

ADDIS ABABA UNIVERSITY
FACULTY OF MEDICINE
CENTRALIZED SCHOOL OF NURSING

**ASSESSMENT OF ADULT DIABETIC CLIENTS PERCEPTION ABOUT THE
EFFECT OF DIABETIC RELATED EDUCATION AND COUNSELING IN
YEKATIT 12 AND BLACK LION SPECIALIZED HOSPITALS, A CROSS-
SECTIONAL STUDY; ADDIS ABABA, 2009**

MEAZA GETAHUN
CANDIDATE OF M Sc IN NURSING

ADVISOR: ASRAT DEMISSIE
(ASS. PROFESSOR, M Sc N, B Sc N)

CO-ADVISOR: Dr YEWEYENHAREG FELEKE
**(ASSOCIATE PROFESSOR OF MEDICINE, ENDOCRINOLOGY
AND METABOLISM UNIT)**

**A RESEARCH PAPER SUBMITTED TO CENTRALIZED SCHOOL OF
NURSING, FACULTY OF MEDICINE, ADDIS ABABA UNIVERSITY IN
PARTIAL FULFILLMENT FOR MASTER OF SCIENCE IN NURSING (ADULT
HEALTH NURSING)**

JUNE, 2009
ADDIS ABABA, ETHIOPIA

APPROVAL BY THE BOARD OF EXAMINERS

This thesis by Meaza Getahun is accepted with recommendation of modifications by the Board of Examiners as satisfying thesis requirement for the degree of Masters of Science in Nursing.

Internal Examiner

Irdaw Tachbele

Full Name

Rank

Date

Research Advisor/ Supervisor

Asrat Demissie

Full Name

Rank

Date

ABSTRACT

Background: *The incidence of Type 2 Diabetes Mellitus (T2DM) is rapidly increasing on a global basis. Provision of proper educational session in health care facilities is believed as important in the management of T2DM.*

Objective: *The aim of this study was to assess the perception of adult diabetic patients on diabetic related education and counseling.*

Method: *This cross-sectional study was done in Addis Ababa Black Lion Specialized Hospital (BLSH) and Yekatit 12 Hospital Diabetic clinics from April 25 – May 22, 2009. The techniques for data collection were interview method and Focus Group Discussion (FGD). Six nurses were interviewers and the principal investigator supervised the over all process during an interview. FGD was conducted by the investigator with the aid of tape-recorder. A total of Four-hundred forty two participants with Type 2 Diabetes Mellitus and 25 patients were included in FGD. Data analysis was done using SPSS version 15.0 and results were presented by tables, figures and different statistical tests were done to indicate associations between variables.*

Result: *Out of 442 study participants and 25 informants, nearly 56.6% of them were females and 60.7% of them aged above 40 years of age. Three-hundred ninety one (88.5%) of them were living with family and 225 (50.9%) of them had low monthly income (< 400 ETB). Mean BMI and FBS of study participants were 23.6 ± 3.81 kg/m² and 164 ± 71.1 mg/dl respectively. Almost half of the study participants had FBS level between 120- 199 mg/ dl of blood.*

Around 63.6 – 97.7% of study participants had sufficient knowledge on what

diabetes mellitus is, management options and related acute/ chronic complications. Perception about given diabetic education was strongly associated with age, education, income and duration of patient's diagnosis with T2DM ($P < 0.001$ and $p < 0.005$).

Conclusions: *Regular educational session for patients with adult onset diabetes mellitus is mandatory for empowering them with knowledge and skill. The result of this study will be used in those diabetic clinics as valuable information for improvement of patient education, which is essential for the betterment in quality of health.*

Keywords: *Counseling, education, perception, Type 2 Diabetes Mellitus.*

ACKNOWLEDGMENT

I would like to express my deep appreciation to Ass. Professor Asrat Demissie for his constructive comments and continuous guidance throughout the process of this thesis development. It is also my pleasure to forward my heartiest credit to Dr Yeweyenhareg Feleke (Associate Professor of Medicine) for her willingness to help me in the progression of this paper work.

Thanks to Addis Ababa University, Centralized School of Nursing for letting me to perform study on such interesting topic and granting me sufficiently! Also I want to extend my thanks to members of Medical Faculty Institutional review Board (IRB) for their valuable comments and suggestions.

I wish to express my gratitude to W/rt Belen Belayneh and W/ro Samrawit Tesfaye for assisting me in printing this manuscript whenever I want a hard copy and to duplicate the questionnaire.

I want to acknowledge data collector nurses for their devoted effort to keep the data quality and those clients who became volunteer to share their diabetic experience for this study.

TABLE OF CONTENTS

Title	Page
Approval by the board of examiners	ii
Abstract	iii
Acknowledgement.....	v
Table of contents.....	vi
List of tables	ix
List of figures	x
List of abbreviations	xi
Chapter 1. Introduction	
1.1. Background information.....	1
1.2. Statement of the problem	2
1.3. Significance of the study	5
Chapter 2 Review of the literature	6
Chapter 3 Objective	
3.1. General objective	11
3.2. Specific objectives	11
3.3. Research questions	11
Chapter 4 Methods and materials	12
4.1 Study area and period	12

4.2. Study Design.....	13
4.3. Population	
4.3.1. Source population	13
4.3.2. Study population.....	13
4.4. Sample size	
4.4.1. Sample size determination	14
4.4.2. Sampling technique	15
4.5. Measurement tools for data collection	
4.5.1 Study Variables	16
4.5.2. Instrument	17
4.6. Pre-test	18
4.7. Data Collection.....	18
4.8. Quality assurance of study	19
4.9. Data Analysis.....	19
4.10. Ethical Consideration.....	20
4.11. Dissemination of the result	20
4.12. Limitations of the study	21
4.13. Operational definitions	22
Chapter 5 Results	23
Chapter 6 Discussions	39
Chapter 7 Conclusions and recommendation	

7.1 Conclusions	41
7.2 Discussions	42
7.3 Clinical and Nursing implication	43
Chapter 8 References	44

ANNEXES

I. Participation information sheet	49
II. Informed verbal consent form	52
III. Questionnaire	54
IV. Curriculum Vitae	
IV. a. Curriculum vitae of principal investigator	63
IV. b. Curriculum vitae of advisor	64

LIST OF TABLES

Table	Page number
1. Frequency table on socio-demographic information among clients with Type 2 Diabetes Mellitus, Yekatit-12 and BLSH, June 2009.....	24
2. Frequency table of history of diabetic illness among clients with T2DM in BLSH and Yekatit 12 Hospitals, June 2009.....	27
3. Frequency table of diabetic related complications among clients with T2DM in BLSH and Yekatit 12 hospitals, June 2009	28
4. Frequency table of health habit and other Non-diabetic drug usage among patients with T2DM in Yekatit 12 and BLSH, June 2009.....	30
5. Knowledge of about diabetes mellitus management among T2DM clients in Yekatit 12 and BLSH, June 2009.....	32
6. Attitude of T2DM clients on self diabetic control in Yekatit 12 and BLSH, June 2009.....	34
7. Association table of age with duration of diabetic illness among patients with T2DM in Yekatit 12 and BLSH, June 2009.....	35
8. Association table of age with acute complications among patients with T2DM in Yekatit 12 and BLSH, June 2009.....	35
9. Association table of age and education level of patients with T2DM with knowledge pattern about the need of exercise in Yekatit 12 and BLSH, June	

2009..... **36**

10. Association table on perception of education and counseling effect on quality of life for patient with T2DM with their income and duration of illness in Yekatit 12 and BLSH, June 2009..... **37**

11. Association table of FBS value and presence of chronic complications with knowledge level on combined use of diet and exercise among patients with T2DM in Yekatit 12 and BLSH, June 2009..... **38**

LIST OF FIGURES

Figures	Page number
1. Age distribution of T2DM patients in Yekatit 12 and BLSH, June, 2009.....	25
2. Sex distribution of T2DM with their hospital follow up status of patients with T2DM, in Yekatit 12 and BLSH, June 2009.....	26
3. Distribution of income and diabetes related chronic complications among T2DM patients in Yekatit 12 and BLSH, June 2009	29

LIST OF ABBREVIATIONS

BLSH	Black Lion Specialized Hospital
BMI	Body Mass Index
CVD	Cardio Vascular Disease
DM	Diabetes Mellitus
FBS	Fasting Blood Sugar
FGD	Focus Group Discussion
HBM	Health Belief Model
IDDM	Insulin Dependent Diabetes Mellitus
NIDDM	Non-Insulin Dependent Diabetes Mellitus
OHA	Oral Hypo-glycemic Agents
RBS	Random Blood Sugar
SMBG	Self Monitoring of Blood Glucose
T1DM	Type 1 Diabetes Mellitus
T2DM	Type 2 Diabetes Mellitus
UK	United Kingdom
WHO	World Health Organization

CHAPTER ONE

1. INTRODUCTION

1.1 BACKGROUND INFORMATION

Diabetes mellitus is a term that denotes complex group of syndromes that has disturbance in the oxidation and utilization of glucose. It is not limited to a disturbance of glucose homeostasis alone, because insulin is involved in the metabolism of carbohydrates, proteins and fats (1).

Diabetes mellitus is a global problem that is increasing each year with aging of populations indicating more people have a longer life span in which they are prone to develop diabetes. This disease has been recorded in all species but is most commonly seen in middle-aged to older, obese, and female dogs. According to study, among human being there are factors that predispose to diabetes including age, gender, place and country of residence, race and ethnicity, socioeconomic status, and obesity (2).

According to studies, Type 2 Diabetes Mellitus (T2DM) is a mild form of progressive disorder than Type 1 Diabetes Mellitus (T1DM). The most common characteristics of Diabetes Mellitus are hyperglycemia, glycosuria, polyuria, hyperlipidemia (caused by imperfect catabolism of fats) and lowered resistance to infection (3).

Diabetes Mellitus is associated with many organ dysfunctions and affects quality of life greatly in the long run. Maintenance of near-normal glycemic control has been demonstrated to reduce the risk of its associated vascular complications. In order to achieve proper glycemic control, it is believed that education and counseling can play a great role to clients with Diabetes Mellitus (4).

1.2 STATEMENT OF THE PROBLEM

Diabetes Mellitus (DM) is affecting large sector of population worldwide. According to figures published by World Health Organization (WHO), it was estimated that 150 million people have DM globally and believed that this number would double by the year 2025 (5).

Diabetes Mellitus is a chronic metabolic disorder characterized by high levels of blood glucose and is associated with serious complications. It is considered as the 6th leading cause of death and the primary cause of blindness among peoples between twenty and seventy years of age. The exact causes of diabetes mellitus are unclear; however, there seem to be both hereditary (genetic factors passed from family) and environmental factors are involved. According to studies several medications can also impair the body's use of insulin and causing secondary diabetes. These medications include treatments for high blood pressure, hormonal drugs (oral contraceptives, thyroid hormone, progestin, and glucocorticoids) and anti-inflammatory drugs (6, 7).

Symptoms of T2DM begin gradually that a person may not know and it may be detected while a person is visiting health facilities for another health concern. Early signs are lethargy, extreme thirst, and frequent urination. Other symptoms may include sudden weight loss, slow wound healing, urinary tract infections, gum disease and blurred vision (8). The treatment of diabetes focuses on two goals: keeping blood glucose within normal range and preventing the development of long-term complications. Therefore careful monitoring of diet and moderate exercise are the initial treatments implemented in diabetes care (9).

Uncontrolled diabetes is a leading cause of blindness, heart disease, stroke,

end-stage renal disease, and limb amputations. Eye problems including cataracts, glaucoma, and diabetic retinopathy are also more common in diabetics. Diabetic foot ulcer is a particular problem associated with poor blood circulation to the legs and feet that delays wound healing (9).

In fact the number of people with cardiovascular disease (CVD) and Type 2 Diabetes Mellitus (T2DM) is growing rapidly due to risk factors, such as overweight, reduced physical activity and unhealthy diet. A research from Netherlands showed that people who were overweight have a cluster of risk factors for T2DM and CVD and the risk increases progressively as their body mass index (BMI) increases (10).

Another research was also stated that early detection of diabetes and prevention of complications could help those clients with diabetes and related illnesses. For many clients maintaining a healthy lifestyle is critical issue to prevent the possible complications of T2DM. Most people with diabetes manage their condition successfully through structured education and counseling. Self-management requires understanding of own condition and the consequences of non-adherence to treatment. So proper knowledge about their illness can help them to be involved in decision-making and achieve controlled blood sugar levels (11).

In fact with early detection and regular medical guidance can minimize the burden of illness. Today many people with diabetes can live healthy and happy life through proper follow up and receiving health education and counseling in the health care set-ups.

1.3 SIGNIFICANCE OF THE STUDY

The growing prevalence of T2DM is aggravated by various types of personal lifestyle factors and provides the potential for reversing its global epidemic. The most dramatic increase in Type 2 diabetes has occurred in populations where there have been rapid and major lifestyle changes. These life style risk factors include changes in diet, and reductions in physical activity, with consequent increases in the prevalence of overweight and obesity (12).

It is believed that modifying these factors with a lifestyle intervention program through education and counseling would prevent or delay the development of diabetes. Even though most of the health care settings have been providing routine diabetic care and education, as such there is no research done about the effect of education and counseling on the control of Diabetes Mellitus (7).

Thus, this study was designed to determine the effect of education and counseling among T2DM clients who were attending follow-up sessions at Yekatit 12 Referral and Black Lion Specialized Hospitals.

CHAPTER TWO

2.0 REVIEW OF THE LITERATURE

Diabetes Mellitus is serious, lifelong condition that affects an estimated 20.8 million people worldwide, but about 30 percent (6.2 million) of them do not know whether they have it. Each year, about 1.5 million people find out they have diabetes and probably have had the disease for an average of seven years before it was diagnosed (1).

Although diabetes occurs most often in older adults, yearly about 176,500 children and teenagers have diabetes. Type 1 Diabetes Mellitus (T1DM) or Insulin Dependent Diabetes Mellitus (IDDM) usually develops during childhood, adolescence, or early adulthood and affects approximately 5 to 10 percent of all people with diabetes. Type 2 Diabetes Mellitus (T2DM) accounts for 90 to 95 percent of all people with diabetes. It is believed that this form of diabetes occurs among people who are overweight and who do not exercise actively (13, 14).

T2DM is considered as milder form of diabetes because of its slow onset; however it can be just as serious as those for T1DM. It usually controlled with diet and oral medication, sometimes Insulin injections are necessary if treatment with diet and oral medication is not working (15).

According to study done in California, diabetic care was evaluated among 353 patients with T2DM and found that diabetic care was deficient especially on the aspects of teaching clients. There were several reasons mentioned for the poor level of diabetes care and control of blood glucose level. Poor client follow-up in health facilities resulted in poor intention of clients to control their blood glucose level resulting in development of complication (16, 17).

Diabetic care which was delivered by specially trained nurses was significantly better than clients in control groups who were receiving their diabetes care in the usual structure. Leventhal's theory of self-regulation proposed that individuals construct schematic representations of illness and health-threatening conditions according to the concrete and abstract sources of information that are available to them. So health information and continuous education which is given by competent professionals have impact on health perception and behavioral change (18, 19).

Diabetes Mellitus is serious health problem that touches almost every part of life that leads to complication over vital organs like eyes, kidneys and nerves. It also leads to develop problems with vascular system, which results poor circulation and foot ulcer. Fortunately these problems were preventable through education and proper self-care in practicing healthy lifestyle by incorporating appropriate food choices and physical activity (20, 21).

According to study in Mosul city of Iraq, there was an association between age classification and prevalence of T2DM: 25-34, 35-44, 45-54, 55-64 and > 65 years of age. The prevalence rates of DM among these age groups were 0.31 %, 5.19 %, 18.81%, 21.69 % and 20.22 % respectively. Majority of these clients were following intermittent follow up for having medication and diabetic-related education in hospitals (22).

One study showed that supervised dietary intervention improved glucose metabolism among aged obese Finnish subjects with T2DM. They suggested that a team of health care providers paid particular attention to the care and avoidance of risk factors associated with older patients with diabetes mellitus (23, 24).

Study participants in Turkey also agreed on the relationship between perceived social support and quality of life for managing diabetes mellitus. Enhanced social support and psychological adjustment improve metabolic control and self-management to diabetes (25).

A study in rural community of Greece showed that out of 229 T2DM patients 52.8% were females with mean age of 70. The result identified that older age, lower education, obesity, hypertension and hyperlipidaemia were associated with impaired health-related quality of life. They also mentioned that diabetic nurse educators used to teach those clients how to monitor blood glucose at home; treat diabetes when ever client was sick or traveling across time zones, recognize and treat low or high blood sugars. (26, 27).

In most of Type 2 Diabetic cases diet, exercise and regular blood testing for glucose are the basis for management. In order to achieve such result, people with diabetes had to take responsibility for their day to day care. Most of studies also emphasized on preventive approaches of Diabetes including to identify people at high risk for illness and to encourage them practicing healthy behavior. Additionally studies suggested that clients are needed to be advised about lose of their weight, to have proper physical exercise and to follow a healthy diet through out their life (28-30).

Quality of life is an important issue to consider for people with diabetes and their health care providers. The need to have quality life and perceived social support scores were found to be high in patients who were living alone and used oral hypoglycemic drugs. According to a research, significant change was detected among respondent's behavior that group educational session improves their beliefs about the illness and its out comes (31, 32).

A study was conducted on how clients can have skill on self management and responded on facing of stigmatization, concern about inheritance of diabetes and seeking alternative therapy for their illness. They concluded that self-management of patients with diabetes was highly related with socio-cultural environment, social intimacy and experiences can be taken as incentive to comply with regular follow-up of preventive regimens (32, 33).

Diabetes and its complications were major causes of mortality and morbidity in the developed countries. Study found that mortality was inversely related to education and counseling given for diabetic adults (OR [95% CI] 0.61 [0.40–0.93]). Diabetic education and counseling were seen as key factors in long-term health outcomes for proper self-care and control of blood glucose in adults with diabetes (34, 35).

In Liverpool Walton diabetic center, out of 100 study participants with T2DM 79 of them reported that they received diabetic related education and 44% of them felt they had satisfying education. Another 57% of respondents mentioned their wish to receive further diabetic education in order to handle their complications (36).

Another study in Puerto-Rico showed two-thirds of the study respondents had blood glucose level higher than 140 mg/dl. Seventy-nine percent of these tested clients with diabetes were not aware of the need for regular glycosilated blood test. After briefing them about raised blood glucose level most of these patients appeared more interested to learn the techniques of managing their condition (37).

A 2006 report by Harvard Medical School noted that 90% of cases with Diabetes could be prevented with a healthy diet and lifestyle, including

exercise. But the effectiveness of these preventive measures can largely be dependent on knowledge of health care providers, client's level of understanding, the content of education to be given and the number of educational episodes. Patients also stated that educational service they have got from clinics brought significant change on their life as well as minimized their diabetic-related worries (38, 39).

In Sudan, Diabetes is the commonest cause of hospital admission with so many constraints to manage the problem in their health care set ups. Studies stated that lack of efficient diabetic care centers; low number of trained personnel and high cost of anti-diabetic treatments were some of the institutional related factors. On the client side, the study identified that poor compliance with therapy, ignorance and wrong beliefs, food and dietary factors and gender-related problems were hindering clients to keep their sugar level near to normal (40, 41).

In 2006, Swedish professionals performed baseline study on Somalian immigrants. Researchers came up with Somali Diabetic cases were capable of caring for themselves even during the month of Ramadan. Those adult respondents with T2DM had self-confidence to control their illness and to practice healthy diet and exercise (42).

According to study done in Tigray, Northern part of Ethiopia found that glycaemic control among diabetic patients was very poor. Neuropathy, retinopathy and microalbuminuria were common among the study participants. But large vessel disease and macroangiopathy prevalence were detected lower in the study. Scattered populations, shortage of diabetic-related drugs and lack of diabetes team care were major factors behind these serious issues of diabetic complications (43).

Fifty- five percent of clients reported a history of normal weight before the onset of symptoms, moreover weight gain with treatment was observed among female sex. Another study in Addis Ababa showed that in spite of 87% of diabetic clients had regular follow up in the health care facilities; only 21% had received diabetic related education and counseling (44, 45).

Also a study in Black Lion Hospital indicated that information given in the diabetic clinic is not adequate that among 42.5% of clients who attend educational session in the hospital responded that they do not have any information about diabetic related complications. Although there is a well-established health infrastructure for diabetic care in Addis Ababa, the diabetic care is below the acceptable standard (46).

Adult diabetic patient's knowledge, physical skills emotional factors and self-care can directly affect metabolic control. Appropriate self-care makes client to care and manages the disease condition. Self-efficacy is a strong predictor of flexible self-care and affects metabolic control through perceived ability to conduct self-care (47).

In general, adult clients with T2DM need to have basic knowledge about diabetic management that keeps them confident enough to prevent its complication. Such knowledge and skill helps for the betterment of self-care and life quality. So it is necessary to assess patients own perception how scheduled education and counseling helps them to prevent diabetic related complication and improves the out come of their condition.

CHAPTER THREE

3.0 OBJECTIVES

3.1 GENERAL OBJECTIVE

☯ To assess the perception of diabetic patients about the effect of diabetic related education and counseling in Yekatit-12 and Black Lion Specialized Hospitals (BLSH).

3.2 SPECIFIC OBJECTIVES

- ☯ To assess the perception of patient about the effect of education
- ☯ To determine the type of education they had received in the past.
- ☯ To measure patients knowledge about diabetic management.
- ☯ To evaluate clients perception and believe about their illness.
- ☯ To identify unmet educational needs of people with T2DM.

3.3. RESEARCH QUESTIONS

1. Do clients with T2DM believe that knowledge gained through education helped them to control their blood glucose and prevent complication?
 2. What is the effect of diabetic self management through education and counseling in patients with T2DM?
-

CHAPTER FOUR

4.0 METHODS AND MATERIALS

4.1 STUDY AREA AND PERIOD

This study was conducted in Addis Ababa the Capital city of Ethiopia; Black Lion Specialized Hospital (BLSH). Addis Ababa is one of the densely populated cities with 3, 627, 934 as of 2007 in an estimated area of 530.14 square kilometer (48). Black Lion Specialized Hospital (BLSH) is one of the top national teaching institutions; it provides multi-dimensional aspects of care to clients who need health care service.

Yekatit 12 hospital is formerly known as Haile Sillasie I Hospital. It is one of the regional hospitals under the administration of Addis Ababa Health Bureau. Although there are diabetic clinics available in all 11 government hospitals in Addis Ababa, diabetic clients had regular follow up and educational session in Yekatit-12 (before 5 years back) and currently in BLSH hospitals. In Black Lion Specialized Hospital (BLSH) educational and counseling session is available twice per week.

This study was designed to assess the perception of diabetic patient about education and counseling on metabolic control of Diabetes Mellitus among adult clients with T2DM. The study was conducted from April 27 to May 22, 2009 for about four consecutive weeks by considering the Hospitals Diabetic clinics schedules and client flow.

4.2 STUDY DESIGN

Institution based quantitative cross-sectional study design was used to assess clients perception about the effect of education and counseling on managing their diabetic condition. The principal investigator also considered qualitative study design through Focus Group Discussion (FGD) to address the research objectives and questions effectively.

4.3 POPULATION

4.3.1 SOURCE POPULATION

All adult clients who had T2DM and attending follow-up services at Black Lion Specialized Hospital and Yekatit 12 Hospital diabetic clinic for diabetes mellitus related illnesses were target population.

4.3.2 STUDY POPULATION

Those clients with T2DM and who were attending Black Lion Specialized Hospital (BLSH) and Yekatit 12 Hospital diabetic Clinic for follow up during data collection period were taken as a study population.

4.3.2.1 INCLUSION CRITERIA

Adult clients with T2DM who were visiting Yekatit 12 and BLSH diabetic clinics for follow-up of more than 3 months duration were included. For focus group discussion, clients who were willing to share their experience with in a similar group and had discussion time for around 25 minutes were included for qualitative part of the study.

4.3.2.2 EXCLUSION CRITERIA

Children who were less than 18 years of age and clients who are treated with the diagnosis of Type 1 Diabetes Mellitus (T1DM) were not included in this study. Also individuals with mental problem or any other serious health problem were not obliged to involve and gave their response. Also newly diagnosed clients with T2DM (< 3 months) were not included in the study as their period of exposure for hospital education and counseling may be very limited.

4.4 SAMPLING

4.4.1. SAMPLE SIZE DETERMINATION

In order to determine the sample size for this study the following formula was used.

$$n_o = \frac{Z^{2-a}/2 p(1-p)}{d^2}$$

Where: n_o : the minimum sample size required,

P: estimated prevalence rate of T2DM clients in %; 50 % (0.5) were used here

D: the marginal sampling error tolerated is 5%

$Z^{2-a}/2$: standard normal score at 95% confidence interval (at 1.96)

$$n_o = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2} = \frac{0.9604}{0.0025} = 384$$

The correction factor formula could not be applied here as the total number of client's number was not known in both hospitals.

$$n_f = 384 + 57 \text{ (15\% is added for non respondent)} = \mathbf{442}$$

So a total of 442 clients were expected to be included in this study. For the qualitative aspect of Focus Group Discussion (FGD), two groups from each age, sex and on the length of exposure to diabetic clinic. This study had three FGD sessions and a total of 25 clients were included in the study and it was conducted in BLSH only. The number of FGD session was considered according to the saturation of obtained information during data collection time.

4.4.2 SAMPLING TECHNIQUE

The sampling technique that was used to select clients for interview was simple random sampling. By considering the inclusion and exclusion criteria every client who was attending these diabetic clinics with T2DM had equal opportunity to be included in the study. As there was no educational session in Yekatit 12 hospital, respondents for FGD were identified from BLSH diabetic clinic only with the assistance of nurses who were working there. The grouping arrangement was done considering clients different age group, duration of clients with diabetes mellitus and different sex composition were arranged purposely.

4.5 MEASUREMENT TOOLS AND DATA COLLECTION

4.5.1 VARIABLES

4.5.1.1 INDEPENDENT VARIABLES

- 🔒 Sex, Age
- 🔒 Education
- 🔒 Religion
- 🔒 Ethnic group
- 🔒 Income
- 🔒 Marital status
- 🔒 Social support
- 🔒 Duration of medical diagnosis with Diabetes Mellitus
- 🔒 Length/ duration of education and counseling
- 🔒 Topics covered during educational/ counseling session
- 🔒 Admission to the hospital for illnesses related with Diabetes mellitus
- 🔒 Periodic hospital visit and follow-up
- 🔒 Type of treatment used (Insulin, Oral Hypoglycemic Agents/ OHA)

4.5.1.2 DEPENDENT VARIABLES

- 🔒 Perception
 - 🔒 Blood glucose level
 - 🔒 BMI/ body weight and height
 - 🔒 Physical health
-

4.5.2 INSTRUMENT

A structured and semi-structured questionnaire was designed, which contains open and close ended questions prepared in English. Then the question was translated in to Amharic language by an expert and again translated in to English. This was done to make data collectors at ease of interview while using the questionnaire.

Most of the psychometric questions were derived from standardized Diabetic questionnaire that was prepared by Spain Diabetic Association and Northwestern University of Chicago (37). It was slightly modified in order to fit for the purpose of this study. Each question was tested for the relationship with variables and study objectives/ questions.

Questions were designed to elicit information concerning:

- 🔒 Back ground information about the client
- 🔒 Diabetic history
- 🔒 Knowledge and perception about illness and managing T2DM
- 🔒 Client self confidence on controlling blood glucose level and
- 🔒 Checklists on the previous Health education contents given in hospitals

For the qualitative aspect of study, six structured and open ended questions were prepared to guide FGD session.

4.6. PRE-TEST

The questionnaire was pre-tested for the relevance of dependent and independent variables to the study and to avoid any confusion during actual data collection period. Twenty-two clients were interviewed by the principal investigator one week prior to actual data collection period in BLSH. This helped the principal investigator to screen out vague questions and modify some of the question items as soon as possible.

4.7. DATA COLLECTION

A total of 6 data collectors have been participated in the data collection from April 27- May 22, 2009; four nurses who were working at Black Lion Specialized Hospital and two nurses from Yekatit 12 Hospital diabetic clinic. Prior to data collection these data collectors had half day training about the aim of the study and proper approaches to clients during interview. This was done in order to make them familiar with each item of questions and to minimize bias during the process of data collection. Clients were informed about the purpose of study and then verbal consent was obtained.

The techniques for data collection were interview method (quantitative) and Focus Group Discussion (FGD/ qualitative). During interview time data collectors were informed only to write clients response as verbatim without any modification. The discussion session was led totally by principal investigator alone with the aid of tape recorder. Those nurse data collectors were not involved during discussion time to minimize respondent bias as questions were about the quality of educational and counseling services given in those hospitals. Each question was forwarded to clients and thorough discussion was done.

4.8. QUALITY ASSURANCE OF THE STUDY

In order to assure the validity and reliability of the questionnaire, each item of data collection instrument was analyzed, tested and made ready for the interview prior to data collection. Data collectors had half day training on the method and procedures of data collection. During data collection time continuous on going supervision and cross checking was carried out by principal investigator for making sure of the completeness of each questionnaire. Ethical clearance was obtained from respective bodies and privacy of each client was assured with informed verbal consent.

4.9. DATA ANALYSIS

The collected data were cleaned, coded and summarized into major study variables on MS Excel sheet. Then data entry and analysis were done using Statistical Packages for Social Science/ SPSS version 15.0. Calculation of proportions was recorded on frequency tables and cross tabulation was done for selected variables. Also measurements of central tendency, Pearson's Chi-square test and other statistical tests were calculated in order to show associations between selected variables.

Data analysis for FGD information was transcribed by arranging the record according to forwarded question. Then comparison was considered on the response of different clients to identify similarities or differences and the reasons behind the gap. At last information was linked and analyzed its congruence with data obtained through an interview.

4.10 ETHICAL CONSIDERATION

Prior to data collection, permission was obtained from Addis Ababa University; Medical Faculty Institutional Review Board (IRB), BLSH and Yekatit 12 diabetic clinic. Then clients with T2DM were informed about the need of this study and asked to cooperate for an interview through verbal consent. The participants of this study were also insured for the preservation of confidentiality and anonymity. Also they were given an opportunity to consent or decline to take part in the study.

4. 11 DISSIMINATION OF THE STUDY RESULT

The result of this study will be submitted to Centralized School of Nursing and IRB, Faculty of Medicine, Addis Ababa University. Also BLSH and Yekatit 12 diabetic clinics will have a copy of this study paper in order to use the obtained information for future plan. This study paper will be also submitted to publication on scientific journals to be used as base line information for further study and for decision makers.

4.12 LIMITATIONS OF THE STUDY

In fact quasi experimental study design was more appropriate to measure and evaluate educational and counseling effect. But this method is not applicable due to shortage of time and resource was also another constraint to minimize the scope of this study.

Even if clients with T2DM had health care service in all hospitals and health care facilities in Addis Ababa, programmed educational and counseling session is conducted only in BLSH (currently) and before few years back the service was available in Yekatit 12 hospital. So this study faced a problem to evaluate those clients perception about education and counseling given in Yekatit 12 hospital.

The other limitation related with study area selection was even if there are some private health facilities providing diabetic related service this study couldn't envelop their clients.

During FGD session, some of clients were not volunteer to allow the record of their voice.

4.13. OPERATIONAL DEFINITIONS

- ✓ **Blood glucose:** sugar that body obtains from food and used as body's main source of energy.
 - ✓ **Counseling:** an interpersonal relationship which involves exploring the way client thinks and does for the purpose of enhancing their life.
 - ✓ **Diabetes Mellitus:** a condition that the pancreas no longer produces enough insulin or cells stop responding to the produced insulin.
 - ✓ **Education:** the act of training by a prescribed or customary course of study resulting in acquiring of knowledge or skill.
 - ✓ **Fasting glucose test:** blood is tested for glucose at least eight hours after meal; usually before breakfast.
 - ✓ **Hyperglycemia:** A condition in which > 400 mg/dl of sugar in the blood.
 - ✓ **Hypoglycemia:** A condition in which < 65 mg/dl of glucose in the blood.
 - ✓ **Insulin:** hormone that controls the amount of sugar in the blood by moving it into the cells and to be used for energy.
 - ✓ **Knowledgeable:** when patient has a rate of 3-5 (according to question item IV: less knowledgeable, good and more knowledgeable)
 - ✓ **Not knowledgeable:** when the patient responds on the rate of 1 and 2 (question item IV of the knowledge)
 - ✓ **Perception:** opinion and awareness of a person about diabetic related illness and management based on received information.
-

CHAPTER FIVE

RESULT

I. SOCIO-DEMOGRAPHIC PROFILE OF STUDY POPULATION

A total of 442 clients with Type 2 Diabetes mellitus (T2DM) were included in quantitative aspect and 25 participants were enrolled in qualitative Focus Group Discussion (FGD) part of study. Two hundred fifty (51.6%) of them were females and in FGD 14 (56%) of them were male patients. Around 60.7% of respondents laid in the age distribution above 40 years of age. The mean age of study participants in quantitative study was 45 years $\pm$ 16 and it was 36 $\pm$ 12 years among 25 FGD participant patients.

The ethnic and religious compositions of studied people were 51.6% Amhara and 326 (73.6%) were Orthodox. Concerning marital status 227 (51.4%) of them were married and 88.5% of respondents reported that they were living with family and/ or other peoples. Sixty-four clients couldn't read and write and almost half of respondents (225) had their monthly income which is less than 400 Ethiopian birr (Table 1 and Fig. 1).

Table 1: Frequency table on socio-demographic information among clients with Type 2 Diabetes Mellitus, Yekatit-12 and BLSH, June 2009.

S no	Variables	Number n=442	Percentage	Cum. Percent.
1	Sex			
	Male	192	43.4	43.4
	Female	250	56.6	100.0
2	Ethnic group			
	Amhara	228	51.6	51.6
	Oromo	87	19.7	71.3
	Tigre	52	11.8	83.1
	Gurage	50	11.2	94.3
	Others	25	5.7	100.0
3	Religion			
	Orthodox	326	73.8	73.8
	Protestant	56	12.6	86.4
	Muslim	46	10.4	96.8
	Others	14	3.2	100.0
4	Marital status			
	Single	138	31.2	31.2
	Married	227	51.4	82.6
	Divorced	29	6.5	98.1
	Widowed	48	10.9	100.0
5	Living with			
	Alone	51	11.5	11.5
	With family	391	88.5	100.0
6	Educational background			
	Can't read and write	64	14.5	14.5
	1- 6 grade	84	19.0	33.5
	7- 12 grade	189	42.7	76.2
	12+ grade	105	23.8	100.0
7	Income			
	<400 ETB	225	50.9	50.9
	401- 700	95	21.5	72.4
	701- 1200	47	10.6	83.0
	>1201	75	17.0	100.0

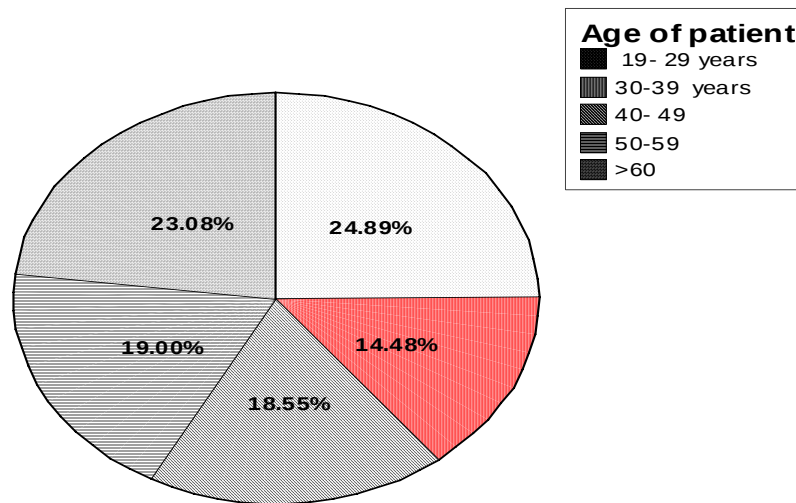


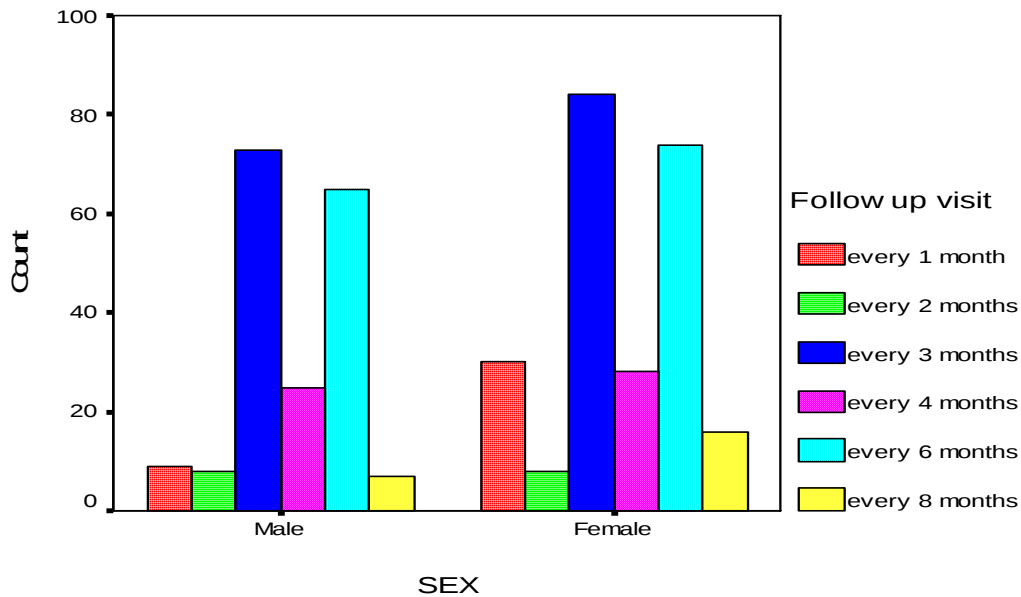
Fig 1. Age distribution of T2DM patients in Yekatit 12 and BLSH, June, 2009

II. DIABETIC HISTORY

Majority of the respondents (69.9%) had had history of diabetic illness and started follow up for more than four years. They also reported that 96.6% of the total respondents had regular visit to the health facilities. In general, their health facilities visit pattern was ranged from one month to six months. The most frequent form of hospital visit was every three months (36.8%) followed by 32.6% of them had follow up visit every six months.

Their reason to visit the hospital was to monitor their blood glucose level and to check their general health status. The Body Mass Index (BMI) of 323 clients were ranged from 15.20 to 38.10 kg/m² and the mean BMI was 23.60 ± 3.81 kg/m² and only 5% of patients had BMI >30 kg/m² (Fig. 2 and table 2).

Fig. 2 Sex distribution of T2DM with their hospital follow up status of patients with T2DM, in Yekatit 12 and BLSH, June 2009.



Out of 442 clients, 401 (90.7%) had fasting blood sugar (FBS) test at the time of interview and nearly half of them (48.9%) had value in a range between 120 – 199 mg/dl of blood. Also 2.5% had FBS result <69 mg/dl and only 1% of patients had blood glucose level >400 mg/dl of blood. The mean FBS measurement was 164 ± 71.1 mg/dl, which ranges from 36 to 481 mg/dl.

Almost all clients mentioned that they have controlled their blood glucose using mixed therapy. Two-hundred seventy one (61.3%) of them stated that they were practiced in using insulin, diabetic diet and moderate exercise. Also 166 (37.6%) of respondents were on oral hypoglycemic agents (OHGA's) and diabetic diet. Only few number of respondents reported that they were using modified diabetic diet (1.1%) (Table 2).

Table 2: Frequency table of history of diabetic illness among clients with T2DM in BLSH and Yekatit 12 Hospitals, June 2009

S no	Variables	Number	Percentage	Cum percentage
1	Duration of years with diabetes			
	< 1 year	34	7.7	7.7
	1- 2 years	31	7.0	14.7
	2- 4 years	68	15.4	30.1
	> 4 years	309	69.9	100.0
	Total	442	100.0	
2	FBS tested			
	Yes	401	90.7	90.7
	No	41	9.3	100.0
	Total	442	100.0	
3	FBS result			
	< 69 mg/dl	10	2.5	2.5
	70- 119	99	24.7	27.2
	120- 199	196	48.9	76.1
	200- 399	92	22.8	98.9
	> 400	4	1.1	100.0
	Total	401	100.0	
4	DM control			
	Diet	5	1.1	1.1
	Insulin	271	61.3	62.4
	OHGA	166	37.6	100.0
	Total	442	100.0	
5	Follow up status			
	Regular	427	96.6	96.6
	Irregular	15	3.4	100.0
	Total	442	100.0	
6	BMI			
	< 18.4 kg/m²	32	9.9	9.9
	18.5- 24.9 kg/m²	179	55.4	65.3
	25.0 – 29.9 kg/m²	96	29.7	95.0
	> 30.0 kg/m²	16	5.0	100.0
	Total	323	100.0	

III. DIABETIC RELATED COMPLICATIONS

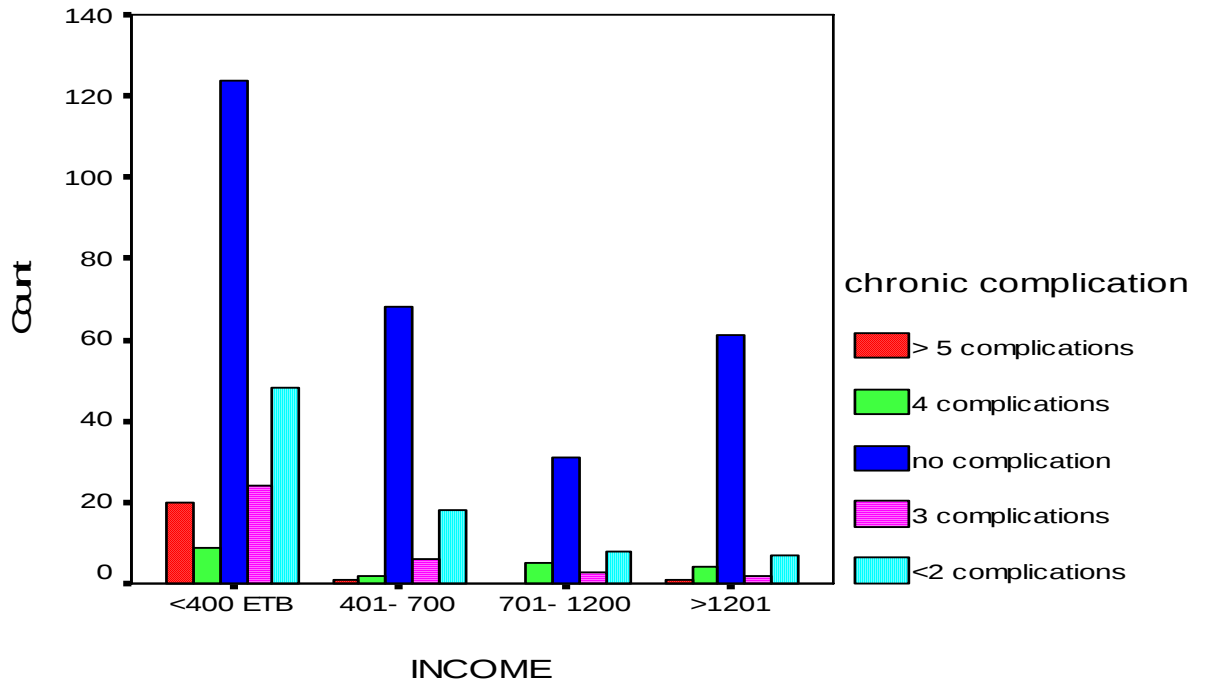
Concerning diabetic related acute complications; 229 (51.8%) had experiencing acute complication and 95 of them also had admission from 3 days to months in health facilities. The major cause of admission was related to hyperglycemic symptoms (81.1%) and hypoglycemia (18.9%) (Table 3). Also 158 (35.7 %) clients had long run complications related to diabetes mellitus. The most frequently reported complication was high blood pressure among patients aged above 65 years. Also visual difficulty, recurrent kidney problem, foot and nerve symptoms were mentioned complications by the respondents (Fig. 3).

Also during Focus Group Discussion respondents emphasized on diabetic related fatigue and body weakness were the major symptoms in association with the above mentioned long run consequences.

Table 3. Frequency table of diabetic related complications among clients with T2DM in BLSH and Yekatit 12 hospitals, June 2009

S no	Variables	Number	%	Cum. percentage
1	Acute complication			
	Yes	229	51.8	51.8
	No	213	48.2	100.00
	Total	442	100.00	
2	Admission			
	Yes	95	21.5	21.5
	No	347	78.5	100.00
	Total	442	100.00	
3	Illness during admission			
	Hyperglycemia	77	81.1	81.1
	Hypoglycemia	18	19.9	100.00
	Total	95	100.00	

Fig 3. Distribution of income and diabetes related chronic complications among T2DM patients in Yekatit 12 and BLSH, June 2009.



IV. HEALTH HABIT AND DRUG USAGE PATTERN

Twenty-seven (6.1%) respondents had history of smoking habit and currently 7 patients are smoking cigarette. Concerning alcohol drinking 10.5% of them liked to drink occasionally. One hundred five (23.8%) respondents had additional medications to use regularly, especially 88 (83.8%) of them were using various types of anti-hypertensive medications in order to stabilize their high blood pressure. More over the rest of patients (26.2%) were using medications for arthritis, epileptic disorder, hormonal stabilizers and antiasthmatic agents (Table 4).

Table 4 Frequency table of health habit and other Non-diabetic drug usage among patients with T2DM in Yekatit 12 and BLSH, June 2009.

S no	Variables	Number	Percentage	Cum. percent
1	Smoking habit			
	Yes	27	6.1	6.1
	No	415	93.9	100.0
	Total	442	100.0	
2	Currently smoking			
	Yes	7	25.9	25.9
	No	20	74.1	100.0
	Total	27	100.0	
3	Alcohol usage			
	Yes	46	10.4	10.4
	No	396	89.6	100.0
	Total	442	100.0	
4	Other medication use			
	Yes	105	23.8	23.8
	No	337	76.2	100.0
	Total	442	100.0	

V. KNOWLEDGE ABOUT DIABETIC MANAGEMENT

There have been prepared statement to assess the level of respondents' knowledge on diabetes mellitus. Those questions were revolving around facts about diabetic diet, exercise, the need of balancing exercise and diet, the need of follow up as well as pattern of continuous drug usage for controlling their blood sugar level. Concerning the statement about the need to take frequent meal at least every 4- 6 hourly per day; 95 (21.5%) of the respondents didn't have appropriate knowledge. Also 39 (8.8%) of them reported that they never knew how to select appropriate and comfortable food for them selves in a regular basis.

One-hundred sixty one (36.4%) patients had not knowledgeable about the need of regular exercise as well they didn't have walking habit for 15- 30

minutes four to five episode per week. The concept of doing exercise and lowering of blood glucose level was not well understood by 117 (26.5 %) clients. Three-hundred eighty seven (87.6%) clients had sufficient knowledge about when to visit health facility and the need of regular follow up to hospitals.

One of FGD participant witnessed her confidence of managing her diabetic illness through education by saying:

“Well I am very glad to come and attend diabetic education as those nurses are treating me not as a patient rather as a sister, and they know how to encourage us for the sake of our health. Now I can say that I know how to handle my condition; taking insulin at the right time and dose and eat appropriately. But the session is limited only two days per week which is not enough for many patients.”

Majority of the clients responded they had adequate knowledge and information on the symptoms of acute complications of diabetes mellitus (86.4 %). They were also certain enough to take required action when ever they faced these acute forms of problems. In addition to this the study participants had ample knowledge on how to use their medications; OHGA's or insulin. Four-hundred eleven respondents also expressed their willingness to accept health professional's advice about diabetic management and change of treatment modality (Table 5).

Table 5. Knowledge about diabetes mellitus management among T2DM clients in Yekatit 12 and BLSH, June 2009.

S no	Knowledge items	Knowledge status n= 442		Total
		Knowledgeable	Not knowledgeable	
1	I need to take frequent diet	347 (78.5)	95 (21.5)	442
2	I know the type of food staffs I am allowed to take	403 (91.2)	39 (8.8)	442
3	I know exercise helps me to control my blood glucose	281 (63.6)	161 (36.4)	442
4	Combination of exercise and diet can be helpful to manage diabetic condition	325 (73.5)	117 (26.5)	442
5	I understand the purpose of regular follow up	387 (87.6)	55 (12.4)	442
6	I have full information what to do when I face acute complications	382 (86.4)	60 (13.6)	442
7	I know how to control my blood glucose level	401 (90.7)	41 (9.3)	442
8	I know the dose of prescribed diabetic medication	432 (97.7)	10 (2.3)	442
9	I know when to use my diabetic medication	408 (92.3)	34 (7.7)	442
10	I know that insulin can be given to T2DM patients	411 (93.0)	31 (7.0)	442

VI. ATTITUDNAL PATTERN TO WARDS DIABETIC MANAGEMENT

Around sixty-one (13.8%) of respondents disagreed with a statement stating about support from their family. They denied that they had no social support from their family to take their medication timely and encouraged to have appropriate follow up. To the contrary, around 381 (86.2 %) of patients agreed that good family and social support could help them to manage their diabetic conditions Educational sessions and advices which were given by health professionals helped nearly 390 (88.2%) patients.

To the contrary some of the respondents complained that there were inadequate provision of diabetic related education and counseling at individual as well as group session. Especially those clients from Yekatit 12 Hospital they criticized the hospital for poor handling of diabetic clients; as for the last seven years there was no single episode of client's education. Even there is no specific diabetic unit in the compound and they were served in any adult examination unit. In addition to this FGD respondents also mentioned that in BLSH two days afternoon educational session was not enough to reach their need. The majority of respondents agreed with those statements that stating about self management and follow up. Four-hundred thirty three patients acknowledged that their regular visit to the hospital helped them to improve their quality of life (Table 6).

Table 6. Attitude of T2DM clients on self diabetic control in Yekatit 12 and BLSH, June 2009

S no	Attitudinal parameters	Attitude n=442		Total
		Agree	Disagree	
1	Family and social support helps me to manage my diabetic condition	381 (86.2)	61 (13.8)	442
2	Education and counseling can better change my life	390 (88.2)	52 (11.8)	442
3	Follow up visit helps me to control my blood glucose	433 (98.0)	9 (2.0)	442
4	Long run complications can be managed through regular visit of health facilities	429 (97.1)	13 (2.9)	442

VII. ASSOCIATION OF DIFFERENT VARIABLE

Among study participants when their age increases there risk of developing and living with diabetes mellitus is increased. It is highly associated with $P < 0.001$. Even if long run (chronic) complications were increased with the advancement of age, acute complications (hypoglycemia and hyperglycemia) were highly associated with younger age patients ($P < 0.005$).

Concerning knowledge of exercise among study populations, old aged patients (> 60 years) were less knowledgeable when compared to other age groups. Study participants who couldn't able to read and write were also seen as less knowledgeable than others ($p < 0.005$) (Table 7, 8 & 9).

Table 7. Association table of age with duration of diabetic illness among patients with T2DM in Yekatit 12 and BLSH, June 2009

Age	Duration of patient with T2DM n=442				Total	Level of significance
	< 1 year	1-2 years	2- 4 years	>4 years		
19- 29 years	12	12	32	54	110	X²: 52.249 df:12 P value: 0.000
30- 39 years	11	5	10	38	64	
40- 49 years	3	7	8	64	82	
50- 59 years	4	3	11	66	84	
>60 years	4	4	7	87	102	
Total	34	31	68	309	442	

Table 8. Association table of age with acute complications among patients with T2DM in Yekatit 12 and BLSH, June 2009

Variable	Acute complication n= 442		Total	Level of significance
	Yes	No		
Age				
19- 29 years	68	42	110	X²: 15.490 df: 4 P value: 0.004
30- 39 years	28	36	64	
40- 49 years	36	46	82	
50- 59 years	53	31	84	
>60 years	44	58	102	
Total	229	213	442	

Table 9. Association table of age and education level of patients with T2DM with knowledge pattern about the need of exercise in Yekatit 12 and BLSH, June 2009

S no	Variables	Knowledge on the need of exercise		Total	Level of significance
		Not knowledgeable	Knowledgeable		
1	Age				
	19- 29 years	27	83	110	X²:15.603 df:4 P value: 0.004
	30- 39 years	31	33	64	
	40- 49 years	26	56	82	
	50- 59 years	30	54	84	
	>60 years	47	55	102	
	Total	161	281	442	
2	Education				
	Can't read and write	39	25	64	X²: 27.470 df:3 P value: 0.000
	1 – 6 grade	31	53	84	
	7- 12 grade	69	120	189	
	12 grade	22	83	105	
	Total	161	281	442	

From study participants those of them with very low income (less than 400 Ethiopian birr per month) and those clients who were diagnosed as T2DM to less than one year were significantly associated with poor perception about their diabetic illness. These group of peoples perceived education and counseling could bring less or no change in the quality of life at P value less than 0.05 and 0.001 respectively (Table 10).

Table 10. Association table on perception of education and counseling effect on quality of life for patient with T2DM with their income and duration of illness in Yekatit 12 and BLSH, June 2009

S no	Variables	Perception of education and counseling effect on quality of life n=442		Total	Level of significance
		No change	Change		
1	Income				
	< 400	38	187	225	X²:11.917 df:3 P value: 0.008
	401- 700	5	90	95	
	701- 1200	4	43	47	
	> 1201	5	70	75	
	Total	52	390	442	
2	Duration of illness				
	< 1 year	14	20	34	X²: 36.412 df: 3 P value: 0.000
	1- 2	7	24	31	
	2- 4	6	62	68	
	>4 years	25	284	309	
	Total	52	390	442	

Concerning knowledge about combined usage of diet and exercise those of patients who had fasting blood sugar level > 400 mg/dl of blood had no knowledge. Also those individual patients who had more than four long run complication were also highly associated with poor knowledge of diet modification and the need of balanced exercise. These associations were significant at P-value < 0.005 and 0.001 (Table 11).

Table 11. Association table of FBS value and presence of chronic complications with knowledge level on combined use of diet and exercise among patients with T2DM in Yekati 12 and BLSH, June 2009

S no	Variables	Combined use of diet and exercise		Total	Level of significance
		Not knowledgeable	Knowledgeable		
1	FBS value				
	< 69	2	8	10	X²:16.651 df:4 P
	70- 119	19	80	99	
	120- 199	40	156	196	
	200- 399	34	58	92	
	> 400	3	1	4	
	Total	98	303	401	value:0.002
2	Long run complications				
	No complication	45	239	284	X²:35.935 df:4 P
	< 2 complications	15	66	81	
	3 complications	13	22	35	
	4 complications	12	8	20	
	5 complications	10	12	22	
	Total	95	347	442	value:0.000

CHAPTER SIX

DISCUSSION

Out of 442 patients who were included in the qualitative as well as quantitative study around 60.7% were > 40 years of age. The Prevalence rates of T2DM have remained higher in people aged 50 years or older ($P < 0.001$) than in those aged 20-49 years. This is true in different literatures and pathophysiologically T2DM is common in individuals (22, 27 and 49).

The mean fasting blood glucose level of this study subjects was 164 ± 71.1 mg/dl. And this study has comparatively the same result as another study around two-thirds of the study people had blood glucose level higher than 140 mg/dl. For both studies most of the patients were interested in learning more about how to lower their blood glucose and improve their health condition (37).

Most of patients were stating that in Black Lion specialized hospital there is regular group educational sessions given twice per week. They also mentioned that education was given in regard to types of diabetes, its causes, symptoms, acute and chronic complications as well as various aspects of diabetic management. This result is in agreement with the findings of a study reported that a decrease in blood glucose level among non insulin dependent patients is highly associated with attendance of educational/ counseling session ($P < 0.05$). This is because regular and continuous education and counseling empower patients on improving quality of life (50).

This study revealed that around 61.3 % of these T2DM patients were on insulin. In USA many patients with type 2 diabetes use Insulin therapy with certain clinical benefits and conveniences than OHGA's for patients. This similarity might be due to OHGA's are not effective to these patients due to cellular insensitivity and need exogenous insulin therapy (51).

Even if only 1% of this study participant were managing their blood glucose through diet modification, one study indicated that among 24 female FGD participants greater than 65 years of age; food selection was a key strategy in the management of their diabetes. This difference may be due to in Ethiopian situation more value and emphasis is given to medications than diet modification and exercise regulation (52).

Long run complications were reported very high especially among aged patients with the top leading complication related with persistently high blood pressure ($P < 0.005$). According to study done in Malaysia, the most indicated long term complications of diabetics were diabetic eye disease, kidney damage, nerve damage, peripheral vascular disease and foot ulceration leaded by hypertension. It was reported among nearly 15 % of diabetic individuals and 12.9 % of patients were also on antihypertensive drugs in addition to drugs for controlling the diabetes. This might be due to the association of obesity and hyperlipedemia risk factors end-upping to develop vascular problem; hypertension (53).

Knowledge of the patients was improved in relation to given education and counseling (63.6 – 97.7 %), studies also found that 80 % of patients knew the symptoms of hypoglycemia and 76% knew what to do when they develop these symptoms. Another study also suggested that a structured, specialized psycho-educational treatment program has been highly effective to reduce

the occurrence of acute complications like hypoglycemia ($P < 0.01$). These findings suggested that it is essential to educate patients regarding proper diet, exercise, glucose control, and periodic follow up to increase their awareness on acute complications (10, 40, 54 and 55).

CHAPTER SEVEN

7.1 CONCLUSION

Diabetes education is considered as one of special means to reach appropriate self-management and glycemic control. The major aim of education and counseling were to increase knowledge of individual patients with T2DM. It is known that education programs increase knowledge about diabetes mellitus and most of such educational programs primarily focus on improving quality of life. The data obtained from this study showed that education and counseling session which was given at BLSH was regular and superior. Also patients indicated that such schedule of information provision helps to improve their blood glucose level and equips them how to prevent acute and chronic complications. Regular check up of blood glucose level for diabetic patients helps to screen complications as early as possible and it is mandatory to manage the health condition of diabetic patients. Patients were mentioned that during educational session they thought different issues about diabetes mellitus and prevention of its complications including foot care, nerve sensation status and eye health.

In order to cope with the increasing prevalence of diabetes, and related complications more effort is needed to the prevention and health promotion aspect. Education of people with diabetes and their family about healthy lifestyle encourages having quality life. This study witnessed that proper education and counseling sessions can have significant impact on the reduction of dramatic consequences of diabetes. So this study concluded

that diabetic client's perceived betterment of their knowledge through education and counseling improves their life style and minimizes the incidence of acute and long run diabetic related complications.

7.2 RECOMMENDATION

Proper emphasis on prevention and lifestyle change can have a significant effect on the reduction of dramatic consequences of diabetes, which affect the people in all ages especially after 40 years. Low knowledge about diabetes among peoples with T2DM discourages patient to have compliance and affects earlier detection and prevention of diabetic related complications. Diabetic patient's empowerment through education/ counseling maximizes self-awareness and a sense of personal autonomy, which enable patients to take charge of keeping their own health.

Based on mentioned results of this study the following recommendations were forwarded:

1. Education and counseling should be tailored for each individual at the time of visit to the hospital and appropriate attention should be given to prevent threatening complications related with diabetes mellitus.
 2. Provide in service training for health professionals concerning holistic approach to diabetic patients and diabetic related health conditions.
 3. Accomplish periodic evaluation and assess the rate of client's satisfaction on the care provision especially on empowerment of patients through education and counseling.
 4. Based on this study result conduct large scale study for comparison and
-

better analysis.

7.3 NURSING IMPLICATIONS

A greater understanding is needed to provide care for patients with T2DM to deal with diabetes related complications. Practically in both hospitals, nurses were in an excellent position to collaborate with other health professionals in screening, monitoring and educating patients with T2DM and empower them through counseling and education to prevent long-term complications.

In BLSH diabetes nurse specialists co-ordinate the program and provide education and counseling to patients in regular session. Those nurses are well experienced in the care of patients with diabetes to address matters of the illness, modifications of lifestyle, medications, related physical illnesses and precautions.

In general, health professionals are responsible to educate patients about the risk factors of diabetes mellitus. Thus, in the actual set ups educational session was led by nurses and they can provide valuable service to their patients with diabetes by educating and counseling them about the importance of proper adherence and follow up of diabetic related services.

This study explores that diabetes management is demanding and requires much effort, discipline, skill and knowledge. Opportunity of having regular educational session for patients creates better chance to accept their health condition. So before conducting education and counseling session, nurses need to find out their clients knowledge, attitudes, practices and barriers faced concerning their illness and patient centered education is the best form of education to be considered.

CHAPTER EIGHT

8.1 REFERENCES

- 1.** Parthiban A, Vijayalingam S, Shanmugasundaram K, Mohan R. Oxidative stress and the development of diabetic complications. *Cell Biol Int* 1995; 19(12):987-993.
 - 2.** Zimmet P, Alberti K, Shaw J. Global and societal implications of the diabetes epidemic. *Nature* 2001; 414 (6865): 782–7.PMID 11742409
 - 3.** Tuomilehto J, Lindstrom F, Eriksson J, Valle T, Hamalainen H, Ilanne-Parikka P, et al. Prevention of type 2 diabetes mellitus by changes in lifestyle among subjects with impaired glucose tolerance. *N Engl J Med* 2001; 344(18):1343-1350.
 - 4.** Eriksson J, Lindstrom J, Valle T, Aunola S, Hamalainen H, Ilanne-Parikka P, et al. Prevention of Type II diabetes in subjects with impaired glucose tolerance. *Diabetologia* 1999; 42(7):793-801.
 - 5.** World Health Organization (Editorials). Definition, diagnosis and classification of diabetes mellitus and its complications: WHO. 2007.
 - 6.** Department of Health and Human Services (Editorials).Economic consequences of diabetes mellitus in U.S. *Diabetes Care* 1998; 21:296-309.
 - 7.** American Diabetes Association (Editorials). Hospital admission guidelines for diabetes mellitus. *Diabetes Care* 2000; 23 (1): 83.
 - 8.** Eberhart M, Ogden C, Engelgau M, Cadwell B, Hedley A, Saydah H. Prevalence of Overweight and Obesity Among Adults with Diagnosed Diabetes. *Morbidity and Mortality Weekly Report* 2004; 53 (45): 1066–8.
 - 9.** Ronald P, Geiss L, Herman W, Smith P. Education and Mortality in Type 2 Diabetes. *Diabetes Care* 2003; 26:1650.
 - 10.** Jeroen L, Sandra D, Marijke J, Maurits W, Patricia O, Jacqueline M, et al. Primary prevention of type 2 diabetes mellitus and cardiovascular diseases using a cognitive behavior program aimed at lifestyle changes in people at risk. *BMC Endocrine Disorders* 2008; 8:6.
-

- 11.** May M, Young C, King J. Resource utilization in treatment of diabetic ketoacidosis in adults. *Am J Med Sci* 1993; 306:287-94.
 - 12.** Hill J. Delivering patient education for people with diabetes. *Nurs Times* 2000; 103: 28-9.
 - 13.** Klein R, Harris M, Welborn T, Knuiman M. Onset of NIDDM occurs at least 4 to 7 years before clinical diagnosis. *Diabetes Care* 1992; 15:815-19.
 - 14.** Levetan C, Passaro M, Jablonski K, Kass M, Ratner R. Unrecognized diabetes among hospitalized patients. *Diabetes Care* 1998; 21:246-49.
 - 15.** Green J, Julia M, Rene J, Penta D, Jennifer M. Type 2 diabetes mellitus, resistance training, and innate immunity. *Applied Physiology, Nutrition and Metabolism* 2007; 32(6): 1025-35.
 - 16.** Davidson M, Peters A, Ossorio R. Management of patients with diabetes by nurses with support of sub specialists. *HMO Practice* 1995.
 - 17.** Harris M. Undiagnosed NIDDM: clinical and public health issues. *Diabetes Care* 1993; 16:642-52.
 - 18.** Sinclair A, Girling J, Bayer A. Cognitive dysfunction in older subjects with diabetes mellitus: impact on diabetes self-management and use of care services. *Diabetes Research and Clinical Practice* 2000; 50(3): 203-212.
 - 19.** Davidson M. Importance of control in type 2 diabetes mellitus. *Endocrine Pract* 1997; 3:145-52.
 - 20.** Peters A, Legorreta A, Ossorio R, Davidson M. Quality of outpatient care provided to diabetic patients. *Diabetes Care* 1995; 19:601-606.
 - 21.** Legorreta A, Peters A, Ossorio R, Lopez R, Jatulis D, Davidson M, et al. Effect of a comprehensive nurse-managed diabetes program. *Am J Man Care* 1996; 2:1024-30.
 - 22.** Waad-Allah S, Amjad-Hazem A. Prevalence of diabetes mellitus in Mosul city, Iraq comparison of 1997 ADA classification with 1985 WHO classification. *Diabetes Digest* 2005; 5:1.
 - 23.** Matthew J, Andrew M. *Diabetes in old age*; 2nd ed, 2001; John Wiley & Sons, Ltd.
-

- 24.** Exercise training with dietary counseling increases mitochondrial chaperone expression in middle-aged subjects with impaired glucose tolerance (editorials). *BMC Endocrine Disorders* 2008; 8:3.
- 25.** Ross S. Controlling diabetes: intensive therapy and barriers in clinical management. *Diabetes research and Clinical practice*, 2004; 65: 29- 34.
- 26.** Papadopoulos A, Kontodimopoulos N, Frydas A, Ikonomakis E, Niakas D. Predictors of health-related quality of life in type II diabetic patients in Greece. *BMC Public Health* 2007; 7: 186.
- 27.** Edelstein E, Cesta T. Nursing case management: an innovative model of care for hospitalized patients with diabetes. *Diabetes Educ* 1993; 19:517-21.
- 28.** Camastra S, Bonora E, Delprato S, Rett K, Weck M, Ferrannini E. Effect of obesity and insulin resistance and glucose-induced thermogenesis in man. *Int J Obes Relat Metab Disord* 1999; 23(12):1307-13. PMID: 10643689.
- 29.** Wadden T, Butryn M, Byrne K. Efficacy of lifestyle modification for long-term weight control. *Obesity Research* 2004; 12:151-162.
- 30.** Fugen G, Sureyya K, Mustafa G, Secil E, Ibrahim C. Effects of the diabetic patients perceived social support on their quality-of-life. *Journal of Clinical Nursing* 2007; 16(7): 1353 – 60.
- 31.** Feddersen E, Lockwood D. An inpatient diabetes educator's impact on length of hospital stay. *Diabetes Educ* 1994; 20:125-28.
- 32.** Davies M, Rayman G, Daly-Eaton H, Skinner S, Heller E, Carey E, et al. Effectiveness of the diabetes education and self management for ongoing and newly diagnosed. *BMJ* 2008; 336:491-5.
- 33.** Koproski J, Pretto A, Poretsky L. Effects of an intervention by a diabetes team in hospitalized patients with diabetes. *Diabetes Care* 1997; 20:1553-56.
- 34.** Wong M, Gucciardi E, Lie L, Grace L. Gender and nutrition management in type 2 diabetes. *Can J Diet Pract Res* 2005; 66: 215-20.
- 35.** Lin C, Anderson R, Hagerty B, Lee B. Diabetes self-management experience among Taiwanese patients with type 2 diabetes mellitus. *J Clin Nurs* 2007; 9: 1-3.
- 36.** Margaret D, Jackie R, Jane M, Maureen W. Newly diagnosed type 2
-

diabetes: building a comprehensive education program. *Journal of Diabetes Nursing* 2006; 3:199.

37. Jimenez F, Monsanto H. Screening, monitoring, and educating patients with diabetes in a community. *P R Health Sci J* 2001; 20: 35-9.

38. Alice C, Elaine T, Anthony J, Bernard Z. Developing a quality of life measure for Chinese patients with diabetes. 2001; pages 259-267.

39. Kazue Y, Toshiro T. Efficacy of Lifestyle Education to Prevent Type 2 Diabetes. *Diabetes Care* 2005; 28:2780-2786.

40. Monclus J, Alvarez J, Arasa M, Aguilar C, Vinas J, Curto C, et al. Diabetes in Africa: Pathogenesis of type 1 and type 2 diabetes mellitus in sub-Saharan. *Afr J Cardiovasc Risk* 2003; 10: 85-96.

41. Awad M, Nada H. Diabetes mellitus in Sudan the problem & possibilities of efficient care. *Practical diabetes international* 2001; 18(9): 324-7.

42. Wallin M, Ofvander M, Oma G. Diabetes: a cross-cultural interview study of immigrants from Somalia. *J Clin Nurs* 2007; 16: 305-14.

43. Gill G, Gebrekidan A, English P, Wile D, Tesfaye S. Diabetic complications and glycaemic control in remote North Ethiopia. *QJM Advance Access* published online on August 7, 2008, 1093/qjmed/hcn096.

44. Siraj B, Seyoum C, Saenz J, Abdulkadir E. Lipid and lipoprotein profiles in Ethiopian patients with diabetes mellitus. *Metabolism, health science journal* 2003; 55(6): 706 - 710.

45. Feleke Y, Enqusellasie F. An assessment of the health care system for diabetes in Addis Abeba. *Ethiop J Health Dev.* 2005; 19(3): 203-210.

46. Bahru Y, Abdulkadir J. Assessment of diabetic education in the teaching hospitals, Addis Ababa. *Diabet Med.* 1993; 10 (9): 870-3. PMID: 8281736.

47. Sigurdardottir A. Self-care in diabetes: model of factors affecting self-care. *J Clin Nurs* 2005; 14: 301-14.

48. Central statistical agency of Ethiopia, census 2007, http://en.wikipedia.org/wiki/Addis_Ababa.

49. Lipscombe L, Hux J. Trends in diabetes prevalence, incidence, and mortality in Ontario, Canada 1995-2005: *Lancet* 2007; 369: 750-6.

- 50.** Renuka A, Malkit N, Anita K. Effect of Nutrition Education on Blood Glucose and Lipid Profile of Non Insulin Dependent Female Diabetics. *J. Hum. Ecol.* 2007; 22(4): 323-326.
- 51.** Plum M, Sicat B, Brokaw D. Newer insulin therapies for management of type 1 and Type 2 diabetes mellitus. *Consult Pharm.* 2003; 18: 454-65.
- 52.** Miller C., Brown J. Knowledge and use of the food label among senior women in the management of type 2 diabetes mellitus. *J Nutr Health Aging* 1999; 3: 152-7.
- 53.** Shafie O, Fatanah I, NoorAzah D. Diabetes program in Malaysia – current and future. *Malaysia.* 2004; 3(2).
- 54.** Adepu R, Rasheed A, Nagavi B. Effect of patient counseling on quality of life in type-2 diabetes mellitus patients in two selected South Indian community pharmacies. *Diabetes Care.* 2007; 69: 4: 519-524.
- 55.** Dimity C, Kovatchev B, Koev D, Koeva L, Dachev S, Tcharaktchiev D, et al. Hypoglycemia anticipation, awareness and treatment training reduces occurrence of complication. *Int J Behav Med.* 2004; 11: 212-8.
-

ANNEX I: PARTICIPANTS INFORMATION SHEET

This is a study on Assessment of diabetic patient's perception on diabetic related education and counseling in Yekatit-12 and Black Lion Specialized Hospital. This study is planned for educational research purpose for the fulfillment of M Sc degree in Nursing in centralized school of nursing, AAU.

This form explains why this study is going to be conducted, your role in the study, the benefits and risks involving in this study and confidentiality of information you give us.

A. Purpose/ Objective: to assess the perception of patients with Type 2 Diabetes Mellitus on diabetic education and counseling.

B. Duration: an interview method took 15 minutes and for FGD (Focus Group Discussion) 25 minutes.

C. Procedure to be carried on:

This study will not need to do any experiment on the client or apply any invasive procedure.

D. Risks associated with the study

There will be no risk that can be associated with this study except you will be spending some time for interview/ group discussion.

E. Benefit of the study

By taking the part in this study you are helping to:

1. Provide information that is vital to judge the patient's perception and gap of given education and counseling in the hospital.
 2. Plan for future educational and counseling sessions based on your response.
 3. Provide valuable information for health professionals and other stake
-

holder including clients with T2DM about the need of education.

F. Compensation: Being a participant in this study is under your voluntary wish, there is no compensation or payment is considered.

G. Confidentiality of your information

Please make sure the information that you provide me during this data collection is confidential. Once the data is entered in to a computer it will be coded and becomes unidentifiable. I can guarantee you that your personal information never disclosed to any body else.

H. Termination of the study:

You will be respondent of this study if and only if you are willingful to participate. If there is any discomfort during interview or discussion time, know that you can have full right to terminate your participation before completing the study.

I would also inform to you that this study is approved by Institutional Review Board of Faculty of Medicine, AAU.

The board address is:

IRB, Addis Ababa University
Faculty of Medicine
E-mail: aaumfirb@yahoo.com
Tel: 0115-538734

The address of principal investigator:

Meaza Getahun
meazaget@yahoo.com
P.O. Box 31831
Cell phone no: 0911-361335

አባሪ ቅፅ 1: የዚህ ጥናት ተሳታፊ ለሆኑ ግለሰቦች መረጃ የሚሰጥ ቅጽ

ይህ መጠይቅ የተዘጋጀው በየካቲት 12 እና በጥቁር አንበሳ ሆስፒታል የህክምና ምርመራ የስኳር ሕክምና ተከታታይ ደንበኞች በሕክምና ክፍሉ የሚሰጠውን ትምህርትና የምክር አገልግሎት በመከታተል በደማቸው ውስጥ ያለውን የስኳር መጠን ለማስተካከልና ለመቆጣጠር የሚያስችል በቂ እውቀት ማግኘታቸውንና ያላቸውን ግንዛቤ ለማወቅ ነው። ይህ ቅፅ ጥናቱ ለምን እንደሚካሄድ፣ በዚህ ጥናት ውስጥ የእርስዎ ድርሻ፣ ከጥናቱ ጋር ተያያዥነት ያላቸው ጉዳዮችና ስለመረጃው ምስጢራዊነት በተመለከተ ለመግለፅ የተዘጋጀ ነው።

የጥናቱ ዓላማ:- ይህ ጥናት የስኳር ሕመሙን በጤና ተቋማት የሚያገኙት የጤና ትምህርቶችና ምክሮች የስኳር መጠናቸውን አሻሽለውና ራሳቸውን ተንከባክበው መኖር የሚያስችላቸውን ግንዛቤ በማስጨበጥ ያላቸውን ግንዛቤና ሚና ለማገናዘብ የተዘጋጀ ነው።

ጥናቱ የሚፈጀው ጊዜ:- ለቃለ-መጠይቅ 15 ደቂቃ እንዲሁም በውይይት መልክ ተሳታፊ ከሆኑ እስከ 25 ደቂቃ ድረስ ያስፈልጋል።

በጥናቱ ወቅት:- ከቃለ-መጠይቅና ውይይት ውጭ ምንም አይነት ምርመራ አይካሄድም።
ከጥናቱ ጋር የሚመጣ ጉዳት:- አንዳችም ጉዳት የለም።
የጥናቱ ጥቅም:- የእርስዎ በዚህ ጥናት ውስጥ ተሳታፊ መሆን ያለው ጠቀሜታ፡

1. የስኳር ሕመሙን የሚያደርጉትን እንክብካቤ በተመለከተ ከጤና ተቋማት የሚያገኙት ትምህርት ያለውን ክፍተት ለመገንዘብ ይረዳል።
2. በሆስፒታሉ የሚሰጠው ምክርና ትምህርትን ተከትሎ ያሉትን ክፍተቶች የሚጠግን መፍትሔ ለመፈለግም ይረዳል።
3. በመጨረሻም አስፈላጊ የሆነ የጥናቱን መረጃ ለጤና ባለሙያዎች እንዲሁም የስኳር ሕመም ተጠቂ ግለሰቦች ለመስጠት ይረዳል።

ማካካሻ:- የዚህ ጥናት ተሳታፊ መሆን ምንም አይነት ክፍያ (ጥቅማ-ጥቅም) የለውም።
የመረጃው ምስጢራዊነት:- በዚህ ጥናት ተሳታፊ ሆነው የሰጧቸው መረጃዎች በሙሉ ለሌላ አካል ተላልፈው እንደማይሰጡ ላረጋግጥሎት እወዳለሁ። መረጃዎቹ ወደ ሌላ ግለሰብ ከመሄዳቸው አስቀድሞ በኮምፒውተር በታገዘ ምስጢራዊ ቁልፍ ይለወጣሉ።
በጥናቱ ተሳታፊ መሆን/ አለመሆን:- በዚህ ጥናት ለመሳተፍ ወይም ላለመሳተፍ የእርስዎ ፈቃድ ነው። እንዲሁም ካልተመቸዎት መጠይቁን ሳይጨርሱ ለማቋረጥ ሙሉ መብት እንዳለዎት በድጋሜ ልገልፅልዎት እወዳለሁ።
አድራሻ:- በመጨረሻም ይህ ጥናት ህጋዊ ፈቃድ ይዞ እየተሰራ ለመሆኑ ማረጋገጫ ይሆንዎት ዘንድ የአዲስ አበባ ዩኒቨርሲቲ ሜዲካል ፋካልቲ የጥናትና ምርምር ክፍል አድራሻ እንዲሁም የዚህ ጥናት ባለቤት አድራሻ ተያይዟል።

የአዲስ አበባ ዩኒቨርሲቲ ሜዲካል ፋካልቲ	የጥናቱ ባለቤት አድራሻ፤
የጥናትና ምርምር ክፍል አድራሻ፤	መዓዛ ጌታሁን
ስልክ ቁ.፡ 0115-538734	የመ.ሣ.ቁ. 31831, አ.አ

ANNEX II: INFORMED VERBAL CONSENT AGREEMENT

Dear client how are you (Good morning/ Good afternoon?) I am _____. I am working in the research team of Addis Ababa University Medical Faculty, Centralized School of Nursing.

The aim of this research is to know your perception about diabetic related education and counseling in the health facilities. Thus, your experience on self- management of diabetes mellitus is very essential to understand relation to education and counseling. Know that your participation in this research is voluntary. You don't have to answer any questions that make you feel uncomfortable. Every item of your response will be kept private and confidential.

If you feel discomfort with the interview, please feel free to drop it at any time you want. This interview will take only 10 minutes. Could I have your permission to continue?

1. If yes, continue the interview
2. If no, go to the next participant.

Thank you in advance!

If you have any question for verification you may ask or contact the principal investigator with the following address.

Meaza Getahun
P.O Box 31 8 31, AA. Tel. 0911-361335

አባሪ ቅፅ 2: የስኳር ሕመምተኛዉ/ዋ ለጥናቱ ተሳታፊነት ፈቃድ መጠየቂያ ቅፅ

ጤና ይስጥልኝ (እንደምን አደሩ/ እንደምን ዋሉ?) እኔ
የተባልኩ በአዲስ አበባ ዩኒቨርሲቲ ሜዲካል ፋካልቲ ውስጥ የሚገኘው የአጠቃላይ ነርስ ት/ቤት የጥናትና ምርምር ቡድን አባል ነኝ።

ይህ መጠይቅ የስኳር ሕመሙን በጤና ተቋማት የሚያገኝቸው የጤና ትምህርቶችና ምክሮች የስኳር መጠናቸውን አሻሽሎና ራሳቸውን ተንከባክበው መኖር የሚያስችላቸውን ግንዛቤ በማስጨበጥ ያለውን ሚና ለማገናዘብ የተዘጋጀ መጠይቅ ነው።

ይህንን መጠይቅ በተገቢው መልኩ በማከናወንና መረጃ በማጠናቀር በሆስፒታሉ የሚሰጠውን የጤና ትምህርት ለማሻሻል እንደሚረዳ እሙን ነው። ስለዚህ የእርስዎ በዚህ ጥናት መሳተፍ አይነተኛ የሆነ ፋይዳ ያለውና ለወደፊቱ የትምህርትና ክትትሉን ለማሻሻል የተዋጣ ሚና እንደሚኖረው ለመግለፅ እወዳለሁ።

እንዲሁም ቃለ-መጠይቁን ሲያካሂዱ ስምዎትንም ሆነ እርስዎን ለይቶ ገላጭ የሆነ መጠይቅ እንደሌለ እንዲገነዘቡና በዚህ ጥናት ውስጥ ሲሳተፉ ምንም አይነት የግለሰብ ማንነትን የሚነካ መረጃ ለሌላ አካል እንደማላስተላልፍ ቃል እገባለሁ። ስለዚህ ለጥያቄዎቹ ተገቢውን መልስ በመስጠት ለዚህ ጥናት መሳካት አስተዋፅኦ ያደርጉ ዘንድ በትህትና እጠይቃለሁ።

ይህንን ቃለ-መጠይቁን ለማካሄድ 10 ያህል ደቂቃዎች ብቻ ይፈጃል።

1. በዚህ ጥናት ለመሳተፍ ፈቃደኛ ነኝ። (ይህንን ካሉ ቃለ-መጠይቁን መጀመር)

2. በዚህ ጥናት ለመሳተፍ አልሻም። (ይህንን የሚሉ ከሆነ ማሰናበት)

በቅድሚያ አመሰግናለሁ!

ይህንን ጥናት በተመለከተ ማንኛውም አይነት ጥያቄ ቢኖርዎት በሚከተለው አድራሻ መጠቀም ይችላሉ።

መዓዛ ጌታሁን

የመ.ሣ.ቁ፡ 31 8 31

ANNEX III: QUESTIONNAIRE

ADDIS ABABA UNIVERSITY

FACULTY OF MEDICINE, CENTRALIZED SCHOOL OF NURSING

Questionnaire code no: _____

INSTRUCTIONS: This questionnaire is designed to assess the perception of diabetic patients about diabetic related education and counseling in Yekatit-12 and Black Lion Specialized Hospitals; April 2009, A.A. Each page of the paper is filled by data collectors according to the clients response, which obtained by interviewing the client (Put $\sqrt{}$ sign on the space provided).

I. Identification/socio-demographic characteristics

1.1. Sex: 1. Male _____ 2. Female _____

1.2. Age in years: _____

1.3. Ethnicity: _____

1.4. Religion: 1. Orthodox _____ 2. Protestant _____
3. Muslim _____ 4. Other (specify) _____

1.5. Marital status: 1. Single: _____ 2. Married: _____
3. Divorced: _____ 4. Widowed: _____

1.6. Social situation 1. Live alone ____ 2. Live with others (specify) ____

1.7. Educational Status:

a. Can't able read and write _____ b. 1-6 grade _____
c. 7- 12 _____ d. > 12 _____

1.8. Income per month: _____

1.9. Weight in Kg: _____

1.10. Height in cm: _____

Calculated **BMI:** _____ (to be filled later)

II. Diabetes questionnaire

2.1. For how long have you been diabetic?

1. < 1 year _____ 2. 1-2 year _____
3. 2-4 years _____ 4. > 4 years _____

2.2. Frequency of visit to the health care setup:

1. Regular: _____ 2. Irregular: _____
Mention frequency of hospital visit in days/ month _____

2.3. Current laboratory value for blood glucose level in mg/dl

1. FBS _____ 2. RBS _____

2.4. Pattern of diabetic management through:

2.4.1. Do you controlled with diet alone? 1. Yes: ____ 2.No: ____

2.4.2. List any regular exercise regimen you follow: _____

2.4.3. Do you ever use insulin therapy? 1. Yes: ____ 2. No: ____

If yes, when? _____

2.4.4. Do you use oral hypoglycemic agent? 1. Yes: ____ 2. No: ____

If yes; mention the type of medication: _____

For how long do you use oral hypo-glycemic agent? _____

2.4.5 Has your blood sugar dropped below/ above usual?

1. Yes: ____ 2. No: ____

If yes: 1. what type of warning signals did you noticed _____

2. Mention the date of having low blood sugar? _____

2.4.6. Do you ever hospitalized for diabetes related problem?

1. Yes: ____ 2. No: ____

If yes, how many times you had to be hospitalized? _____

III. Assessment of Diabetes Mellitus related complications

S no	Diabetic related complications	Yes	No	Remark
3.1	Eyes			
3.2	Kidney disease			
3.3	Heart disease			
3.4	High blood pressure			
3.5	Foot ulcer			
3.6	Nerve			

IV. Health maintenance Information

4.1. Have you ever smoked cigarette? 1.Yes: _____ 2. No: _____

If yes; for how long? _____

If you are still smoking, how many cigarettes do you smoke per day? ____

4.2. Alcohol drinking: 1.Yes: _____ 2. No: _____

4.3. List any medication you are using currently (including over the counter drugs, vitamins, herbal remedies)_____

V. Appropriate knowledge about diabetes self management

T2DM managem ent	S no	Items for assessment of knowledge and self care	1	2	3	4	5
Food	5.1	I eat my meals every 4 to 5 hours, including breakfast every day					
	5.2	I do not share non diabetic food with other people who do not have diabetes					
	5.3	I choose the appropriate food to eat when I am hungry					
Exercise	5.4	I can exercise 15 to 30 minutes, 4 to 5 times a week					
	5.5	I can take meal to prevent my blood sugar level from dropping after I exercise					
Follow- Up	5.6	I am conscious when there is any change in my illness and immediately visit health care setup					
	5.7	I know what to do when my blood sugar level goes higher or lower					
	5.8	I can control my diabetes; not to interfere with the things I want to do					
OHA	5.9	I can take my tablet according to the prescribed dose					
	5.10	I sometimes skip to take medication, when I am seriously sick					
Insulin	5.11	I feel comfortable to take insulin if my blood level don't drop with other therapies					

Key: 5: More Knowledgeable, 4: Knowledgeable, 3: Minimal knowledge, 2: Less Knowledgeable, 1: Not knowledgeable

VI. Diabetic knowledge and illness perception through HBM

HBM components	5	4	3	2	1
6.1 I have family support for diet adherence, insulin injecting, exercise adherence, and general support for diabetes care					
6.2 Education and counseling that I received from the hospital empowers and keeps me knowledgeable					
6.3 Diabetic life affects my life and I think my life expectancy also can affect highly					
6.4 Adherence regime and internal locus of control can bring significant change on quality of life.					
6.5 The benefit of strict follow up helps me to prevent and avoid diabetic related complications.					

Key: 5: Strongly Agree, 4: Agree, 3: Fair, 2: Disagree, 1: Strongly disagree

Thank you!

PART II: QUESTIONS FOR FOCUS GROUP DISCUSSION (FGD)

Instruction: This part of question will be used only for grouped clients. Principal investigator will explain the ground rules for discussion: In this discussion there will be no right or wrong answers. Please feel free to ask any questions concerning the discussion and to share your opinion. For the success of this study your participation is very important. Don't forget to use tape recorder during the discussion time.

- 1.** For how long do you attend follow-up in the diabetic clinic?
 - 2.** How do you perceive diabetic management in Yekatit 12/ BLSH?
 - 3.** What do you know about self care and diabetic management?
 - 4.** Do you attend education and counseling session of Yekatit 12/ BLSH? How often?
 - 5.** What are the commonest topics covered during educational session?
 - 6.** Do you think that education/ counseling you received from hospitals brought significant change on your life style? Probe: on diet? Exercise?
-

Name of data collector: _____

Sign: _____ Date of data collection: _____

Complete: _____ Incomplete: _____

አባሪ ቅፅ 3: የአዲስ አበባ ዩኒቨርሲቲ፣ የሕክምና ፋካልቲ

አጠቃላይ የነርስ ትምህርት ቤት

የጥያቄ ምስጢር ቁጥር:

መመሪያ: ይህ መጠይቅ የተዘጋጀው በየካቲት 12 እና በጥቁር አንበሳ ሆስፒታል የህክምና ምርመራ የስኳር ሕክምና ተከታታይ ደንቦች በሕክምና ክፍሉ የሚሰጠውን ትምህርትና የምክር አገልግሎት በመከታተል በደማቸው ውስጥ ያለውን የስኳር መጠን ለመቆጣጠር የሚያስችል በቂ እውቀት ማግኘታቸውን ለማወቅ ይረዳል። እያንዳንዱ የመጠይቁ ገፅ የሚሞላው በመረጃ ሰብሳቢ እጩ ነርሶች (በ ኢ.አ.ዩ. ነርሲንግ ተማሪዎች) ሲሆን ግለሰቡ/ቧ የሚሰጡትን ምላሽ ብቻ ቅፁ ላይ መጻፍ ይጠበቅባቸዋል።

፩. አጠቃላይ መረጃ

- 1.1. ፆታ 1. ወንድ 2. ሴት
- 1.2. እድሜ
- 1.3. ብሔር
- 1.4. ሀይማኖት 1. ኦርቶዶክስ 2. ፕሮቴስታንት.....
3. ሙስሊም..... 4. ሌላ (ይግለፁ)
- 1.5. የጋብቻ ሁኔታ
1. ያላገባ/ች.... 2. ያገባ/ ች..... 3. የተፋታ/ች..... 4. የሞተበት/ባት.....
- 1.6. የአኗኗር ሁኔታ
1. ብቸኛ..... 2. ከሌላ ሰው ጋር የሚኖር (ይጥቀሱ)
- 1.7. የትምህርት ደረጃ 1. ማንበብ/መጻፍ የማይችሉ..... 2. ከ1- 6.....
3. ከ 7-12..... 4. ከ12ኛ ክፍል በላይ.....
- 1.8. አመታዊ የገቢ መጠን
- 1.9. የሰውነት ክብደት መጠን
- 1.10. የግለሰቡ/ቧ ቁመት

፪. የስኳር ሕመምን በተመለከተ መጠይቅ

- 2.1. የስኳር ሕመም ከጀመረዎት ምን ያህል ጊዜ ይሆናል?
1. < 1 አመት 2. 1-2 3. 2-4 4. > 4 አመት
- 2.2. ለስኳር ሕመም በቂ የሆነ ክትትል ያደርጋሉ? 1. አዎ.... 2. አይ
- ለጥያቄ ቁጥር 2.2 አዎ ብለው ከመለሱ የጤና ተቋሙን በምን ያህል ጊዜ ይጎበኛሉ?
.....

2.3. በቅርቡ/ በዛሬው እለት የላብራቶሪ ምርመራ አድርገዋል?

1. አዎ 2. አይ
.....

2.3.1 በደም ውስጥ ያለ የስኳር መጠን ምርመራ አድርገው ከሆነ ውጤቱን ይግለፁ

.....

2.4. የስኳር መጠን የሚከላከሉትና የሚቆጣጠሩት ከሚከተሉት በየትኛው ዘዴ ነው?

1. ለስኳር ሕመምተኞች የሚስማማ ምግብ በመመገብ

2. በየቀኑ የአካል ብቃት እንቅስቃሴ በመስራት

3. በመርፌ የሚወሰድ የስኳር መጠን መቆጣጠሪያ በመውሰድ

4. በአፍ የሚዋጥ የስኳር መጠን መቆጣጠሪያ በመጠቀም

5. የስኳር መጠን ከልክ ያለፈ ጨምሮ ወይም ቀንሶ ያውቃል?

1. አዎ

2. አይ

አዎ ካሉ ወቅቱ መቼ ነበር?(ይግለፁ)

6. ከስኳር ሕመም ጋር በተያያዘ ሆስፒታል ተገኝተው ያውቃሉ?

አዎ ካሉ ወቅቱ መቼ ነበር?(ይግለፁ)

ለምን ያህል ጊዜስ ተኙ? ሕመሙስ ምን ነበር?(ይግለፁ).....

፫. ከስኳር ሕመም ጋር ተዛማጅነት ያላቸው የረጅም ጊዜ የጤና መቃወስ

ተ ቁ	አስከፊ ሕመሞች	አለኝ	የለብኝም
3.1	የአይን ሕመም		
3.2	የኩላሊት ሕመም		
3.3	የልብ ሕመም		
3.4	የደም ግፊት መጨመር		
3.5	የእግር ህመም		
3.6	የነርቭ ሁኔታ		

፬. የጤና አጠባበቅን በተመለከተ መጠይቅ

4.1. ሲጋራ አጭሰው ያውቃሉ? 1. አዎ 2. አይ

አዎ ካሉ ለምን ያህል ጊዜ አጭሰዋል?.....

አሁን እየተጠቀሙ ነው? 1. አዎ 2. አይ

በቀን ምን ያህል ሲጋራ ያጨሳሉ?(ይግለፁ).....

4.2. የአልኮል መጠጥ ይጠጣሉ? 1. አዎ..... 2. አይ

4.3. አሁን በመውሰድ ላይ የሚገኙት ከስኳር ሕመም ውጪ የሆነ መድኃኒት አለ?

አዎ ካሉ የመድኃኒቱን/ቶችን አይነት ይጥቀሱ

፩. የስኳር ሕመምን መከታተያና ማሻሻያን በተመለከተ ግለሰቡ/ቧ ያላቸው እውቀት

የሕመም ማሻሻያ	ተ ቁ	የእውቀት መመዘኛ	5	4	3	2	1
ምግብ	5.1	እኔ በየቀኑ ቁርሴን ጨምሮ በየ4-5 ሰዓት ምግቤን እመገባለሁ።					
	5.2	የስኳር ሕመምተኞች ያልሆኑ ግለሰቦች የሚወስዷቸውን ለእኔ የማይሆኑ ምግቦችን አብሬ አልመገብም።					
	5.3	በሚርበኝ ሰዓት እንኳን ቢሆን ለእኔ የሚመች ምግብ መመገብ እመርጣለሁ።					
የሰውነት እንቅስቃሴ	5.4	በሳምንት ውስጥ ለ4-5 ጊዜ ያህል ከ15-30 ደቂቃ የሚዘልቅ የሰውነት እንቅስቃሴ አደርጋለሁ።					
	5.5	የሰውነት እንቅስቃሴ ካደረግሁ በኋላ አስፈላጊውን ምግብ በመመገብ የስኳር መጠኔ እንዳይወርድ እከላከላለሁ።					
የስኳር ክትትል	5.6	ምንም ዓይነት የሕመም ለውጥ ቢሰማኝ ወደ ጤና ተቋም በአስቸኳይ መሄድ እንደሚገባኝ ጠንቅቄ አውቃለሁ።					
	5.7	በደሜ ውስጥ የሚገኘው የስኳር መጠን ሲጨምር ወይም ሲቀንስ ምን ማድረግ እንዳለብኝ በቂ መረጃ አለኝ።					
	5.8	ማንኛውንም የምፈልገውን ነገር ማከናወን እንዳያውከኝ የስኳር መጠኔን መቆጣጠር እችላለሁ።					
የስኳር ማሻሻያ ክኒን	5.9	የተሰጠኝን የስኳር መጠን ማሻሻያ እንክብል/ ክኒን ሐኪም ባዘዘው መጠን እወስዳለሁ።					
	5.10	አንዳንድ ጊዜ በጣም በሚያመኝ ወቅት የታዘዘልኝን መድኃኒት ሳልወስድ እቀራለሁ።					
መርፌ	5.11	በሌሎች የሕክምና መከታተያ ዘዴዎች የስኳር መጠኔን መቀነስ ካልቻልኩ በመርፌ መልክ የተዘጋጀውን ኢንሱሊን ለመውሰድ ዝግጁ ነኝ።					
መፍቻ:	5: በጣም ጥሩ እውቀት	4: በቂ እውቀት	3: መጠነኛ				
	2: ትንሽ እውቀት	1: ምንም እውቀት የለውም/ የላትም					

፪. ስለ ጤና/ ስለ ስኳር ሕመም ያላቸው ግንዛቤና እምነት ትንታኔ

ተ ቁ	ስለ ስኳር ሕመም ያላቸው ግንዛቤ	5	4	3	2	1
6.1	ቤተሰቦቼ ምግቤን እንድከታተል፣ መርፌ እንድወስድና የስኳር ሕመም ምርመራና ክትትል እንዳደርግ ያበረታቱኛል።					
6.2	ከሆስፒታል የቀሰምኳቸው ትምህርቶችና ምክሮች ህይወቴን በብዙ መልኩ አስተካክለውታል።					
6.3	እኔ እንደማስበው የስኳር ሕመም ህይወቴን ቀይሮታል፤ በተለይም በህይወት የምቆይበትን ጊዜ በእጅጉ ይለዉጣል።					
6.4	ውስጣዊ ራስን መቆጣጠርና ሕክምናን በአግባቡ መከታተል የተለከ ኑሮን ለመምራት ይረዳል።					
6.5	ሕክምናን በአግባቡ መከታተል ከስኳር ሕመም ጋር ተዛማጅነት ያላቸውን ሕመሞች ለመከላከል ይረዳል።					

3: በመጠኑ

2: አልስማማም

1: በጣም አልስማማም

ክፍል 2: በውይይት መልክ መረጃ ለመስጠት የሚረዳ መጠይቅ (ቃለ-መጠይቅ ለተሳተፉ ግለሰቦች ይህ መጠይቅ አይቀርብም፡፡)

1. የስኳር ህክምና ክትትል ለምን ያህል ጊዜ ወስደዋል ?
2. በጥቁር አንበሳ/ በየካቲት 12 ሆስፒታል የሚሰጠውን የስኳር ህክምና ክትትል እንዴት ይመለከቱታል?
3. ስለ ስኳር ህክምና ምን ያህል ያውቃሉ? ቢያብራሩልን?
4. በጥቁር አንበሳ/ በየካቲት 12 ሆስፒታል የሚሰጠውን የስኳር ህክምና ክትትል ክፍል በመደበኛ ሁኔታ ይጠቀማሉ? ቢያብራሩልን?
5. በተከታታይ የጤና ትምህርት ወቅት በአብዛኛው የሚሸፈኑት የጤና ትምህርት ርዕሶች የትኞቹ ናቸው? በስኳር ህክምና ክትትል ክፍል የሚሰጠው የምክር አገልግሎት የአመጋገብና የሰውነት እንቅስቃሴ ዘይቤዎ ላይ ምን አይነት ለውጥ አምጥቷል?
6. በጥቁር አንበሳ/ በየካቲት 12 ሆስፒታል በሚሰጠው የስኳር ህክምና ክትትል ክፍል የሚገኙ የጤና ባለሙያዎቹ አቀባበልና የትምህርት አሰጣጥ ሂደት ምን ይመስላል?

አመሰግናለሁ !

የመረጃ ሰብሳቢው/ዋ ስም:

የመረጃ ሰብሳቢው/ዋ ፊርማ: መረጃው የተሰበሰበበት ቀን:

የመጠይቁ ቅፅ የተሟላ: ያልተሟላ:

APPENDIX IV: DECLARATION FORM

I the undersigned, declare that this thesis is my original work in partial fulfillment for the requirements of Masters degree in Adult Health Nursing. All the sources for the materials used for this thesis and all people and institutions who gave support for this work are fully acknowledged.

Name of student: Meaza Getahun

Signature: _____

Place of submission: Centralized school of Nursing

Medical Faculty

Addis Ababa University,

School studies of Graduate

Date of submission: July 6, 2009

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

Asrat Demissie

Advisor

Signature

ANNEX V: CURRICULUM VITAE OF PRINCIPAL INVESTIGATOR

1. Personal data

Name: Meaza Getahun Sileshi
Date of birth: Sep 24, 1976
Place of birth: Ginnir, Bale
Sex: Female
Nationality: Ethiopian
Language: Amharic and English

2. Education background

Duration	Credentials	Place
From 2006	Candidate of final year M SC in Nursing, Adult Health Nursing	AAU, Medical faculty, Centralized School of Nursing
2002- 2004	B SC in Nursing	Jimma University, School of Nursing
1996- 1998	Diploma in Comprehensive Nursing	Gondar College of Medical Science

3. Work experience

Duration	Position	Place
2004-2006	Assis. Lecturer	Jimma University, School of Nursing
2001-2004	Tutor	Jijiga Health science college
1998-2000	Staff nurse	Karamara Hospital, Jijiga

ANNEX VIII: b CURRICULUM VITAE OF ADVISOR

Name of advisor: Assistant Professor Asrat Demissie

1. Educational background

Duration	Credential	Place
1995-1996	M Sc in Nursing	Emory University, Atlanta
1988- 1990	Post basic degree in Nursing	New delhi Medical School, India
1981-1982	Teaching and Research Methodology	Jomo Kenyatta National Hospital, Nairobi
1973-1977	Diploma in Nursing	Nursing school, AA

2. Work experience

Duration	Position	Place
2008 on wards	Head of Nursing School	AAU, Centralized School of Nursing
2006-2007	Dean of the college	Bethel Medical College
2003- 2006	Academic vice president	Defense Health Science College
1997- 2003	Faculty dean	Jimma University, Public Health Faculty
1982-1988	Head of Nursing School, Lecturer	Jimma University, School of Nursing
1979-1981	Instructor	Shashemene Health college
1973- 1979	Staff Nurse	Debre-Birhan
