QUALITY OF LIFE AND ITS DETERMINANTS AMONG PERSONS WITH DIABETES ATTENDING SECONDARY HEALTH FACILITIES IN IBADAN SOUTH-WEST LOCAL GOVERNMENT, OYO STATE.

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CERTIFICATION

This is to certify that this project work was carried out under my supervision by AYODELE. Olubunmi Oladokun in the Department of Epidemiology and Medical statistics. University of lbadan.
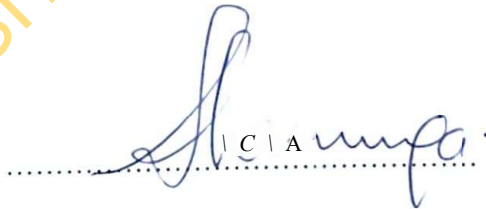
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DEDICATION

This research work is dedicated to the Almighty God, the author and finisher of our faith for the sustenance of my life.

I also dedicate this project to my parents and siblings for their support throughout the course of this programme.

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I iiive ulory lo llic Sovereign God, the most gracious and merciful God lor guiding me throughout the course of this programme.

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NCI): Non communicable diseases.

IDDM: Insulin dependent diabetes mellitus

NIDDM: Non -insulin dependent diabetes mellitus

QOL: Quality of life

DALY: Disability adjusted life years

WHO: World Health Organization

JNC: Joint National Committee

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ABSTRACT

Quality of life (QOL) issues arc of interest in diabetes management because it describes the ways individual's well being could be affected over time by the interference of diabetes. While previous studies had reported impairment of all domains of QOL among diabetic patients and had associated this most especially with the presence of diabetes complications, not many had focused on the determinants of QOL and perceived social support. Information about the QOL could be used design, implement and evaluate interventions which in turn could improve the QOL of diabetic patients. This study was conducted to assess the QOL of diabetic patients and to determine the factors associated with QOL among diabetic patients attending secondary health facilities in Ibadan South West Local Government.

Using a cross-sectional study, a systematic sampling technique was used to select 300 consenting diabetic patients from two secondary health facilities in Ibadan south-west Local Government. A pretested interviewer-administered semi-structured questionnaire was used to collect data on socio-demographic characteristics, clinical determinants, behavioral determinants, adherence to treatment and perceived social support. The data collection instrument was adapted from WHOQOL-bref questionnaire, multidimensional scale of perceived social support and relevant literatures. Data were analysed using descriptive statistics, student t-test, Anova, correlation and multiple linear regression with level of significance set at 0.05.

Respondents were diabetic patients which consisted of 15 type I diabetic patients (5%) and 285(95%) type II diabetic patients. Majority of the respondents were in the 61-70 age group and predominantly females (79.9%). Most of the respondents (70.3%) of the patients were married. Primary education was the highest level of education attained by 32.0%. Ages of the respondents were statistically associated with the QOL score in social health domain. (p= -0.166. p= 0.004). Income of the respondents showed a positive correlation and significantly associated with all the domains of QOL (physical-B= 0.127. p=0.028. psychological-p=0.202, p=<0.001;social-[3=0.137, p =0.018 and environmental-P=0.210, p=<0.001).

Level of education attained and employment status predicted the QOL score in the psychological domain ((β=0.170, p =0.003) and social domain ((β= -0.121, p =0.036) respectively. Diabetic patients with co-morbidity had lower mean QOL scores compared with those without co-morbidity, there was a significant association between co-morbidity and physical ((β= -0.138, p = 0.017) .psychological domains ((β= - 0.136, p = 0.019).Age at onset of illness had a negative correlation with all the domains of quality of life and was associated with the environmental domain ((β= -0.124, p =0.032).There was positive correlation between medication and the psychological domain, which was statistically significant.((β= 0.137. p = 0.018). A positive correlation existed between perceived level of social support and all the domains except for the psychological domain; and significantly predicted the physical (p =<0.001) and environmental health domains. ((β=0.213, p<0.001).

Diabetic patients with controlled blood glucose had a higher QOL scores in all domains than patients with uncontrolled blood glucose. Glycemic control is an important determinant of QOL in diabetic patients, therefore measures to ensure glycemic control should be encouraged in clinical management of diabetes.

KEY WORDS: Quality of life. Diabetic patients, Ibadan, Nigeria.

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CHAPTER ONE

INTRODUCTION

1.1   Background

Non-communicable diseases (NCDs) including diabetes, cardiovascular diseases, cancers, and chronic respiratory diseases create the biggest threat to global health care, economy and increasingly becoming the leading causes of morbidity and mortality worldwide (Abegunde et al., 2007).Globally, non-communicable diseases are responsible for the numerous number of death, causing about 60% of all deaths worldwide. NCDs were responsible for nearly half of the burden of diseases measured in disability-adjusted life years (DALYs).An estimated 80% of NCD deaths occur in low and middle income countries. Non-communicable diseases (NCDs) have become a major public health concern both in developed and developing countries. NCDs afflict mostly the high income countries but the developing countries face a double burden of the disease (WHO, 201 l).In Africa, the impact is greatest on the poor countries of sub-Saharan Africa most especially in Nigeria. NCDs are majorly associated with behavioral risk factors including tobacco use. unhealthy diets, insufficient physical activity and the harmful use of alcohol (WHO, 2009). Diabetes mellitus is an important public health concern. Worldwide, more than 90% of all cases of diabetes have type 2 diabetes; it is common in more developed countries. Globally, an estimated 382 million people had diabetes in 2013. It is the 8th leading cause of death; a common cause of morbidity and mortality (Krein et al., 2000).

Diabetes mellitus is a chronic disease that occurs when the pancreas does not produce enough insulin, or the cells of the body not responding to the insulin produced (WHO, 2013).Diabetes mellitus is a group of metabolic diseases in which there are high blood sugar levels over a prolonged period. The major types of diabetes are type 1 diabetes (insulin dependent diabetes mellitus), type 2 diabetes (non-insulin dependent diabetes mellitus) and gestational diabetes. Type 1 diabetes mellitus is caused by the auto-immune destruction of the insulin producing islets of Langerhans in the pancreas which eventually leads to insulin deficiency (Melissa.. 2014).Type 2 diabetes mellitus is a condition in which beta cells fail to produce insulin properly. It is primarily due to lifestyle factors

like obesity, lack of physical activity, poor diet, stress, and urbanization (Melissa., 2014).Gestational diabetes occurs in about 2-10% of all pregnancies; Gestational diabetes is fully treatable, management may include dietary changes, blood glucose monitoring, and in some cases insulin may be required (WHO, 2013).Management of diabetes mellitus involves keeping blood sugar levels as close to normal as possible without causing hypoglycemia. Lifestyle interventions like diet, regular physical activity and use of appropriate drug has proven to be useful in the management and treatment of diabetes mellitus (Williams et al., 2013; Luiz et al., 2008).

Quality of life is a broad concept affected by an individual's physical health, psychological state, social relationships and relationships to their environment. Quality of life is defined as the perception of individuals' to achieve happiness and satisfaction. Quality of life is a subjective evaluation of both positive and negative aspects of life (Zhang et al., 2012). Therefore, good quality of life is an important goal of health care (Fan et al., 2004; Tsai et al., 2007).Several studies have shown that diabetes causes impairment of all domains of quality of life, most especially the social domain. Diabetes increases the risk of developing threatening conditions such as kidney failure, heart attack and stroke (Davis et al., 2001; Wild et al.,2004 ; Alavi et al., 2004; Eljedi et al., 2010).This leads to poor health, mortality, reduction of life expectancy and adjusted life expectancy (Lidia et al., 2012).

Social support or interactions from the family, friends and supportive others has shown to be directly related to better diabetes management, health promoting self management behaviour and emotional support for dietary adherence (Schiotz et al., 2012; Tricia et al., 2008). Social support is considered an important factor in treatment adherence and social functioning. The perception of the amount and type of social support play a significant role in predicting dietary adherence.

Quality of life of diabetic patients is majorly determined or influenced by several factors. A difference in quality of life among diabetic patients is based on racism or ethnicity. Quality of life among white and black is majorly influenced by education, marital status, family poverty-income ratio (PIR), body mass index, smoking status and diabetes

duration. Non-Hispanic white diabetic patients reported higher level of mental unhealthy days which has effect on health outcomes than Hispanic white (Zhang et al., 2014).

Oguntibeju et al.. 2012 reported health behaviours to be a major determinant of quality of life of patients. It is essential that attention is paid to health promoting lifestyle factors in order to reduce the risk of developing the complications associated with diabetes. Lifestyle changes of diabetic patients are associated with psychological and environmental improvement of their quality of life (Williams et al., 2013).

It is recognized that psychosocial factors has an impact on quality of life; Deterioration of physical conditions of diabetic patient's increases depressive symptoms and is significantly related to anxiety (Omer et al., 2008).This study is in contrast to Klein et al.,1998 which reported that physical functioning negatively impacts quality of life. Therefore, early detection of depression is essential to improve the course of diabetes.

In addition, there is an established relationship between metabolic control of patients with type 1 or type 2 diabetes and the development of chronic adverse complications. Poor metabolic control is responsible for poorer psychosocial functioning which in turn leads to poor quality of life and vice versa. Therefore, factors associated with metabolic control and self-management contributes to positive health outcomes (CDC., 2010).In a review of quality of life and diabetes by Peyrot et al, 2005 reported that people with diabetes have worse quality of life than people without diabetes. Improvement in quality of life reduces the social, financial, and psychological burden related to diabetes.

Adherence or compliance to treatment is an important factor of quality care, especially in treating chronic disease such as diabetes mellitus. Identifying factors that independently influence treatment adherence helps in improving clinical outcome and quality of life. However, association of socio-demographic variables with treatment adherence determines the productivity and quality of life of diabetic patients (Michael et al, 2009). Studies have demonstrated that blood glucose control is associated with adherence to treatment most especially anti-diabetic medications. In addition, poor adherence to glycemic control in diabetic patients enhances the development of diabetic complications (Wexler et al., 2006; Redekop et al., 2002). Therefore, an improvement in adherence to

treatment is associated with improved glycemic control, better treatment outcome and decreased health care resource utilization (Howard., 2012)

Quality of life is important in informing patient's management, policy decisions and resource allocations by clinicians and policy makers. Improvement in quality of life reduces the social, financial, and psychological burden related to diabetes. Quality of life in people with diabetes can be improved with glycemic control, changes in insulin delivery systems, education and counselling services (Anan et al, 2014). However, Menard et al, 2007 reported the necessity of intensive multi-therapy, insulin treatment and improved glycemic control in the long term reduction of diabetes complications and better quality of life in diabetes.

1.2   Problem statement

Diabetes occurs throughout the world and its prevalence is reaching epidemic proportions in many parts of the world. Approximately 1.5 to 5.1 million deaths of persons with diabetes occurs worldwide. If current trend continues, it is estimated that annual global diabetes mortality will rise to about 592 million persons by 2035(WHO, 2013).Diabetes mellitus is a public health issue of significant economic importance; the greatest increase in prevalence occurs in Asia and Africa due to the trend of urbanization and lifestyle changes.

India leads with the largest number of diabetic patients. India is said to have about 41 million individuals living with diabetes and approximately 51 million people is projected to have diabetes mellitus by 2030 (Wild et al.,2000).Diabetes decreases quality of life and increase the use of health care services. In Pakistan, about 6.6 million people live with diabetes and the number is expected to rise to 11.4 million by the year 2030 (IDF, 2012).Increase in rates of diabetes especially type 2 diabetes in Pakistan poses threats to the economy and quality of life due to poor glycemic control and high rates of complications (Basit et al., 2004; Ahmed et al., 2008).

In Africa, it is estimated that 14.7 million adults died of diabetes in 2011, with a regional prevalence of 3.8%, Nigeria not been an exemption. Nigeria has the largest number of people living with diabetes in Africa with an estimated burden of about 1.7 million, it is

estimated that the number will rise to 4.8 million by 2030. All chronic disease interferes with the life situation of the affected person in different ways, persons with chronic diseases have poor quality of life, therefore treatment of chronic disease encompasses promotion of healthy lifestyle and identified clinical risk factors like dyslipidemia and hypertension in diabetic patients are associated with higher mortality and worse quality of life (Sigal et al., 2006).

1.3   Justification

All chronic diseases accounted for the total burden of disease in terms of disability adjusted life years. Chronic diseases are important cause of morbidity in the adult population. Diabetes mellitus is a prevalent disease both in developed and developing countries; it has a detrimental effect on patients' quality of life. (Lopez et al., 2004). Quality of life is an independent marker of mortality, quite a number of studies have established relationships between quality of life and mortality in patients with diabetes (Gijs et al., 2010). However, despite the general awareness and prevalence of diabetes in Nigeria, if most preventable factors associated with poor quality of life of persons with diabetes are not dealt with, the probability of achieving satisfactory blood glucose in the treatment, management and prevention of diabetes complications will be impossible. Therefore, the better understanding of the relationship between quality of life and diabetes will result in the development of treatment strategies which could improve quality of life, and in turn reduce health care costs. (Mats et al., 2009).

Previous studies carried out within and outside Nigeria on quality of life among persons with diabetes have demonstrated that diabetes has a strong negative impact on the physical health, psychological health, social relationship and the environment(Oguntibeju et al., 2012. Fan et al.. 2004. Lidia et al ,2012).: but not many has focused on the determinants of quality of life and perceived social support among persons with diabetes attending secondary health facilities in this part of the country, which is a gap the study intends to fill by focusing on this category of diabetic patients to assess their quality of life and determinants that predicts their quality of life. Information obtained from this study could be used to design, implement and evaluate interventions to improve the

services provided by health care professionals, reduce health care costs, and in turn improve the quality of life of diabetic patients.

1.4   Objectives

General objective

The study aimed to assess quality of life and determinants among diabetic patients attending secondary health facilities in Ibadan South-west Local Government, Oyo State.

Specific objectives are:

1. To assess the perceived quality of life of outpatients diabetic patients attending secondary health facilities in Ibadan South-west Local Government.
2. To examine the perceived social support of diabetic patients attending secondary health facilities in Ibadan South-west Local Government.
3. To determine the predictors of quality of life among patients with diabetes attending secondary health facilities in Ibadan South-west Local Government.
4. To determine the association between social support and quality of life of diabetic patients attending secondary health facilities in Ibadan South-west Local Government.

1.5   Research questions

What is the perceived quality of life of patients with diabetes?

What is the perceived social support of patients with diabetes?

What are the predictors of quality of life among diabetic patients attending secondary health facilities in Ibadan.

CHAPTER TWO

LITERATURE REVIEW

2.1   Background

Diabetes mellitus is a syndrome characterized by disorder in metabolism resulting from low levels of insulin or resistance to the action of insulin. In other words, it occurs when the bod) can't use glucose normally. Diabetes is associated with coronary, cerebrovascular, and peripheral artery disease. (Lionel., 2007).There are three major types of diabetes namely; type 1, type 2 and gestational diabetes.

Type 1 diabetes was previously called insulin dependent diabetes mellitus (1DDM), or juvenile onset diabetes mellitus. It results from the body's failure to produce enough insulin. (WHO., 2013). In type 1 diabetes, the pancreas undergoes an autoimmune attack by the body itself, and is rendered incapable of making insulin. In persons with type 1 diabetes, the beta cells of the pancreas, which are responsible for insulin production, undergoes an autoimmune attack by the body itself, and is rendered incapable of making insulin. The immune system mistakenly manufactures antibodies and inflammatory cells that are directed against and cause damage to patients' own body tissues. Patients with type 1 diabetes must rely on insulin medication for survival.Type 1 diabetes is partly inherited, with multiple genes, including certain HLA genotypes. Environmental factors are known to trigger the onset of diabetes in genetically susceptible individuals. (Melissa., 2014).

Type 2 diabetes was previously referred to as "non-insulin dependent diabetes mellitus (NIDDM), or adult onset diabetes mellitus". A major feature of type 2 diabetes is the lack of sensitivity to insulin by the cells of the body (particularly fat and muscle cells).There is a known steady decline in beta cell production of insulin in type 2 diabetes that contributes to worsening glucose control. In type 2 diabetes, patients can still produce insulin, but do so relatively inadequately for their body's needs. However, there is a strong genetic component to developing this form of diabetes. Also, there is a direct relationship between obesity and the risk of developing type 2 diabetes, and this also

holds true in children as well as adults. It is estimated that the chance to develop diabetes doubles for every 20% increase over desirable body weight. (Melissa., 2014).

Gestational diabetes, is the third main form and occurs when pregnant women without a previous history of diabetes develop a high blood glucose level(WHO.,2013) Prevention and treatment involves a healthy diet, physical exercise, not using tobacco, and being a normal body weight. Blood pressure control and proper foot care are also important for people with the disease. Other causes of diabetes are genetic defects of p-cell, genetic defects in insulin processing or insulin action, exocrine pancreatic defects, endocrinopathies and Drugs.

2.2   Acute and chronic complications of diabetes

Acute complications of diabetes includes: severely elevated blood sugar levels due to an actual lack of insulin or a relative deficiency of insulin, abnormally low blood sugar levels due to too much insulin or other glucose-lowering medications and diabetic ketoacidosis (DKA) which is characterized by nausea, vomiting, and abdominal pain. Without prompt medical treatment, patients with diabetic ketoacidosis can rapidly go into shock, coma, and may eventually die. Chronic complications of diabetes are related to blood vessel diseases and are generally classified into small vessel disease, such as those involving the eyes (eye complication of diabetes is called diabetic retinopathy, impaired vision, cataracts and glaucoma), kidneys(diabetic nephropathy) and nerves (diabetic neuropathy), and large vessel disease involving the heart and blood vessels (macrovascular disease). Diabetes leads to coronary heart disease (angina or heart attack), strokes, and pain

2.2.1   Pathophysiology

Insulin is the principal hormone that regulates the uptake of glucose from the blood into most cells of the body, especially liver, muscle, and adipose tissue. Insulin is released into the blood by beta cells (0-cells); found in the islets of Langerhans in the pancreas, in response to rising levels of blood glucose, typically after eating, deficiency of insulin is responsible for diabetes mellitus. Lower glucose levels result in decreased insulin release

from the beta cells and in the breakdown of glycogen to glucose. This process is controlled by the hormone called glucagon.

Insulin plays a critical role in balancing glucose levels in the body and it can inhibit the breakdown of glycogen. About two-thirds of the body's cells uses insulin to absorb glucose from the blood for use as fuel, storage and conversion to other needed molecules. When the glucose concentration in the blood remains high over time, the kidneys will reach a threshold of re-absorption, and glucose will be excreted in the urine. (Shoback., 2011)

2.2.2 Etymology

The word diabetes comes from Latin diabētēs, which in turn comes from Ancient Greek (diabetes) which literally means "a passer through; a siphon." that is excessive discharge of urine", as the name for the disease. The word mellitus comes from the classical Latin word mellitus. meaning "mellite" that is sweetened with honey, honey-sweet. The Latin word comes from "mellitus" which means "honey, sweetness, pleasant thing (Dallas., 2011).

Diabetes Diagnostic Criteria

Table 2.1: World Health Organization (WHO) diabetes diagnostic criteria

Condition	2 hour glucose	Fasting glucose	HbA1c
Unit	mmol/l(mg/dl)	mmol/l(mg/dl)	%
Normal	<7.8 (<140)	<6.1 (<110	<6.0
Impaired fasting glycaemia	<7.8 (<140)	≥6.1(≥110) &<7.0(<126)	6.0-6.4
Impaired glucose tolerance	≥7.8 (≥140)	<7.0 (<126)	6.0-6.4
Diabetes mellitus	≥11.1 (≥200)	≥7.0 (≥126)	≥6.5

2.2.3 Burden

There is a rising incidence and prevalence of diabetes in developing countries , it is a public health issue of significant economic importance; the burden of diabetes is due to

chronic complications leading to incasod morbidity and mortality (Ricordcao ct al. 2003).

Global statistical data has shown that as at the year 2010. an estimated 285 million people had diabetes mellitus and it has been predicted to almost double this figure by 2030. An estimated 382 million people have diabetes worldwide with type 2 diabetes making up about 90% of the cases. The national standardized prevalence rate of diabetes in Nigeria is 2.2%. Type 2 diabetes is a common cause of morbidity and mortality in Nigeria (WHO. 2013).

More than 80% of diabetic deaths occur in low and middle-income countries. Cardiovascular disease accounts for disabilities and high mortality rates in patients with diabetes (American diabetes association. 2013).

2.2.4 Risk factors of diabetes mellitus

Diabetes mellitus is a common and demanding health related problem that has effect on every day's life of the patients. Determinants of diabetes includes: genetics, maternal hyperglycemia and under nutrition, age. gender, obesity or physical inactivity, unhealthy diet, family history, race or ethnicity, unhealthy diet and hypertension (WHO, 2010; Hermann et al, 2010).

2.3 Definition of quality of life

Quality of Life refers to the physical, psychological, social and environmental domains of health. Quality of life provides a multidimensional perspective that encompasses a patients" physical, emotional and social functioning. It is usually influenced by a person's experiences, beliefs, expectations, and perceptions of health. Quality of life involves measuring the impact of diabetes, satisfaction with life and health perception. Generally, patients with more than one co-morbid condition are strongly associated with poor quality of life. Co-morbidities include dyslipidemia. hypertension, heart failure, stroke and peripheral artery disease (Jurgen et al. 201j).

2.3.1 Quality of life of type 1 and type 2 diabetic patients.

Diabetes mellitus is one of the chronic diseases that involve people of all ages and races. It is considered as one of the most common chronic diseases in approximately all countries, and its prevalence continues to increase mainly due to the changes in lifestyles resulting in physical inactivity, and increased obesity (Shaw et al, 2010).Diabetes is associated with higher risk of some macro and microvascular complications. As a result, these complications cause mortality rate among diabetic patients to be about twice as much as that of non-diabetic individuals of a similar age (Seshassai et al, 2011;Guzder et al.2007).Moreover, patients with these complications have lower health related quality of life than diabetes patients without the complications (Olivia et al.2012,Zhang et al.2012). Diabetes and its management can have a considerable impact on people's lives with respect to feelings of isolation, experience of loss, co-dependency and loss of freedom. (Peyrot et al. 2005).

Studies have shown that patients with type 2 diabetes on insulin treatment experience decreased satisfaction with quality of life and greater impact of the condition.

2.3.2 Domains of quality of life

Quality of life is a measure of effectiveness of care within health care provision. It has been characterized as the ultimate goal of all health care intervention. Domains of quality of life includes: Physical domain which is characterized by factors like pain, discomfort, fatigue, sleep, daily life activities, work capacity and leisure. Physical domain is mostly accompanied by pain and common in 25% -50% of patients, pain is usually severe and it is associated with depression, low quality of life and anxiety (Luiz et al. 2008). Psychological domain which is mostly accompanied by factors like self-esteem and concept, positive sentiments, contentment, lack of stress, personal belief, memory and concentration. All of these factors affect the psychological functioning of life. Social domain of quality of life is affected by factors including social support, personal relations, interpersonal relations, sexual activity, community integration and participation. Social support impacts the cognitive, emotional and material aspect of life. (Luiz et al. 2008).Environmental domain of quality of life is influenced by Physical safety and protection, environment in the home, physical environment in relation to

pollution, noise, traffic, climate and conditions of living place, and so on (Luiz et al, 2008).
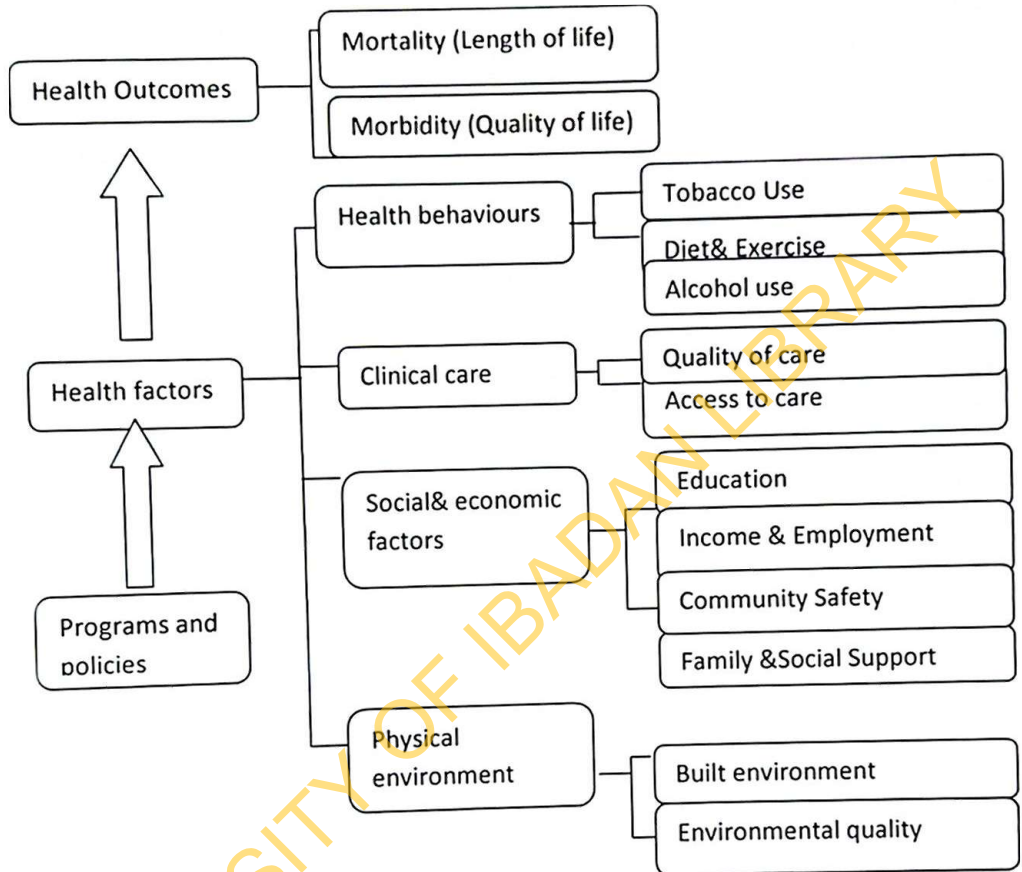
Figure 2.1: Health model

Source: (Booske et al., 2010)

The physical environment, health care, health behaviours, social and econom.c factors contribute to the health status of a population. Social and economic determinants of health are the largest predictors of health outcomes. The better the social environment, the more possible to sustain healthier behaviours; therefore longevity and quality of hfe are influenced by health behaviours.

2.4   Determinants of quality of life

Research in individuals with diabetes has suggested that quality of life is influenced by emotional, psychosocial, social, demographics; diabetes complications co-morbidities and environmental factors. All of these factors are associated with quality of life (Aman et al., 2009; Graue et al., 2004; Faulkner et al., 2003).
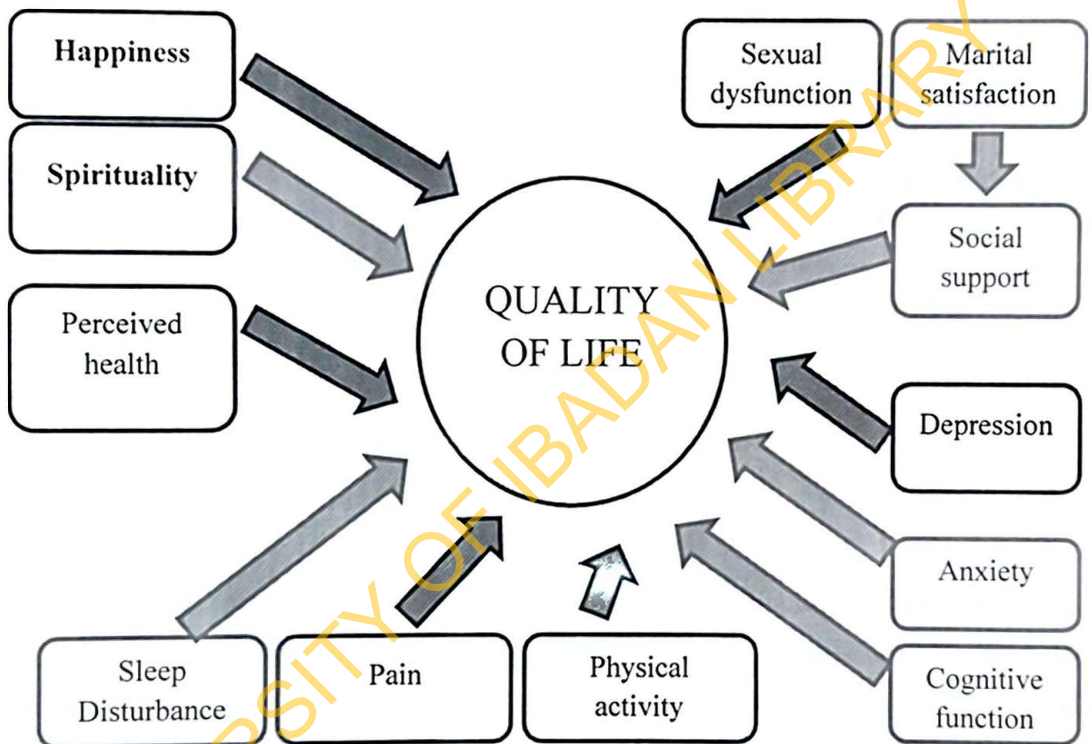
Figure 2.2: Conceptual framework: Factors that impacts Quality of life.
Source: Unruh et al, 2007.

2.4.1   Psychosocial determinants

Domain of psychological functioning has contributed to overall quality of life of various chronic medical conditions .Quality of life of both type 1 and type 2 diabetes is influenced by psychiatric disorders, mood disorders including depression and presence of co-morbid. Impairment of quality of life is associated with anxiety disorders in type 1 diabetes patients Anxiety disorders comprises of several conditions such as panic

disorder, social phobia, post-traumatic stress disorder. (Collins et al., 2009; Eren et al, 2008). Peyrot et al 2005 reported that psychosocial problems impair diabetes management. Worldwide, psychosocial problems appear to be common among diabetic patients and have effects on diabetes outcomes; Studies have shown a growing awareness ot the importance of psychosocial and social influences on health and illness. It is essential that psychiatric interventions like depression and mood disorders be treated to improve the course of diabetes and quality of life of patients. (Whittemore et al., 2005).
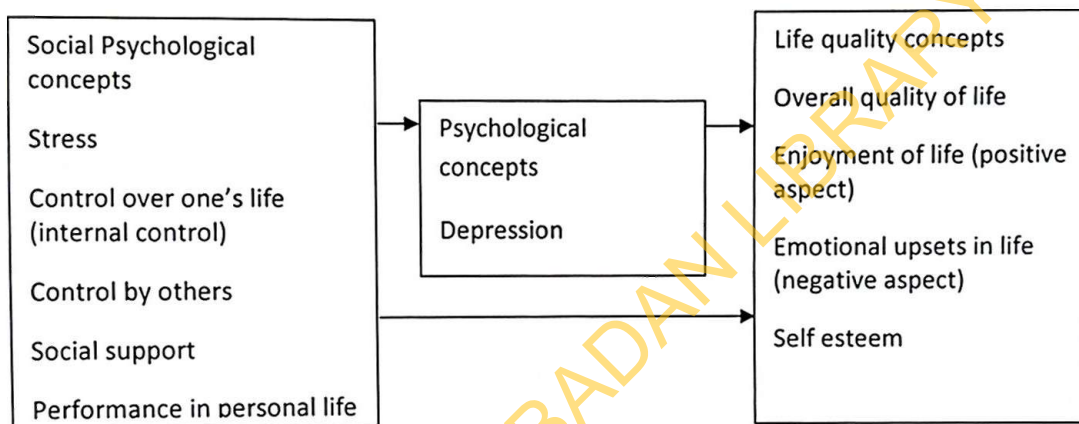
Figure 2.3: Schematic form of causal linkages among social, psychological and quality of life

The interaction of people with their social world affects a number of psychological factors which in turn affect their states of depression, anxiety and sense of well-being.

2.4.2   Socio-economic determinants

Social determinants play a crucial role in the health of individuals. Social and Economic factors are not the single predictor of health, they can also influence health outcomes and behaviour. Social determinants are majorly characterized by education, occupation and income. (Robert et al, 2001). Low socio economic status had a strong negative impact on health related quality of life in age groups less than 50; women are strongly affected. (Ghanbari et al, 2005; Ashraf et al, 2006).The lower the socio-economic position of an individual the more the unhealthy behaviours, Poor socioeconomic status is significantly associated with poor quality of life. (Emilie et al., 2011).

Education has been identified as a major determinant of health outcomes. Education affects standard of living and health care. It provides access to health information and promotes health literacy. Higher level of education is associated with higher quality of life. (Lubetkin et al., 2005; Burstrom et al., 2005).

Household conditions and household status affects quality of life. Household decision making plays important role in quality of life .Poor household living conditions majorly affects psychological domain than physical domain of quality of life. Health related quality of life in diabetes patients is influenced by living conditions as demonstrated among refugees in their camps in the Gazi strip. (Ghanbari et al, 2005; Ashraf et al, 2006).

Occupation determines the socioeconomic status of individuals. Problems at working place has effect on the anxiety and depression dimension which also suggest that working status affects quality of life through physical rather than mental dimension. Working status determines the socio-economic status of individuals. (Hoi et al, 2009).

2.4.3 Demographics determinants

Socio-demographic factors like age, gender, marital status, place of living, racism, ethnicity and income are significantly associated with life satisfaction and quality of life of diabetes patients. Demographic characteristics, disease characteristics and features of health care enhance patient provider collaboration and access to care. (Sadur et al., 2011; Wagner et al., 2001).In developed countries; people with higher income are satisfied with life than those with lower income. Studies have shown that social support, self-care behaviour, depression, stress, sense of belonging and knowledge about diabetes were associated with quality of life. (Tang et al., 2006).

Kylie et al 2004, study shows the relationship between quality of life and metabolic control in adolescents with type 1 diabetes, a change in quality of life of adolescents with diabetes differs. Studies have reported that poorer parents reported poor psychosocial health and metabolic control; this indicated that poorer health is a risk factor for

deteriorating metabolic control. This research is of the same opinion with earlier research conducted by Wake et al, 2000.

Studies by Lopez et al., 2004; McEwen et al., 2009 and kleefstra et al., 2008 investigated the relationship between quality of life and mortality. Morbidity and quality of life of elderly individuals with diabetes mellitus was reported by Rodrigues et al, 2006, significant differences in quality of life of elderly individuals with diabetes mellitus residing in urban and rural areas were described. Rural areas impair greater access to health care services and infrastructural differences may compromise the health and living conditions of elderly individuals. (American Diabetes Association., 2011).

Infrastructural differences between rural and urban areas and characteristics of each population may compromise the health and quality of life conditions of elderly population. (Liu et al., 2009).

2.4.4   Environmental determinants

An improvement in physical environment is characterized by like clean water supplies, workplace safety, good sanitation, safe food and so on increases life expectancy.

Disability is defined as a physical, mental, psychological condition that limits a person's activities. Disability is the outcome of the interaction of the person and their environment. Increased level of disability age adversely affects quality of life. (Ogunlana et al., 2012).

2.4.5   Clinical determinants

Medical factors are one of the major determinants of quality of life in diabetic patients. Medical factors include type of diabetes, duration and onset of diabetes, glucose control, blood pressure control, complications and presence of co-morbidities. Studies have shown that longer duration and type of diabetes is related with better quality of life .Diabetes complications negatively affects quality of life of patients. Evidence suggests that patient's perceptions, attitudes and stress coping styles may substantially influence clinical status. Emotional disturbance is significantly associated with poorer glycemic control (American Diabetes Association, 2012).

The relationship of glyeemie control to the incidence of diabetic complications was reported by Ronald et al 1998. Intensive insulin treatment with improved glycemic control has shown to reduce the development and progression of diabetic complications in people with type 1 diabetes.

2.4.6 Diabetes complications and co-morbidities

Happich et ah 2008 reported quality of life in relation to social and disease factors in patients with type 2 diabetes. Health related quality of life is affected by diabetic complications; hence complications had a negative impact on emotional state, social functioning, physical health and mental health. However, study by Hayashino et al, 2009 revealed that diabetic complications cannot be predicted as a cause of low quality of life in patients with diabetes.

A study by Giogia et al 2002 shows the relationship between erectile dysfunction and quality of life in type 2 diabetes. Erectile dysfunction is extremely common among type 2 diabetic patients and associated with poorer quality of life. Erectile dysfunction is a common complication of diabetes patients. Higher levels of frustration, discouragement and lower acceptance of diabetes were in turn related to worse metabolic control and higher levels of depressive symptoms. Patients with erectile dysfunction confirmed a worse quality of life with diabetes.

Co-morbidities have profound effects on patients' ability to manage their self-care conditions such as emphysema, dyslipidemia; coronary heart disease and arthritis impair patient's functioning and pose significant barriers to lifestyle changes. Co-morbidities negatively impact the financial resources of people with diabetes by increasing cost for medical care. Hence, there is need to address co morbid chronic conditions in effective diabetes management, self-care and good quality of life. (Coffey et al., 2002).

2.4.7 Behavioural determinants

Healthy behaviour was reported to be associated with quality of life, most especially in type 2 diabetes. Type 2 diabetes is a chronic disease that affects patients 'general health and well-being in various ways. Patients with Type 2 diabetes were generally found to be overweight, obese, and were found to be hypertensive. Modification of lifestyle is essential in preventing type 2 diabetes and its complications. (WHO., 2008). Susan et al..

2012 explained the association between weight gain and quality of life of diabetes patients. Weight loss was associated with better exercise and improvements in glycemia as well as improved quality of life among diabetes patient. Obesity is universal disease of growing prevalence and has the higher risk of type 2 diabetes. It is a disease that is associated with increase mortality and morbidity and this risk increases progressively according to weight gain. Diabetes and hypertension poses a direct relationship with obesity, the negative impact of obesity is related to poor quality of life. (Mancini et al, 2002).

2.4.8 Lifestyle factors associated with quality of life

Lifestyle management is universally advocated for prevention as well as management of diabetes. Lifestyle interventions generally include healthy eating, increased physical activity, and cessation of smoking; such interventions have several beneficial effects, and can also have an impact on metabolic control. (Diabetes fact sheet, 2013).Lifestyle factors are associated with quality of life. Studies have shown that individuals with type 1 diabetes has higher quality of life (physical and social functioning) compared to individuals with type 2 diabetes. (Maddigan et al, 2006).

Weight loss: Weight loss is advised for all overweight or obese patients with Type 2 diabetes. Regular physical activity and maintaining a healthy eating pattern helps in reducing weight. Studies have shown that overweight and obesity increases the risk of developing Type 2 diabetes, therefore it is necessary to maintain a healthy body weight. (Isamu et al, 2014)

Smoking cessation: A large body of evidence has established a causal link between cigarette smoking and health risks in the general population. In patients with Type 2 diabetes, studies also consistently demonstrate that smoking is a risk factor for mortality and coronary heart disease, and to a lesser extent for stroke. Studies investigating the link between smoking cessation and weight gain demonstrated the cardiovascular benefits of smoking cessation in adults without diabetes, despite subsequent weight gain. (Williams et al, 2013).

Glucose control: Elevated blood glucose alters the function of the vascular endothelium in ways that promote atherosclerosis. Epidemiological and pathophysiological studies clearly support the hypothesis that hyperglycemia is associated with an increased risk of

cardiovascular disease which has adverse long term effect of kidney damage and blindness. Therefore, less severe hypoglycemia is necessary to achieve better metabolic control. Hypoglycemia has immediate adverse consequences of reduced brain function which causes seizure, coma and death. Maintaining glycemic control is essential for ensuring quality of life and for treatment of diabetes patients. (Shaw et al, 2010).

Blood pressure control: various studies indicate that the presence of hypertension is a major determinant of cardiovascular outcomes in individuals with diabetes. In contrast to hyperglycemia, several clinical investigations have shown that lowering blood pressure in patients with hypertension and diabetes reduces the risk of congestive heart failure. (Williams et al, 2010).

Limit Alcohol consumption: It is advised that alcohol consumption should be stopped or limited to help in prevention or management of type 2 diabetes. The association of Diabetes Mellitus with different risk factors such as consumption of alcohol and difference in physical activities were found to be statistically significant. (Isamu., 2014).

Increased physical activity: However, study has shown that increase in physical activity levels in type 2 diabetes mellitus patients enhances improved glycemic control. Salt intake should be limited. Hence, exercise therapy helps in the treatment for glycemic control in diabetes mellitus. Lower physical quality of life and lower mentality was associated with mortality. (Isamu ., 2014).

Improved diet: Studies have demonstrated that functional foods and nutraceuticals may be used as treatment for type 2 diabetes. Functional foods improve dyslipidemia and insulin resistance and it could help prevent the development of long term complications including cardiovascular disease, nephropathy and neuropathy. Hence, functional foods have proven to be of comprehensive management of type 2 diabetes. (Mirmiran et al, 2014).

2.4.9   Treatment adherence

Treatment adherence encompasses adherence behaviour, medication prescription knowledge and attitude towards treatment adherence. Treatment adherence is affected by factors like type of medical care provided from the family and physician from diabetes

clinic, proximity of clinic to patient's home and type of treatment. (Manjusha et al., 2014).

Adherence behaviour and attitude towards treatment has been identified as a major factor that influences quality of life in patients with type 2 diabetes. Adherence to treatment is a key dimension of healthcare quality. Studies have shown that optimal glucose control can be achieved through strict compliance or adherence to medications, diet, exercise and appointment. (Fahad et al., 2012).

Medication adherence and Quality of life are two different outcome measures. It is believed that adherence to medication leads to an improvement in overall quality of life. Also, lack of adherence to drug prescriptions affects glycemic control. Studies have shown various factors influencing non adherence to medications. They were divided into intentional and non-intentional adherence. Intentional non-adherence is majorly caused by dose omission and problems of side effects. Non-intentional non-adherence is majorly caused by forgetfulness to take medication doses and difficulty infilling medications. (Manjusha et al., 2014; Adisa et al., 2009). Studies have shown that socioeconomic factors play a crucial role in adherence, as financially unstable patients usually cannot afford the cost of prescribed medications. Economic instability and inadequate access to health care facilities increases the incidence of medication non-adherence especially among diabetes type 2 diabetes patients.

Dietary adherence is more significantly related to glycemic control than many other aspects diabetes care. It is important to carry out interventions that change negative attitude towards treatment adherence and promote medication prescription knowledge which may help improve the quality of life of patients. (Yolanda et al., 2008).

In addition, exercise self-care behaviours or compliance is an important factor to consider in achieving glycemic control. Also, regular follow up and adherence to appointments is important in treatment outcome and health care quality.

2.50. Social support and its influence on diabetes regimen

Social support is a multi-dimensional construct includes the size of the social network, emotional support, instrumental support and quality of social support.

The broad categories of social support includes: Social connectedness/social embeddedness. Perceived social support and actual /enacted social support .Studies have demonstrated that social relationships enhance health related decision making; however the presence of social relationship does not guarantee the provision of social support. Also, family, friends and neighbours increase coping abilities in adults with chronic disease. Feeling supported requires that the receiver perceive existing social support as helpful rather than controlling or nagging. (Schiotz et al., 2012; Tricia et al., 2008).Support consist of teaching, constraining and enabling other person, it serve as coping resource in relation between stress and psychological or physical symptoms. The four sources of social support include: support for the adolescent from family support, friends, support from another adults, support from the health care givers and diabetes outcomes. (Idalski et al., 2011).

2.60 Diabetes and quality of life education

It is an indispensable tool for the management and prevention of diabetes. Education about self-management has a major impact in controlling disease and patient's quality of life. Level of awareness, physical activity and availability of professional diabetic services has shown potential for better management of diabetes and its complications. (Hakeem et al, 2008, Ansari et al, 2009; International Diabetes federation, 2010). Studies have shown that quality of life education program will help improve quality of life and promote level of self-perceptions, appearance and values of type 2 diabetes patients. Quality of life education addresses the importance of physical activity, healthy diet, weight loss, medication and smoking cessation. (CDC., 2005).

2.70 Quality of life assessment in diabetes research

Quality of life in people with diabetes is studied for variety of reasons. In health care research, quality of life has been used broadly to describe health-related measures and outcomes. Most quality-of-life instruments are developed for a particular purpose.

Quality of life assessment is practical and acceptable to patients; it is an important measure of outcomes in chronic disease management. (Rose et al, 1998).

Health status can be measured in terms of objective levels of symptoms, activities, function, emotion, cognition, and an individual's ability to perform his/her job or role in society. However, patient perceptions concerning illness and treatment, including levels of worry, distress, well-being, satisfaction, and expectations can alter health perceptions at the same level of health status. The measurement of health-related quality of life can be defined as the level of health status filtered by individual patient perceptions. Measuring quality-of-life health outcomes in diabetes helps to determine the most cost-effective treatment strategies for people with diabetes. A quality-of-life scale is valid with respect to changes in stressful life events or differences among subgroups of patients with varying diabetic complications. (Testa et al., 1996).

2.7 .1   Quality of life instruments

Quality of life measurement instrument have been developed to measure the psychological, physical, and social aspects of quality of life of diabetic patients' .These are aeneric and disease specific. Both generic and disease specific measures are used in the appraisal of quality of life in diabetic patient. Although, both measures are used in clinical practice.

Generic measures avoid the risk of focusing specifically on clinical correlates of disease. It is used with chronic conditions and applicable to healthy people as well as to persons with diseases. Generic tools involve both functional health status and generic health. Examples of generic tools include SF-36 and WHOQOL-BREF.WHOQOL-BREF is a useful tool used in assessing health services, satisfaction and health management purposes in clinical settings. It comprises of 26 items which measure the following broad domains; Physical health. Psychological health, social relationships and environment.

Disease specific instrument focus on a population with a specific disease and are more sensitive to treatment effects and changes than generic instruments. However, an ideal instrument for the assessment of quality of life in diabetic patients should incorporate the benefits of both generic and disease specific associations with quality of life. (Wexlcr et al, 2006).

Selt-perceived quality ot life scale is a psychological assessment provides a multifaceted health related aspects ot well-being. The scales assess different aspects of human life including subjective well-being and quality of life. The scale can be used to evaluate the progress ot treatment in accessing how medical treatment affects a patient's life. (Corey et al, 2004).

2.80   Association of cardiovascular disease with quality of life among diabetic patients

The rapid increase in the prevalence of diabetes is a global public health concern (Shaw et al. 2010). Type 2 diabetes mellitus is commonly accompanied by other cardiovascular disease (CVD) risk factors, such as hypertension, obesity, and dyslipidemia. Having diabetes makes high blood pressure and other heart problems more likely because diabetes damages arteries and makes them targets for hardening (atherosclerosis), it is essential to keep blood pressure well controlled in diabetes patients. In preventing diabetes complications, normal blood pressure is as important as good control of your blood sugar levels. In general, the higher the blood pressure, the greater the health risks. (Mancia et al, 2013). Previous study has shown that uncontrolled blood pressure (BP) is a significant contributor of morbidity and even mortality in type 2 diabetes patients. Diabetes is associated with cardiovascular mortality and negatively impacts the quality of life of patients with type 2 diabetes; studies have predicted that lower physical and mental aspects of health related quality of life contributed to mortality and development of physical disabilities in diabetes patients. (Gijs et al, 2010).

2.8.1   Association of metabolic control with quality of life

Metabolic syndrome is a predictor of type 2 diabetes; metabolic syndrome is defined as a cluster of glucose intolerance, hypertension, dyslipidemia and central obesity with insulin resistance as the source of pathogenesis. Predictors of metabolic control include age, sex; body mass index (BMl), diabetes duration, migration background and behavioural factors, these are predisposing factors that determines quality of life (White et al, 2010). Ines et al 1998 reported metabolic control and quality of life assessment in adolescents with type 1 diabetes. Metabolic control and quality of life are two important and

interrelated outcomes of Insulin dependent diabetes mellitus care. Good metabolic control is associated with better quality of life in adolescents with type 1 diabetes; therefore, it is essential to achieve satisfactory metabolic control in order to face life threatening complications of diabetes .The study shows that intensive diabetes management improves metabolic control and vice versa. This study is similar to White et al, 2010 which also reported that improved metabolic control reduces the risk of long term complications in both adult and adolescents patients with type 1 diabetes. However, lngersoll and Marrero's study, 1991 was in contrast to these studies and found no association between self-perceived quality of life and metabolic control.

CHAPTER THREE

METHODOLOGY

3.1   Study area

The study was conducted in Ibadan South-West Local Government Area. Ibadan is the capital city of Oyo State and the third largest metropolitan area with a population of 2.949 million. It has a total area of 1,190squaremetre (3,080km^2). Ibadan is located in south-western Nigeria, 128km northeast of Lagos and 530km south-west of Abuja. It is the largest metropolitan geographical area and the most populous city in Nigeria. Ibadan has a tropical wet and dry climate with a relatively constant temperature throughout the course of the year. The state experience rainfall for about a period of six months. The mean total rainfall for Ibadan is 1420.06mm, falling in approximately 109 days. The mean maximum temperature is 26.46 C, minimum 21.42 C and the relative humidity is 74.55% (Wikipedia, 2014).The location of the state makes it suitable for commercial, educational and administrative purposes.

There are eleven (11) local governments in Ibadan consisting of five urban local governments in the city and six semi-urban local governments in the fewer cities. Ibadan is mostly dominated by the Yoruba tribe. Religion mostly practiced among Ibadan people include: Christianity, Islamic and Traditional.

Ibadan southwest local Government area is one of the five urban local Governments. The inhabitants are mostly Yoruba. Ibadan southwest is bounded on the north by Ibadan North West and Ido Local Governments, on the south by Oluyole Local Government Area. There are 12 political wards and 4 secondary health facilities (government owned) in the local government. The secondary health facilities include, Adeoyo State Hospital, Oni Memorial General Hospital, Jericho specialist Hospital and Maternal and Child Health. (World fact book., 2014; Lyold et al, 1967, Wikipedia 2014).

The study was carried out at the Medical Outpatient Clinic of Adeoyo State Hospital, Ring road and Jericho Specialist Hospital, Jericho. These two secondary health facilities are major referral centres from across the capital city of Oyo State, Ibadan.

The two centres have their operational days for Medical Outpatient Clinic once and twice per week respectively, although appointment with physician is only once a month. On a weekly basis, averagely, both clinics attend to 60 old and 45 new patients; 30 old and 17 new patients respectively. Once a week, the patients are exposed to regular health talks from nurse educators and dietician about diabetes generally. At such forum, the patients have more opportunities to ask questions about their illness and get clarifying responses on issues pertaining to their treatment, most especially on ways to control their blood glucose. Patients with uncontrolled blood sugar and blood pressure are exposed to further one on one session with their physicians.

3.2   Study population

Diabetic patients attending Adeoyo State Hospital and Jericho Specialist Hospital, Ibadan participated in the study.

3.2.1   Inclusion criteria

Diabetic patients diagnosed via WHO criteria aged between 18 years and 70 years and diabetic patients in a stable condition not requiring hospitalization in the past three months were included in the study.

3.2.2   Exclusion criteria

Non consenting diabetic patients and critically ill diabetic patients were excluded from the study.

3.3   Study design

This was a descriptive cross-sectional study of diabetic patients attending secondary health facilities in Ibadan south-west Local Government.

3.4   Sample size determination

A minimum sample size in the study was determined based on the formula below:

$N = (Z_{\alpha} + Z_{(0})^2 S^2 / d^2$, Where:

N=Minimum sample size for this study.

Z_a=Standard normal deviate at 95% confidence interval; set at 1.96

Zp̄- Statistical power of 90% for a two tailed test with a p of 0.10(P= 0.10, 1-(3=0.90) = 1.28

5= Standard normal deviation =7.982 (Oguntibeju et al., 2012)

D=precision set at a difference of a fifth of the SD =1.596

$N= (1.96+1.28)^2(7.98)^2/1.596^2=262.46$

The calculated minimum sample size was 262.

N was rounded up to 300, adjusting for 10% non-response rate.

The estimated minimum sample size this study was 300.

3.5   Sampling frame and sampling techniques

A systematic sampling was used to select the respondents. The register in which patients' data are recorded during their visit to the clinic served as the sampling frame. The number of participants selected from each health facility was determined using proportionate allocation technique. rih= $(ni*n)/N$, Where:

n_h= Estimated sample size for the health facility

N is the total population of diabetic patients from the two secondary health facilities based on the record.

Hi is the record of each health facility.

n is the estimated sample size for diabetic patients (300).

Table 3.1: Proportionate allocation technique.

Health Facility	Diabetic record of health facility(ni)	Sample size allocation^ * $n)/N$	
Adeoyo State Hospital	750	(750x300)71130	200
Jericho specialist Hospital	380	(380x300)71130	100
Total(**N**)	1130		300

r;—7—ry-^TTTio, used for this study was 1130/300‾3.76.Thus,K‾4
The sampling fraction (1/ly) us

For each reierral centre, simple random sampling was used to select the first respondent by using random number table. Thereafter, every 4th patient was selected. Patients that fall in the sampling interval, met with inclusion criteria and gave consent were recruited tor the study as they come into the clinic waiting for their turn to see the physicians.

3.6   Data collection techniques

The study instrument was a pretested interviewer administered semi-structured questionnaire which was administered to each participant on a one-on-one basis. The data collection instrument was adapted from 26 items WHOQOL-bref questionnaire, multidimensional scale of perceived social support (Zimet et al, 1988) and also questions from relevant literatures that assessed the compliance to treatment and other determinants. Also, a 4-item SCID screening module was used to rule out significant evidence of depression. The final-84 item questionnaire had four sections:

Section A: This section had questions on respondents'socio-demographic characteristics.

Section B (i): Included questions on clinical determinants.

Section B (ii): Included questions on behavioral determinants.

Section B (iii): Consisted of questions on treatment adherence-Medication, Diet Exercise and Appointment adherence.

Section C: Consisted of questions on perceived social support from family, friends and significant others.

Section D: Included 24 questions which measured the four domains of QOL .These domains are physical (7), psychological (6), social (3) and environmental (8).Two questions assessed the overall perception of QOL and satisfaction with their health.

Four research assistant were trained for two days to assist with data collection. Data were collected over a period of two months.

3.6.2 Pre-test and Validation

The instruments were adequacy P'C-lested a, Jericho Nursing Home in Ibadan Northwest Local Government, Oyo state a non-participating secondary health facility or the Study in order to validate the questions. The questionnaire was translated from English to Yoruba. which is the major local language of the people in the city for ease of communication and better understanding of the study. The content of the questtonnatr vvas well explained to each participants and each was given the opportunity to as k questions which were answered and all areas of misunderstanding clarified. The flow of questions were modified and observed ambiguous questtons were corrected and a preliminary analysis carried out following the pre-,est. **Thirty** diabetic patients were recruited for the pre-test

The questionnaire was pretested a, Jericho Nursing Home, a secondary health faedtty m Ibadan North-West local government; similar to the study sues and appropriate amendments will be made if necessary.

3.7 Study variables

Outcome /Dependent variable

Quality of life of diabetic patients—consisted of PhySiCaK PSyCh0l08iCaK SOdaI and environment domains.

Explanatory/Independent variables

Sacta demograP ,**determinants:** Age. Gender. Marital status. Educational status. Rc]jgkm· Ethnic gr,,,,p and Income.

Employment sta - Co-morbidities, family history ol'

Clinical dctcrmim ^ ^ s: Ape at onset of illness, glucose control and blood pressure control.

Behavioral determinants: Alcohol diabetes, diabetes co consumption, cigarette smoking, nutritional pattern and physical activity.

Adherence/ compliance to treatment.

Social support.

3.7.1 Definition of variables

Quality of life: Quality of life is defined as the happiness and satisfaction. It is a dynamic interaction between the externa, conditions ol a,, individual's life and the internal perception of these **conditions.**

Treatment adherence: Adherence or compliance to treatment usually refers to tic ex en^ to which patients follow up the instructions of their physician or other hea t providers over a specified period of time.

Social support: Socio, support refers to the extent to which others express postttve regards; affection and encouragement in individual's feeling.

3 8   Data management and analysis

Questionnaire were collated daily, checked for consistency and completeness.The data collected were analysed using Statistical Package for Social Sciences (SPSS) version software P-value below 0.05 was considered as statistically significant. Descriptive Statistic, such as frequencies and percentages was used to explain soco-demographic variables and to compote the determinants related to QOL. Mean QOL scores was calculated in domains according to the WHOQOL standard. The difference of the means QOL scores was determined through various categories of patient s characteristics usmg t-test.

Clinic-,I determinants such as Blood glucose control was defined in terms of normal (blood sugar between 75 and ,, 5 mg/dl) and high (blood sugar above 115 mg/dl).

B,ood pressure classification was assessed based on Join. National Committee report on evaluation and treatment of high Wood pressure using diastolic blood pressure to classify into stages of hypertension,

Normal (<80)

pre-hypertension (80-89)

Stage 1 hypertension (90-99)

Stage 2 hypertension (>100).

Behavioral determinant, such as Physical activity were assessed   relation to WHO recommendation for **physical** activity for health.

High physical activity tevefc Adults aged 18 years and above should do a, least 150 minutes of moderate -intensity aerobic activity throughout the week.

Moderate physical activity level: Adults should do at least 75 minutes of vigorous - intensity aerobic physical activity throughout the week.

Low physical activity level: < 75 minutes of vigorous -intensity aerobic physical activity throughout the week.

Body mass index (BMl) was defined in terms of Underweight (<18.5 kg/m^2), Normal (18.5-24.9 kg/m^2). Overweight (25-29.9 kg/m^2) and Obese (≥ 30.0 kg/m^2).

Medication adherence were scored by assigning One (1) mark for each "No" response while "Yes" were scored Nil for the four questions that assessed medication adherence.

1) Questions addressing if they ever forget their diabetic medications

2) Questions addressing if there was ever a day in the last two weeks, they did not take their medications.

3) Questions addressing if they stop taking their medicines when they feel better.

4) Questions addressing if they have difficulty in complying with their medicine prescriptions.

Respondents were categorized as having high, medium and low medication adherence. Respondents of high medication adherence were defined as having (3-4 No response). Medium (1-2 No response) and Low (0 No response), this was assessed with reference to Modified Morisky adherence scale.

Perceived social support and level of independence was assessed with reference to the modified Zimet multidimensional perceived social support scale; a 5-point likert scale with six questions. High social support (25-30), Medium social support (15-22) and low social support (1-21.).

Responses to questions with categorical variables were scored by assigning One (1) mark for each correct answers while wrong options were scored Nil. Inferential Statistics such as student t-test, ANOVA, correlation and multiple linear regressions were used to find 1,"^association between selected variables and QOL. The information obtained were summarized and presented in tables and charts.

3.9   Ethical consideration

Ethical approval to conduct the study was obtained from ethical review committee of the Oyo State Ministry of Health. All the participants were duly informed on the study and its objectives.

Confidentiality of data: All data collection instruments, materials, and documentation developed during this project were treated with utmost secrecy and confidentiality. The data collected from the respondents was used for the purpose of this research. The questionnaires were identified with numbers, and every data collected from the participants was safeguarded using a password protected computerized system and protected from a third party.

Translation of protocol to local language: To avoid lack of communication/ understanding of the terms involved in the research, the protocol was translated to Yoruba language. A research assistant who can write and speak Yoruba fluently was used during the interview to enhance proper communication.

Beneficence to participants: The interviews were conducted in a friendly manner that enabled participants to communicate better. The study results and recommendations will be communicated properly in a way that will enhance planning for interventions that will help improve the quality of life of persons with diabetes.

Non-maleficience to participants: The research pose no harm, risks or injury to the respondents, as no new procedure was being tested and the results obtained was used for the purpose of the study.

Voluntariness' The participants were free to choose whether or not to participate in the stady A voluntary consent form was attached to the questionnaire, every patient approached to participate in the study earefnlly read through with the aid of a research assistant and voluntarily decides to participate after understanding all the procedures involved in the study. There was no penalty attached to those who decided no, to take part in the study

CHAPTER FOUR

RESULTS

4.1   Socio-demographic characteristics of diabetic patients

A total of 300 respondents were recruitcd for the study. The study group consisted of 15 type 1 diabetic patients (5%) and 285(95%) type II diabetic patients. The respondents mean age was 58.77± 8.51 years (range- 31.0 and 70.0 years), consisted of 61 Males (20.3%) and 239 Females (79.7%) of the patients. More than half (70.3%) of the patients were married. Most (59.0%) of the respondents were employed. Less than half (49.0%) of the patients were self employed. Less than half (32.0%) of the respondents had up to primary education. Less than half (45.7%) of the respondents earned 10.000 naira as their monthly income. More than half (58.0%) of the patients were Christians followed by Muslims (41.7%). Most (55.4%) of the respondents were of the Yoruba ethnic group followed by lgbo (10.3%).) (Table 4.1).

Table 4.1: Socio-demographic characteristics of diabetic patients.

Variable	Type I Diabetes Mellitus(N=15)	Type II Diabetes Mellitus(N=285)	TOTAL(N=300)
Age (years)			
31-40	3(20.0)	10(3.5)	13(4.3)
41-50	4(26.7)	40(14.0)	44(14.7)
51-60	7(46.7)	97(34.0)	104(34.7)
61-70	I (6.7)	138(48.4)	139(46.3)
Mean ± SD	51.53 ±8.58	59.15 ±8.34	58.77±8.51
Gender			
Male	2(13.3)	59(20.7)	61(20.3)
Female	13(86.7)	226(79.3)	239(79.7)
Marital Status			
Married	10(66.7)	201(70.5)	211(70.3)
Divorced/separated	K 6.7)	22(7.7)	23(7.7)
Widowed	4(26.7)	62(21.8)	**66(22.0)**
Highest Educational level			
None	5(33.3)	91(31.9)	96(32.0)
Primary	5(33.3)	82(28.8)	87(29.0)
Secondary	2(13.3)	61(21.4)	63(21.0)
Tertiary	3(20.0)	51(17.9)	54(18.0)
Employment status			
Employed	11(73.3)	166(58.2)	177(59.0)
Unemployed	2(13.3)	49(17.2)	51(17.0)
Retired	2(13.3)	70(24.6)	72(24.0)
Occupation			
Government	1(6.7)	14(4.9)	15(5.0)
Private establishments	2(13.3)	17(6.0)	19(6.3)
Self-employed	8(53.3)	139(48.8)	147(49.0)
None	4(26.7)	115(40.4)	119(39.7)
Monthly Income (per			
OtouMMuh	^20 0t	**77(27.0)**	**80(26.7)**

4.2: Mean QOL scores of patients with diabetes

As shown in Table 4.2, Based on the diagnosis of the patients, both type I and type II diabetic patients reported lower mean QOL scores in the social domain (46.5556±16.46). compared to other domains, which implies that social domain is mostly affected. Out of all the domains, environmental domain has higher mean QOL scores in both type I (58.54±9.34) and type II (58.02±11.11) diabetic patients.

Table 4.2: QOL domains of persons with diabetes

QOL domains	Diabetic patients(n=300)		
	Type I diabetes	Type II diabetes	TOTAL
	MEAN QOL SCORE±SD	MEAN QOL SCORE ±SD	MEAN QOL SCORE ±SD
Physical	56.90±8.69	56.35±13.80	56.38±13.58
Psychological	58.06±6.95	57.84±11.59	57.84±11.39
Social	44.44±18.81	46.67±16.36	46.56±16.46
Environmental	58.54±9.34	58.02±11.11	58.04±11.01

4.3: Level of Social support of diabetic patients

As shown in Table 4.3, more than half (85.0%) of the respondents reported medium social support/perceived level of independence. Based on the diagnosis of patients ,about 85.3 % of type II diabetic patients perceived medium social support from family, friends and significant; also, about 80.0% type I diabetes perceived medium social support.

Table 4.3: Perceived social support among persons with diabetes

level of social support	Type I diabetes n =15	Type II diabetes n =285	Total n=300
High social support	1(6.7)	23(8.1)	24(8.0)
Medium social support	12(80.0)	243(85.3)	255(85.0)
Low social support	2(13.3)	19(6.7)	21(7.0)

4.4.2 Diabetes management practices among patients with diabetes

Table 4.4.1 shows the result of diabetic patients' management or control of blood glucose practices. Majority (58.5 %) of the respondents had uncontrolled blood sugar .The methods that were well adopted by the respondents to control their blood glucose were "taking prescribed medicine" (29.37%) and "body weight control" (18.98 %), while the least practiced method was reduction on alcohol consumption(22.68%). About 56.2% of the respondents reported blood sugar monitor use very often.

Table 4.4.2: Blood glucose control practices among patients with diabetes'

Variable	Type I Diabetes Mellitus	Type II Diabetes Mellitus	TOTAL
Blood glucose level Normal(75-1 15 mg/dl) High(l 15 above)	4(26.7) 11(73.3)	109(42.4) 148(57.6)	113(41.5) 159(58.5)
Which of these are you doing to lower/control your blood glucose?* Taking prescribed medicine Controlling your body weight Reduction of alcohol consumption Exercising more Changing eating habits	15(29.4) 10(19.6) 2(3.9) 11(21.6) 13(25.5)	279(29.4) 180(19.0) 31(3.3) 216(22.7) 244(25.7)	294(29.37) 190(18.98) 33(3.30) 227(22.68) 257(25.67)
Do you have a blood sugar monitor? Yes No	1(6.7) 14(93.3)	72(25.3) 213(74.7)	73(24.33) 227(75.67)
If yes, how often do you use it to check your blood glucose? Never Not very often Sometimes Very often Almost always	1(100.0)	4(5.6) 21(29.2) 40(55.6) 7(9.7)	4(5.5) 21(28.8) 41(56.2) 7(9.6)

'-Multiple responses reported

4.4.3   Lifestyle behavioural factors of diabetic patients.

Most (91.6%) of the respondents were non smokers ,while about 6.5% of the respondents reported to have ever smoked cigarette (ex-smokers).However, about 6% of the respondent were currently smoking cigarette either daily or occasionally during the study. Most of the smokers reported having 1-5 sticks of cigarette per day, at most twice (28.6%) in a week.

Also, about 14.67% of the respondents reported to have ever consumed alcohol, while about 4.67% were currently consuming alcohol during the study. The type and size of alcohol bottle most commonly consumed by the respondents were beer(small bottle)- 52.27% ,while the least consumed were wine(standard and small bottle)- 9.0%.Most(90.0%) of the patients reported consuming 1-5 bottles per day ,at most once (38.6%) in a week.

Table 4.4.3a: Health behaviour determinants among diabetic patients. (Cigarette smoking and alcohol consumption).

Variable	Type I Diabetes Mellitus	Type II Diabetes Mellitus	TOTAL
Ever smoked cigarette?			
Yes	0(0.0)	21(7.4)	21(7.0)
No	15(100.0)	264(92.6)	279(93.0)
Currently smoking cigarette?			
Yes, daily	**0(0.0)**	2(0.7)	2(0.67)
Yes, occasionally	**0(0.0)**	4(1.4)	4(1.33)
Not at all	15(100.0)	279(97.9)	294(98.0)
Number of cigarette sticks smoked per day?			
1-5 sticks		16(76.2)	16(76.2)
6-10 sticks		4(19.0)	4(19.0)
10 sticks above		1(4.8)	1(4.8)
Number of days used to smoke per week			
1-2		10(47.6)	10(47.6)
3-4		7(33.3)	7(33.3)
5-6		2(10.0)	2(10.0)
7		2(10.0)	2(10.0)
Smoking status			
Ever smoked(ex-smokers)	**0(0.0)**	21(6.86)	21(6.5)
Non smokers(not at all)	15(100.0)	279(91.17)	294(91.6)
Smokers(yes daily and occasionally)	**0(0.0)**	6(1.96)	6(1.9)
Have you ever consumed alcohol?			
Yes	1(6.7)	43(15.1)	44(14.67)
No	14(93.3)	242(84.9)	256(85.3)
Do you currently take alcohol?			
Yes, occasionally	**0(0.0)**	14(4.9)	14(4.67)
No	15(100.0)	271(95.1)	286(95.3)
How many bottles do you consume per day			
1-5 bottles	1(100.0)	39(90.6)	40(90.9)
6-10 bottles		4(9.3)	4(9.1)
10 bottles and above			
Type and size of alcohol bottle	1(100.0)	22(52.4)	23(52.27)
Beer (small bottle)		17(40.5)	17(38.63)
Beer (big bottle)		2(4.8)	2(4.5)
Red wine (Standard bottle)		2(2.4)	2(4.5)
Red wine (small bottle)			
Number of days do you drink per week?			
1	1(100.0)	17(39.5)	17(38.6)
2		10(23.3)	10(22.7)
3		8(18.6)	9(20.5)
5		5(11.6)	5(11.4)
7		3(6.9)	3(6.8)

4.4.3b Lifestyle behavioural factors of diabetic patients

In table 4.3. majority (71.0%) of the patients follow a regular routine of physical exercise, among which.97.7% reported regular walk as a method of exercising.Hence.70.7% of the patients had low level of physical activity, while less than half (35.3%)of the respondents were overweight and obese.

Hence. 90.0% of the patients were currently following a special diet as instructed by their doctor/dietician with 55.6% having diabetic diet. More (35.5%) than quarter of the respondents reported regular consumption of three-square meal, among which 8J.3/O reported having boiled food. (Table 4.4.3b).

Table 4.4.3b: Health behavior determinints among diabetic patients, (physical activity and nutritional pattern).

Variable	Type I Diabetes Mellitus	Type II Diabetes Mellitus	TOTAL
Currently following a regular routine of physical exercise?			
Yes	12(80.0)	201(29.5)	213(71.0)
No	3(20.0)	84(70.5)	87(29.0)
Exercise engaged in on a regular basis			
Jogging	0(0.0)	4(2.0)	4(2.0)
Walk for exercise	12(100.0)	196(97.5)	208(97.7)
Both	0(0.0)	1(0.5)	1(0.5)
Time spent on moderate to vigorous activity(mins)			
≤10	3(25.0)	122(55.0)	125(53.4)
11-30	8(66.6)	87(39.2)	95(40.6)
>30	1(8.3)	13(5.8)	14(6.0)
Physical activity level.			
Low	4(36.4)	160(72.1)	164(70.7)
Moderate	5(45.5)	35(15.8)	39(16.8)
High	2(18.2)	27(12.2)	29(12.5)
Body mass index(kg/m^2)			
Underweight		4(1.4)	4(1.33)
Normal	4(26.7)	80(28.1)	84(28.0)
Overweight	4(26.7)	102(35.8)	106(35.3)
Obese	7(46.7)	99(34.7)	106(35.3)
Which meal do you regularly eat?*			
Breakfast/Lunch/brunch/dinner	6(40.0)	100(35.2)	106(35.5)
Breakfast/Lunch/dinner	1(6.67)	21(7.7)	22(7.4)
Breakfast/dinner	2(13.3)	59(20.8)	61(20.4)
Breakfast alone	4(26.7)	78(27.1)	82(27.4)
Dinner alone	1(6.67)	10(3.5)	11(3.7)
Lunch alone		11(3.9)	11(3.7)
Brunch alone	1(6.67)	5(1.8)	6(2.00)
Food preference*			
Boilea		236(82.8)	250(83.3)
Baked/boiled	14(93.3)	18(6.3)	18(6.0)
Boiled/steamed/fried		17(6.0)	18(6.0)
Boiled/steamed	1(6.7)	7(2.5)	7(2.3)
Steamed		5(1.8)	5(1.7)
Baked		1(0.4)	1(0.33)
Smoked		1(0.4)	1(0.33)
Currently following a nutritional pattern?			
Yes	15(100.0)	255(89.5)	270(90.0)
No	0(0.0)	30(10.5)	30(10.0)
If yes, what kind of diet?*			
Weight reduction(low calorie)	6(24.0)	49(14.6)	55(15.3)
Diabetic	12(48.0)	188(56.1)	200(55.6)
Ulcer	0(0.0)	10(3.0)	10(2.8)
Low fat	3(12.0)	26(7.7)	29(8.1)
Low salt or sodium	4(16.0)	62(18.5)	66(18.3)

*-Multiple responses reported

4.4.4 JNC report of blood pressure classification among diabetic patients.

Table 4.6 below shows the Joint National Committee report on evaluation and treatment of high blood pressure. Diabetic patients (273) were divided into stages of hypertension by diastolic blood pressure. More than half (79.5%) of the respondents had normal blood pressure, while 27 respondents provided no data on blood pressure reading.

Table 4.4.4: JNC report (blood pressure classification) among diabetic patients.

BLOOD PRESSURE CLASSIFICATION	Systolic blood pressure(mmHg) n (%)	Diastolic blood pressure(mmHg) n (%)
Normal	112(41.0)	217(79.5)
Pre-hypertension	45(16.5)	1(0.4)
Stage 1 hypertension	81(29.7)	33(12.1)
Stage 2 hypertension	35(12.8)	22(8.1)

4.4.5: Compliance/adherence to treatment among diabetic patients.

As shown in Table 4.4.5 below, majority (76.0%) of the diabetic patients had high adherence to their medications. About, 71. 3% of the respondents do not forget to take their medications. Most (79.7%) of the respondents reported they never missed out on their medication, while, 78.3% of the patients reported experiencing difficulties in complying with their prescription, among which, 18.46% reported forgetfulness, as the major difficulty. Combination of social and economic factors, therapy related factors patient related factors and health care factors were the commonest form of difficulties encountered by patients in complying with their treatments.

TABLE 4.4.5: Compliance/adherence to medications among diabetic patients.

Variable	Type I Diabetes Mellitus	Type II Diabetes Mellitus	TOTAL
MEDICATION ADHERENCE			
Sometimes forget to take medications			
Yes	3(20.0)	83(29.1)	86(28.7)
No	12(80.0)	202(70.9)	214(71.3)
In the last two weeks, was there any day you did not take your medications?			
Yes	1(6.7)	60(21.1)	61(20.3)
No	14(93.3)	225(78.9)	239(79.7)
Sometimes if you feel better, do you stop taking your medications?			
Yes	2(13.3)	59(20.7)	61(20.3)
No	13(86.7)	226(79.3)	239(79.7)
Difficulty in complying with medicine prescriptions?			
Yes	1(6.7)	64(22.5)	65(21.7)
No	14(93.3)	221(77.5)	225(78.3)
Reasons for difficulty in complying with medicine prescriptions.			
1. Social and Economic factors			
a. Financial constraint	1(100.0)	7(10.94)	8(12.3)
2. Therapy related factors			
a. Side effects of drugs resulting in general weakness and pain,		5(7.81)	5(7.69)
b Difficulty in swallowing drugs		1(1.56)	1(1.54)
c." Change of brand of drug prescription by doctor		1(1.56)	1(1.54)
3 Patient related factors			
a. When felt better		9(14.01)	9(13.85)
b. Dose omission		7(10.94)	7(10.76)
c. Forgetfulness		12(18.75)	12(18.46)
d. Busy schedule		4(6.25)	4(6.15)
e. Loss/Lack of appetite		1(1.56)	1(1.54)
f. Unplanned journey		1(1.56)	1(1.54)
g- Finished drugs		11(17.19)	11(16.92)
h. Emotional disturbance		2(3.13)	2(3.08)
i Tired of taking drugs at all times		2(3.13)	2(3.08)
4 Health care related factors			
Health care services not availableduewsm^		1(1.56)	1(1.54)

TABLE 4.4.5: Compliance/adherence to medications among diabetic patients.

Variable	Type I Diabetes Mellitus	Type II Diabetes Mellitus	TOTAL
MEDICATION ADHERENCE			
Sometimes forget to take medications			
Yes	3(20.0)	83(29.1)	86(28.7)
No	12(80.0)	202(70.9)	214(71.3)
In the last two weeks, was there any day you did not take your medications?			
Yes	1(6.7)	60(21.1)	61(20.3)
No	14(93.3)	225(78.9)	239(79.7)
Sometimes if you feel better, do you stop taking your medications?			
Yes	2(13.3)	59(20.7)	61(20.3)
No	13(86.7)	226(79.3)	239(79.7)
Difficulty in complying with medicine prescriptions?			
Yes	1(6.7)	64(22.5)	65(21.7)
No	14(93.3)	221(77.5)	225(78.3)
Reasons for difficulty in complying with medicine prescriptions.			
1. Social and Economic factors			
a. Financial constraint	1(100.0)	7(10.94)	8(12.3)
2. Therapy related factors			
a. Side effects of drugs resulting in General weakness and pain.		5(7.81)	5(7.69)
b. Difficulty in swallowing drugs		1(1.56)	1(1.54)
c. Change of brand of drug prescription by doctor		1(1.56)	1(1.54)
3. Patient related factors			
a. When felt better		9(14.01)	9(13.85)
b. Dose omission		7(10.94)	7(10.76)
c. Forgetfulness		12(18.75)	12(18.46)
d. Busy schedule		4(6.25)	4(6.15)
e. Loss/Lack of appetite		1(1.56)	1(1.54)
f. Unplanned journey		1(1.56)	1(1.54)
g. Finished drugs		11(17.19)	11(16.92)
h. ; sssassr- all times		2(3.13)	2(3.08)
		2(3.13)	2(3.08)
4. Health care related factors			
a. Health care services not availabMueWjtnke.		1(1.56)	1(1.54)

Most (86.7%) ol the patients were currently following a diabetic diet, among which 17.7% had difficulty in difficulty in choosing foods that helps maintain blood sugar. About 56.6% reported the need for change of taste as the major difficulty. Hence, 48.1% ot the patients regularly choose foods that help in maintaining their blood sugar.

Table 4.4.6: Diet adherence among diabetic patients

Variable	Type I Diabetes Mellitus	Type II Diabetes Mellitus	TOTAL
DIET ADHERENCE			
Currently following a diabetic diet			
Yes	15(100.0)	245(86.0)	260(86.7)
No		40(14.0)	40(13.3)
Reasons for difficulty in choosing foods that helps maintain blood sugar			
a. Uncomfortable eating the same kind of food/Change of taste.	1(50.0)	29(56.86)	30(56.6)
b. Patient's reaction to certain type of food, therefore feels uncomfortable eating the same type of food / Prefers a certain kind of food.	1(50.0)	4(7.84)	5(9.4)
c. Financial constraint.		10(19.61)	10(18.9)
d. Not properly informed by the doctor.		2(3.92)	2(3.8)
e. Depending on what family prepares.		3(5.88)	3(5.7)
f. Social occasion.		3(5.88)	3(5.7)
How often do you choose foods that help you maintain blood sugar?			
Not very often	1(6.7)	32(11.9)	33(11.7)
Sometimes	1(6.7)	50(18.7)	51(18.02)
Very often	10(66.7)	126(47.0)	136(48.1)
Almost always	3(20.0)	60(22.4)	63(22.3)

Most (82.3 /o) of the respondents reported not having difficulty in choosing foods that maintain blood sugar. (Figure 4.4.6).

Diet adherence

No
18%

82%
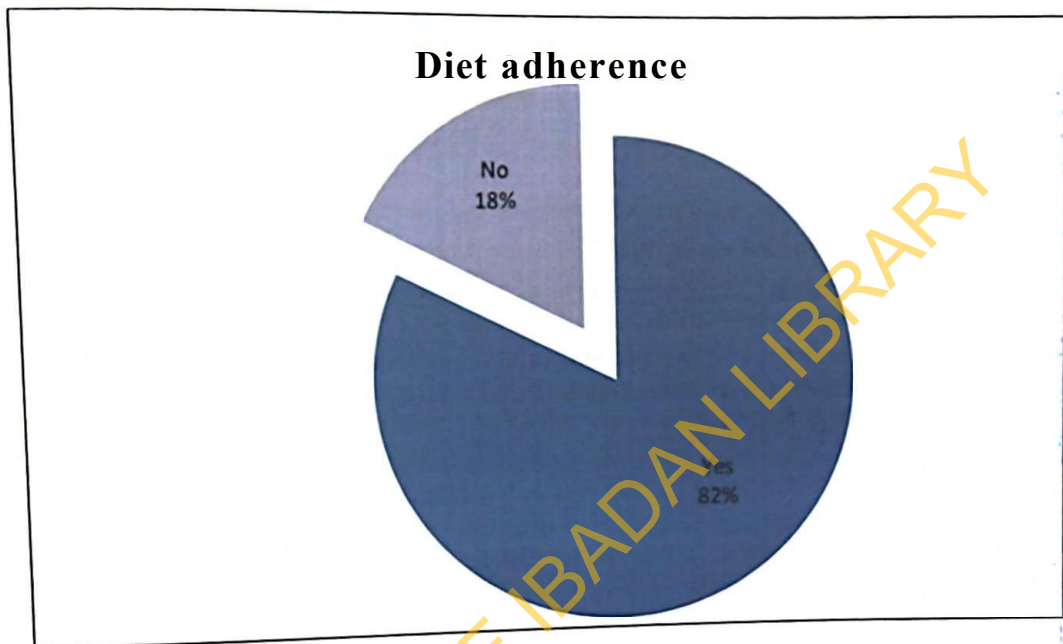
Figure 4.4.6: Diet adherence among diabetic patients

About 67.7% ot respondents reported to have exercised in the last two weeks, at most twice (24.8%) in a week. (Figure 4.4.7) Most (80.0%) of the respondents reported there was no reason tor them to skip appointments with their physician. However, respondents having difficulty in maintaining appointment with physician (35.0%) reported that they only do so when they feel better. (Figure 4.4.8).

Table 4.4.7: Exercise and appointment adherence among diabetic patients.

Variable	Type I Diabetes Mellitus	Type II Diabetes Mellitus	TOTAL
EXERCISE ADHERENCE			
Exercised in the last two weeks			
Yes	11(73.3)	192(67.4)	203(67.7)
No	4(26.7)	93(32.6)	97(32.3)
Number of days used to walk per week			
1	1(9.1)	40(21.05)	41(20.40)
2	1(9.1)	49(25.8)	50(24.87)
3	6(54.5)	41(21.6)	47(23.40)
4	1(9.1)	9(4.7)	10(4.96)
5		22(11.6)	22(10.9)
6		2(1.1)	2(0.99)
7	2(18.2)	27(14.2)	29(14.43)
How often do you walk a mile?			
Never	4(26.7)	34(12.0)	37(12.41)
Not very often	1(6.7)	70(24.6)	71(23.83)
Sometimes	5(33.3)	80(28.2)	85(28.52)
Very often	5(33.3)	81(28.5)	86(28.86)
Almost always		19(6.7)	19(6.36)
APPOINTMENT ADHERE			
Ever skip appointment with >our physician for treatment.			
Yes	2(1.3)	58(20.4)	60(20.0)
No	13(86.7)	227(79.6)	240(80.0)
Reasons for skipping vour physician for treatment.			
a. Unplanned journey		10(17.24)	11(18.3)
b. When l feel better	1(50.0)	20(34.48)	21(35.0)
c. Financial constants	1(50.0)	7(12.06)	7(11.7)
d. Busy schedule		5(8.62)	5(8.3)
e. Social occasions		1(1.72)	1(1.7)
f. Forgetfulness		7(12.06)	7(11.7)
g. Health services not available due to strike		6(10.35)	6(10.0)
h. Unfinished drugs		2(3.45)	2(3.3)

4.4.7 Exercise adherence

figure 4.4.8 shows the exercise adherence of diabetic patients. Majority (67.7%) of the Patients had high adherence.
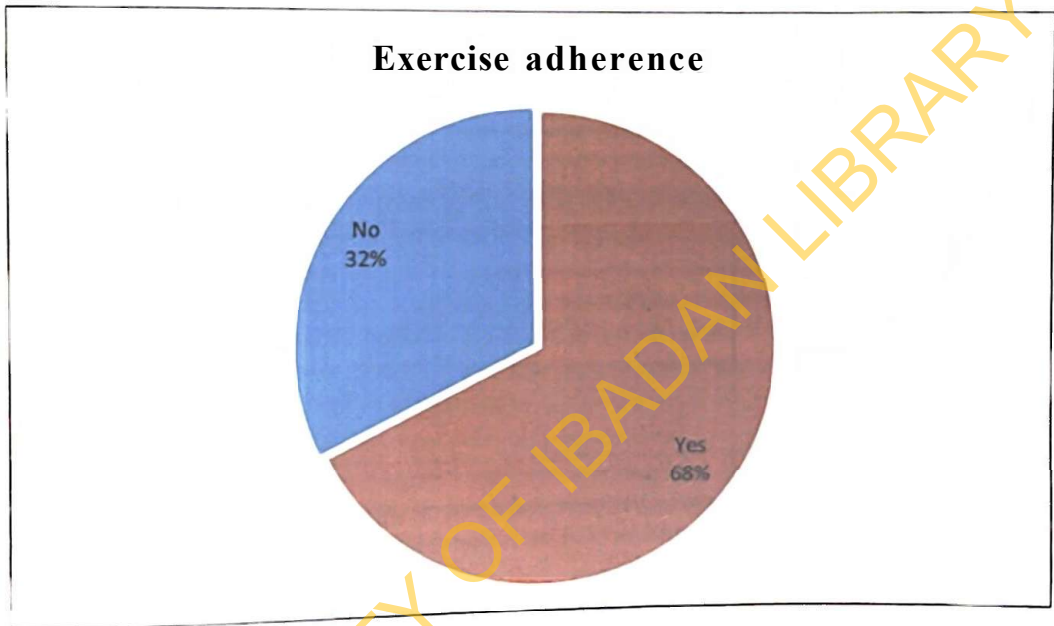
Figure 4.4.': Exercise adherence among diabetic patients.

4.4.8: Compliance to appointments made with physician

Eighty percent of the diabetic patients reported appointment compliance with physician on a regular basis.

Appointment adherence

No
20%

Yes
80%
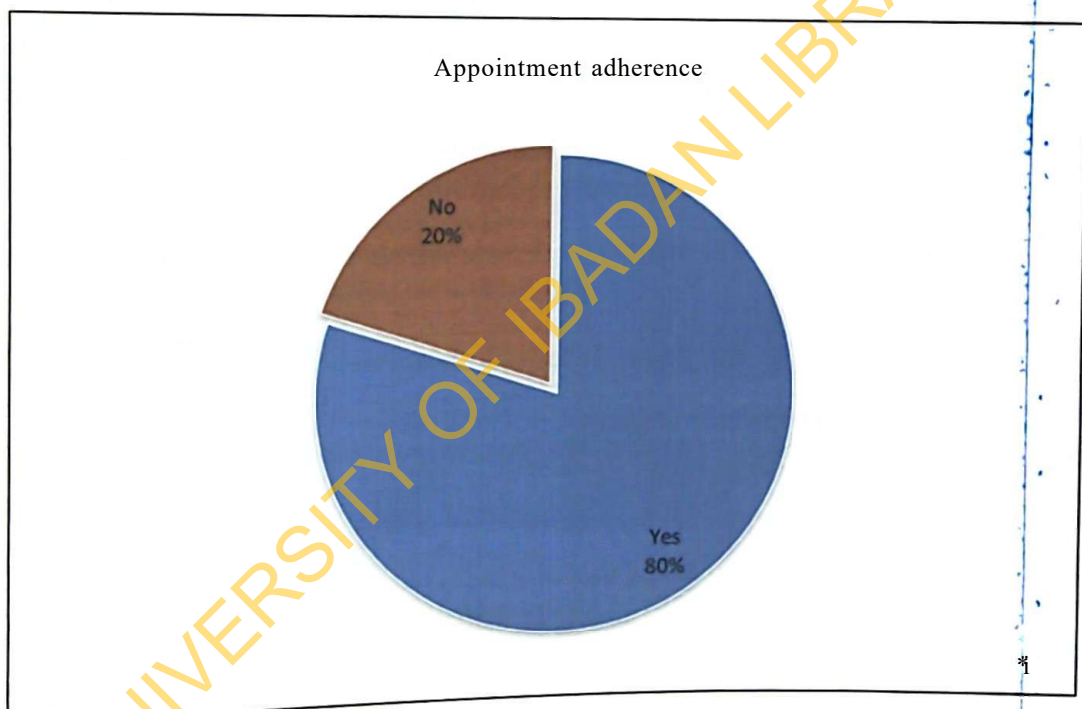
Figure 4.4.8: Appointment adherence among diabetic patients

4.5 Association between variables and QOL domains among diabetic patients.

4.5.1 Association between Socio-demographic variables and QOL domains among diabetic patients.

Ages of the respondents were negatively correlated with the QOL domains. A negligible relationship existed between age and social domain, which was statistically significant (r= -0.166, P =0.004) while age and environmental domain had a negligible relationship (r =-0.105, P = 0.071).

Average monthly incomes were positively correlated with the QOL domains. All of the QOL domains depict negligible and weak relationship with income of the respondents. Average monthly income were statistically significant with Physical (p=0.028), Psychological (P=0.000), Social (P=0.018) and Environmental domain (P=0.000). (Table 4.5.1).

Table 4.5.1: Association between socio-demographic characteristics and QOL domains

QOL DOMAINS	Socio-demographic characteristics		
	Mean±SD	Pearson correlation(r)	P-value
Age			
Physical	58.77±8.51	•0.038	0.516
Psychological	58.77±8.51	-0.091	0.114
Social	58.77±8.51	-0.166	0.004*
Environmental	58.77±8.51	-0.105	0.071
Income			
Physical	13646.67*22660.84	0.127	0.028*
Psychological	13646.67*22660.84	**0.202**	0.000*
Social	,3646.67±22660.84	0.137	0.018*
Environmental	,3646.67±22660.84	0.210	0.000*

* Correlation is significant at p<0.05(2-tailed)

4.5   Association between variables and QOL domains among diabetic patients.

4.5.1   Association between Socio-demographic variables and QOL domains among diabetic patients.

Ages of the respondents were negatively correlated with the **QOL** domains. **A** negligible relationship existed between age and social domain, which was statistically significant (r= -0.166, P =0.004) while age and environmental domain had a negligible relationship (r =-0.105, P = 0.071).

Average monthly incomes were positively correlated with the **QOL** domains. All of the **QOL** domains depict negligible and weak relationship with income of the respondents. Average monthly income were statistically significant with Physical (p=0.028), Psychological (P=0.000), Social (P=0.018) and Environmental domain (P=0.000). (Table 4.5.1).

Table 4. 5.1: Association between socio-demographic characteristics and QOL domains

QOL DOMAINS	Socio-demographic characteristics		P-value
	Mean+SD	Pearson correlation(r)	
Age			
Physical	58.77*8.51	-0.038	0.516
Psychological	58.77*8.51	-0.091	0.114
Social	58.77*8.51	-0.166	0.004*
Environmental	58.77*8.51	-0.105	0.071
Income			
Physical	13646.67*22660.84	0.127	0.028*
Psychological	13646.67*22660.84	**0.202**	0.000*
Social	13646.67*22660.84	0.137	0.018*
Environmental	13646.67*22660.84	0.210	0.000*

* Correlation ThTi^fi^^r^57^2_tai,cd)

1 able 4.5.2: Association between socio-demographic characteristics and QOL domains

As shown in Table 4.5.2 below, there is no statistically significant difference between gender and the QOL domains of diabetic patients. About 68% of those with formal education had higher mean QOL scores in all the domains compared to those (32.0%) with no formal educational background. Educational status of the respondents was only statistically significant with psychological domain (t= 2.972; P =0.003). Also, there was a statistically significant difference between employment status of the patients and only the social domain. (t= 2.101; p value = 0.036). Although, a higher proportion (59.0%) of employed respondents had higher mean QOL scores in all the domains compared to those that were unemployed (41.0%).

TABLE 4.5.2: Socio-demographic characteristics and Patients QOL.

Socio-demographic Characteristics		QOL DOMAINS MEAN± SD			
		Physical	Psychological	Social	Environmental
Gender Male Female Total	n =61 n=239 N =300	55.97±14.25 56.49±13.43	58.61±13.15 57.65±10.92	46.72±15.61 46.51±16.70	57.99±12.24 58.05±10.71
T-test P-value		0.263 0.793	0.583 0.561	0.088 0.930	U.U4U 0.968
Level of Education No formal Formal Total	n =96 n =204 N =300	53.42±14.03 57.77±13.17	55.03±10.96 59.17±11.37	42.88±16.88 48.28±16.01	55.59±11.23 59.19±10.76
T-test P-value		Z613 n.009	Z972 0.003*	2.679 0.008	2.661 0.008
jEmployment status Employed Unemployed Total	n =177 n =123 N =300	57.04±13.59 55.43±13-57	58.57±11.13 56.81±ll-73	48.21±16.50 44.17±16.18	57.91±10.98 58.23±11.12
T-test P-value		1 H T " 0.313	I.Ol6 0.189	2.101 0.036	0.249 0.804

4.5.3 Association between clinical determinants and QOL domains.

4.5.3. Association between Co-morbidity and QOL domains

Diabetic patients who had no other diseases apart from diabetes have higher QOL scores in physical, psychological and environmental domains than patients with co-morbidity. However, patients with co-morbid conditions have higher QOL scores in social domain (48.1563±15.69862) than patients without other diseases. However, this difference was statistically significant in the physical (P= 0.017) and psychological domains (P= 0.019).

Table 4.5.3: Association between co-morbidity and QOL domains

QOL DOMAINS	Co -Morbidity		T	P -value
	Yes n=1 13	No n= 187		
	Mean QOL score*SD	Mean QOL score±SD		
Physical	53.98*13.97	57.83*13.17	2.397	0.017*
Psychological	55.86*10.69	59.05*11.66	2.363	0.019*
Social	48.16*15.70	45.59*16.87	i.3i r	0.191
Environmental	57.69*11.54	58.26*10.72	0.432	0.666

As shown in Table 4.5.4, about 37.7% of respondents with co-morbid conditions ranging from hypertension to low back pain had no statistically significant association with all the domains of QOL. Although, there were differences between the mean QOL scores domains and the co-morbid conditions.

TABLE 4.5.4: Association between Co-morbidities in diabetic patients and mean QOL scores

Co-MORBIDITY	QOL DOMAINS MEAN ±SD			
	Physical	Psychological	Social	Environmental
Hypertension	54.05±14.28	60.00*10.68	48.07*16.37	56.90*11.26
Arthritis	55.95*11.44	60.42*7.34	41.67*12.91	54.17*16.26
Low back pain	55.00*8.22	60.00*11.25	55.00*7.45	63.13*8.9
Others	53.00*10.68	52.46*11.69	43.18*17.18	58.24*13.45
F	0.091	1.331	1.155	0.617
P-value	0.965	0.268	0.330	0.605

4.5.5: Family history and QOL domains

Diabetic patients who had no family history of diabetes have higher QOL scores in physical, psychological and environmental domains than patients with family history of diabetes. However, patients with family history of diabetes have higher QOL scores (47.1947 $\pm$ 15.77961 than patients without family history of diabetes (46.2312 $\pm$ 16.82684) in social domain. However, this difference was not statistically significant.

Table 4.5.5: Association between Family history of diabetes and QOL domains

QOL DOMAINS	Family history of diabetes		T	P-value
	Yes n=101	No n=199		
	Mean QOL score*SD	Mean QOL score±SD		
Physical	55.87*13.64252	56.64*13.57841	0.464	0.643
Psychological	57.01*211.13258	58.27*11.52540	0.903	0.367
Social	47.19*715.77961	46.23*16.82684	0.478	0.633
Environmental	58.01*10.60122	58.06*11.25101	0.031	0.975

Based on the diagnosis ot diabetes, there was no statistically significant difference in the mean QOL scorcs of diabetic patients in all the domains of QOL.

Table 4.5.6: Association between Diabetes diagnosis and QOL domains.

QOL DOMAINS	TYPE 1 DIABETES N=15	TYPE II DIABETES N=285	T	P-value
	Mean QOL scores +SD	Mean QOL score + SI)		
Physical	56.90±8.69246	56.35±13.80132	0.153	0.879
Psychological	58.06±6.94841	57.84±11.58618	0.073	0.942
Social	44.44±18.81053	46.67±16.35866	0.509	0.611
Environment	58.54±9.33523	58.02±11.11378	0.180	0.857

4.5.7: Diabetes duration and QOL domains

Duration of diagnosis of diabetes was positively correlated with the QOL domains. All of the QOL domains depict negligible and weak relationship with the number of years the patients had lived with diabetes. Diabetes duration was not statistically significant with the QOL domains. (Table 4.5.7).

TABLE 4.5.7: Association between diabetes duration and QOL domains (correlates)

QOL DOMAINS	Diabetes duration Pearson correlation Coefficient^)	P-value
Physical	0.027	0.643
Psychological	0.019	0.749
Social	0.013	0.818
Environmental	0.034	0.557

* Correlation is significant at p<0.05(2-tailctl>

Age ot onset ot diabetes was negatively correlated with the QOL domains. Among the association between age at onset of illness QOL domains, A negligible relationship only existed between age and environmental domain, which was statistically significant(r = -0.0124. P =0.032) while age and social domain had a weak relationship^ = -0.156, P = 0.07). (Table 4.5.8).

TABLE 4.5.8: Association between age at onset of illness and QOL domains (correlates)

QOL DOMAINS	Age at onset of illness Pearson Correlation coefficient	p-value
Physical	-0.081	0.163
Psychological	-0.063	0.279
Social	-0.156	0.007
Environmental	-0.0124	0.032*

* Correlation is significant at p<0.05(2-taiic(J)

About 41.56 % of diabetic patients with controlled blood glucose control have higher mean QOL scores in all the domains, compared to those (58.4%) with uncontrolled blood glucose. However, the difference was not statistically significant (Table 4.5.3.7)

TABLE 4.5.9: Association between plasma blood glucose control and QOL DOMAIN (CORRELATES)

QOL DOMAINS	BLOOD GLUCOSE CONTROL		T	P - value
	Patients with controlled blood glucose n= 113	Patients with uncontrolled blood glucose n= 159		
	Mean QOL score±SD	Mean QOL score±SD		
Physical	56.61±12.44	56.45±14.07	0.096	0.923
Psychological	58.92±10.40	57.42± 11.96	1.080	0.281
Social	48.38*15.50	46.23±16.97	1.067	0.287
Environmental	59.04±0.92	58.12±0.85	0.692	0.490

4.6: Association between behavioral determinants and QOL domain scores

Diabetic patients who are non-smokers have higher mean QOL scores than smokers in all the domains except the psychological domain, where smokers had a mean QOL score of 60.3175±12.26296 and non smokers have a mean QOL score of 57.5963+11.33992.This difference was however not statistically significant. None of the association between alcohol consumption and QOL domains was significant. However, those (14.7%) who reported to have ever consumed alcohol have higher mean QOL scores than those (85.3%) who had not consumed alcohol. Diabetic patients currently following a nutritional pattern have higher mean QOL scores in all the domains. This difference was however not statistically significant. (Table 4.6.).

Table 4.6.: Association between cigarette smoking, alcohol consumption, nutritional pattern and QOL domains.

Behavioural determinants		QOL DOMAINS			
		MEAN* SD			
		Physical	Psychological	Social	Environmental
Smoking status Yes No Total	n =21 n=279 N=300	50.17±14.52 56.85±13.47	60.32±12.26 57.60 ±11.34	39.29±18.09 47.08±16.29	57.74*14.41 58.15*10.75
T-test P-value		2T78 0.030*	L054 0.293	2.098 0.037*	0.163 0.871
Alcohol consumption Yes No Total	n =44 n =256 N =300	56.41±15.54 56.43±13.25	60.98± 13.21 57.34±11.00	46.21±20.29 46.67±15.76	61.08*14.52 57.55*10.25
T-test P-value		0.007 0.994	1.970 0.050	0.131 0.866	1.971 0.050
Nutritional pattern Yes No Total	n =270 n =30 N=300	56.67*13.66 53,81*12.79	58.27*11.40 54.03*10.75	46.82*16.54 44.17*15.80	58.39*11.06 54.89*10.30
T-test P-value		1.093 0.275	1.945 0.053	0.837 0.403	1.653 0.099

4.70   Association between adherence to treatment and quality of life of diabetic patients

4.7.1: Association between treatment adherence and QOL domains

Medication adherence was positively correlated with the physical, psychological, environmental domains and negatively correlated with social domains respectively. However, there was no statistically significant association between medication adherence and QOL domains except for the psychological domain which was statistically significant. (rho= 0.181; P= 0.002). **(Table 4.7.1)**

TABLE 4.7.1: Association between medication adherence and QOL domains

QOL DOMAINS	Medication adherence spearman rank Correlation coefficient(rho)	p-value
Physical	0.099	0.088
Psychological	0.181	0.002*
Social	-0.070	0.228
Environmental	0.103	0.076

* Correlation is significant at p<0.05(2-tailed)

Tabic 4.7.2: There were no statistically significant difference between diet adherence and mean QOL domains. Although, patients that adhere with their diet had higher mean QOL score in all the domains except for the social domain.

In all the domains, diabetic patients who adhere to routine exercise had higher mean QOL scores than those who do not adhere. Exercise adherence is statistically significant with Physical (P= 0.000), Psychological (P=0.046), and Environmental domain (P= 0.004), except for the social domain which was not statistically significant.

However, there was no statistically significant difference between appointment adherence and QOL domains. Although, patients that keep with their physicians appointment have higher mean QOL score in all domains except for the psychological domain.

Table 4.7.2: Association between diet, appointment and exercise adherence and QOL domains

Adherence		QOL DOMAINS			
		MEANi SD			
		Physical	Psychological	Social	Environmental
Diet adherence					
Yes	n =247	55.93*15.58	57.23i11.73	48.58i6.23	56.72i13.56
No	n=53	56.48*13.15	57.98i11.34	46.12i6.51	58.32i10.40
Total	N=300				
T-test		0.266	0.432	0.989	0.961
P-value		0.790	0.666	0.323	0.337
Exercise adherence					
Yes	n =203	58.27i12.95	58.69i10.66	46.43i 16.94	59.19i 11.43
No	n=97	51.77*14.05	55.79i12.84	46.83i15.32	55.21i9.40724
Total	N =3UÜ				
T-test		3.848	2.004	0.190	2.881
P-value		0.000*	0.046*	0.849	0.004*
Appointment adherence					
Yes	n =240	58.079*14.88	56.35i12.86	47.81i6.80	58.19i11.34
No	n =60	55.95i 13.22	58.23i10.98	46.23i6.40	58.00i 10.96
Total	JsK300				
T-test		L095	1.149	0.668	0.123
P-value		0.275	0.252	0.504	0.902

4.8   Social support and QOL domains

Social support was positively correlated with the QOL domains; there were statistically signit'icant association between perceived social support and all QOL domains (Physical, P=0.000), (Social, P=0.000) and (Environmental, P= 0.000) except for the psychological domain which was not statistically significant.

TABLE 4.8: Association between social support correlates and QOL domains

QOL DOMAINS	Social support Spearman rank Correlation coefficient(rho)	p-value
PHYSICAL	0.205	0.000*
PSYCHOLOGICAL	0.009	0.876
SOCIAL	0.361	0.000*
ENVIRONMENTAL	0.262	0.000*

* Correlation is significant at p<0.05(2-tailed)

ASSOCIATION BETWEEN STATISTICALLY SIGNIFICANT VARIABLES AND PHYSICAL, PSYCHOLOGICAL, SOCIAL AND ENVIRONMENTAL DOMAINS OF QOL OF THE RESPONDENTS

Tabic 4.9.1-4.9.4 shows the results of linear regression analysis for factors that affects QOL of the respondents.

Physical health domain (Table 4.9.1)

Medication adherence was not statistically significant with the QOL score in the social domain, although it had positive effects on the physical health domain. (P= 0.096, p=0.098

Social support had no regression coefficient but was statistically significant with the physical domain scores. (P=0.000).

Averaee monthly income had a positive effect on the physical health domain scores, and a significant predictor. Income had a 0.127 unit increase with the physical domain scores. Hence, average monthly income is the best predictor of the physical health domain scores. p=0.127(95%C1= 53.55 to 57.13), P= 0.028.

Table 4.9.1: Correlates of the Physical Health Domain **QOL** scores of diabetic patients

Variable	Regression coefficient J(95%CH	P-value
Average monthly income	0.127(53.55-57.13)	0.028*
Medication adherence	0.096(48.93-57.28)	0.098
Perceived social support	(33.33-48.92)	0.000*

PSYCHOLOGICAL HEALTH DOMAIN (Tabic 4.9.2)

Aveiage monthly income had a positive effect and statistically associated with the psychological domain scores, with a unit increase in average monthly income, there is a 0.202 unit increase in the QOL scores of the psychological health domain. (β= 0.202(95% CI =54.98 to 57.95), p= 0.000.

Social support had a positive effect on the psychological health domain scores though not statistically significant with the QOL score in the psychological domain. (β= 0.016(95 % CI 50.25 to 63.65), p=0.789.

The best predictor of the psychological domain scores is medication adherence such that it had a positive effect on the psychological domain and statistically significant with the psychological domain scores. 0=0.137 (95 % CI =50.45 to 57.41).p=0.018.

TABLE 4.9.2: Correlates of the Psychological Health Domain of Diabetic patients.

Variable	Regression coefficient p (95% CI)	P-value
Average monthly income	0.202(54.98-57.95)	0.000*
Medication adherence	0.137(50.45-57.41)	0.018*
Social support	0.016(50.25-63.65)	0.789

SOCIAL HEALTH DOMAIN (TABLE 4.9.3)

Ages of the respondents had a negative effect on the social domain. As the age increases, there was a 0.166 unit decrease in social domain, which was statistically significant, p= -0.166(95% CI= 52.46 to 78.30), P= 0.004.

Average monthly income was the best significant predictor of social domain, had a positive effect on the social domain. Income had a 0.137 unit increase in QOL scores of the social domain. p=0.137(95% CI = 43.03 to 47.37), P= 0.018.

Tabic 4.9.3: Correlates of the Social Health Domain of Diabetic patients.

Variable	Regression coefficient p(95%CI)	P-value
Age al last birthday	15166(52.46-78.30)	0.004'*
Average monthly income	**0.137(43.03-47.37)**	**0.018'**

ENVIRONMENTAL DOMAIN (Tabie 4.9.4)

Age onset of Diabetes significantly predicted the environmental domain scores. (p=0.032) with a negative effect such that there was a 0.124 unit decrease in environmental domain scores as the age increases. p= -0.124(95% CI =58.60 to 72.73).

As the average monthly income increases, there was a 0.120 unit increase in environmental domain scores with a positive effect which was statistically significant. P=0.210(95 % CI = 55.22 to 58.08) p=0.000.

Perceived social support was statistically associated (p= 0.000) with a positive effect ((B=0.213) in the environmental domain.

TABLE 4.9.4: Correlates of the Environmental Health Domain of Diabetic patients.

Variable	Regression coefficient P(95% CI)	P-value
Age at onset of illness	-0.124(58.60-72.73)	0.032*
Average monthly income	0.210(55.22-58.08)	0.000*
Perceived social support	0.213(39.81-52.48)	0.000*

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5 0   DISCUSSION

The such described the perceived quality of life and also identifies some dete,mutants associated with quality of life among ***> «""*• ""I* facilities in Ibadan south-west Local Government. The study assessed the s.e.o-demographic. behavioural, clinical and tteatment adherence determinants and perce,ved social support associated with quality of life.

5.1   Characteristics of diabetic patients and QOL

This study found thai major , of the respondents attending the study area were within age group 6,-70 years « a, population proportion of di,,ba e, which indicates that - c,,, .c'es could proximity of study area to p. diilbc,k patients in this study. The be probable reasons for h.g previous finding carried out by (Maryam et findings of this study corroborates; w> fey the older age, which means that al., 2,r8) ite, atients are more inmase in ose

the prevalence of diab te

b ated by a previous finding (Liu et al., 2009) that The findings of this ""^"females than the male counterparts .This could diabetic patients ate more domm educational ", ,ifels5ues, he due to rising incid«« ° f ' A g r o u n d . Previous study in Nigeria also ,ess acccss to inform-"» ftm>|es ,,, males (Odili et al,, 2008, confirms that diabetes is higher of the

nndenls in this stady revealed that less than half The level of education of the «P jccoun, for hie», ,evcl of ignorance, less respondent had fonnal education-

access to information and highly disadvantaged socio-economic status among the respondents.

Monthly income ol the respondents were found to be mostly between 1 to 10(per thousand).! his could be due to higher proportion of the respondents being of old age and therefore, source of income is usually from family, friends and significant others .

5.2 Perceived quality of life among diabetic patients

In this study, diabetic patients had a fairly good quality of life. The mean quality of life scores was higher in the environmental domain compared to other domains of quality of life. Social domain was mostly affected because it had the lowest quality of life scores. Higher mean QOL score was reported in the environmental domain due to factors like physical surroundings of individuals, satisfaction with living conditions and access to information; all of these factors had a considerable impact on quality of life of diabetic patients. This is similar to previous study by Rodrigues et al, 2006 which shows that rural area impair greater access to health care services and infrastructural well being of individuals. In this study, there was no comparison between diabetic patients and non-diabetic patients, hence conclusions cannot be made that patients with diabetes had poorer ,uaᵤ.y of life .1,™ .he genera, population, as reported in a previous study by Odd,

t „   o„08 (Benin,.Although, previous studies had reported that dtabette patten s has a
e   „f their quality of life compared to other chronic diseases. (Mayou.,
h^her ᵖᵉʳCCP   However, the findings from this study corroborates previous
1990 and Issa et a .., 2008),wiiich repo.... that out of a» the QOL domains, social
finding by (Odili et al., 2008),
domain is mostly affected and environmental domain had higher mean QOL scores.

5.3:   Perceived soc.a s»   ^   ^ t among diabetic patients

In this study, the leve o p   from family, friends and significant
others among the diabe   F   ᵤₐtients was iām𝑙 &   bg influenced by the
quality of time, attention   nnd motivation given uy   family members in the management
of diabetes. The findings oftins^stu   dvᶜᵒʳʳᵒborate similar findings by Schiotz et al., 2011,
which shows that feeling suppo   ed ennaiiu...   management.

5.4: Association between selected variables and QOL

5.4.1 Association between socio-demographic variables and QOL

We found that ages of the respondents were negatively correlated with the QOL domains, which means that increase in ages of the respondent resulted in poorer QOL .This result agrees with an earlier study (Lubetkin et al., 2005 and Hoi et al., 2009).Age was significantly associated with the social domain which implies that as age increases, the social domain of QOL decreases, which was indicated in our findings from the perceived social support, as patients perceived support from friends and families to be of average.

Income of the respondents were positively correlated with all the QOL domains, increase in monthly income of the respondents is strongly associated with good quality of life. This finding was similar to that made by Tang et al., (2006) among elderly diabetic patients in China where people with higher income were satisfied with life than those with lower incomes.

Gender of the responded tad no signif———i o n with the QOL of respondents. ,n this **study,** women bad higher mean QOL score in the physic, and env.ronmental on,am - ,,d reported lower mean QOL score in the socta, and psychological compared to men and ofcMcentr,,io,, |,ck of satisfaction with life domain which coo compa,e,l t0 This finding corroborates with a and low socio-economic ,,ua|i,, of life in social domain compared with previous study that women report lower qua men (Mathias et al.. 2009: Radha et al., 2007).

, determinant thai may directly or indirectly influence quality of Education is an important in s{udy> patients with formal education had life through socio-economic status^ which is similar to a previous study by higher mean QOL scores in all t ^ ^positive correction between level of education Redekop et al., 2002 .The study ^ rela,i0nship and environment. In this and physical health, psycholoc oical health, ociated with the psychological domain. study, education was significant y ass

The findings from this study shows that diabetic patients who were employed had higher mean QOL score in all the domains except for the environmental domain, which implies a better QOL than unemployed diabetic patients. Employed respondents had higher mean QOL score in the social domain which is contradictory to a previous study by (Hoi et al., 2009) which reported that employment status affects majorly the physical domain. The differences reported in the employment status of diabetic patients can influence level of access to information and socio-economic status of respondents which in turn could affect their quality of life.

5.4.2 Clinical determinants and QOL

Some co-morbidities presented by the diabetic patients were hypertension, arthritis and low back pain. Quality of life in patients with both type I and type II diabetes were influenced by the presence of co-morbid conditions. Having more than one co-morbid condition is strongly associated with poorer quality of life. Co-morbidity shows a significant association with the psychological domain which means that patients having other diseases apart from diabetes are most likely to be depressed. This finding was also reported in a previous study (Jurgen et al, 2013; Collins et al., 2009).

Many studies reported an association between increased duration of diabetes and its complications with poor diabetes (Aman et al., 2009; Oral et al 2004). On the other hand. there. also contradictory findings about the of diabetes and QOL. In this study, we found a negative association between duration The longer duration of diabetes is association between diabetes duration associated with poor QOL.

history was not statistically associated with quality of life. We found that QOL. However, diabetic pa developed the illness between ages 50 and 59 years. In this study, majority nf the patients quality of life. Age at onset of illness was f illness implies poor quoin Older age at onset of environmental domain probably because of old age and significantly associated with the by Hoi et al., (2009). depression. Similar findings had been

Diabolic patients with controlled blood glucose have higher mean QOL score in all the domains compared to patients with uncontrolled blood glucose. Glycemic control is associated with belter QOL in patients with diabetes.

5.4.3: Behavioural determinants and QOL

A large body of evidence has established a causal link between cigarette smoking and health risks in the general population. (William cl al. **2013**>.Smok,ng status of diabetic patients was significantly associated with quality of life. Diabctic patients that were non smokers had better quality of life compared to smokers, which is similar to a prevrous study by Oguntibeju et al 2012.

Alcohol consumption was found no, to be si8»ir,ca„tly associa.ed w„h quahty of life. Diabetic patients that drinks alcohol had bene, quality of life compared to non-dr.nkers „hich is in eon,,as, to a previous study by Oguntibeju c, a, ., 2012.A1, oug, quahty of and life of diabetic patients is dependent on individual's perceptton of happ.ness and satisfaction.

In this study, majon > ,he respondents had low physical activity level, which was more lhan half of the respondents were evident in the body mass in ex increase in physical activity plays a i u ^ Mnnv studies na\'^ snown .... overweight and obe c. glycemic control (Isamu et al.. 2014; Susan major role in body mass index an attention to their weight by improving e, al.. 2012). This implies that P« ntaining a ...„hy catil,E pime„,. their physical activity level and ma'

t a, (2014) demonstrated that diet is of importance in the Previous study by Mirmiran e 8 sUldyi majority of the patients were on comprehensive management ot 'a slrongly associated with better diabetic diet and following tins nu r, quality of lite.

5 4.4 Treatment adherence and QOL

Adherence to treatment is important in health care quality. A documented study by Yolanda et al. (2008) established relationships between treatment adherence in patients with type 2 diabetes and QOL. Although, the study does not show if non adherence could have caused lower scores in QOL.

1„ this study, the most common reasons for non-adherence to medication as prescn e ents were forgetfulness of medication doses, dose omission due to finished drugs and pati not feeling better. However, non adherence to treatment is a major factor obser\e in demonstrated poor giycemic control (Adisa el al.. 200,,The Mings in .his has as well affect that medication adherence is associated wi.h glycemic control and can h mniitv of life This corresponds with previous stndy by Sapth e, ,1.. (2014) wh.c , indicated ,ha, blood glucose con.rol was signif.can.ly higher among patients that a d ^

medications compared with non-adherent counterparts. Ii

QOL

study, .here was pos hat mediea,ions had

domains, which implies that w TM fc,ion is>ssociMcd w,,h 8ood ,uoli,v of

a better QOL. Therefore, high adherence

life.

is associated with quality of life. We found out that Adherence to dietary regime imen had higher quality of life scores in all patients that adhered to their .et a^ ^ predjcted a lower quality of life with domains except for the socld ofthissludy corresponds with a similar study adherence to dietary regimen. i ^ ^ ^ which es,ablished a positive relationship done outside Nigeria (Manjusha et ^ ^ ^ major factor responsible for non between dietary adherence an qu ^ ^ ^ preference for a ccrtain kind of adherence to dietary regimen was

food.

, adhere lo exercise .Exercise adherencc requires In this study, majority of the pat.® ^ paliems „„ adhered with aerobic alteration in lifestyle beha.a»- „mparcd „ „,„„.,dhercnt scores in exercise had higher mean QOE •

patients.

1 his study found out that more than half of the patients adhered to the appointments made with physician. The factors responsible for non-adherence to appointments with physician were identified as patients feeling better and unplanned journey. Diabetic patients that adhered with their appointment had higher mean QOL scores in all the domains compared to non-adherent patients. However, quality of patient and health care provider collaboration enhances quality of life of patients.

5.4.5 Social support and QOL

Support from families is directly related to diabetes management (Idalski et al., 2011). Studies have shown that social support is related to adherence to dietary regimen which in turn affects the glycemic level of patients. Hence, adherence to dietary regimen is important in management and treatment of diabetes(Anderson et al., 2000; Tricia et al., 2008).In this study, social support has a positive correlation with quality oi life which means that the higher the social or emotional support received from families, friends and significant others, the better the quality of life of patients. This result was found in another study by Sajith et al.. (2014).The general findings from different research articles shows that patients who had support from family members were more likely to be adherent to their treatment.

5.5 Predictors of patients'QOL

The study revealed that a\ei<»b . H that average monthly income was a positive predictor of all domains of quality of life of diabetic pa • ^ ^ ^ „tc. This finding indicates that income is an influential „0rTI0!· abo„, unexpected future facto, to X by H o i« »l, W - «U ^ expenses, whicn The other significant predictors of quality of . ii . life were medication adherence, age at onset of illness and age at last birthda) •

Medication adherence positiv el> P edicts the QOL of the patients. Those that adhere to their treatment had good perceptio mₒₛₜ especially in the psychological psychologically, adherence to their ~ct likelv due to the tact urn v J domain. This is most UKeiy

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medications is indicative of lmnr^ ~o.. • « rvival and a feeling of better management of the disease. However, this is contrary to a previous study, that medication adherence is significantly associated with the physical domain of QOL (Anan et al., 2014).

Ages ot the diabetic patients negatively predicts the social and environmental domains of QOL. As the age increases, the mean QOL scores of the diabetic patients' decreases, which is similar to previous studies (Lubetkin et al., 2005 and Hoi et al., 2009).

1 he increase in age at onset of illness is indicative of lower quality of life scores. Older age is usually associated with loss of satisfaction with environment and lack of freedom which could as well influence the quality of life of diabetic patients .Similar findings had been established by Hoi et al., (2009).

5.6   Limitations of the Study

There are some limitations encountered during the course of the study, and these include:
The sampling technique used to determine the respondents recruited for the study was based on hospital record of diabetic patients from two different hospitals, which could not be validated. There were tendencies that record may be incomplete and inconsistent with the attendance of the patients.

This study requested for self-reported lifestyle behaviours of patients, this could result in diabetic patients reporting good health behaviours and under reporting unhealthy lifestyle behaviours such as alcohol consumption, smoking status and physical acti%it>.

Data were collected via one on one interview with the patients rather than self-report,ng method. Although interviewers were properly trained, there were possibilities that data might be collected differently.

In addition, some patients may feei nneontfottab.e divttlging intonation regarding their quality of life. Thus, quafity of life of patients was either Wer-reportcd or over, reported depend™ on the mood states of patients at the tin,, of tnterv.ew an pl.ee of interviews. Additionally, qualitative studies sue,, as in-depth „   -   dtahette patients eat, he used to have a hetter understanding on the qua,,,, of hfe.

However. this stua, „a>   , v„ ab,e t0 compare QOL perception of type I and type 11 diabetic patients with the perceiveu   suppotl received from family, friends and significant people around them.

5.7 Conclusions and Recommendations

5.7.1 Conclusions

This study determined the perceived quality of life of diabetic patients attending secondary health facilities in Ibadan South-west Local Government as well as identifies factors associated with quality of life. From the findings of this study, diabetic patients had a fairly good quality of life. Although; type II diabetic patients had poorer quality of life than type 1 diabetic patient. However, both reported lower social domain scores compared to other domains. Diabetic patients with uncontrolled blood glucose had a lower quality of life scores than patients with controlled blood glucose. Therefore, glycemic control is important in improving quality of life among diabetic patients.

However, several determinants associated with quality of life were assessed. Economic status of patients is recognized as the best predictor of all the domains of quality of life among other factors examined. Income is important to quality of life, it is an influential factor to participate in the society, live free of worries about unexpected future expenses.

Other determinants of QOL in diabetic patients were identified as age, education, employment status, co-morbidities, lifestyle factors (smoking status), adherence or compliance ,0 medications and exercise, and perceived level of social support. In addition, people's expectations of life, desires, . r ;r„ riesires having good social and family support contributes to overa ^ ^ ^ individuai win experience is dependent on all patients. The length an qua environment, family and social support. health related behaviours, 100Cl glycemie control, diabetes education. living conditions and so 01 diabetes complications are important in the lifestyle modification and preven management of patient s with diabetes.

Quality of life evaluati t"on is important in tne MUU ness research. Diabetes and its management can have a treatment and therapeutic effect ve^ ^ ^ ect tQ feeijngs of isolation, experience of considerable impact on people si io^ ^ ^ dependent on socjai support. lack of social support. Thus, satisf...io

5.7.2   Recommendations

The following are recommended based on the findings of this study:

The clinical implications ot good subjective QOL among the patients is that it could be used in heath education services to enlighten people to observe satisfactory blood glucose control practices and to educate people on diabetes been a preventable and curable disease it diagnosed on time and well managed, which in turn could improve the perception of patients and show that adherence to treatment can lead to improved quality of life in persons living with diabetes.

The health care providers should intensify their efforts towards carrying out satisfactory blood glucose control among diabetic patients which is aimed at preventing complications and co-morbidities arising from diabetes.

Also, families can be involved in the routine clinical management of diabetes; clinicians need"to inquire into the support, care giving role and availability of family members and friends in the management of diabetes .Relevant social support can be rendered to patients with poor social support, in order to enhance their diabetes control and in turn affect their quality of life.

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INFORMED CONSENT FORM

My name is Ayodele Olubunmi Oladokun; I am a postgraduate student of the department of Epidemiology and Medical Statistics, University ol Ibadan. We are interviewing diabetic patients attending secondary health facilities in Ibadan in order to find out about their quality of life and its determinants. Several determinants associated with quality of life will be enumerated; the impact of diabetes on patients' quality of life and satisfact.on with life will be measured. Your participation in this study is completely \oluntar\ and you will not lose any benefits or suffer any consequence on your treatment if you choose not to participate. We assure you that if you decide to participate, any infrmation given will be treated with confidentiality. Your identity in this study will be treated as confidential, unique numbers will be used for identification. There are no risks, harm or injury involved in participating in this study. The information collccted from you w, 'll be nsed to make appropriate recommendation on ways to improve the ,n,,ty 0 tie

p —   dtabetes. T,,e questionnaire will take about 20-30 minutes to complete. We sincerely implore you to give honest answers to the questions. We will greatly appreciate your help in taking part in this study.

participate in this study. Thank you.

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Si,, i«naturc/thumbprint of participant   **Interview date**

ASSESSMENT OF QUALITY OF LIFE AND ITS DETERMINANTS AMONG DIABETIC PATIENTS ATTENDING SECONDARY HEALTH FACILITIES IN IBADAN SOUTH-WEST LOCAL GOVERNMENT, OYO STATE.

The following questions are concerned with you, your family, and your medical condition. Your identity in this study will be treated as confidential; information requested is intended for research purposes only. Please answer all questions carefully

Thank you for your cooperation.

I agree to participate in this study

Identification /serial No _____ Hospital No

SECTION A - SOCIO DEMOGRAPHIC CHARACTERISTIC.

1. How old were you as at your last birthday (years)?

2. Gender of respondent

3. Marital Status: 1. Single |__| 2. Married |__|
   4. Widowed

4. What is your highest level of Education? 1. No formal education 2. Primary education 4. secondary education

5. Current employment status: 2. Unemployed Retired

6. occupation: 1. Civil servant sector work Self-employed Others specify

7. Average monthly income:

8. What is your religion? 1. Christianity 2. Islam 3. Traditional
   4. Others (Specify)

SECTION B: PREDICTORS/DETERMINANTS OF QUALITY OF LIFE

Bi. CLINICAL DETERMINANTS

10. How long since you have diabetes? 1. Yes 2.

12. Do you have any form of illness apart from

14. Are you still ill?

16. Do you have any of these symptoms (blurry vision, fatigue, dizziness, headache, itchy skin, increased thirst, excessive vomiting, swelling feet and legs) 1. Yes 2. No breathlessness,

17. If yes above, Please specify

ENGLISH QUESTIONNAIRE

ASSESSMENT OF QUALITY OF LIFE AND ITS DETERMINANTS AMONG DIABETIC PATIENTS ATTENDING SECONDARY HEALTH FACILITIES IN IBADAN SOUTH-WEST LOCAL GOVERNMENT, OYO STATE.

The following questions are concerned with you, your family, and your medical condition. Your identity in this study will be treated as confidential; information requested is intended for research purposes only. Please answer all questions carefully.

Thank you for your cooperation.

1 agree to participate in this study

Identification /serial No   —-

SECTION A: SOCIO DEMOGRAPHIC CHARACTERISTICS

1. How old were you as at your last birthday (years)?
2. Gender of respondent: 1. Male [   ]   2. Female [   ]
3. Marital Status; 1. Single 2. Married [Divorced/Separate
   4. Widowed
4. What is your highest ... dary education   No formal education
   2. Primary education Secondary   4. Post-second education
5. Current employment status. 1. Employee   2. Unemployed   3. Retired
   2. Formal private sector work
6. Occupation: 1. Civil servant   ... employed   Others specify

4. Others (Specify)

SECTION B: PREDICTORS/DETERMINANTS OF QUALITY OF LIFE

a: CLINICAL DETERMINANTS

10. Age onset of ...
11. What type of diabetes were you diagnosed   1. Type 1   2. Type 2
12. How long since you have been diagnosed of ...
... history of diabetes. 1. ...   2. No
15. if yes above, please specify
16. Do you have any symptoms? ... vision, fatigue, dizziness, thirst, excessive urine, excessive appetite, headache. ... increase ... swelling ... 1. Yes   2. No
   breathlessness, chest pain, vomit... specify the symptoms (state more than ...
17. if yes above, please ...

Blood glucose control

18. The last time you had your blood sugar checked, was it normal or high?

    1. Normal •   2. High •   (Please give detailed recorded reading)

19. Are you doing any of the following to lower or control your blood glucose?

  1. Taking prescribed medicine 1. Yes •   2. No
  2. Controlling your body weight or losing weight. 1. Yes   2. No
  3. Reduction on alcohol consumption. 1. Yes   not drink
  4. Exercising more 1. Yes   2. No
  5. Changing eating habits. 1. Yes •   2. No

20. Do you have a blood sugar monitor at home? 1. Yes   2. No

21. If yes. how often do you make use of it to check your blood sugar? 1. Never
  2 Not very often Q   Sometimes Q] Very often Q most always

22. What is your height (m^2)?

23. What is your weight (kg)?

24. Are you currently taking insulin or pills to control your blood sugar.

  1. Yes   2. No •

25. If yes, please specify names of pills

Bii. BEHAVIOURAL DETERMINANTS: ALCOHOL CONSUMPTION. SMOKING .DIET AND EXERCISE

No

26.   Occasionally •   yes

27. Do you currently smoke cigarette? 1. Yes, daily
  3. No, at all

28. If yes! how many sticks of cigarette do you currently or used to smoke per day?
  how many days do you   per week?   Q - No •

29. Have you ever c   1. yes daily   q   2. Yes> occasionally O

30. Do you currently take alcohol

3i. day? (Please specify the type
  how many days do you drink per week?

39. Do you follow a regular routine of physical exercise? 1. Yes Q] NO •
  do ()n a regular basis? 1. Jog

33. If yes. which of these   weight gathers (please specify)
  9 Walk for exercise   us activily such as (brisk walking, jogging.

34. On days you do moderate   the activities
  how much total time
  how many days per week   O. Lunch   ESrunch   U
  which meal do your
35. dinner C3   H9I Biked   Q-Boiled   Reamed   O
  food usually prepared? 1. Baked
36. How is you   hers p(ease specify
  4. Fried

37. Do you currently follow a special diet? 1 .Yes •___ .No •

38. If yes AVhat kind of diet do you follow?(select more than one if necessary)

    1 .Weight reduction(low calorie) Q   Diabetic   [3 Ulcer   [4^owfat

    5.Low salt or sodium   •

Riii.TREATMENT   ADHERFNCF:MEDICATIOR   DIET,   EXERCISE   AN_   x [n

APPOINTMENT ADHERENCE

39. Do you sometimes forget to take your diabetic medications? 1. Yes   [_J 2.No ⌐⌐

40. In the last two weeks, was there any day when you did not take your

    Medications? 1. Yes •   2. No • |—|

41. Sometimes if you feel better, do you stop taking your medications. 1. Yes   i_|

    2. No L_J   - 9

42. Do you ever have difficulty in complying with your medicine prescriptions.

    l.Yes Q   .No •

43. If yes to question 40,please specify reasons

44. Do you currently follow a special meal plan or diet.   1-Yes Q .   I—1

45. Do you ever find it difficult to choose foods that best help you maintain blood

    sugar? l Yes I—h.No L—J

46. If yes to question 4 fo^d that^he^u maintain blood sugar?l .Never •
    How often do y ^ ^ to ^ n - t p yo   QAlm0St always   •

47. 2.Not very often   Sometimes S s have you done any exercise, sport or physically active
    In the past two week

48. hobies 1 .Yes   [No]   walk a mi,e or more at home without resting?   - -
    How n ny days per week d

49. how 0^en? 1 Never QZ.Not very often   Q. Sometimes Q Verv often   O

    5. Almost always [ ]   ->»'   for ___ 71Yes   •

50. Do you ever skip appointment

    2.No ⌐—j   specify reasons

51. If yes to question :> ,p   appoinlments made with your physician?9

52. lfNo.ho^»do,outel';»g Sometimes (JJcv.ofen [
    1,Never• 2Nótv">   ofte
    5. Almost always   •

           ^ cnriAL SUPPORT AND LEVEL OF INDEPENDENCE
    SECTION C. SOCIAL SU PEECEPTION

		very strongly disagree	strongly disagree	Neither agree nor disagree	Strongly agree	Very Strongly Agree
53	IT^rel^aspecial person who is around when I am in need, with whom I can share my jo; fs andsorrow	1	2	3	4	5

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54	I get the emotional help and support I need from my family.	1	2	3	4	5
55	I can count on my friends when things go wrong.	1	2	3	4	5
56	There is a special person in my life who cares about my feelings.	1	2	3	4	5
57	My family is willing to help me make decisions.	1	2	3	4	5
58	I can talk about my problems with my friends.	1	2	3	4	5

SECTION D: QUALITY OF LIFE (WHO QOL-Bref).

Please keep in your mind standard, hopes, pleasures and concerns. We ask that you think about your life in the last four weeks.

	Very poor	Poor	Undecided	Good	Very Good
59. How would you rate your quality of life?	1	2	3	4	5

The following questions ask about how much you have experienced certain things in the last four weeks.

	Very Dissatisfied	Dissatisfied	Undecided	Satisfied	Very satisfied
60. How satisfied are you with your health?	1	2	3	4	5

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	Not at all	A little	A moderate Amount	Very much	An extreme amount
	1	2	3	4	5
61. To what extent do you feel that (Physical) pain prevents you from doing what you need to do or accomplish less than you would like?	1	2	3	4	5
62 .How much do you need any medical treatment to function in daily life?	1	2	3	4	5
63. How much do you enjoy life?	1	2	3	4	5
64. To what extent do you feel your life to be meaningful?	1	2	3	4	5

	Not at all	A little	A moderate Amount	Very much	An extreme amount
65. How well are you able to concentrate?	1	2	3	4	5
66. How safe do you feel in your daily life?	1	2	3	4	5
67. How healthy is your physical environment?	1	2	3	4	5

The following questions ask about how completely you S l i c e d o, were ,o,e ,o u o certain things in the last four weeks.

	Not at all	A little	A moderate Amount	Very much	An extreme amount
68. Do you have enough energy for everyday	1	2	3	4	5
69. Are you able to accept your bodil) appearance?	1	2	3	4	5
70. Have you enough money to meet your need?	1	2	3	4	5
71. How available to you is the information you need in your day-to-day life?	1	2	3	4	5
72. To what extent do you have the opportunity for leisure activities?	1	2	3	4	5

The following questions ask you to say how good or satisfied you have felt about various aspects of your life over the last four weeks.

	Very poor	Poor	Undecided	Good	Very Good
73. How well are you able to get a around?	1	2	3	4	5

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	Very Dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
74. How satisfied are you with your sleep?	1	2	3	4	5
75. How satisfied are you with your ability to perform daily living activities?	1	2	3	4	5
76. How satisfied are you with your capacity for work?	1	2	3	4	5
77. How satisfied are you with yourself?	1	2	3	4	5
78. How satisfied are you with your personal relationships?	1	2	3	4	5
79. How satisfied are you with your sex life?	1	2	3	4	5
80. How satisfied are you with the support you get from your friends?	1	2	3	4	5
81. How satisfied are you with the conditions of your living place?	1	2	3	4	5
82. How satisfied are you with access to health services in the management of diabetes?	1	2	3	4	5
83. How satisfied are you with your transport?	1	2	3	4	5

The following questions ^dbrto show often you have felt or experienced certain things in the last four weeks.

	Never	Seldom	Quite often	Very often	Alway\
84. How often do you have negative feelings such as low mood, despa.r. anxictyanid£EI£5&	1	2	3	4	₹

Do you have any comments about the assessment?

Thank you for your time.

ASSESSMENT OF QUALITY OF LIFE AND ITS DETERMINANTS AMONG DIABETIC PATIENTS ATTENDING SECONDARY HEALTH FACILITIES IN IBADAN SOUTHWEST LOCAL GOVERNMENT, OYO STATE

Iwe yii je iwe ibeere ti a ko ti asi pin pelu iranlowo oluwadi fun ara re. Awon ibeere inu re ati idahun wa fun iwadi ijinle nikan. Awon ibeere ti e o ma ba pade nise pelu yin, ebi yin ati ipo ilera yin. E jowo e dahun gbogbo ibeere yi.

Mo setan lati ko pa ninu ise iwadi yii |___|

NOMBA IDANIMO OLUDAHUN................NOMBA ILE IWOSAN

APA KINNI (AV.   IBEERE NIPA OLUDAHUN

1. Ojo ori ti e pe ni ojo ibi ti e se keyin . . . .…….(odun)
2. Eya ibi tie je: 1.Okunrin •   2.0binrin •
3. Ipo Igbeyawo: 1.Ko ti se igbeyawo •— 2. Mo ti se igbeyavvo • 3. Ati ko ara vva/a ko jo gbe papo mo|—I 4.0po ni mi. |—|
4. Ibo ni iwe kika re de? 1. Ko ka iwe rara • 2.0 ka ipmefa • 3.0 ka eko aiga I—I 4.0 lo si ile iwe miran leyin eko girama agba.LJ
5. Njee TTisekankanlowobayii: 1.Beeni • 2.Beeko • 3.Mo ti feyinti L_1
6. In. ise wo ni e n se: 1.Ise ijoba £J2. Ise Aladani 0 3. M o n da sise •4. Eya miiran(salaye)
7. lye owo to n wole fun yin Iosoosi................I—   i—i
g. E si,, wo ni e n se" I Kristieni • 2-Musulumi •s.B's m ibtieCR Estn miiran(salaye)...........
9. _____ 2Jgbo • 3.Yo,»b, • 4.Ev,miir.n(sc alaaye)......

.p.   OHUN TlO^AJjEA OK IMFA FilN iGBESi AVE
Bi: inFFIiF.N'IPAJBUiaaiM^y™

10. Kini ojo ori yin nigba ti aisan yi bere
11. Iru ewo ninu aisan ito suga ni dokita so wipe o n se yin? 1. iru kini [ ] 2.iru keji [ ]
12. O ti to igba wo tio « mo pe e ni ito s ? ....
13. Nje eni kankan ti ni aisan ito suga ri n in lowolowo?
14. Nje aisan kankan n se >
15. To baje beeni, iru apeere(iran ti ko han daadaa, rire lati inu
16. ilemi aya didun, eebi, est wiwu, ije pipoju, apoju ito. apoju ikundun ounje.
17. To baje beeni e jowo e se alaaye Beeni |—|2.Beeko •

ISAKOSOjLULSUGA—   se daadaa O   2.0 g a Q (ejowo e
18. Kini esi ayewo eje suga se alaaye)

19. Nje e n se eyikeyi ninu awon nkan vvonyi lati se isakoso eje suga
   1. Lilo awon ogun ti dokita ko fun yin.   1. Beeni |___| 2.Beeko |—|
   2. Sise akoso bi ara se wuwo si   1.Beeni I—1   2.BeekoLJ
   3. Didin oti mimu ku si isale   1.Beeni d h . B e c k o LJ3.MI o ki n mu oti|—I
   4. Sise idaraya ju ti ateyin wa lo   1 .Beeni HH   2.Beeko [_1
   5. lyipada lori isesi si ounje   1.Beeni |___| 2.BeekoQ3

20. Nje e ni ohun to je bi atele /asabojuto ti e li maa n ye eje suga yin wo?

      1.Beeni •   2.Beeko •   .   „   r - . , ,   —   f -|
21 To ba je beeni. bawo ni e se maa n nllo e si? 1. Rara [_] - Ko po gan L ⅃ ^
      3. Ni igba miiran Q 4 . ° P° ^ᵃⁿ   •   5. O po gan ni /ni gbogbo igba Q ⅃

22. Bawo ni e se ga si?
23. Bawo ni e se won si (ara wuwo)?
24. N je e n lo isegun oyinbo kankan tabi oje ara lowo lowo lat. se isakoso eje suga.
      1.Beeni [|2.Beeko[|
25 To bajc beeni. ejovvo e se alaaye awon oruko isegun oy.nbo w<on y ^·^· -
                                                                          RE
Bjj 1l-l1 I W A S1T'n IF OKI 1NFA: OTI MIMU. FIFA SIOA ISESI SI OUNJF ATI E

IDARAYA
26. Nje e ti fa · a ri?   1. B eni □   2.Beeko □
27. Nje e si maTn fa'siga lowo'lowo? 1.Beeni,ni ojojumo •   2,Beenii, igba kankan •
     3.Rara Q]   .   •   fl   .....bi ojo melo ni e maa n
28. To ba je Beeni. siga melo ni e maa n fa ni oji
     f a siga ninu ose.kan..   i.Beeni   B e e k o Q
S ^ ™ n e si maa n ? K B e e S i ^ u m i   Q   2.Beeni,igba kankan •
     3.Rara,mi o ki n mu   oti melo ... n mu nj 0)umo (ejowo e se alaaye iru ati iwon
31. To ba je beeni,   e,0 ni e maa n mu oti ni ose kan ......- p - -
     ig0 ot1)   ni (jcedee (ti o sije baraku)? 1.Beeni O   2.Beeko •
       N e   n se id....
s n i e z n- £ * - " ⁖ ™ — »   won,i n i deedee?, •SisaC T e
     diedie   .   r~\ | 3. Gbigbe eru ti o wuwo die •
     2. Ririn fun igba die lat. se   ^   w apcere sisa ere diedie, ririn fun
³⁴ Ni a yon ojo ti e maa n se eie idaraya ,ti se ere idaraya won,..........bi ojo melo
     iseju melo ni e maa o
     ninu ose kan ....—.'' ^ ^ e maa n je ni dee dee? 1. Ounje owuro •
35. Iru ewo ninu awon Ounje irole Q 4 . 0unje ale p
     2.Ounje osan [3   ounje yin fun jije ? 1.yiyan •   2,b.bo •
36 Bawo ni e se maa r] 5 gyₐ miiran,e jowo e se alaaye
     3. ki ounje ho □ 4.dindin r] ?, B e 5hi D 2BMko
37. N je e maa n tc le isesi si ounje lowolowo

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AFRICAN DIGITAL HEALTH REPOSITORY PROJECT

38. To ba je beeni. iru awon ounje wo ni e maa n tele (e le mu ju ikan lo) 1. Ounje fun isakoso bi araa se wuwo si •   2- Ounje fun atogbe   •3   .Ounje fun ogbe inu •   4. Ounje to ni ora kekere •   5. Ounje to ni iyo kekere •

Biii. TITELE 1MORAN TI O JE MO ITOJU: ISEGUN OYINBO, OUNJE ATI 1PADE PELU DOK.1TA

39. N je eti gbagbe ri lati lo ogun yin? 1 Beeni •   2. Beeko •

40. Ni ose meji seyin, nje o ni akoko kankan ti e gbagbe ri lati lo ogun yin ?

   1. Beeni |___| 2. Beeko |___|

41. Ni igba miiran ti ara yin ba dara si, nje e da lilo isegun oyinbo yin duro ri?

   1. Beeni •   2. Beeko •

42. N je e maa ni isoro lati tele irnoran awon dokita fun lilo isegun oyinbo?

   1. Beeni •   2. Beeko •

43. To ba je beeni, e jowo e se alaaye____

44. N je e maa n tele isesi si ounje lowolowo? 1. Beeni \^\   2. Beeko (_\

45. Nje e maa n ni isoro nipa yiyan awon ounje ti o le ran yin lowo lati ko ju aisan lto suga? 1. Beeni •   2. Beeko •

46. To ba je beeni. e jowo e se alaaye.

47. Bawo ni e se maa n yan awon ounje ti o le se isakoso eje suga s.? 1. Rarap 2. Ko po gan O-   Ni igba miiran [_] 4. O po gan ni Q   5. O po gan n. /Ni gbogbo • ieba

48. Ni ose meji seyin. nje e ti se ere idaraya kankan paapaa n.pa .se oojo ym.

   1 Beeni I___I 2. Beeko I__I

49. Oio meloniiiu ose ni e maa n rin maili kan ninu ilela. n. .daduro bawo ni e se maa n rin si? 1• Rara Q.   Ko po gan O   N. .gba " "ni l' F| 4 O po gan ni •   5. O po gan ni /ni gbogbo .gba Q mil.----

50. N je e t S p i 'n u ri lati ma lo si ipade ti eni pelu olutoju yin ri? 1. Been.•

   2. Beeko |__|

5,. To to jo bconi. oi o » o «•   ^ s| ,   Ko pogan •

52. To ba je beeko.   hawo ni e se ....   ni O   5. O po gan ni /Ni gbogbo igba •
   3. Ni igba miiran |___| 4. O po g   o n o AWON EBI ^

APA KETA. IRANLOWO LATI AWUJO NI PATAKI LATI ORE

		Ko temi lorun rara	ko temi lorun	0 wa laarin	0 temi lorun	0 temi lorun gan ni
		1	2	3	4	5
53	Mo ni eniyan pataki ti o maa n wa ni ayika mi ti mo ba ni lo ohunkohun, ti mo le baso awon ayo ati ibanuj£I!!L-					

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54	Mo maa n gba edun iranlowo ti mo ba ni lo lati odo awon ebi mi	1	2	3	4	5
55	Mo ni igbekele lori awon ore mi ti ohunkohun ko ba lo bi mo se ni ero.	1	2	3	4	5
56	Mo ni eniyan pataki ninu aye mi ti o bikita nipa awon ero mi ati inu mi.	1	2	3	4	5
57	Awon ebi mi setan lati ba mi se ipinnu.	1	2	3	4	5
58	Mo le so awon isoro mi pelu awon ore mi.	1	2	3	4	5

APA KERIN : IR1N ISE TI O NSE AYEWO BI IGBE AYE SE DARA SI TI AJO TI O N MU OJU TO ILERA NI AGBAYE (WHOQOL-Bref).

E Jowo e dahun gbogbo ibeere wonyi, ti o ko ba ni idaniloju lori idahun re ,mu eyi ti o ba sun mo. Eyi le je idahun re akoko lopo igba .Jo wo fi ohun ti o gbagbo ,ireti jgbadun ati erongba re sokan .Ibeere wa ni pe ki o ro igbesi aye re lati bi ose meji si merin seyin

	Ko dara rara	Ko dara	0 wa laarin	0 dara	0 dara gan
59. Bawo ni ose ri bi aye re se dara si?	1	2	3	4	5

	Ko temi lorun rara	Ko temi lorun	O wa laarin	O temi lorun	O temi lorun gan ni
60. Se alaafia re te o lorun?	1	2	3	4	5

XW^NTBEEREWONYTNBEREBI AWON IRIRI KANKAN TI O TI NI LATI BI OSE MEJISEYINSEPOTO

	Rara	O kere gan	Die	Opo gan	Opo pupo gan ni
61. Bawo ni ara riro se di o lowo si lati se ohun ti o ni se?	1	2	3	4	5
62. Bawo ni ose nilo isegun oyinbo to lati le wulo fun ara re ni ojojumo?	1	2	3	4	5
63 Rnwo ni o se n gbadun aver£ib si?	1	2	3	4	5
64. Bawo ni o se ro wip AV pre ni ltum0 si?	1	2	3	4	5

	Rara rara	Die	0 moni iwonba	Ni igba pupo	Patapa ta
65. Bawo ni ifokarire si nkan j^ sej^ ?	1	2	3	4	5

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81. Bawo ni ibugbe re se te o lorun si?	1	2	3	4	5
82. Bawo ni riri itoju gba re se te o lorun si?	1	2	3	4	5
83. Bawo ni wiwo oko re se te o lorun si?	1	2	3	4	5

AWON 1BEERE WONYI N TOKA SI BI 0 SE N SE TABI AWON IRIRI RE LATI BI

OSE MEJI SEY1N

	Ko si rara	Ko wopo	E kankan	0 saba ma nsele	Igba gbogbo
84. Bi igba melo ni o ma n ni ero ti ko dara bi ki inu e ma dun. aniyan irewesi okan ati aini ireti?	1	2	3	4	5

N je o ko ni nkan kan tabi omiran lati so nipa iwe ibeere yi?

Calculation of transformed QOL domain scores

	Items in domain(Summation gives A)	Raw score	Transformed scores	
			4-20	0-100
Domain 1 (PHYSICAL)	(6-Q3)+ (6-Q4) + Q10+Q15+ Q16+	a.=	b:	c :
Domain 2 (PSYCHOLOGICAL)	Q5+Q6+Q7+Q11+Q 19+ (6-Q26).	a.=	b:	c :
Domain 3(SOCIAL)	Q20+Q21+Q22	a.=	b:	c :
Domain 4 (ENVIRONMENTAL)	Q8+Q9+Q12+Q13+Q14+Q23+Q24+ 25	a.=	b:	c :

Domain scores are calculated by computing the mean of the facet score within the domain, according to the following steps below. All negatively framed items were recoded three items were negatively framed: item on pain, dependence on medication and on negative feelings that is questions 3, 4 and 26.Scoring of negatively phrased questions are re\ •ersed. The facets are summated according to the procedure given below. Scores are then multiplied by four, so that domain scores range between 4 and 20.

Transformed steps taken were in the following stages:

, > Jo calculate raw domain scores :a) Total domain score/ number of item components in domain A.

2) To transform 4-2U bcorcb, ™ -rnres" A *4=B: domain scores made to range between 4 and ?0.

3) To transform 0-100: B-4 *6.25
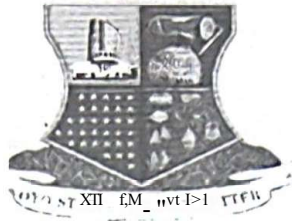
MINISTRY OF HEALTH

DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION

PRIVATE MAIL BAG NO. 5027, OYO STATE OF NIGERIA

Your Ref. A'o

All communications should be addressed to

the Honorable Commissioner quoting

Our Ref. No.   AD 13/ 479/_____ January, 2015

The Principal Investigator,

Department of Epidemiology and Medical Statistics,

Faculty of Public Health,

College of Medicine,

Ibadan

Attention: Avodele Olubunmi

Pthical Approval for the Implementation of your Research Proposal in Oyo State

This acknowledges the receipt of the corrected version of your Research Proposal titled: "Assessment of Quality of Life and It's Determinants Among Persons with Diabetes Attending Secondary Health Facilities in Ibadan South West Local Government."

7   The committee has noted your compliance with all the ethical concerns raised in the initial review of the nroposal In the light of this, I am pleased to convey to you the approval of committee for the implementation of the Research Proposal in Oyo State, Nigeria.

3.   I lease not   committee will monitor closely and follow up the imr entation of   ch stu{Jy However, the Ministry of Health would like to lwv^copyof   resultS and inclusions of the findings as this will help in policy making in the health sector.

4   Wishing you aHthe best.

Sola7^ffiSrE!S5sTSb^' Statistics

Director,

Secretary, Oyo State, Research Ethical Review Commmcc