
Infrequently	125 (55.3)	43 (64.2)	168 (57.3)

6.2. Mean values and differences between nurses and physicians

6.2.1. Mean values and differences between nurses and physicians with regard to the Sub scales of the Jefferson scale of attitude towards nurse-physician collaboration

For the Jefferson Scale of Attitude towards Nurse-Physician Collaboration includes four subscales, which are: 1) shared education and teamwork, 2) Caring vs. curing, 3) nurses autonomy and 4) physician dominance.

In the "shared education" sub scale there is significant difference between nurses and physicians attitude (t = 3.69, p-value 0.000) with mean score of 23.79(SEM 0.21) and 22.09(SEM 0.48). On "caring vs. curing" sub scale also there is significant difference between nurses and physicians with (t = 2.04, p-value 0.04) mean score of 9.95(SEM 0.12) and 9.45(SEM 0.23). Nurses scored higher on three subscales (1, 2 and 3) whereas physicians scored higher on sub scale 4.

The *t*-test for the analysis of overall attitude of nurses and physicians towards collaboration revealed significant difference between nurses and physicians, nurses demonstrate more favorable attitudes than physicians (t = 2.93 ,p –value 0.003) with mean score of 49.18 (SEM 0.39) and 46.64 (SEM 0.89). (See table 4, below)

Table 4 Mean values and differences between nurses (n=226) and physicians (67) with regard to the subscales of the Jefferson scale of attitude towards N-P collaboration, in Tikur Anbessa specialized referral hospital, Addis Ababa, Ethiopia, 2015, (total n=293)

Jefferson scale	Profession	Mean	SD	SEM	t	Df	P-value
Shared education	Nurse	23.79	3.10	0.21	3.69	291	**0.000**
	Physician	22.09	3.93	0.48			
Caring vs curing	Nurse	9.95	1.76	0.12	2.04	291	**0.04**
	Physician	9.45	1.89	0.23			
Nurse autonomy	Nurse	9.94	1.64	0.11	1.49	291	0.14
	Physician	9.58	1.95	0.24			
Physician dominance	Nurse	5.49	1.77	0.12	-0.11	291	0.91
	Physician	5.52	1.63	0.99			
Over all attitude	Nurse	49.18	5.85	0.39	2.93	291	**0.003**
	Physician	46.64	7.28	0.89			

Bold indicates statistical significant at p-value <0.05

6.2.2. Mean values and differences between nurses and physicians with regard to the Sub scales of collaborative behavior towards nurse-physician collaboration

For the nurse-physician collaborative scale nurse-physician behavior includes three subscales, which are: 1) Sharing patient information, 2) Decision making process and 3) relationship between nurse and physician.

In the sub scale "Decision making process" of NPCS there is significant difference between nurses and physicians collaborative behavior with (t = 2.49, p-value 0.01) with mean score of 34.61(SEM 0.55) and 31.83(SEM 0.87).

Nurses scored higher on two subscales (1 and 2) whereas physicians scored higher on sub scale 3.The *t*-test for the analysis of overall collaborative behavior of nurses and physicians revealed (t = 1.45 , p –value 0.12) with mean score of 76.79 (SEM 1.09) and 73.49 (SEM 1.98), nurses shows more frequent collaborative behavior than physicians. (See table 5, below)

Table 5 Mean values and differences between nurses and physicians with regard to the subscales of collaborative behavior towards N-P collaboration in Tikur Anbessa specialized referral hospital, Addis Ababa, Ethiopia, 2015, (total n=293)

N-P collaboration behavior	Profession	Mean	SD	SEM	T	df	Pvalue
Sharing patient information	Nurse	26.79	6.60	0.44	1.72	291	0.09
	Physician	25.16	7.18	0.91			
Decision making process	Nurse	34.61	8.22	0.55	2.49	291	**0.01**
	Physician	31.83	7.17	0.87			
Relationship between nurse and physician	Nurse	15.91	4.52	0.30	-0.25	291	0.81
	Physician	16.07	4.58	0.56			
Over all collaboration behavior	Nurse	76.79	16.39	1.09	1.45	291	0.12
	Physician	73.49	16.25	1.98			

Bold indicates statistical significant at p-value <0.05

6.3. Mean deference score of attitude and collaborative behavior among different factors in nurses and physicians

6.3.1. Mean values and differences between factors with regard to the subscales of the Jefferson scale of attitude towards nurse-physician collaboration

Females showed more favorable attitude towards nurse-physician collaboration compared to males with mean value 48.78 ± 6.74, 48.41 ± 5.77 (t= -0.51 and p value – 0.61). On the other hand the older age showed more favorable attitude than the younger age group with mean value of 48.71±7.03, 48.52±5.69 (t = -0.25 and p value - 0.80) and in the service year nurses and physicians with longer service year showed more favorable attitude compared to nurses and physicians who have short service year with mean value of 48.89±7.25, 48.42±5.60 (t=-0.61 and p value - 0.54). But there is no significant difference in any of those factors. (See table 6, below)

Table 6 Mean values and differences between factors with regard to the subscales of the Jefferson scale of attitude towards nurse-physician collaboration in Tikur Anbessa specialized referral hospital, Addis Ababa, Ethiopia, 2015, (total n=293)

Factors	Category	Mean	SD	SEM	t	Df	p-value
Sex	Male	48.41	5.77	0.49	-0.51	291	0.61
	Female	48.78	6.74	0.54			
Age	< mean	48.52	5.69	0.44	-0.25	291	0.80
	≥ mean	48.71	7.03	0.63			
Service year	< mean	48.42	5.60	0.42	-0.61	291	0.54
	≥ mean	48.89	7.25	0.68			

Bold indicates statistical significant at p-value <0.05

6.3.2. Mean values and differences between factors with regard to the subscales of the nurse physician collaborative scale towards nurse-physician collaborative behavior

The younger age group showed more frequent collaborative behavior compared to old age groups with mean value 78.61±16.70, 72.58±15.36(t = 3.17 and p value - 0.002). Service year also showed significance difference between nurses and physicians with short and long service with mean value 80.00±17.28, 69.81±12.64 (t=5.44 and p value - 0.000). (See table 7, below)

Table 7 Mean values and differences between factors with regard to the subscales of nurse-physician collaborative scale towards N-P collaborative behavior in Tikur Anbessa specialized referral hospital, Addis Ababa, Ethiopia, 2015, (total n=293)

Factors	Category	Mean	SD	SEM	t	Df	p-value
Sex	Male	77.38	17.35	1.47	1.34	291	0.18
	Female	74.81	15.42	1.25			
Age	< mean	78.61	16.70	1.29	3.17	291	**0.002**
	≥ mean	72.58	15.36	1.37			
Service year	< mean	80.00	17.28	1.29	5.44	291	**0.000**
	≥ mean	69.81	12.64	1.18			

Bold indicates statistical significant at p-value <0.05

7. Discussion

Many think of collaboration as a form of cooperation, but this is not an accurate definition. In collaboration, problem solving is a joint effort with no superior-subordinate, order-giving order-taking relationship. True collaboration requires mutual respect, open and honest communication, and equitable, shared decision making powers[32].

The findings of this study indicates that more than half of nurses 133(58.8%) and 32(47.8%) physicians showed favorable attitude. On the other hand 93(41.2%) of nurses and 35(52.2%) of physicians showed unfavorable attitude towards nurse-physician collaboration. This shows that nurses were more favorable towards nurse-physician collaboration than physicians. The same trend was observed by study conducted in Vastra Gotland region, Sweden[33].

Earlier international studies from doctors' and nurses' attitudes towards collaboration, however, indicate more positive attitude towards collaboration between doctors and nurses[30, 31].
However, a research conducted in two French-Canadian universities showed, graduating family physicians and nurse clinicians are quite open to collaborating with each another. Although they have observed some collaboration between physicians and nurses, there are areas of shared clinical activities in which they would benefit from further exposure and training[22].
In addition to this a study conducted in Norway the large majority of both nurses (71%) and doctors (79%) considered inter-professional co-operation good at the hospital in which they worked. This might be due to difference in socio-economic status that can affect both individuals and organization[37].
Analysis of the Subscales of Jefferson scale of attitude reveals that nurses scored higher on subscales of "shared education and team work" with mean score 23.79 and 22.09 respectively (p- Value 0.000),"Caring as opposed to curing" with mean score 9.95 and 9.45 respectively (p- Value 0.04) and on overall total attitude scores with mean score 49.18 and 46.64 respectively (p- value 0.003).This all explains nurses favorable attitude towards nurse-physician collaboration. This is in line with previous studies conducted in Sweden, Texas, America, and Egypt and cross cultural study including America, Israel, Italian and Mexican[31, 34, 35].

Frequently and infrequently used collaborative behaviors may have a significant impact on future practices in health care, specifically in areas of quality and safety. This study's findings regarding the frequency of nurse–physician collaborative practice behaviors provide insight into these domains and create additional questions to be explored. So, the finding of this study regarding collaborative behavior indicates that more than half of nurses and physicians show Infrequent collaborative behavior 168(57.3%) and 125(42.7%) of them show frequent collaborative behavior. This represents that there is infrequent collaborative behavior in both nurses and physicians.

Analysis of the Subscales of nurse-physician collaboration scale (NPCS) reveals that nurses scored higher compared to physicians on subscale of "Decision making process" with mean score 34.61 and 31.83 respectively (p-value 0.01). This indicates significant difference which is nurses showed more frequent nurse-physician collaborative behavior than physicians and this finding was consistent with previous studies in America, Sweden and Egypt. This could be due to different training programs that set up a hierarchical model with nurses in a relatively subservient role [31,33, 38].

The same trend was observed by study conducted in Felegehiwot & Gondar referral hospitals, Ethiopia. Which is more than half of nurses as well as physicians rated their current collaboration as "poor". This shows that neither nurses nor physicians satisfied with their collaborative practice [31].

There is also another same study that conducted in Hawassa Teaching Referral Hospital, Ethiopia, shows poor nurse-physician communication and collaboration[36].

The literature on physician–nurse collaboration often laments the poor relationship between the professions, emphasizing anger, conflict and differences in attitudes towards collaboration[32].

On the other hand a study conducted in Toronto, Canada mention that successful physician–nurse interaction, illuminating the synergistic, positive, affective dimensions of successful collaboration in both nurses and physicians. This might be due to difference in the study area and study [31,34, 35].

In this study the *t*- test analysis for Jefferson scale of attitude shows no significant difference of factors. These were in line with a study conducted in Nigeria. In contrast, the *t*- test analysis for NPCS shows significant difference. The younger age group showed more frequent collaborative behavior compared to old age groups with mean value 78.61±16.70, 72.58±15.36 (p value - 0.002). Service year also showed significance difference between nurses and physicians with short and long service year with mean value 80.00±17.28, 69.81±12.64 (p value 0.000). A study conducted in Virginia, Egypt and Sweden Variables/ age and experience showed a significant difference [31,35, 34]

This might be due to majority of respondents in our study have less than 5 years of experience and the sample of those experienced is not sufficient enough to detect the effect. As previously mentioned, earlier studies in different settings and different countries have come up with very similar results, thus supporting the results attained here.

7.1. Strength of the study

- ✓ Adequate sample was recruited.
- ✓ The questionnaires were pre-tested and modified before data collection
- ✓ Using Jefferson scale based standard questionnaire
- ✓ The data collection instrument / respondents list used as frame work appropriately

7.2. Limitation of the study

- ✓ Using self-administered questionnaire, the respondents may not pay full attention for it/read it properly.
- ✓ Number of physicians participated in the study is minimal compared to that of nurses which might have impact on the results.

8. Conclusion and recommendation

8.1. Conclusion

This study identified that majority of the respondents have significant favorable total attitude towards Jefferson scale of attitude and infrequent collaborative behavior in overall NPCS but it wasn't significance here. As compared with physicians nurses had more favorable attitudes towards collaboration specifically toward shared education and team work, caring vs. curing, and overall total attitude subscales. And also as compared with physicians nurses had more frequent collaborative behavior especially in subscale "Decision making process".

8.2. Recommendations

For physicians/nurses

- Shared continuing educational, in service training programs and workshop especially these with a focus on teamwork and collaboration.
- Nurses and physicians are recommended to create suitable environment for the qualityof their collaboration with one another. Taking responsibility from both sides can improve approaching one another in a collegial, respectful, and problem solving-based manner, no matter how badly any individual may behave.
- Physicians are recommended to attend seminars or presentations related to nurses' contributions to psychosocial and educational aspects of patient care in order to improve their attitude towards nurse care.

For the hospital

- Forums to disseminate the result of research on collaboration can provide opportunities for open discussion and problem solving, thus creating an ongoing awareness of the need for improved collaboration.
- Providing cross-disciplinary shadowing opportunities for nurses and physicians to provide mutual understanding of roles, and enable both groups to better envision collaborative practice.

- Involving both nurses and physicians in the recruiting efforts of an organization could help improve the understanding of the needs and values of each group.
- Hospital management should conduct on-job workshops and seminars on inter personal and professional collaboration skills participating both nurses and physicians and Promote interaction between them. Creating awareness through participatory trainings can improve social and professional interaction between nurses and physicians .

For policy maker

- Initiating and developing mutually respectful inter-professional relationships between nurses and physicians. This can be done through inter professional education in their curriculum to increase understanding of complementary roles of nurses and physician, and encourage establishment of an interdependent relationship between them.
- Develop programs that promote interaction between medical and nursing students help these future professionals understand each other's roles and responsibility.

For future researchers

- Future researchers should conduct studies in order to investigate the main reason for poor nurse-physician collaboration.

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Annex: Questionnaire for Nurses and physicians (English version)

l.1. Information sheet

Addis Abeba University, Collage of health Sience, Department of Nursing and Midwifery

Graduate Studies

Study prepared to collect data on Assessment of Attitude of nurses and physicians towards nurse physician collaboration in Tikur Anbessa specialized Hospital, Addis Abeba, Ethiopia, questionnaires.

Good morning/good afternoon

Hello! My name is_____ _____.I am here today to collect data

On nurse-physician collaboration at Tikur Anbessa specialized hospital The study is being conducted by Lidiya Tsegay who is Msc nurse student in department of Nursing, postgraduate progr am. The objective of this study is to assess nurse physician collaboration at Tikur Anbessa hospital. You are being asked to take part in this study and to respond genuinely.

This interview focuses on your collaboration in patient care and the effect of nurse physician collab oration on patient outcome. your cooperation and willingness is greatly helpful in identifying probl ems related to nurse-physician collaboration. Your name will not be written in this form and will ne ver be used in connection with any information you tell us &this interview may take a maximum of 20 to 25 minutes to complete.

There is no possible risk associated with participating in this study except the time spent for

completing the questionnaire. All information given by you will be kept strictly confidential.Your

Participation is voluntary and you are not obligated to answer any question you do not wish to answ er. If you feel uncomfortable with the question, it is your right to drop it any time

you want. If you have questions regarding this study or would like to be informed of the results after its completion, please feel free to contact the principal investigator.

Address of the principal investigator:

Sr. Lidiya Tsegay

Cell phone:+25191116 87 22

E-mail:tsegay.lidiya2006@yahoo.com

tsegay.lidiya2006@gmail.com

Address of My Advisor

Telephone number: +251911201135

E-mail:asrat.megenta@yahoo.com

Are you willing to participate in this study?

1. Yes…… Continue to the next page

2. No ……return the paper

1.2. Consent form

In signing this document, I am giving my consent to participate in the study titled "Assessment of inter professional collaboration between nurses and physicians working at Tikur Anbessa specialized hospital".

I have been informed that the purpose of this study is to assess nurses and physician's attitude

to wards collaboration between them and the effect of nurse-physician collaboration on patient outcome in Tikur Anbessa Specialized hospital. I have understood that participation in this study is entirely voluntarily. I have been told that my answers to the questions will notbe given to anyone el se and no reports of this study ever identify me in any way. I have also been informed that my parti cipation or non participation or my refusal to answer questions will have no effect on me. I understo od that participation in this study does not involve risks.

I understood that Lidiya Tsegay is the contact person if I have questions
about the study or about my rights as a study participant.

Address of the principal investigator: Lidiya Tsegay

Mobile number: +25191116 87 22

E-mail:tsegay.lidiya2006@yahoo.com

tsegay.lidiya2006@gmail.com

Address of My Advisor

Telephone number: +251911201135

E-mail: asrat.megenta@yahoo.com

_____

Results of questionnaire

1. Completed

2. Respondent not available

3. Refused

4. Partially completed

Identification

Questionnaire No. _____

Supervisor's name_____

_____

signature_____

1.3. Questionnaire for Nurses and physicians

Addis Ababa University, College of Health Science, School of Allied Health Science, Department Of Nursing and Midwifery.

A study to assess inter-professional collaboration between nurses and physicians.

This questionnaire has its own instructions. Please read each item carefully and give your honest r esponse to each item. If you over look any item without response, it will affect the study. So, please check that you have given response to all items.

I thank you for your genuine responses and cooperation.

Part1:Nurses'personal information

Instruction: Please circle the number in front of the option you choose on the right side of the table.

No.	Questions	Coding categories
1	sex	Male----------1
		Female----------2
2	Age in years	
3	What is your current marital status?	Single----------1
		Married----------2
		Divorced----------3
		Widowed----------4
		separeted----------5
4.	Length of service in nursing profession(in years)	
5	What is your title?	Staff nurse----------1
		Head nurse----------2
		Matron /chief executive nurse----3

6.	Level of education	Diploma----------1
		BSc----------2
		Msc _____3
7.	Area of work	Medical unit----------1
		Surgical unit----------2
		Critical care unit----------3
		Emergency unit----------4
		Operation room----------5
		Obstetrics/gynecology unit---6
		Pediatrics unit----------7
		OPD----------8
		Other----------9

Part1: Physicians' personal information

Instruction: Please circle the number in front of the option you choose on the right side of the table.

No.	Questions	Coding categories
1.	Sex	Male----------1
		Female----------2
2.	Age in years	
3.	What is your current marital status?	Married----------1
		Single----------2
		Divorced----------3
		Widowed----------4 separated----------5
4.	Length of service in medical profession(in years)	
5.	Level of education	General practitioner----------1
		Specialist ----------2
		subspecialist----------3
6.	Area of work	Medical unit ----------1
		Surgical unit----------2
		Critical care unit----------3
		Emergency unit----------4
		Obstetrics/gynecology unit----------5
		Pediatrics unit----------6
		OPD----------7
		Others----------8

Part 2: Jefferson Scale of Attitudes

Toward Physician-Nurse Collaboration

For both of them / Nurses and Physicians

***Instructions*:** Please indicate the extent of your **agreement or disagreement** with each of the following statements by circling the appropriate number.

	strongly agree	tend to agree	tend to disagree	strongly disagree
2. Nurses are qualified to assess and respond to psychological aspects of patients' needs	1	2	3	4
3. During their education, medical and nursing students should be involved in teamwork in order to understand their respective roles.	1	2	3	4
4. Nurses should be involved in making policy decisions affecting their working conditions.	1	2	3	4
5. Nurses should be accountable to patients for the nursing care they provide.	1	2	3	4
6. There are many overlapping areas of responsibility between physicians and nurses.	1	2	3	4
7. Nurses have special expertise in patient education and psychological counseling.	1	2	3	4
8. Doctors should be the dominant authority in all health care matters.	1	2	3	4
9. Physicians and nurses should contribute to decisions regarding the hospital discharge of patients.	1	2	3	4
10. The primary function of the nurse is to carry out the physicians' orders.	1	2	3	4
11. Nurses should be involved in making policy decisions concerning the hospital support services upon which their work depends.	1	2	3	4
12. Nurses should also have responsibility for monitoring the effects of medical treatment.	1	2	3	4

13. Nurses should clarify a physician's order when they feel that it might have the potential for detrimental effects on the patient.	1	2	3	4
14. Physicians should be educated to establish collaborative relationships with nurses.	1	2	3	4
15. Inter professional relationships between physicians and nurses should be included in their educational programs.	1	2	3	4

Part 3:Nurse-physician collabrative scale (NPCS)

For both of them / Nurses and Physicians

***Instructions*:** Please indicate the extent of your **agreement or disagreement** with each of the following statements by circling the appropriate number.

No.	Questions	Always	Usually	Sometimes	Rarely	Never
1.	The nurses and the physicians exchange Physicians opinions to resolve problems related to patient cure/care	1	2	3	4	5
2.	In the event of a disagreement about the future direction of a patient's care, the nurses and the physicians hold discussion to resolve differences of opinion	1	2	3	4	5
3.	The nurses and the physicians discuss whether to continue a certain treatment when that treatment is not having the expected effect	1	2	3	4	5
4.	When a patient is to be discharged from the hospital, the nurses and the physician discuss where the patient will continue to be treated and the lifestyle regimen the patient needs to follow	1	2	3	4	5
5.	When confronted by a difficult patient the nurses and the physicians discuss how to handle the situation	1	2	3	4	5
6.	The nurses and the physicians discuss the problems a patient has	1	2	3	4	5
7.	The nurses and the physicians have the same understanding of the future direction of the patient's care	1	2	3	4	5
8.	In the event a patient develops unexpected side effects or complications the nurses and the physicians discuss countermeasures	1	2	3	4	5
9.	In the event a patient no longer trusts a staff member, the nurses and the physicians try to respond to the patient in a consistent manner to resolve the situation	1	2	3	4	5
10.	The future direction of a patient's care is based on a mutual exchange of opinions between the nurses and the physicians	1	2	3	4	5
11.	The nurses and the physicians seek agreement on signs that a patient can be discharged	1	2	3	4	5
12.	The nurses and the physicians discuss how to prevent medical care accidents	1	2	3	4	5
13.	The nurses and the physicians all know what has been explained to a patient about his/her condition	1	2	3	4	5

	or treatment					
14.	The nurses and the physicians share information to verify the effects of Nurses treatment	1	2	3	4	5
15.	The nurses and the physicians have the same understanding of the future direction of the patient's care	1	2	3	4	5
16.	The nurses and the physicians identify the key person in a patient's life	1	2	3	4	5
17.	In the event of a change in treatment plan, the nurses and the physicians have a mutual understanding of the reason for the change	1	2	3	4	5
18.	The nurses and the physicians check with each other concerning whether a patient has any signs of side effects or complications	1	2	3	4	5
19.	The nurses and the physicians share information about a patient's reaction to explanations of his/her disease status and treatment methods	1	2	3	4	5
20.	The nurses, the physicians, and the patient have the same understanding of the patient's wish for cure and care	1	2	3	4	5
21.	The nurses and the physicians share information about a patient's level of independence in regard to activities of daily living	1	2	3	4	5
22.	The nurses and the physicians can easily talk about topics other than topic related to work	1	2	3	4	5
23.	The nurses and the physicians can freely exchange information or opinions about matters related to work	1	2	3	4	5
24.	The nurses and the physicians show concern for each other when they are very tired	1	2	3	4	5
25.	The nurses and the physicians help each other	1	2	3	4	5
26.	The nurses and the physicians greet each other every day	1	2	3	4	5
27.	The nurses and the physicians take into account each other's schedule when making plans to treat a patient together	1	2	3	4	5

APPROVED BY THE BOARD OF EXAMINATION

This thesis by Lidiya Tsegay is accepted in its present form by the board of examiners as satisfying thesis requirement for the degree of Masters of Science in Adult health Nursing.

Examiner:

Mr. Girum	_____	_____
Full name	Rank	Signature and Date

Advisor: Asrat Demssie (RN, BSc N, MSC N, Assistant professor)

_____	_____	_____
Full name	Rank	Signature and Date

Department head: Mr. Daniel Mengstu (Assistant professor)

_____	_____	_____
Full name	Rank	Signature and Date

Declaration

I the undersigned, declare that this thesis is my original work, has never been presented in this or any other university, and that all resources and materials used for the thesis have been duly acknowledged.

Name: Lidiya Tsegay

Signature _____

Place Addis Ababa, Ethiopia

Date of submission ____25/06/2015_____

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

Advisor Name: Assistant Professor Asrat Demssie

Signature _____

Date _____25/06/2015_____