SENSE MAKING OF COMPREHENSIVE DIABETIC CARE INFORMATION AMONG TYPE 2 DIABETIC PATIENTS ATTENDING ENDOCRINOLOGY CLINIC IN ZARIA, NIGERIA

BY

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DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE,
FACULTY OF EDUCATION,
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DECLARATION

I, **ROMOKE OPEYEMI QUADIR** hereby declare that this thesis titled "Sense making of comprehensive diabetic care information among type 2 diabetic patients attending Endocrinology Clinic in Zaria, Nigeria" is a product of my research work and is original. Authors whose works were used in this thesis have been duly acknowledged.

_____ _____

ROMOKE OPEYEMI QUADIR Date

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CERTIFICATION

This thesis entitled "Sense making of comprehensive diabetic care information among type 2 diabetic patients attending Endocrinology Clinic in Zaria, Nigeria" meets the requirement for the award of Doctor of philosophy, from the Department of Library and Information Science of Ahmadu Bello University, Zaria and approved for its contribution to knowledge.

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DEDICATION

To my Sons- Simisola, Oyedeji, Olamide

And my daughter- Tinuola; for their support, love and believe in me.

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ABSTRACT

Sense making is the process by which people create meaning out of their collective experiences to address a problem. The study investigated the sense making of health of diabetic information among type 2 diabetes mellitus patients. To achieve the objectives, the study raised six research questions: (1) What complications do type 2 diabetes mellitus patients in Zaria metropolis experience?(2) What information do type 2 diabetes mellitus patients in Zaria metropolis receive from Endocrinology Clinic to manage diabetes?(3) Who do diabetic patients in Zaria metropolis consult for information outside Endocrinology Clinic for managing complications from diabetes?(4)How has information received from Endocrinology clinic contradicted the prior knowledge of diabetic patients in managing diabetic complications?(5)How do T2DM patients understand the information received from the Endocrinology Clinic for managing diabetic complications? (6) What personal constructs do type 2 diabetic patients apply in making sense of information for managing diabetes? This study which is a qualitative study was premise within the interpretive paradigm, with Bandura's Social Cognitive Theory as a theoretical framework for the study. The case study approach was used to investigate the phenomena. Eighteen (18) participants were purposively sampled for the research and semi structured interview was utilized for the interrogation. Inductive approach was employed in analyzing the data collected through semi structured interview of the participants, which yielded 360 open codes, from which 72 sub- categories and 49 categories emerged. The findings of the study revealed that thirteen complications were experienced; myopathy (weakness of the body),osmatic symptoms (fluid intake), diabetic retinopathy(eyes problem),diabetic neuropathy (leg problem), weight loss, orthostatic hypotension (dizziness), Vasculopathy (blood vessels disorders), resting tachycardia (irregular heart beat), dysglycaemic (fluctuation of blood sugar), diabetic foot ulcer (wound), diabetic peripheral neuropathy (general body pains),diabetic boils, and erectile dysfunctions (sexual performance problem). Information received to manage complications were on diabetic diet, exercise, drug regimen, regulation of salt intake, need to promptly seek for help, need to share information, fluid intake and energy boost. Meaning was created out of the information through participant's personal experience, diabetic education, formal education and cognition. Others sources of information includes; family members, friends, traditional herbal doctors, neighbours, other diabetic patients, mass media and colleagues. Prior knowledge before Endocrinology Clinic were about; mortality rate, dietary regulation, glycaemic control, wound management, weight management, herbal medicine and physical exercise. Information received is viewed as good, important, critical, helpful, necessity, unimportant; and confusing and conflicting. Personal constructs applied in making sense includes; trust of medical practitioners, trust of friends, believe, fear of complications, family support, prior knowledge, personal judgement, formal education, and confusion. The study concluded that understanding how information is understood is essential in coping with chronic diseases like T2DM. It recommended that understanding of information will assist in developing of programme and intervention to enhance management of chronic diseases.

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LIST OF ABBREVIATIONS

ABUTH	Ahmadu Bello University Teaching Hospital, Shika
AT	Attribution Theory
BMI	Body Mass Index
ADA	American Diabetes Association
AIDS	Acquired Immune Deficiency Syndrome
DM	Diabetes mellitus
DR	Diabetic retinopathy
EC	Endocrinology Clinic
ED	Erectile dysfunction
GDM	Gestational diabetes mellitus
HIV	Human Immune Virus
IDF	International Diabetes mellitus
n.d	No date
LIS	Library and Information Science
SCT	Social Cognitive Theory
SHRM	Society for Human Resource Management
SLT	Social Learning Theory
T1DM	Type 1 diabetes mellitus
T2DM	Type 2 diabetes mellitus
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Sense making is the process by which people give meaning to experience. Sense making of information enhances the management of chronic diseases such as type 2 diabetes mellitus. It has been reported that sense making process is the cognitive gap that individuals experience when attempting to make sense of observed data.(Dervin, 1983,1992).Type 2 diabetes mellitus (T2DM) patients understand health information through making sense out of the gathered information (Oftedal, 2011; Stiffler, Cullen & Luna,2014). Sense making is a set of processes initiated when an individual recognizes the inadequacy of their current understanding of events. Sense making is about the interplay between action and interpretation rather than the influence of evaluation on choice (Mills, 2003). Sense making enables individual to comprehend their circumstances. Persons suffering from T2DM receive large amount of information through healthcare providers. Such information has to be processed to enable comprehension. In T2DM management, sense making acts as a stepping stone to decision making and it involves concepts such as cognitive abilities, personal construct, frame of reference and socialization (Weick, Sutcliffe & Obstfeld, 2005).

Cognitive ability is the brain – based skills required to carry out any task from the simplest to the most complex. Possession of cognitive abilities is individualistic and is very essential for T2DM management. These abilities include schema, accommodation, assimilation and equilibration (Piaget, 1997). Schema includes the mental and physical actions involved in understanding and knowing (Piaget, 1997). Schema is the organizing of information that will portray a meaning. Persons living with T2DM must be able prioritize information sequentially in order to promote

assimilation. It is ability to incorporate new ideas into existing ones (Piaget, 1997). Accommodation is changing and altering our existing schemas in light of new information and putting it into use (Piaget, 1997). Equilibration allows a person to strike a balance between existing and newly acquired knowledge.T2DM patients must be able to strike such a balance in order to effectively manage the disease otherwise cognitive dissonance is triggered.

Cognitive dissonance is a situation when an individual encounters ideas or values that contradict initially held attitudes, beliefs, or behaviors (McLeod, 2008). In diabetic education, T2DM patients are confronted with ideas that may differ from initially held beliefs. This results in anxiety and triggers the need to seek additional information to reduce the level of discomfort and make sense of required information. Both personal construct and frame of mind influences information behavior of T2DM patients. In fact, exposure of T2DM patients to information is highly significant in order to erase a situation of information imbalance.

Information asymmetry is a situation in which one party in a transaction has more information than the other party (Afzal, 2010; Akerloff, 1970). For instance, doctors definitely have more information than the diabetic patients. Information distribution is assuring the right information is available to the right people at the right time. This is of utmost importance when coping and living with a chronic disease such as type 2 diabetes mellitus.

Diabetes mellitus (DM) is a common cause of morbidity and mortality in Nigeria. Over 10 million of the populace in Nigeria suffers from DM with more than 200,000 deaths per year (Okolie, Ehiemere, Iheneacho & Kalu –Igwe, 2009; Nwankwo & Nwankwo, 2010; Pascal, Ofoedu, Uchenna, Nkwakwo, 2013; Chijoke, Adamu & Makusidi, 2014). There are four types of diabetes; Type 1, Type 2, Monogenic and Gestational Diabetes. Type 1 diabetes mellitus (T1DM) is characterized by the destruction of pancreatic beta cells, common among children and young adults

(Smelter, Bare, Hinkle&Cheever, 2010; ADA, 2012; 2011.). Type 2 diabetes mellitus (T2DM) is characterized by insulin resistance and impaired insulin secretion and is common among overweight persons over 30 years (Smelter et al 2010). Gestational diabetes mellitus (GDM) refers to a condition in which a woman without diabetes develops high blood glucose during pregnancy. Monogenic diabetes is a rare condition resulting from mutations in a single gene (Hormone Health Network, 2010).T2DM is the most commonly documented type of DM in Endocrine Clinic in Nigeria, accounting for 90% - 95% of all cases (Ogbera & Ekpebegh, 2014). T2DM is difficult to treat but can be managed to reduce the complications. Endocrine clinic is where diabetic patients receive education on managing the diabetes.

Diabetic patients have an increased risk of developing a number of serious compilations (IDF, 2012). These complications include retinopathy, neuropathy, nephropathy and vasculopathy. Diabetic retinopathy is the damage of the blood vessels of the retina, potentially leading to blindness, cataracts and glaucoma. Although long- term complications of diabetes develop gradually, they eventually lead to disability and can even be life threatening (Mayo, 2018). Complications experienced by diabetic patients are neuropathy, nephropathy, retinopathy (IDF, 2012). Diabetic neuropathy is the abnormal and decreased sensation of the nerves starting with the feet. When this is combined with damage of blood vessels and a lack of blood supply to the feet, it leads to a diabetic foot. (NICE Clinical Guideline, 2013). Diabetic nephropathy is damage to the kidney which can lead to chronic renal failure, eventually requiring dialysis. Diabetes mellitus is the most common cause of adult kidney failure. Diabetic complications can be managed through comprehensive diabetic care.

Comprehensive diabetic care can reduce complications associated with T2DM. Comprehensive care refers to care that encompasses all the details regarding diabetes. You are looking at the big picture,

not just a little piece of the puzzle. Comprehensive care is not just treating the problem with medicine, but adding in the latest research, treatments, and patient education. Comprehensive care of T2DM is aimed at regulating patients' blood glucose levels (Pascal, Ofoedu, Uchenna, Nkwa & Godswill – Uko, 2012; Ogbera & Ekpegegh, 2014; Jasper, Ogundomade, Opara, Akinrole, Pyiki & Umar, 2014). Effective management primarily depends on patient's self-care ability (Brunetti & Kalabalik, 2010). Key elements in comprehensive care of diabetes include tobacco cessation, appropriate levels of physical activity, regulation of dietary intake, and general diabetes self – management education (Redmon, Caccanno, Flavin, Michels, O'Conner, Roberts, Smith & Sperl – Hillen, 2014). In spite of the fact that studies have identified how diabetic patients can manage the disease condition; achieving effective control is often difficult and can be improved with support from family members and peers (IDF, 2013; CMCD, 2015). To reduce complications, it is important to understand how T2DM patients understand and make sense of self – care information provided at Endocrinology Clinic.

Self-care ability is one of the most vital aspects of diabetes management along with guidance provided by medical practitioners. Self-care behaviors include healthy eating, being active, monitoring of blood glucose, compliance with taking medication, good problem solving, risk reduction and healthy coping (Joslin, 2014). Patients depends on medical professionals for education in the practice of self-management of diabetes and embedding continuous diabetes self-care behaviors has shown to be an effective strategy in management of diabetes (Dialoo, Shojaeizedah, Gharaghi, Niknami & Pourali, 2012; Jackson, Adibe, Okonta & Ukwe, 2014). Despite the fact that self-care information is provided by medical professionals through patient education during routine re-evaluation clinics; T2DM complications still remains prevalent among patients. Factors responsible for the complications include smoking, elevated cholesterol level,

obesity, high blood pressure (IDF, 2015; Menke, Casagrande, Geiss & Cowie, 2015). In spite of the fact that studies has been conducted on factors responsible for diabetic complications, very few studies (Hjelm, Albin &Atwine, 2015; Shrivastava, Shrivastava & Ramasamy,2013) have examined how T2DM patients understand information for managing the disease. As such, it becomes imperative to explore why T2DM patients who have been educated on the recommendations for management of the disease still encounter complications. Specifically this study examined the role of personal constructs in making sense of diabetic information and education to reduce complications experienced by T2DM patients who attends routine Endocrinology Clinic in Ahmadu Bello University Teaching Hospital (ABUTH), Shika.

1.1.1 Diabetic Education

Information for T2DM management is provided through diabetic education; with the hope that patients will incorporate the management into their lives (Ko, 2014).Diabetic education tailored to patients is the cornerstone of management of T2DM (Joslin, 2014). Diabetic education provides guidance on how to manage the disease and it centres on necessary information related to management of the disease, and makes patients more aware of the disease (Bonsignore, 2013). Synthesizing and incorporating information about diabetes is based on each patient's personal constructs.

1.1.2 Personal Constructs

Personal construct is the way in which individuals create meaning. A personal construct is someone's personal way of looking at life, the world and people surrounding them based on their personal experience. A variety of information derived from various sources available to T2DM patients must be filtered before use. Patients filter information through personal construct. Personal constructs shape the way they make decisions about how to act, think and live their lives. Personal

constructs influence an individual's frame of reference; this is a set of complex assumptions and attitudes used to filter information in order to create meaning. The frame of reference of a T2DM patient should enable the effective filtering of information for managing the disease. Otero, Zanetti & Ogrizio (2008) reported that T2DM patients are expected to be able to make sense of information from various sources to reduce complications. People interact with information through different approaches when attempting to cope with an illness; one of such approach is the social cognitive approach.

1.2 Statement of the Problem

Diabetes mellitus is one of the major causes of death in Nigeria; with a mortality rate at over 200,000 deaths per year (IDF, 2006; Pascal *et al*., 2012; Chijoke *et al*, 2014). Type 2 diabetes is the most prevalent (Shiravastava et al 2013). The disease is prevalent in both urban and rural areas in Nigeria (Pascal *et al*., 2013; Chinenye *et al*., 2013). T2DM patients have complications,such as retinopathy, neuropathy, nephropathy and vasculopathy despite the fact that they regularly attend routine clinic reevaluation and receive guidance from medical professionals (Oliphant, 2013).

Type 2 diabetes mellitus is a problem because it is becoming prevalent.Diabetes mellitus is one of the major causes of morbidity and mortality globally and in developing countries like Nigeria. According to International Diabetes Federation (2018),one life is lost to diabetes mellitus (DM) in every 8 seconds. Though DM is not curable but it can be managed.This is a result of the eating habits of individuals. People do not eat right again and do not participant in any form of exercise. This lifestyle have resulted in high indices of people living with T2DM resulting into different types of complications.These complications result in loss of sight, nerve damage, stroke, amputation, foot ulcer and a host of others.

I worked as a Medical Librarian, Ahmadu Bello University Teaching Hospital, Shika between 2007 - 2013. During this period I noticed that a high number of patients are gathered at a particular section of the hospital. Enquiry revealed that those are people living with type 2 diabetes mellitus.

Most of the patients who attends routine Endocrinology Clinic, ABUTH, Shika always come to the clinic with several complications. Complications remain prevalent due to the fact that patients' lack the capability to understand information necessary to enable them to manage and cope with the disease effectively (Otero et al, 2008; Longo, 2010; Cavanaugh, 2011; Frost, 2014).The greatest weapon in the fight against DM is knowledge (Mbanya & Sobngwi, 2003; Sharivasta *et al*, 2013; Kalantzi, Kostagiolas, Kechagias, Niakas & Makrilakis, 2015).

Type 2 diabetes patients who attend Endocrinology Clinic in Ahmadu Bello University Hospital Zaria do not understand information provided for them at the Clinic. This is because most of the diabetic patients approached the researcher for explanation on information received from the care providers. The researcher is mistaken to be a medical doctor.Many T2DM patients receive information from medical professionals at Endocrinology Clinics, unfortunately studies have revealed that T2DM patients have difficulty in making sense of information (Jarvis, Skinner, Carey & Davis, 2012; Hjelm,&Atwine, 2015; Atwine, Hultsjo, Albin & Hjelm, 2015).

To reduce complications from T2DM, it is important to uncover how patients make sense of information. However, very little is known about how T2DM patients in Nigeria make sense of diabetic information specifically among diabetic patients in Zaria metropolis. Unless there is the understanding of how T2DM patients make sense of information, complication will remain prevalent.

1.3 Research Questions

This thesis sought to answer the following research questions:

1. What complications do type 2 diabetes mellitus patients in Endocrinology Clinic, ABUTH, Shika experience?
2. What information do type 2 diabetes mellitus patientsreceive from Endocrinology Clinic, ABUTH, Shika to manage diabetes?
3. Who do type 2 diabetic patientsconsult for information outside Endocrinology Clinic,ABUTH, Shikafor managing diabetic complications?
4. How has information received from Endocrinology Clinic, ABUTH, Shikacontradicted prior knowledge of type 2 diabetic patients in managing diabetes mellitus?
5. How do Type 2Diabetes Mellituspatients understand the information received from Endocrinology Clinic, ABUTH, Shika for managing diabetic complications?
6. What personal constructs do Type 2 Diabetes Patients apply in making sense of information received from Endocrinology Clinic, ABUTH, Shikafor managing diabetes?

1.4. Objectives of the Study

The study has the following objectives:

1. To investigate the complications Type 2 diabetes mellitus patientsin Endocrinology Clinic, ABUTH, Shika experience.
2. To determine thetypes of information Type 2Diabetes Mellitus patientsreceive from Endocrinology Clinic, ABUTH, Shikato manage diabetes.

3. To determine those whomtype 2 diabetic patientsattending Endocrinology Clinic, ABUTH, Shikaconsult for information for managing the disease aside the Clinic.
4. To determine contradiction between prior knowledge and information received from theEndocrinology Clinic, ABUTH, Shika.
5. To investigate how T2DM patients understandinformation receivedfrom Endocrinology Clinic, ABUTH, Shikafor managing diabetes.
6. To investigate personal constructs Type 2 Diabetic Patients applied in making sense of information for managing the disease.

1.5. Significance of the Study

The study uncovered how T2DM patients made sense of information in managing disease. To the best of the researcher'sknowledge, the role of personal constructs in T2DM management has not previously been a focus of any study. Discovering those factors that affect T2DM management will aid healthcare providers in understanding the relationship between personal constructs and information processing by T2DM patients; and will impact in which the manner that health practitioners provide information to individual patients.

The study explored how making sense of information would assist type 2 diabetic patients in managing the disease. Diabetes, unlike other diseases require day to day monitoring in order to reduce or delay complications. Specifically, this study would benefit the followings:

a) This study would of benefit to Library Schools in developing course curriculum in Health Information Sources and Services, Medical Informatics and Information Sources and Services for people living different types of medical conditions.

b) Health care providers in understanding the relationship of personal constructs with information processing by T2DM patients;and would impact the manner in which health practitioners provide information to individual patients. This is when a better insight is gained about personal constructs used in understanding, it would be considered when providing information for managing health conditions.

c) It would assist the health care providers in designing intervention to enhance the self-management of type 2 diabetes mellitus.

d) It would assist Library and Information Science professionals in providing services based on the preferences of individualpatients. Such information will assist in building formidable library resources to meet the demands of the clienteles.Further, understanding the socio cognitive constructs would assist type 2 diabetes patients in self-management of the disease.

Several studies have been conducted from the medical perspectives on how to cope with and manage DM. In spite of these studies, complications are prevalent among people living with DM. To better understand the daily life experiences of people suffering from diabetes mellitus, the study explored how diabetic patients in Zaria metropolis interact with information and personal constructs applied in understanding of health information.

1.6. Scope of the Study

This study covered individuals that have been diagnosed with type 2 diabetes for over six months starting from September, 2015 – February, 2019 in Zaria and its environ, Kaduna State, Nigeria. Those individuals attend the routine Endocrinology Clinic, Ahmadu Bello University Teaching Hospital, Shika, Zaria. The study's content area is health information behavior;focused on the

sense making of health information for managing T2DM specifically management of pain from the information perspectives.

1.7 Operational Definition of Terms

Comprehensive Diabetes Care Information refers to care that encompasses all the details regarding diabetes received by type 2 diabetic patients from Endocrinology Clinic in Zaria.

Endocrinology Clinic is the clinic where Type 2 diabetic patients in Zaria are provided with care and information that enhances management of the disease and living a quality life.

Personal Construct is the way individual living and coping with type 2 diabetes mellitus create meaning from comprehensive diabetic care information.

Sense making is how each person living with type 2 diabetes mellitus understand information to enhance decision making.

Type 2 Diabetic Patients are individual with problem of using insulin pancreas produced by the body system.

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CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This literature review covered utilization of health information by type 2 diabetes mellitus (T2DM) patients in relation to sense making of information, research paradigm – the perspective that explains the nature of inquiry. Social cognitive theory was examined, particularly in regards to its applicability to self- management of type 2 diabetes mellitus and previous studies that employed the theory as a framework. The layout for this chapter is presented under the following subdivisions;

2.2 Research paradigm.

2.3 Social Cognitive Theory.

2.4 Social Cognitive approaches to making sense of diabetic information.

2.5 Previous Studieson Diabetes Management Using Social Cognitive Theory Intervention.

2.2 Research Paradigm

A paradigm is a broad view or perspective of something (Taylor, Kermode &Roberts, 2007) a pattern of belief and practice that regulate inquiry within a discipline by providing lens, frame of references and processes through which investigation is accomplished (Mackenzie, Noella & Knipe, 2006). It is the way of explaining the basic set of beliefs one has and in the case of scientific study, how they influence the way the research is being conducted. An understanding of paradigm is essential for accurate analysis, because the research can be affected and guided by the paradigm (Weaver &Olson, 2006) and isthe choice of paradigm that sets down the intent,

motivation and expectations for the research (Mackenzie et al 2006). A paradigm is equally a way of describing a world view that is informed by philosophical assumptions about the nature of social reality known as ontology. Ontology, therefore, is what individuals believe about the nature of reality; ways of knowing known as epistemology; that is how individuals know what they know (Patton, 2002). A paradigm thus leads to ask certain questions and use a systematic inquiry known as methodology.This study investigated how T2DM patients make sense of information to manage diabetes. Therefore, interpretive paradigm was adopted for this study.

2.2.1 Interpretive Research Paradigm

An interpretive paradigm provides the lens whereby the true representation of individuals is presented and captured as obtainable. Its focus is on the ways humans interpret or construct their social world in specific linguistic, social and historical context (Mentens, 2005). Interpretive approaches depend heavily on naturalistic method including interviewing, observation and analysis of existing texts, and have the intention of understanding the world of human experience (Cohen &Manion, 1997). Interpretive methodologies position the meaning – making practices of human actors at the centre of scientific explanation (Bevir &Kedar, 2008).

The use of an interpretive method for the study ensured adequate dialog between the researcher and the person diagnosed with type 2 diabetes in order to collaboratively construe a meaningful reality. This study sets out to investigate the worldview of types 2 diabetes patients; in terms of how they make sense of information. It is believed among scholars whom align with the interpretive approach that, reality is socially constructed (Mertens, 2005). Usually, interpretive researchers rely upon the participants' views of the situation being studied (Creswell, 2005) and

recognize the impact on the research of their own background and experiences. This in turn led to choosing aMeta Theory for this study.

2.3 Meta Theory

Meta-Theory refers to the beliefs behind a theory, representing fundamentals sets of ideas about how phenomena of interest in a particular field should be thought about and researched (Fisher, Erdelez & McKechnie, 2005). Meta- theories are set of assumptions that orient and direct theorizing a phenomenon (Lawler & Ford, 1993). The phenomenon in this study is the sense making of information among T2DM patients for managing diabetic complication. Meta theories offer this researcher a broader conceptual framework for uncovering the phenomenon surrounding sense making of health information for managing T2DM. Therefore, meta theory chosen for this study is social constructivism. The Meta -theory of SCT represents a socio - cognitive approach whereby the individual's thinking and the social environment in which an individual resides plays a complementary role to each to influence knowledge acquisition and use of information (Hjorland, 2002). In essence, individuals' creation of knowledge structures and mental models is through experience and observations (Talja, Touminen &Savolainen, 2005). Based on their work, an individual's mental models are socially and culturally influenced; and the creation of knowledge takes place within an individual's mind in conjunction with immediate socio- cultural factors.

2.3.1. Social Constructivism

This research comes from the social constructivist perspectives. Social constructivism is all about how people construct and make sense of their world (Brajarnason, 2003). This is a theory

of knowledge that examines the development of jointly constructed understanding of the world. From the point of social constructivism, each individual understandingof significance and meaning is not developed separately within the individual but is constructed in conjunction with other human beings (Berger &Luckmann, 1966; Barab, Thomas, Jackson & Tuzum, 2007). Knowledge is not acquired in isolation, but encompasses many sources such as the society at large, peer group, and family. Therefore the heart of social constructivism involves understanding the groups in which knowledge is created (Musa, 2013).

Social constructivism originated as an attempt to come to terms with the nature of reality (Andrews, 2011). It focuses on how meanings are created, negotiated, sustained and modified (Schwandt, 2003). Social construction of reality is an ongoing and dynamic process that is reproduced by people acting on their interpretations and their knowledge of it. A major focus of social constructivist study is to uncover the ways in which individuals and groups participate in the construction of social reality, the attitudes, beliefs and opinions that are held by the members of a society or a group (Barab et al2007). This study attempted to uncover how type 2 diabetes patients make sense of information and creates their worldview.

Construction of social reality is dynamic which changes continually based on individual's decision (Elder-Vass, 2012). Social reality is a creation of human minds (Taylor, 2009), individuals come together and deliberate on a certain thing, make the move to make it happen and it does come to pass. To make the change a smooth sail, it becomes imperative to examine how individual interact and make sense of information. This led the researcher to choose substantive theory appropriate for the study. To facilitate continual changes, social cognitive theory can be applied. Based on this, the study investigated how personal construct of T2DM patients assist in making sense of information for diabetes management.

2.4 Theoretical Framework

Theories provide a clearer picture as to why people and communities make health related choices and offer a way ofunderstanding relationships and predicting outcomes of decisions (Glanz & Rimer, 2005). They provide the road map and a step by step summary of what factors to consider when designing, implementing and evaluating a health programme. Social cognitive theory was utilized to examine how T2DM patients interact and make sense of health information for managing the disease.

2.4.1 Social Cognitive Theory(SCT)

Social Cognitive Theory (SCT) is a behavioral theory developed not just to learn how people acquire knowledge but to observe how it replicated. This theory was coined by Albert Bandura. It describes the aspect of an individual's knowledge acquisition that is linked to observation of others within the context of social interaction. It implies that people do replicate the knowledge in order to boost survival strategy. It is of the view that cognition, behavior and the environment are the key factors in development (Bandura, 2004).

In the context of this study, SCT emphasizes a core set of determinants as the mechanism through whichknowledge is translated into effective health practices. Those core determinants are knowledge of health risks and benefits of different health practices, outcomes expectations of expected cost and perceivedself-efficacy indicate that one can exercise control over one's health habits, goal settings and measures of goals realization, perceived facilitators and social and structural impediments to desired changes (Bandura, 2004).

Social cognition is a sub- topic of social psychology that focuses on how people process, store and apply information about people and social situations (Kendra, 2010). It focuses on the role

that cognitive processes plays in our social interactions. In other words, the way we think about others plays a major role in how we think, feel and interact with the world around us. Moskowitz (2006) defines social cognition as the study of the mental processes involved in perceiving, attending to, remembering, thinking about and making sense of information in our social world. Similarly,Huitt (2006) defines social cognition as attempts to understand and explain how thoughts, feelings and behaviors of individuals are influenced by the actual, imagined or implied presence of others (Allport, 1985). It studies the individual within a social and cultural context and focuses on how people perceive and interpret information they generate themselves (intrapersonal) and from others (interpersonal) (Sternberg, 1994).

2.4.2. Constructs of SCT

1. Triadic reciprocalcausation is a construct of SCT posits that human capability, cognitive abilities - schema, adaptation processes: assimilation, accommodation and equilibrium, and environmental factors are determinants in behavioral development. Observational learning and interaction with the environment equally plays significant roles in behavioral changes. Observation enables the cultivation of appropriate behavior, formation of expectations and judgement about likely outcomes of reproducing a behavior.
2. Multiple levels of goals assume that goals are cognitively generated future events that motivate behavior. Goal setting enables accomplishment of aims and objectives. It is of paramount importance for someone suffering from diabetes mellitus becausegoal settings are essential for self-management. Identifying and setting goals enables a person the ability to enact changes that will be favorable for managing the disease.
3. Self- efficacy one of the constructs of SCT is the capability of an individual to be able to partake in acertaintaskirrespective of challenges or obstacles. Self-efficacy is the

beliefin one's capabilities to organize and execute the course of action required to manage prospective situations Therefore, self- efficacy beliefs function as an important set of proximal determinants of human motivation, affect, action- which operate on actionthroughmotivational, cognitive and affective intervening processes (Bandura, 1989).

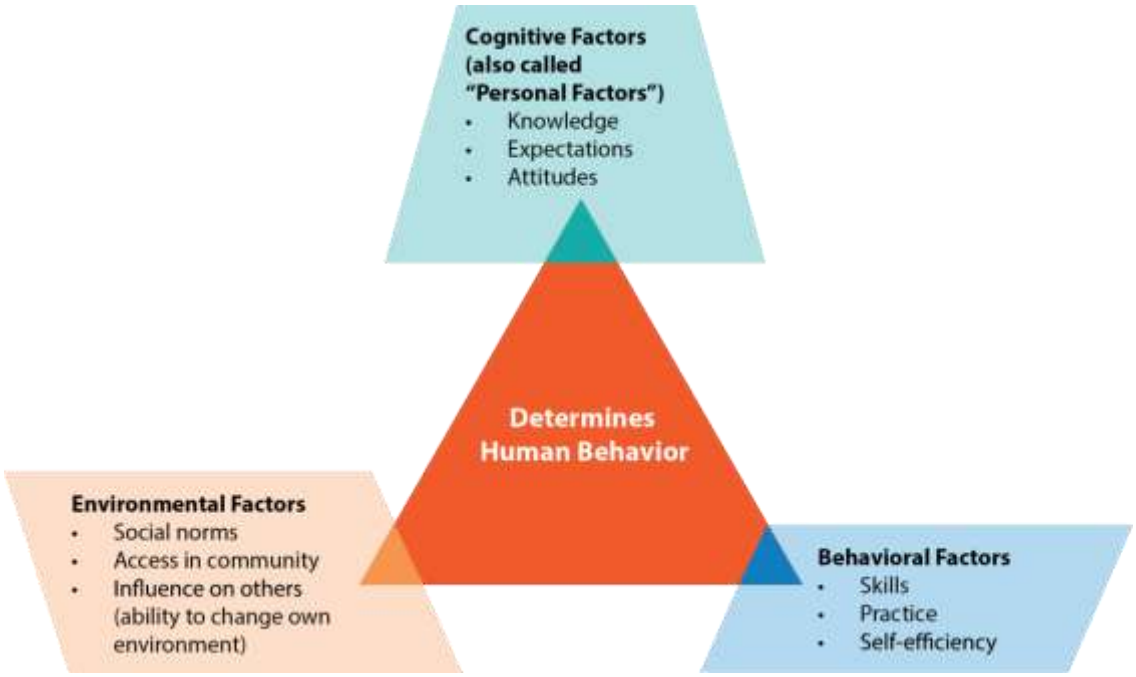


Figure 1: Pictorial representation of Bandura's Social Cognitive Theory

2.4.3 Social Cognitive Approaches to Sense making of Diabetic Information

Social cognitive approaches lay emphasis on how to tackle phenomena from an individual's perspectives in their social context (Bandura, 2004). Diabetes unlike other chronic diseases such as hypertension, cancer, HIV/AIDS; is a disease that requires collaborative efforts towards managing the disease from different professions (such as from doctors, pharmacists, dieticians, Library and Information Science professionals). It has been confirmed that there is a paradigm

shift in the Medical Sciences (Bandura, 2004), a move shifting focus from the medical professionals to patients' perspective.

An emphasis on the demand side of the equation - in this case on the patients, is consistent with social cognitive approaches. These approaches are useful for improving health outcome for T2DM patients (Jang & Yoo, 2012) by dwelling on how to use social factors such as family, peers, and friends and support group to enhance the ability to manage diabetes and promote necessary changes in health behaviour.

A healthy lifestyle changes and self- management are the corner stone of type 2 diabetes management (Kadirvelu, Sadasivan & Ng, 2012). Self- management is the care taken by individuals towards their own health and well- being (Koetsenruijter, Lieshout, Vassilev, Portillo, Serrono, Knutsen, Roukova, Lionis, Todorova, Foss, Rogers & Wensing, 2014). Self – management is the essential foundations for the empowerment approach, required for effective management of diabetes and decision making (Funnell, 2004). T2DM patients need to learn how to control blood glucose level, dietary control and other details about diabetes and to effectively care for it on daily basis (Funnell, 2004).Self – management in the diabetes is very important but unfortunately it is not realized by many type 2 patients (Kadirvelu et al, 2012). Diabetes management requires being approached through various dimensions, but highly individualistic.

The concepts of self-efficacy, human agency and the environment help T2DM patients to manage their disease (Bandura, 2004). They incorporate social factors such as economic status and environment in tackling a phenomenon in order to arrive at a solution. Self-efficacy is the belief by an individual that any task can be accomplished irrespective of obstacles. Self-efficacy is identified as the most important factor because it exercises control through which psychosocial

factors influences health feeling. Self-efficacy affects all the basic processes of personal change and essential in disease management.

2.4.4 Previous Studies on Diabetes Management Using Social Cognitive Theory Intervention

Diabetes is a chronic disease that requires a multidimensional approach to its management. It has been observed that theoretical intervention is effective in management of T2DM based on conducted studies (Kalantzi *et al.*, 2015; Jetvig, 2014;Frost,2014). Studies that applied Social Cognitive Theory as an intervention are examined as follows;

Gillani, Sulaiman, Abdul&Saad (2017) explored the perception and behavior of patients towards diabetes management with physical disability employing the qualitative methodology at a diabetes Clinic in Penang General Hospital Malaysia. They aimed to determine self-monitoring practices, awareness to dietary modifications and barriers to medication adherence among physically disabled type 2 diabetes mellitus patients.Findings revealed that participants indicated that they deliberately refused to adapt telemonitoring instead preferred to record their blood glucose manually.The study concluded that patients with physical disability required extensive care and effective strategies to control glucose metabolism.

Rusforth, McCrorie, Glidewell, Midgley & Robbie (2016) conducted a study on the effective management of type 2 diabetes in primary care using a qualitative approach. The objective of the study was to guide quality improvement strategies for type 2 diabetes by means of qualitative evidence.Findings of the study revealed that complications such as glycaemic control, blood pressure and cholesterol control were experienced by participants in the study. It concluded that barriers encountered are amendable through behavioural change strategies. Based on the

findings, they recommended that approaches to improving diabetes care need to delineate roles and responsibilities. To involve the patients actively in the management of the disease condition.

Mamykina, Smaldone & Bakken (2015) examined chronic diseases management through sense making of information by individuals diagnosed with diabetes. They utilized a theoretical lens for determining sense making of information. The following research questions were investigated; how do individuals with diabetes engage in self- management? What factors serves as barriers and facilitators of self – management? What difficulties and challenges do they experience as part of self – management? The study employed a combination of social cognitive theory, theory of planned behavior and transtheoretical model to address the research questions. Findings indicated that it is essential that patients should rediscover themselves and master sense making as a way of life to enhance managing diabetes.

A descriptive correlational study conducted by Wendling (2015) employed the theoretical framework of Bandura's Social Cognitive Theory. The study utilized the constructs of perceived self-efficacy, knowledge, outcome expectations; goals and perceived facilitators in assessing how type 2 diabetes patients manage diabetic foot. The research aimed at examining the relationship between level of self-efficacy and performance of diabetic foot care. The author reported that research has shown that the ongoing rate of diabetes – related amputations persist despite the existence of preventive methods. The study mentioned that primary care providers have constant encounter with diabetic patients and therefore stand a better chance of providing diabetes education to sufferers.

Wendling (2015) used dual instrumentation for data collection – the Foot Care Confidence Scale (FCCS) and the Nottingham Assessment of Functional Foot care (NAFF).Findings indicated that

no significant correlation was identified between the levels of self – efficacy and performance of foot self – care behaviors. Statistical significance exists between feet self – care behaviors and gender with males scoring higher than females. Wendling (2015) concluded specifying that the research has contributed to the small yet growing body of inquiry regarding self – efficacy and self – care promotion among the diabetic population, especially as it relates to care of the lower extremities. He recommended that further investigative efforts be carried out using qualitative interview or an observational approach.

Emphasizing the importance of theory in health behavioral changes, Hekler (2013) explored the theoretical gap in behavioral changes. Two research questions were raised; how best to utilize behavioral theory to inform design and evaluation and what constitutes appropriate use of theory in HCI. The work centred on use of theoretical construct to foster behavioral changes. Constructs are the basic determinants or mechanism that influences changes; they are the instrument of building blocks of a behavioral theory. This study used the concept of self-efficacy in examining the subjects. The study aimed at providing Human –Computer Interaction (HCI) behaviors with guidance on interpreting and developing behavioral theories. The author presented an overview of different theories and discussed the composition of the theoretical framework approach, emphasizing the importance of constructs in behavior change studies. The weaknesses of various health models were discussed. The study indicated areas of contribution of HCI to behavioral changes, improvement measurement and enhancing early stage theory fidelity testing. It concluded that further research should be carried out to explore the area.

Azr, Sharifirad, Shojaezadeh, Tarasoli & Azadbakht (2013) conducted a study to examine how socio – economic and diabetic consequences affect sense making of information by type 2 diabetic patients in Isfahan, Iran. The study addressed the following research questions: What is

the frequency distribution of patients and number of complications experienced? Does the educational level of patients determine complications experienced? It was a cross- sectional and descriptive analytical study. Data collected was analyzed using SPSS statistical software and Fisher's test. Findings revealed that there was a tremendous relationship between diabetes complications, age group, educational level, job status, relationship with family members and health status.

Behavioral changes can be achieved and maintained when concerned individual can make sense of information about the situation. Goldbold (2013) explored pattern of sense making interactions in coping with chronic disease. The study emphasized the significance of sense making of information in managing diseases. The aim of the research was to examine the concept of sense making of information in Library and Information Science.

Goldbold's (2013) research employed several methodological components influenced by Brenda Dervin and Karl Weick. It was a longitudinal, social constructionist investigation of text- based sense making. Findings revealed that discussions with participants helped to expose how they cope with their conditions through making sense of information. Furthermore, it was revealed that sense making is not a mental activity but that time and emotional frame of individual affects making sense of information. Time frame and emotional state of mind interferes with synthesizing of information.

To further elaborate on the importance of using theoretical constructs as a motivational factor, Cardwell (2013) focused on self-efficacy to study women with gestational diabetes mellitus (GDM). This study emphasized adherence to prescribed regime which is crucial to preventing complications for both mothers and babies. The work hammered on the significance of self-

efficacy in adherence and clearly identified the need to monitor pregnant women with GDM. It discussed extensively self-efficacy and self-care by patients due to the fact that success of management depends on individual capability. It equally paired self-efficacy with other concepts such as illness, beliefs and ethnicity - to evaluate coping with the diseases.

Findings from the study (Cardwell, 2013) revealed that theoretical constructs are highly effective in coping with chronic diseases such as diabetes. The author concluded that patients should develop self-efficacy which will enhance coping strategies and adherence and suggested that group support is important for patients with diabetes. The study stated that group support is important for patients with diabetes.

Self-efficacy, social support, patient – provider communication and glycemic control are crucial areas to focus on in the management of type 2 diabetes. Gao, Wang, Zheng, Haardorfer, Kegler, Zhu & Fu (2013) explored how conceptual models can influence how self-efficacy, social support and patient – provider communication through self-behaviors in adult with type 2 diabetes can enhance coping with diabetes. The study was a quantitative work which utilized a cross sectional study design at PHC centres in Shanghai over a period of five months. Over two hundred participants were involved; data were collected through the aid of research assistants. Descriptive statistics, Chi squared and ANOVA were used.

Findings from the study conducted by Goa *et al.*, (2013) affirmed that diabetes self – care had a direct impact on glycemic control. This is fostered by having better provider- patient communication, having social support and higher self-efficacy. It concluded that having a better exposure to intervention and possessing of self-efficacy by patients enhances glycemic control

and recommended the need for longitudinal studies to explore the effect of self-efficacy, social support on self-care and glycemic control in diabetes.

Jang &Yoo (2012) applied Social Cognitive Theory in investigating the self-management abilities of people living with chronic diseases in Korea. They investigated strategies for copingwith and managing chronic disease using the constructs of SCT in synthesizing and identifying published research targeted towards enhancing self-efficacy indisease management and its applicability to Korean culture regarding used learning strategies.

This study was a documentary research that involved searching different databases to identify frequently used learning strategies. They affirmed that self-management programs based on social cognitive theory are useful for improving health outcomes for patients with chronic diseases.The findings (Jang & Yoo, 2012) affirmed that the most frequently used learning strategy is thetriadic reciprocal construct followed by social or verbal persuasion. They equally identified the use of self-efficacy by the Koreans in coping and managing with chronic diseases. They concluded that further research on the effectiveness of theory based on self-management programmes for patients living with chronic diseases is required.

Using a qualitative approach for data collection, Avery (2012) examined the impact of physical activity in the control of type 2 diabetes. The study utilized the construct of triadic reciprocal to synthesize the data. Several theories were used for the study: transtheoretical model and social cognitive theory; cognitive behavioral theory and motivational interviewing. Findings indicated that interventions were used by care providers based on the theory / model of behavior change to develop and encourage participants to embrace use of intervention in the management of the disease. The outcomes further highlighted areas where intervention assisted the participants-

changes in physical activity and exercise were most helpful in generating changes in HbA1c (Haemoglobin A1c) and changes in body mass index (BMI).

Kim, Ahn &No (2012) used self-efficacy, one construct of the social cognitive theory to evaluate the impact of health behavior on nutrition to determine patients' capability to achieve set goals. The authors of the work employed a baseline study method for their investigation. The findings validate the fact that objective nutritional knowledge was a good predictor of college student's nutrition confidence. The two direct measures were significant predictors of behavioral intentions. They concluded that other consumer groups and circumstances surrounding them should be explored, and emphasized that findings can enhance the extent of how literature on the universal applicability of self-efficacy can facilitate change and equally serve as useful references for further investigation.

Jacobi &MacLead (2011) in a study of how patients with chronic illness make sense of information affirmed that diagnosis of chronic progressive illness can be a traumatic experience. People diagnosed with chronic diseases wonder how they will be able to cope while health care professionals address how they can help those with chronic illness. The study addressed one research question- how do people make sense of living with chronic progressive illness? This qualitative study used a phenomenological develop approach. The study helped patients learn how to cope with their disease.Semi – structured interview was utilized for data collection. Findings indicated that all participants displayed much resilience and determination based on memory, hope and meaning. The authors concluded that it is possible for health care professionals to assist patients in making sense of chronic illness through knowledge provision.

Similarly, Longo (2010) investigated health information seeking, receipt and use in diabetes self-management. He highlighted the importance of self-management in coping with the disease. Though self-management is essential in management, little is known about preferred sources of information. The study was a qualitative one aimed at exploring patients' information seeking and making sense of health care information. Participants were selected from patients who receive care in two clinics; a focus group was used as the method of examining the behavioral traits of those involved in the study. A questionnaire was distributed to patients to elicit information. Findings based on the study indicated that varied sources of information including books, brochures and magazines were utilized by patients. Findings pointed out that participants exhibited a high level of enthusiasm for information to assist in managing the disease and that health literacy is required for newly diagnosed diabetes cases in order to enlighten them and keep them informed. It concluded that patients make decisions about self-management based on the task at hand and not as viewed traditionally that patients seek information on a general spectrum concerning a health problem.

Using the theoretical constructs to promote diabetes prevention activities among preadolescents, Mead et al., (2009) conducted a study focused on youths with T2DM. The study was aimed at addressing the unusually high prevalence among youths of a disease usually thought to affect older individuals. They carried out a pilot study whereby youths were brought together for a week- long half day camp. Social cognitive theory and behavioral choice theories were used as the theoretical framework for the work.

The intervention was targeted towards enhancing behavior and cognitive skills, perceived competence among others. Population for the study were selected through survey method, form the low income Black Belt Southern region of United States which comprises of 11 states. The

study consisted of one group pre- test, post- test, four week follow up design. For instrumentation, 32 items survey were administered on first day of the program and a post survey on the last day of the program.

Findings from Mead et al., (2009) revealed that there was a tremendous improvement among participants on knowledge of diabetes, knowledge of nutrition, knowledge of physical activity and its importance in T2DM control after camp experience. Participants exhibited the ability to apply gained knowledge to everyday life activities. They concluded that for any intervention to be effective it requires primary preventive programs.

McCallister (2006) conducted a qualitative study on the experiences of adolescents in terms of making sense of information for diabetes self-management. This was to find alternative ways of managing diabetes aside from those reported in the literature. Three questions were raised in the study - how do adolescents manage diabetes self – care behaviors? What factors affect diabetes self – care behaviors within the development context of adolescence? What effects does the development transition to adolescence have on diabetes self-care? The study used a grounded theory methodology to provide a solution to the research questions. Findings revealed that the degrees to which adolescent were able to manage their diabetes depended largely on their self-efficacy. Sense making of information among the population studied lay solely in overcoming the challenge of self-doubt or fear that might interfere with diabetes management. Socialization was affirmed as equally playing a significant role in managing of diabetes. Interaction and socializing with others was reported to aid in sense making of information. McCallister (2006) demonstrated the importance of context in sense making of information. Sense making of information is interwoven with other concepts: personal construct, habit of mind, frame of reference and socialization.

2.4.3Applicability of Social Cognitive Theory (SCT)

Studies have been conducted on the appropriateness of SCT in chronic diseases management such as diabetes (Rushforth et al., 2016; Cardwell, 2013; Jang&Yoo, 2012; Mead *et al.,* 2009; Tosco, 2007). The findings signified that self-management based intervention are useful for improving health outcomes for patients with chronic diseases. Although there are various treatments and interventions designed for chronic diseases, the incidence and demands for care services of chronic diseases have increased worldwide (WHO, 2009) and complication of diabetes still persist.

Due to the prevalence of diabetes mellitus (DM) and the factthat it has no cure but it is preventable; therefore it becomes imperative to approach the treatment of the disease from various dimensions. Effective care systems have changed from disease treatment to improving patient's self-management ability about health condition (Jang& Yoo, 2012; Holman & Lorig, 2004). Patients' should accommodate the day to day rigor of managing and coping with chronic condition before seeking the assistance of medical professional.

Triadic reciprocal causation can be used to evaluate how type 2 diabetes patients interact with the environmental factors and social interaction. In this context, to exhibit how these environmental factors and social interaction can enhance managing the disease and boost survival strategy. People living with Type 2 diabetes mellitus (T2DM) can interact with other diabetic patients in order to source for information they have no knowledge about.For instance, in the case of wound management, a patients ought to be aware that cleanliness is very vital in wound management for a T2DM patients. To manage the disease effectively, an individual living with T2DM must possess an effective cognitive ability to enhance and manage the disease. This

will simplify making sense of health information. Behavior, environmental factors and cognitive ability interact with one another towards change in health behavior which is targeted to the achievement of set goals.

Goal setting goes a long way in the realization and accomplishment of aims in managing the disease. Goal setting involves the cognitive ability of an individual that is being able to lay issues of diabetes management in order of priority; this will help in predicting future events. This will assist in motivating the way type 2 diabetes patients will make sense of information.Diabetes mellitus management involves setting goals towards living a healthy life and coping with the ailment, glycaemic control, dietary and weight control.

Change in behavior is necessitated by expected outcomes which are in various dimensions (Bandura, 1989). There are physical outcomes which include aversive outcomes, benefits; social reactions it generates among peer group such as stigmatization and lastly positive and negative outcomes. A type 2 diabetes patient is expected to make lots of behavioral modifications based on expected outcomes such as dietary regulations, weight control among others. This is in order to be able to control and manage the disease properly and effectively. To foster this effectively, socializationwith a support group can be used to promote and sustain change in behavior towards achieving expected outcomes.

Achieving a favorable outcome is dependent on an individual's self –efficacy. Patients suffering from type 2 diabetes must have ability and capability to accomplish task irrespective of obstacles and challenges (Hekler, 2014). Otherwise,accomplishment of a task will be impossible. Self – efficacy is the central focus of behavioral changes; mainly about the beliefs held by about individuals of their ability to accomplish goals. Diabetes management is all about self-

management (Kim*et al.*, 2012), though routine clinics do provide guidance. But the processes of synthesizing information and knowledge lie with the efficacy level of the individual in handling daily management regime of the T2DM. Persons living with diabetes can use the construct of self-efficacy to develop the belief in the ability to achieve skills associated with diabetes management.

2.4. Summary of the Review

The chapter explored the philosophical assumptions for the study; putting into consideration the concept of research paradigm and its embodied knowledge. Interpretive paradigm was adopted to represent the voiceless in the society. Using this paradigm provides opportunity for people to air their opinion. This is based on the fact there is no single reality or truth. Therefore, reality needs to be interpreted. The research aligned with the qualitative method in that it uncovers the underlying meaning of event and activities. Qualitative researches are interested in investigating an in depth understanding of the social world, learning from people's social world, experiences and their world view.

The chapter also discussed the theoretical framework adopted for the study and why the social cognitive theory and the constructs are appropriate for the study. Studies that utilized the theory were reviewed, their objectives, methodology and their findings highlighted. In spite of many studies that affirmed the need to explore the seeking behavior of T2DM patients in order to evaluate how patients cope and self – manage the disease, there is little research that investigated how patients' personal construct is effective in the understanding of information for managing diabetes. This study differs from the reviewed studies in that it is an interpretive paradigm that

explored sense making of information by type 2 diabetes patients based on their life experiences from the perspectives of patient's personal construct.

To the best of researcher's knowledge, this is the first study in Nigeria that adopted qualitative methodology to examine how people coping with and managing diabetes mellitus make sense of diabetic information.This study is from the informational perspectives. Previous studies (Chijoke, Adamu, & Makusidi, 2014; Chinenye, Uloko, Ogbera, Ofoegbu, Fasanmade, Fasanmade & Ogbu, 2012) are all from the medical perspectives.

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CHAPTER THREE

RESEARCH METHODOLOGY

3.1Introduction

This Chapter described the research methodology employed for the study. It is organized under the following sub-topics:

3.2 Research Method Adopted.

3.2.1 Research Design,

3.3 Population of the Study.

3.4 Sampling and Sampling Technique.

3.4.1 Sample Size.

3.4.2 Rationale for Sample Size

3.4.3 Inclusive and Exclusive criteria,

3.5 Instrument for Data.

3.6Procedure for Data Collection,

3.7 Procedure for Data Analysis

3.8Rigour of the Study.

3. 2 Research MethodAdopted

The research method adopted to investigate sense making behavior among T2DM is the qualitative research method.A qualitative research method was employed for the study using the interpretive paradigm; this provides the opportunity of exploring the problem from the experiences of T2DM patients. This is because this provides the avenue to represent the voiceless. Social constructivism perspectives were used for exploring how T2DM patients make sense of information for managing the disease. Qualitative research yields data that promote depth and details to create understanding of phenomena and lived experiences (Yin, 2003). It provides the opportunity of knowing the how and why T2DM patients interact with health information for managing the disease; how they make sense of information and use of intervention such as social cognitive approaches in coping and managing chronic diseases like diabetes.

3.2.1 Research Design

This study utilized the qualitative case study design.This method provides tools for researchers to study complex phenomena within their contexts (Baxter & Jack, 2008). It is an approach to research that facilitates exploration of phenomena within its context using a variety of data sources. There are two major approaches that guide case study methodology; one proposed by Stake (1995) and the other one by Yin (2003). Both target detail exploration ofthe subject of interest from different epistemological perspectives. Stake (1995) approached qualitative case methodology from social constructivism paradigm. This approach believes that learning is through interaction with experience of others in the society. Yin (2003) approached case study from a post – positivism viewpoint. This approach involves developing a clear case study protocol with careful consideration of validity and potential bias which might involve an exploratory or pilot study ensuring that all elements of case are captured.

This qualitative case study of T2DM patients actually focused on exploring the world of the patients through their experiences. It examined how social change occurs among T2DM patients. The interpretive paradigm simplified the study, due to the fact the study centred on the day to day life experiences of the patients in managing the diabetes mellitus. Case studies provide an in-depth examination of people or groups of people. This method has its roots in sociology and has also been used in anthropology, medicine and law. Over time it has been used for investigation in several disciplines in as much as it addresses the subject of investigation (Yin, 2003; Stake, 1995). Its use as a research methodology has grown in recent years because of the rapid changes in the health sector today (Kuhn, 1997) and the inability of traditional sources of information to answer important questions.

3.3 Population of the Study

Population is the group of individuals taken from the general population who share common characteristics such as age, sex or health condition (Traskin & Small, n.d).Polit &Hungler (1999) refer to the population as an aggregate or totality of all the objects, subjectsor members who conform to a set of specifications. In this study, the population was drawn from individuals (30years and above) who have been living with T2DM for over six months in Zaria metropolis and attends routine Endocrinology Clinic at the Ahmadu Bello University Teaching Hospital(ABUTH), Shika, Zaria.Folders (file record) of T2DM patients who attends the Endocrinology Clinic, ABUTH, Shika, enabled the researcher to verify those who were regular at the routine clinic.A total of 2000 T2DM patients registered at Endocrinology Clinic, Zaria between September, 2015- February, 2019.

3.4 Sample and Sampling Technique

Sampling as it relates to research refers to the selection of units, and/ or setting to be used (Nastasi, 2007). Qualitative studies use purposeful or criterion – based sampling. That is a sample that has the characteristics relevant to the research question(s). Sampling units for this research was from among persons suffering from type 2 diabetes mellitus who attendroutine EndocrinologyClinic at ABUTH, Shika.

Purposive sampling technique was used for the recruitment of participants for this study. Purposive sampling is commonly used in qualitative research. It involves selecting research participants according to the needs of the study (Glaser, Strauss &Morse, 1991); in that researchers choose participants who give richness of information that will be suitable for detailed research (Patton, 1980).The researcher selected participants who met the criteria for conducting the study. Participants werepicked with the assistance of a care provider – doctor in ABUTH, Shika; since approvalwas granted for the study - based on ethical consideration. The care provider facilitated sample selection because some people are always discreet about their health condition. Consent form wasgiven to the patients; itprovided details for conducting the study and to equally convince participants that the study was mainly for academic purposes. Patients who consented to participate in the study constituted the study sample.

3.4.1 Sample Size

A sample is the set of respondents selected from a larger population for the purpose of a study. Sample for qualitative studies are smaller than those used in quantitative research (Ritche,Lewis &Elam 2003). When determining sample size for a qualitative study, it is important to remember that there are no hard rules. However,thereshould beat least two considerations; what sample size will reach saturation? That is the extent to which the sample needs to allow for identification if

consistent. Sample should be a true representation of the population; secondly, how large a sample is needed to represent the variation with the target audience? (Mason,2010).

The study used a sample size of eighteen (18)out of 2000T2DM patients in Zaria metropolis who attends Endocrinology Clinic at ABUTH, Shika. The researcher used six T2DM as benchmark to terminate interview.However 18 T2DM patients were used as unit of analysis at saturation.Studies (Cohen, Khan & Steeves, 2000;Munhall, 2007; Smith, Flowers & Larkin, 2009) have affirmed that this sample size will be adequate to gather sufficient data regarding experiences,to demonstrate meaningful similarities and differences between participants and to produce a rich account of the phenomena being studied. A similar study by (Adam, 2012) was conducted on the lived experiences of becoming a diabetic patient and it used a sample population of ten (10) participants.

3.4.2 Rationale for Sample Size

Qualitative studies aim to provide illumination and understanding of complex psychosocial issues and are most useful for answering humanistic ‘why’ and ‘how’ questions. Sample size for qualitative research can be estimated based on the selected approach, for a qualitative case study sample size from 1 to 30. Number of sample does not arise in qualitative research but the unit of analysis. Sample size is arbitrary and thus inconsequential (Marshall, Cardon, Poddar& Fontenot, 2013).If saturation is reached before the exploration of the entire population, and then the size can be reduced. An appropriate sample size for a qualitative study is one that adequately answers the research questions (Marshall, 1996). The study used 18 type 2 diabetes mellitus patients as sample size due to saturation. This is at the stage when new information no longer emerges.

3.4.3 Inclusion and Exclusion Criteria

Inclusion criteria refers to the characteristics that the prospective subjects must possess if they are to be included in the study, while exclusion criteria are those characteristics that disqualify prospective subjects from inclusion in the study. Individuals who have been diagnosed with type 2 diabetes mellitus for over a period of six months and attends endocrinology clinic at Ahmadu Bello University Teaching Hospital (ABUTH), Shika are eligible to partake as a volunteer in the study. Subjects included in the study are between the agesof 30 - 60 years old and attend reevaluation Endocrinology clinics regularly. Interested subjects agreed and signed the consent form. Both genders wereeligible to volunteer to partake in the study.

Subjects who suffer from other type of diabetes mellitus than type 2 diabetes mellitus were excluded from the study. Patients who missed hospital appointmentsare not eligible to partake as subjects. Likewise, not agreeing to and signing the consent form by a subject disqualified such individual from being chosen as part of the studypopulation. Similarly, patients who speaks other languages aside English and Hausa were excluded from this study.

3.5. Instrument for Data Collection

For this study, semi structured interview was used for data collection and a handheld device was used for recording the interviewbetween the subjects and the researcher. The semi structure interview was guided by the raised research questions. Based on the research questions, sub questions were introduced to enhance the participants to narrated day to day life experiences in managing type 2 diabetes mellitus. This provided the opportunity for participants to diverge in order to pursue an idea or respond in a more detailed manner. Participants were asked key questions that provided a lead to other issues which are important to the investigation. This

created flexibility in that it allowed for discovery or elaboration of information that is important to participants but may not have previously been thought of as pertinent by the interviewer (Gill, 2008). Interviewswere held in a conducive environment to elicit crucial information from participants. Qualitative interview is therefore a specific form of conversation deliberately aimed at understanding dimensions of the interviewee's worldview and creation of social reality.

3.6 Procedure for Data Collection

An application for Ethical Clearance was written to the Assistant Dean, Postgraduate; Faculty of Medicine through Head, Department of Library and Information Science(Ahmadu Bello University Teaching Hospital, Shika, Zaria).This was to request approval for the recruitment of participants whopartook in the study- Appendix I).To that effect, approval was granted for selection of population for the study based on the consideration of the ethical committee. Sample recruitment letters were produced both in English and the local language (Hausa) to provide an insight about the research to participants (Appendix II a & II b). The modality for data collection was semi structured interview method; explained in the recruitment letter. To equally convince patients that data collected was mainly for research purposes and that confidentiality would be maintained on data that will be collected. A consent form (Appendix III) was used to assure participants that their identity will be protected. The consent form was signed by both the patient and the researcher, and kept in the patient's folder as part of the hospital record. The designed consent form carried the name of the researcher, place of work and phone number.

Interviews were scheduled with the patients at convenient venues. A neutral venue other than the hospital premises was preferable for conducting the interview. When patients go for routine clinics, careful attention have to be maintained in orderto follow patient's folders among care

providers. In most cases, it takes a lot of time before patients finish with the care providers. Due to this, it was impossible to elicit reliable information from participants during a routine visit. As such, convenient time was agreed upon by both the researcher and participants where the interview sessions were conducted.

Interactions between the interviewer and the interviewees lasted between 45 minutes to 60 minutes and recorded on a tape recorder for all the participants.The interviewer conducted the interview in a manner that allowed participants to expand in detail on their experiences in managing type 2 diabetes. Once the lead is given for the elicitation of information, the interviewer proceeded to ask specific questions concerning making sense of health information for disease management and the use of social cognitive theory constructs to explain how to make sense of health information.

The interview process was flexible, which enabled interviewees to provide a self – management narration. This is consistentwith an interpretive paradigm that allows the presentation of a situation based on the life experiences of the subjects of the study. Participants were encouraged to express their experiences freely. Illness narratives give voice to both the suffering and the life world context of illness (Kvale, 1996).The interview included queries about background information, age of onset of the disease, complications experienced, sources and use of information for managing the disease. The questions were in open – ended format to facilitate in depth elicitation of information from the participants and it equally pavedway for diverting to other relevant information.

3.7 Procedure for Data Analysis

The analysis of qualitative research involves aiming to uncover and/ or to understand the big picture. Thematic analysis will be used in analyzing data collected from the interviews. This is a strategy that recognizes the extent to which the picture being portrayed provides insight about real live experiences.Thematic analysis involves various steps; the following stages were identified by Elliot & Timulak (2005) and the steps were specifically adopted for the analysis and hence contextualized for the study.

a) Datacollection was through tape –recorded interview with T2DM patients. Information recorded wastranscribed into written format. This is a kind of pre – analysis that can influence future step of the analysis.

b) Delineating and processing meaning units. Here data collected from T2DM patients were sorted out into distinctive meaning units in such way that it communicates meanings even when standing alone. At this stage, redundancy is eliminated. It is based on the meaning units that the analysis was guided.

c) The next step was to find an overall organizing structure for the data. This involved sorting the data collected from T2DM patients who partook in this study into domain for the purpose of organization.

d) Generation of categories. Units were coded within each of the domains into which they were organized. The aim of categorizing is to discern regularities or similarities in the data (Glaser & Strauss, 1967). Creating categories is an interpretive process (Hill, Thompson & Williams, 1997). Categories for this study were generated from the narratives of the participants to research questions and sub- categories.Topics that are related to each research questions were

grouped together before been merged under a major category that described the experiences of the study participants.

e) Abstracting the main findings. Generation of categories resulted in taxonomy that will describe and interpret the whole phenomenon as represented in the gathered data. Care was maintained in order not to alter the data. Abstracting therefore follows the rule of essential sufficiency; that is using the simplest way to fully depict the phenomenon.

f) Validity of analysis. This is done through auditing after the complete draft has been produced.Understanding the concept of validity requires understanding beliefs about the nature of reality (Cohen & Crabtree, 2008).Therefore this study utilized the qualitative research methodology to investigate how 2 diabetic patients in the study setting created meaning out of diabetic information type. It is believed that there can be multiple ways of understanding social life and reality, even multiple realities. This view of reality emerges from an Interpretivist perspective.

g) Interpretation of finding. This was done within the context of previous studies and research findings.

3.8. Rigour in Qualitative Study

Scholars like Shenton(2004) and Silverman (2001) have demonstrated how qualitative researchers can incorporate means that explains how to deal with issues of rigour in pursuit of a trustworthy study. To ensure trustworthiness according these scholars, a researcher will seek to satisfy four criteria: credibility, transferability, dependability and confirmability. Therefore, the researcher adopted all the four criteria in order to ensure rigour for this study. In order to ensurecredibility the researcher demonstrated the true picture of type 2 diabetes patients. This

study adopted a qualitative approach using the interpretive paradigm to investigate the problem from the worldview of the participants in the study setting. Familiarity was established with the participants in order to have a background knowledge and characteristics traits of the disease. Participants were selected through purposive sampling technique. Worldviews of the participants were presented precisely the way they express their experiences with bias or prejudices. Decisions to either partake in or withdraw from the study were solely the discretion of the participants.

To ensure transferability, details of the field work was provided for readers to be able to decide whether the prevailing environment is similar to another situation he/she is familiar with (Silverman, 2001).A study of this nature can be conducted in a different location since information seeking and sense making of information is continuous. For this study,an unstructured interview technique was used for data collection while the procedure for data collection was through tape recording. Data was analyzed using thematic analysis methods.

Dependability is meant to provide the process used for conducting the research. This is to enable a future researcher to repeat the work, even if different outcomes are discovered. Thus,as previously mentioned, this study is a qualitative research that used a case study design to investigate how type 2 diabetes patients make sense of information for managing the disease. Type 2 diabetes is same condition among suffering from the disease worldwide.The researcher was able to ensure dependability by giving qualitative researchers, apart from her supervisory team (within and outside the study area) an opportunity to examine the process and outcome of this research. The purpose is to evaluate the accuracy and evaluate whether the findings, interpretations, and conclusions are supported by the data.

Confirmability is about ensuring that the findings reported at the end of the research are the true representation of the experiences and ideas of the participants. To ensure this, the work was subjected to expert's opinion (Endocrinologist) at ABUTH, Shika.This is tocertify that the study is a true representation of the experiences of type 2 diabetes patients.Similarly, to ensure confirmability, qualitative research methodology was adopted for the investigation. This explained how and why type 2 diabetes patients in the study setting interact and make sense of health information for managing the disease.Furthermore, thematic analysis was utilized for analyzing the data generated; which is telling the story as narrated by the participants.

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CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1Introduction

This chapter presentation of data generated from the study and analysis from the interpretive paradigm. The data were collected through unstructured interview guide tailored in line with the research questions about how diabetic patients who attend Endocrinology Clinic at Ahmadu

Bello University Teaching Hospital, Shika, Zaria make sense of health information to enable them cope with complications they experienced. The data collected were analyzed and laid out under sub headings that correlate with the interview guide utilized for creating the data from participants.

4.2Participants Characteristics

This sub section provides the profile of all the eighteen (18) participants who partook in the study. All participants are referred to as "participants" denoted by Arabic numerals in line with the Ethical Consideration that stipulated that the identities of participants must be protected. Likewise, consent forms signed by participants equally stated categorically that identities of participants will never be revealed.

Eight(8) of the eighteen (18) participants were male (44%); ages ranging from 31 years to 57 years while the remaining 10 (56%) werefemale with ages ranging between 35 – 60 years.

The primary languages were English (78%) and Hausa (22%). Three (17%) of the eighteen participants were on National Health Insurance Scheme (NHIS) whereby drugs prescribed for them are subsidized, whilethe remaining fifteen representing 83% of the participants are not on NHIS. Details on participants is summarized on table 1 (p.55).

4.2.1 Individual Participant's Description

Eighteen (18) type 2 diabetes mellitus patients participated in the study all the participants were requested to complete the consent form; signifying their intention to partake in the research. Each participant was interviewed three times.

The researcher commenced the interview session by introducing herself to the participants; highlighted the purpose of the study to them – which is mainly for academic purpose to shed light on how information is manipulated to manage type 2 diabetes. Participants were told that they would be referred to as "participants" in the body of the work differentiated with Arabic numerals (Participants 1- 18).

Table 1 – Demographic distribution of participants

S/No	*Location*	*Age*	*Occupation*	*Sex*	*Year of Diagnosis*
1	Funtua	31	Undergraduate	Male	5
2	Kongo	47	Civil servant	Male	20
3	Samaru	56	Librarian	Male	16
4	Samaru, New Extension	55	Librarian	Male	15
5	Samaru	60	Nutritionist	Female	8
6	Railway Quarters Sabongari, Zaria	55	Civil servant	Male	10
7	Graceland, Gwangila	51	Transporter	Male	10
8	Tudunwada	35	Teacher	Female	8
9	Zaria City; Ungwar Alkali	48	Housewife	Female	10
10	Jushi, Zaria	30	Housewife	Female	5
11	Ungwar Kaya, Zaria	51	Housewife	Female	10
12	Zaria City,	46	Civil servant	Male	12
13	Kaduna	68	Retired Nurse	Female	5
14	Makarfi	57	Farmer	Male	9
15	Soba	48	Housewife	Female	7
16	Zaria City	38	Housewife	Female	10
17	Yarkawada	41	Teacher	Female	7
18	Hunkuyi	47	Teacher	Female	9

Source- Interview Analysis, 2016.

Following is a brief introduction of each of the participants who were subjects of the study.

Participant 1: He is a 31year old man diagnosed with diabetes at 26 years of age and has been living with thedisease for over five years. An undergraduate Student of the Ahmadu Bello University, Zaria, Kaduna State, Nigeria. He is married with kids. He is an individual who is very prompt in keeping his hospital appointments with his care providers (physicians). Interview between the respondent and the researcher was conducted one on one.

Participant 2:A 47year old man with Special Needs who have hearing impairment. He is a University graduate, who studied Sociology, who lip- reads. The interview session with him took a different format compared to other participants'. The researcher read all the questions on the interview schedule to him slowly with detailed explanations. He then requested for a biro and paper with which he responded to all the enquiries on the interview schedule.

Participant 3: A 56year old man diagnosed with type 2 diabetes mellitus at 40years; had taken T2DM as a way of life. He went to the hospital to complain that he had not been comfortable with the way he had been feeling. Laboratory tests were run, and the results showed that he is diabetic. He stated that he has ever been coping with the disease ever since. In the interaction with him, he admitted that he do not utilize health information arbitrarily but depends solely on his own personal construct in understanding information for managing diabetes.

Participant 4: He is a 55year old man diagnosed with diabetes at 40 years of age. He said he went to the hospitalbecause he was falling sick too frequently. According to him, he thought it has to do with his blood pressure; but it was detected that he was suffering from diabetes. Since that time, he said he hadbeen going to hospital to see the physicians.

Participant 5: A 60 year of old woman, highly educated and nutritionist by profession. She has been living with diabetes mellitus for over eight years. She resides in Samaru.She stated that she

does not joke with keeping her hospital appointments. She has been on medication since she was diagnosed with the disease. She said that she is highly disturbed with the inconsistency of her blood glucose level. She has been in and out of hospital admission on several occasions.

Participant 6: This participant is a 55year old man. He is a civil servant; who resides at Railways Staff Quarters, SabonGari,Zaria. He has been living with diabetesmellitus for the past ten years. He is an individual who relies mostly on his sisters and friends for information. He is easily confused. He revealed that when information is provided for him at the clinic, he still consults his close associates but ends up being confused. He goes to hospital regularly and indicated that he always feels hungry; because he is being instructed to eat with moderation.

Participant 7: He is a 51year old man. He is a transporter who is always on the road most of the time. He has been living with diabetes mellitus for over 10 years. He is educated to some extent (Secondary School Certificate).He explained the complications he has been experiencing to the detail but kept emphasizing his legs. He also complained that there is inconsistency in information about diabetic diets provided for them at the Endocrinology Clinic. He also stated categorically that his wife has been so supportive in keeping to dietary regulations.

Participant 8: She is 35year old woman diagnosed with diabetes at 27, implying she has been living with the diseases for over eight years.She is a primary school teacher and resides in TudunWada, Zaria. She knew she has been living with diabetes mellitus when she took ill. She thought it was malaria fever; until whenshe went to the hospital where it was discovered to be diabetes mellitus. She disclosed that she follows her diet strictly, but yet there was a time she had a serious boil which necessitated hospitalization.

Participant 9: A female who is 48year old, diagnosed with T2DM eighteen years ago. She is a housewife who is not literate. Interview session with this participant was conducted in the presence of her adult son. The son assisted in clarifying gray areas to his mum. In spite of the fact that the participant is not educated, she possesses the ability to express diabetic complications experienced with accuracy. She does not miss any of her Endocrinology Clinic bookings as she is scared of complications suffered by some diabetic patients.

Participant 10: A woman and a housewife of 30 years of age who resides at Jushi, Jos Road, Zaria. She is not educated and a shy individual. She was diagnosed with diabetes at age 25. She is the type who does not open up to her care providers. She usually does not reveal critical information to her care providers. Yet, these are information crucial to her wellbeing which is supposed to guide her Physicians. She hides information.

Participant 11: This participant is a 51year old woman who resides in Ungwar Kaya, Zaria. She was diagnosed with diabetes ten years prior to the time when this interview was conducted. She is a wife of an affluent member of the society. Encountering her on any normal day, nothing in her indicated she is someone living with a chronic disease. She is educated and communicates well in English language but she indicated that she prefers the interview to be conducted in Hausa language. She is very accommodating and has become a good friend of the researcher. She readily answered all questions, reflected on all areas where inquiries were made without any reservation.

Participant 12: He is a 46year old civil servant and resides in Zaria City. He has been living with diabetes for over 12 years. He recalled that he had sight complications which was the reasonwhy he went to the hospital. He mentioned that he has two brothers who are also diabetic

from whom he also receives information since they have been living with the diabetes mellitus before he was diagnosed it.

Participant 13: A retired nurse; who is 68 year of age. She resides at Kaduna. She is a very friendly lady, who said she got diagnosed of the disease after her retirement. The diagnosis according to her really baffled her because she never imagined she would be a diabetic patient. She said there is no history of diabetes in her family. She hides her diabetic status from people because believes she will be stigmatized. She uses malaria as a cover for going to the hospital.

Participant 14: A farmer, and 57 years of age who resides at Makarfi (Kaduna State). He said he was diagnosed with diabetes mellitus at 48 years and has been living with it since then. He attends the Endocrinology Clinic regularly and indicated he has been having problems with his legs.

Participant 15: A 48 years old teacher who resides in Soba, Kaduna State. He said he was diagnosed with the disease at 41 years old. He is the type that is not too comfortable discussing with the opposite sex. He mentioned that he had been having erectile dysfunction, a condition which he unwilling disclosed to the researcher.

Participant 16: She is 48year old, a housewife who resides in Zaria City and very accommodating. She is not educated.This participant had been living with diabetes mellitus forthe past ten years. She highlighted the complications she has been having – eye complications and leg problems. However,she is regular at keeping her hospital appointments and uses prescribed drugs accordingly.

Participant 17: A teacher by profession; married with kids. She is 41years of age, residing at Yakawada; Giwa Local Government, Kaduna State. She said she has been living with diabetes

mellitus for over seven years and is very regular at the Endocrinology Clinic. She is very welcoming and responded well to all the enquiries from the researcher in respect to the management of the disease.

Participant 18: A 47 years old female teacher who resides in Hunkuyi (Kaduna State) and was diagnosed with diabetes mellitus at the age of 38. Ever since, she has been punctual to every booking at the Endocrinology Clinic. She disclosed that she uses her drugs as prescribed by her care providers (doctors). She narrated that she is always weak most of the time and has problem carrying out her daily activities.

4.3 Data Analysis

Data were collected through voice recordings which were later transferred to phrases and sentences through transcription; from eighteen (18) participants suffering from Type 2 diabetes mellitus who attend routine Endocrinology Clinic, Ahmadu Bello University Teaching Hospital, Shika; Zaria. The patients are between 30 – 65years age bracket. The selected participants are those that have been diagnosed with the disease not less than six months and had been regular at the scheduled Clinical appointments. The participants expressed diverse opinions based on situation at hand about their understanding of health information on the management of T2DM.This is in alignment with the interpretive paradigm qualitative study.

4.3.1Interview Analysis

Eighteen recorded interview sessions with patients were transcribed verbatim. Voice recordings were listened to repeatedly; to ensure participant's worldviews are captured in line with the interpretive paradigm. This is necessaryfor complying with inductive approach that requires paying attention to all details in a conversation (Burnard *et al,* 2008). Using the inductive

approach, the researcher utilized colour coding for phrases, words and concepts that address the research questions directly.

Altogether, a total of 162 narratives capturing the lived experiences of patients with T2DM were tabulated. A total of 162 open codes were generated altogether from all the research questions.18 narratives were generated from research question one; 36 from research questions two, three and four respectively; while 36 narratives were generated from research questions five and six respectively. An iterative process as described by Stockey (2015) utilized multifarious steps in coding narratives employing colour coding to distinguish narratives based on the responses that addressed the research questions either directly or indirectly. Employing these steps, the researcher scrutinized the data in search of similarities and dissimilarities in narratives.

Seventy – two (72) topics were recognized as classification categories from all the raised research questions (Table 2; p.55). Table 3(p.73) presents illustrative quotes for individual identified classification sub categories. These categories were then condensed into forty – nine (49) emergent categories. Table 4 (p.89.)presents the description of the 49 categories while table 5 (p.105)enumerates the 49 categories presented by sub categories, frequencies and percentages representations of the frequencies. These tables are sub divided according to the Six (6) research questions that guided the study. They are numbered as: Tables 5.1, 5.2, 5.3, 5.4, 5.5 and 5.6. Table (p.118) 6 presents the data analysis steps. Data collected were graphically presented in Figures 1.1, 1.2, 1.3, 1.4, 1.5 based on data generated from table 6 highlighting the categories and sub categories generated based on each of the research questions.

4.3.2Description of Categories per Research Question

Forty- nine (49) categories arose from the exploration of sense making of health information by T2DM patients who attends the Endocrinology Clinic, Ahmadu Bello University Teaching Hospital, Shika. These emergent categories are represented in table 5() by categories, frequency and percentage of category. The categories are listed based on each research question. Research question one; 1.Myopathy (weakness of the body and lack of strength), 2.Diabetic neuropathy (general body pains). 3. Osmatic symptoms (water intake), 4.Diabetic retinopathy (eyes problem). 5. Weight loss (eating problem and body mass index) 6.Orthostatic symptoms (Dizziness) 7.Vasculopathy (heart blood pressure), 8.Resting tachycardia (pulse rate), 9.Dysglycaemic (blood glucose), 10. Diabetic peripheral neuropathy. 11. Diabetic boils, 12. Diabetic foot ulcer (wound) and 13.Erectile dysfunction (poor erection).

Categories that emerged from research question two are; information on exercise, diet, drug regimen, energy boosting, need to seek for help promptly, need to share information,fluid intake ,regulation of salt intake, personal constructs, cognition ,diabetic education, level of education ,dietary regulation and wound management.

Emergent categories from research question three are; family members, friends, traditional medical doctors, neighbours, other diabetic patients, mass media and colleagues.

Categories that emerged from research question four are: mortality rate, dietary regulations, glycaemic control, wound management, drug regimen, weight management, herbal medicine and physical exercise.

Categories that emerged from research question five are; information is beneficial, information is critical,information is helpful, information is important, information is a necessity, information insignificant; and information is confusing and conflicting. While eight categories emerged from

research question six; trust of medical practitioners, fear of complications, belief in other diabetic patients, personal experience, family support, prior knowledge, personal judgement and confusion.

The forty –nine categories are discussed based on the research questions raised for this study. The categories and sub categories that emerged are discussed as follows;

4.4Complications experienced by Type 2 Diabetes Mellitus Patients in Endocrinology Clinic, ABUTH, Shika.

The research question investigated complications patients are exposed to from 2015 - 2019. Thirteen categories emerged from the analysis of data collected. These categories are presented on table 2.

Table 2 – Complications experienced by T2DM patients in Endocrinology Clinic, Zaria.

Research question	CATEGORIES	sub-categories	Frequency	Percentage
What complications do T2DM patients experience?	1. Myopathy	1.1Weakness of the body	5	27.77%
		1.2Lack of strength	8	44.44%
	Group Total		13	72.21%
	2.Diabetic Neuropathy	2.1 Body pains	3	16.66%
		2.2 Neck pain	2	11.11%
		2.3 Arm pain	3	16.66%
		2.4 Backache	2	16.66%
	Group Total		10	61.09%
	3.Osmatic symptoms	3.1Water ingestion	3	16.66%
	Group Total		3	16.7%
	4.Diabetic Retinopathy	4.1Eyes complications	6	33.33%
	Group Total		6	33.33%
	5. Weight loss	5.1Eating problem	1	2.77%

	5.2 Body mass index	3	16.66%
Group Total		4	19.43%
6.Orthostatic hypotension	6.1 Dizziness	3	16.66%
Group Total		3	16.66%
7. Vasculopathy	7.1 BP	1	5.55%
	7.2 Headache	1	5.55
	7.3 Insomnia	1	5.55
Group Total		3	16.7%
8.Resting Tachycardia	8.1 Pulse rate	1	5.55%
Group Total		1	5.55%
9. Dysglycaemic	9.1Sugar control	1	5.55
Group Total		1	5.55%
10.Diabetic peripheral Neuropathy	10.1Leg problem	8	44.44%
	10.2Joint problem	2	11.11%
Group Total		10	55.55 %
11. Diabetic boils	11.1 Boils	2	11.11
Group Total		2	11.11 %
12. Diabetic foot ulcer	12. 1 Wound	1	5.555
Group Total		1	5.555%
13.Erectile dysfunction	13.1Poor erection	1	5.555
	13.2Premature ejaculation	1	5.555
Group Total		2	11.111%
Groups Total		59	40.972%

Source – Interview Analysis, 2016

The categories and sub categories are discussed as follows;

Category One: Myopathy (weakness of the body) (13/18, 72.21%) category includes the narratives related to the complications T2DM patients experience at a particular time in managing the disease. This category is sub divided into two sub categories (a) weakness of the

body (5/18, 27.77%) and(b) Lack of strength (8/18, 44.44%). Responses elicited from participants are explained as follows;

***Weakness of the body*:** This sub category highlights the narratives about the feelings the patients pass through when they experience this symptom. Findings revealed that despite the fact that T2DM patients are aware that having complications cannot be avoided, weakness of the body experienced gets at them to the extent thatthey sometimes find it difficult coping with their daily activities such as getting up in the morning to display her wares in her shop for the day. Participant 13, a retired lady nurse stated that "my body is always weak; I can't walk frequently like before". Closely related to weakness of the body under myopathy is the lack of strength.

***Lack of Strength*:** this sub category dwells on the physical weakness experienced by T2DM patients and it is grouped under myopathy. It is evident from the interactive session held with the patients that most of the patients at one time or the other did not have the strength to go about their daily activities such as farming, cooking and household chores. For example, participant 18 said 'I am always very weak and usually do not have strength to carry out my daily activities".

Category Two: Diabetic Neuropathy (Nerve disorders) (10/18, 61.09%) category includes narratives that border on experiences of T2DM patients in relation to general body pains which they feel from time to time. This category is divided into four sub categories; body pains 3/18, 16.66%), neck pain (2/18, 11.11%), arm pain (3/18, 16.66%) and back ache (2/18, 11.11%). Each of the sub categories are explained as follows;

Body Pain: describes experience of T2DM patients in relation to general body pains. As a result of the interactive session the researcher held with the participants, evidence was elicited to buttress this assertion. Participant 10,a housewife, indicated that "I usually have body pains. My

body is always very painful and feeling very hot and I find taking care of my kids as a great task". Participants' were detailed in reference to the area in which they have the pain; another part of the body mentioned is the neck.

Neck Pain: is a complication arising from T2DM. This was revealed through participant's personal descriptions and experiences living with diabetes. Participant 9, a male stated that "I have been having neck pain for past the six months. The pain has been so serious and very disturbing". There several sub categories under diabetic neuropathy, arm pain inclusive.

Arm Pain**:** the sub category expatiates on nerve pains experienced by the patients in the arm region. The researcher found out that participants have pains in the arm region. Participant 7 summarized his experiences as follows "I am experiencing pains in my arms, from the elbow to the wrist". Aside mentioning pains experienced from the arm region, backache is another area that patients also complained about.

Backache**:** is a common phenomenon with patients suffering from T2DM. The sub category highlighted the experiences of the patients who have backache. The researcher identified those who have these symptoms based on their personal description. For instance, participant 9 stated that "I equally have back pains, which is usually verypainful".

Category Three: Osmatic Symptoms (water ingestion) category explains how T2DM patients ingest and expel water – polydipsia and polyuria. Osmatic symptoms (3/18, 7%) category explains how patients ingest and expel water from the body system. This category has one sub division which is water ingestion (3/18, 17%). Participant 2 who is an undergraduate student described his experience thus "I use to take water most of the anytime. In fact,at time I stand up at night to drink water".

Category Four: Diabetic retinopathy (6/18, 33.33%): this category describes eye complications experienced by participants in the study settings. This category has only one sub division which is eye complications (6/18, 33%). Eye complication is one of the complications mostly feared by T2DM patients because it might eventually result into loss of sight. Several Participants (1, 2, 9, 10, 12 and 16) described their experiences in relation to eye complications. They all substantiated their experiences with following assertions; "I usually have problems with my eyes. I don't see well again like before I was diagnosed with diabetes". Another participant stated that "my eyes use to show me some signs of not seeing clearly". One of the participants, a middle aged woman and a housewife gave a detailed description of her experience. In her words "I usually have eyes discomfort, as if there is sand in them". Likewise, another participant stated that "I don't see well with my eyes".

Category Five:Weight loss (4/18, 22.22%): This category describes the challenges being faced by T2DM patients in order to control their body weight. This category has two sub- categories, eating problem (1/18, 2.77%), body mass index (3/18, 16.66%). Responses from the two sub categories are highlighted as follows;

***Eating Problem*:** the sub –category provided the interpretive perspective of participants with eating problem. The researcher elicited the followinginformation from the participants who indicated that they had been having eating problems. Response from participant 7, a commercial driver, goes thus "I'm suffering from eating the foodI'm advised to take, because the foods are selective. So I don't even get satisfied anytime I eat". "I feel hungry and you cannot just pick anything and eat". It was also stated by one of the participants that "since I became diabetic, I cannot eat like before again. I feel hungry always". Associated with eating problems is also body mass index.

***Body Mass Index*:** This sub category presents detailed experience of T2DM patients in the study setting about their body mass index. The researcher found that some of the participants have problem with loss of weight. One of the participants, a male, complained that he has been losing weight because his daily food intake is regulated. He described his ordeal thus "I have been losing weight for some time now. I have not been eating well because my diet is regulated. I always feel hungry. As you can see I was not like this before. I have lost a lot of weight because I cannot eat like I used to do before being diagnosed with T2DM".

Category Six: Orthostatic Hypotension (dizziness) (3/18, 16.66%) includes narratives related to dizziness experienced by the patients in the course of managing diabetes mellitus. This category has one sub-category which is dizziness (3/18, 16.66%). Detail for this sub category is provided as follows:

***Dizziness*:** This sub category expatiates on the experience of the participants in relation to dizziness. Dizziness is one of the complications associated with T2DM. This is substantiated by response from Participant 4, who stated that "when I wake up, I usually feel very dizzy and my eyes will be turning. When I feel like that, I quickly find somewhere to sit down so that I won't fall down. After which I will take the drug prescribed for me by my physician".

Category Seven Vasculopathy (blood vessels) (3/18, 16.66%): This category includes narratives of participants who are diabetic and also have high blood pressure.This category has three sub -categories; High Blood Pressure (BP) (1/18, 5.55%), headache (1/18, 5.55%) and Insomnia (1/18, 5.55%)

***High Blood Pressure* (BP**): This sub category comprised narratives about experiences of T2DM patients about high blood pressure which is usually associated with living with diabetes mellitus.

Participant 12 narrated his experience thus “I went to see the doctor and I was informed my BP is very high”. Headache is also associated with high BP.

Headache**:** this sub category is also one of the complications that are usually experienced by diabetic patients. In the course of interview sessions with the participants, it became evident that some of them experience headache from time to time. Participant 10 said “I have headache most of the time, it is always difficult for me to sleep at night”.

Insomnia**:**This sub-category describes the sleep pattern of people suffering from T2DM. Participant 10 has been living with diabetes for over 5 years.Shecomplained that she usually find it difficult to sleep in the night. She described her experience thus “…..I find it difficult sleeping in the night. In fact, two days ago (7/10/16), I couldn’t sleep at all throughout the night”.

Category Eight: Resting Tachycardia (Heart beats rate) (1/18, 5.55%): This category includes narratives related to the complications T2DM patients are exposed to in the management of the disease. Tachycardia refers to an abnormally fast resting heart rate – usually at 100beats per minute (Nordqvist, 2015). The category has only one sub category, pulse rate (1/18, 5.55%). This is explained as follows;

Pulse Rate**:** this comprised the experience of the participant and the effect of diabetes on the pulse. That is, how many times the heart beats per minute. This complication was mentioned by a participant as the researcher asked about complications experienced within six months prior to the period of data collection. She described her experience as follows; “The way my heart beatsin the night scares me a lot. It beats so fast as if a sensation is moving all over my body. I am always very scared as I usually think I will die anytime”.

Category Nine: Dysglycaemic (Fluctuation of blood sugar level) (1/18, 5.55%): This category explains the variation in the blood sugar level among diabetic patients who participated in the study. The researcher found that some of the participants had been having inconsistent blood sugar levels. Participant 5 summarized her experience thus "The problem I've been having is non – consistency of my sugar level. Today it is high and another day they will say it is low. The next time they may say I'm alright. But I just make sure that I take my medication as had been assigned to me".

Category Ten: Diabetic Peripheral Neuropathy(Nerve damage) (10/18, 55.55%): This category is one of the complications that participants complained about in varying degrees. It is subdivided into two categories; leg problem (8/18, 44.44%) and joint problem (2/18, 11.11%). Reponses of participants for these sub categories are explained as follows;

***Leg Problem*:** This sub category often occurs as a result of nerve damage on the leg called diabetic neuropathy.Participant 7 stated thus "What I'm experiencing now is my legs. It hurts me so much; I'm feeling hot on the legs". Similarly, participant 9 expressed her experience in these words "My legs are the most serious problem I'm having……sometimes if I want to stand up I have serious cramps on the leg like muscle pull…..it is always very painful". Several other narratives of other participants' experience from diabetic peripheral neuropathy are as follows; "……so also my feet. I feel as if they are not mine. Underneath my feet is usually numb, then the upper part of it is as if pepper is poured on them". Similarly, it was narrated by another participant that "sometimes I feel somehow on my legs as if blood doesn't flow through. It's not that it is painful, but it's like there is something tying down my leg. It feels heavy and numb". In most cases, leg problem has a link with joint problem.

***Joint Charcot (deformity)*:** This sub category is alsohighly reported by the participants. It consists of the experiences of T2DM patients about pains they have in the feet joint regions. The researcher found that most of the participants complained about having joint pains in both the legs and arms. This is substantiated by the narratives of the participants that partook in the study. The researcher received these responses in relation to experiences associated to joint pains. It was expressed by participant 7 that "from my knee joint to the feet, it's usually feeling very hot. At times to step on the ground with the leg, it is very painful". Likewise, participant 13 narrated that "even now doctor (referring to the researcher), my knees are paining me.During cold seasons it is always swollen. As it is now, the swelling has gone down, yet I am still feeling the pain on the joints".

Category eleven: Diabetic boils (Boils) (2/18, 11.11%). This category describes the experience of the participants in the study setting in relation to diabetic boils. The category has one sub category under this group; boils (2/18, 11%). The narrative is explained in the following paragraph:

Boils: This sub – category consists of the narratives of the participants about diabetic boils. Narration of the participants is captured thus;Participant 8 narrated that "I have a boil on my stomach sometimes ago which was very serious and big. It spread so wide on my tummy to the extent thatwhen it busted, I was an in-patient at the Ahmadu Bello Teaching Hospital, Zaria".

Category Twelve: Diabetic Foot Ulcer (2/18, 11%): This category describes the experience of T2DM patients in relation to wounds they have on the foot/feet.).The category has one sub category which is wound (2/18, 11%).

***Wound*:** This sub category consists of the narratives of the participants about wound in diabetes management. Participant 8 expressed her experience about wound thus "I have a wound on my leg and that wound was very serious. I was sent to the dressing room. I was going regularly to have the wound dressed. Later the Consultant put me on insulin injection because of the wound".

Category Thirteen: Erectile Dysfunction (2/18, 11.11%): This category consists narratives of participants about sexual dysfunction experienced as a result of long –term bloodpoor glucose control which damages nerves and blood muscle. This category has two sub – categories; poor erection (1/18, 5.55%) and premature ejaculation (1/18, 5.55%).

***Poor Erection*:** This sub category describes the experiences of the sexual performance of men with T2DM.The researcher found from the participants that diabetes mellitus affects the sexual ability of a man. Narrative from participant 14 is that "I usually have poor erection and it is causing problems between me and my wife". Premature ejaculation is usually experienced when poor erection is experienced.

***Premature Ejaculation*:** This sub category is interwoven with the first (poor erection). The researcher found out through the participants that once full erection is not achieved; it will often lead to premature ejaculation. A participant expressed his experience with reservation. He said "I usually have premature ejaculation".

4.5Information T2DM Patients Received from Endocrinology Clinic, Zaria to manage diabetic complications

This research question investigated the varying types of information received by T2DM patients from the Endocrinology Clinic to manage diabetic complications. To effectively answer this research question, data was collected on types of information T2DM patients received from EC

and secondly, how the patients make sense out of the information they received. This sub-sections are explained as follows;

4.5.1 Information received from Endocrinology Clinic,Zaria.

This section consists of narrativesof participants about the information received from Endocrinology Clinic to manage diabetic complications. The data is presented in Table 3.1

Table 3.1 Information Received by Type 2 Diabetics Patients from EC, ABUTH, Shika to manage complications

Research question	Categories	Sub - categories	Frequency	Percentage
What information do T2DM patients receive from Endo Clinic to manage complications in the last six months?	1. Exercise	1.1Regular exercise	8	44.44%
	Group Total		8	44.44 %
	2. Diets	2.1 Fruits and vegetables	5	27.77%
		2.2 Dietary regulation	6	33.33%
		2.3 Others	3	16.66%
	Group total		14	77.76%
	3. Energy boost	3.1 Boosting energy	1	5.55%
	Group total		1	5.55%
	4. Fluid Intake	4.1 Water ingestion	3	16.66%
	Group total		3	16.66 %
	5. Prescribed Drugs	5.1 Drug Information	1	5.55%
		5.2 Drug regimen	4	22.22%
		5.3 Drug instruction	2	11.11%
	Group total		7	38.88%
	6. Need to promptly seek for help	6.1Wound management	2	11.11%

		6.2 prompt decision making	1	5.55%
		6.3 Keep the feet warm	1	5.55%
	Group total		4	22.22%
	7. Information provision	7.1 lack of information	1	5.55%
		7.2 hiding information	1	5.55%
	Group total		2	11.11%
	8. Regulation of salt intake	8.1 reduction of salt intake	1	5.55%
	Group total		1	5.55%
	Groups total		40	31.74%

Source- Interview Analysis, 2016.

The information received from the Endocrinology Clinic is discussed as follows;

Category One: Exercise (8/18, 44.44%): This category includes narratives about exercising expressed by the participants who took part in the study. The researcher got informed through the participants that exercising is essential for a diabetic patient. Eight out of the eighteen participants stated categorically that their doctors informed them of the need to get involved in regular exercises in order to reduce effects of leg and joints pains experienced. This category has only one sub category – regular exercise.

***Regular exercise*:** This sub category consists of the information provided for T2DM patients at the Endocrinology Clinic to manage and reduce diabetic complications. Many of the participants described their encounter with their care providers on the importance of regular exercise. An undergraduate student who took part in the study narrated thus “The Doctoradvised me that I should exercise regularly. Since then, I have been going to the field to exercise” (P1). The following are also narratives of some of the participants about information received on exercise:

"He (Doctor) advised me to engage in exercises regularly to help in reducing the problem" (P5). The care providers emphasized on the need for the participants to be engaged in exercise but in moderation. This is reflected in the words of participant 9; "…..also that I should try and do small exercise". As narrated by a participant, it is not necessary to beinvolved in a rigorous exercise but mild exercise. To buttress this, the narrative of the participant is captured thus; "the doctor said I should make sure I walk daily as an exercise" (P16).

Category Two: Diets (14/18, 77.76%) Category includes participant's narratives on the information received centering on the importance of monitoring their diets in diabetes management. Fourteen participants narrated that their doctors at the Endocrinology Clinic had on several occasions stressed the need for dietary regulation in T2DM ifblood glucose (sugar) to be maintained. This category has three sub categories; fruits and vegetables (5/18, 27.77%), Dietary regulation (6/18, 33.33%), others (3/18, 16.66%). Other sub category includes inadequate fruit consumption (1/18, 5.55%), avoidance of starchy foods (1/18, 5.55%), avoid beef consumption (1/18, 5.55%). Narratives for the sub categories are as follows;

***Fruits and vegetables*:** This sub -category includes the narratives of the participants on the importance of consuming fruits and vegetables in regulating diets in the management of diabetes. It includes the narratives of the participants on the adherence to diets to combat and reduce complications. The researcher found out that five of the eighteen participants signified that information received from the Endocrinology Clinic, ABUTH, Shika centres on the importance of consuming fruits and vegetables in order to assist in the regulation of their blood glucose (sugar) level. Some of the narratives are reflected as follows: "they (doctors) say I should mostly concentrate on fruits consumption and some multivitamins" (P3). Similarly, Participant 18 narrated thus "I was instructed to take enough vegetables and fruits especially watermelon and

apple". Also, participant 1 stated categorically the complication that needs to be addressed with the consumption of vegetables. He narrated thus "for the eye problems, he (doctor) advised me that I should take vegetables that are rich in vitamin A such as carrots and avoid oily foods.

***Components of foods*:** This sub category is a core area in diabetes management. This includes narratives on the information provided for T2DM patients at the Endocrinology Clinic in relation to diets. Six (6) out of the eighteen (18) participants indicated that they had at various times received information that informed them about the need to regulate their intakes; if they want to maintain a consistent blood sugar. Narratives about information received from Endocrinology Clinic about dietary regulations are stated as follows;

"I was advised to watch what I eat and don't eat too much at time" (P5). Other participants also expressed that they not only watch what they eat but are also very mindful of the constitution of the foods. Participant 14 said, "The doctor advised me to stick to my diet.And also ensure that vegetables should constitute a larger portion of my food"

***Others*:** this sub category includes narratives about inadequate fruits consumption (1/18, 5.55%), avoiding starchy foods and avoid beef consumption; both representing 5.55% (1/18).

***Inadequate fruit consumption*:** this sub category consists of the narratives of the participants about the information received from the Endocrinology Clinic on the effects of not taking enough fruits to assist them in coping with diabetic complications. Evidence provided by the participants signified that doctors whom they consult during routine EC emphasized the importance of fruits and vegetables. Despite this, one participant still avoids compliance. The researcher found that some diabetic patients still do not take enough fruits and vegetables. Participant 16 narrated that when she complained to the doctor about the symptoms he was

experiencing; the doctor said that she is not taking enough fruits and veggies. She expressed himself thus “I always have constipation. When I complained to the doctor, she said, I was not taking enough fruits and vegetables” (P16). Regulating diets equally involves avoiding starchyfoods in diabetes management.

***Avoid starchy foods*:** This sub category includes narratives on the information received from the Endocrinology Clinic to manage diabetic complications experienced. Narrative of one of the participants about the need to avoid starchy foods is captured thus; “….that I was taking starchy foods that I have been warned not to take”. Closely related to avoiding starchy foods is reduction of intake of red beef.

***Avoid red beef*:** This sub category comprised the explanations about information received from the Endocrinology Clinic on the type of meat a diabetic should consume. The researchergathered from one of the participants that the leg complications she is experiencing is said to be persistent because she is not following the instruction provided for her on the need to abstain from consuming red beef. In her words, she said, “… the doctor said, I should stop eating red meat. But that I should take chicken and fish. That the chicken should be the locally breed” (P11).

Category Three Energy boost (1/18, 5.55%): This category comprised the narratives of participants in relation to information received from the Endocrinology Clinic, to combat lack of strength. The researcher gathered from the participants that it a usual occurrence for a diabetic patient not to be physically strong. This is revealed in the narration of Participant 3, he mentioned that he has been experiencing lack of strength for some period of time. When he complained to the doctor, he was advised to take an energizer drink (lucozade). He stated thus: “I complained to the doctor that I usually feel weak and don’t have strength to go out with my

friends as usual. He said,I should take some multivitamins and drink lucozade to get strength" (P6).

Category four: Fluid intake (3/18, 16.66%): This category includes narratives of participants who complained about the high rate of water ingestion and the information made available for them at the Endocrinology Clinic. This category has one sub category, water ingestion (3/18, 17%). Responses from this sub category are as follows;

***Water ingestion*:** This sub category comprised experiences of the participants about how frequently they take water. Some of the participants disclosed to the researcher that they drink water so much and are scared that it might be abnormal. They mentioned that they informed their care providers about the manner in which they ingest water. Following are their narrations; Participant 1 said when he felt he was taking too much water, he complained to his doctor. The doctor said "there is no problem with the way I drink water". Similarly, participant 5 narrated that "…and I have been advised to drink water as often as possible". Furthermore, participant 16 disclosed that, "….he (doctor) advised me to take enough fluid due to frequent urination. He said I should drinkenough water to rehydrate the body".

Category five: Prescribed Drugs (7/18, 39%): This category comprised narratives of participants about information received from Endocrinology Clinic to manage diabetic complications relating to importance of following instructions about prescribed drugs. This category has three sub categories; drug information (1/18, 6%), drug regimen (4/18, 22%) and drug instruction (2/18, 11%). Responses from these three sub-categories are thus:

***Drug information*:** This sub category consists of the experiences of T2DM patients on the necessity to be aware about information relating to drugs prescribed for them to manage diabetic

complications. Most of the participants revealed that they were not aware that it is of importance to be informed about prescribed drugs. Responses from the participants went thus: A sixty –five (60) year old woman disclosed that she is unaware of information that has to do with prescribed drugs, but she assumed that it is highly important for her to eat before using the drug. She said "Well the major thing is that before I take my medication, I must eat" (P5). The essence of drug information is to enhance the adherence to drug regimen.

***Drug regimen*:** This sub – category comprised of narratives from the participants about information received from their care providers at the Endocrinology Clinic, ABUTH, Zaria on the necessity to adhere to drug regimen. The researcher gathered from four (4) out of the eighteen (18) participants that their doctors emphasized on the need for them to adhere to prescribed drugs in order to combat with diabetic complications. That they cannot use the drugs as they want, rather the way they have been instructed by the doctors. Their responses are stated as follows; Participant 7 stated "I complained about my leg, the doctor gave me one tiny medicine like that and instructed that I should take it as been told". Likewise, participant 4 said "… for instance, I'm advised to take my drugs regularly and not when I feel like taking it". In the same vein, participant 15 narrated that "he (doctor) prescribed certain drugs for me and asked me to follow how the drug should be taken". Furthermore, participant 6 stated that "they (doctors) always ask me to follow the rules; take the medicine according to what they gave me". While participant 18 said she was advised to "stick to drug regimen".Thereby it becomes imperative to follow drug instruction.

***Drug instruction*:** this sub – category consists of the narratives about information received on instructions about drug use provided for the patients at the Endocrinology Clinic, ABUTH, Shika to manage complications. The researcher found out from one of the participants that his doctor

specified that he must follow drug instruction. He narrated thus “he (doctor) prescribed certain drugs for me and asked me to follow the instructions of how the drug should be taken and not take the drugs as I feel but as it is supposed to be used. I was advised never to use my drugs on an empty stomach” (P15).

Category Six: Need to seek for help promptly (4/18, 22.22%): This category comprised the narratives of making necessary decisions to seek for help in time in order to manage diabetic complications effectively. Interaction between the researcher and the participants exposed the perspectives of the patients that partook in the study on the information revealed at the Endocrinology Clinic that hinged on promptly seeking for help. This category has three sub categories; wound management (2/18, 6%), seek for help (1/36, 6%) and keep the feet warm (1/18, 6%). These sub categories are discussed as follows:

***Wound management*:** This sub –category comprised narratives of participants about information received from the Endocrinology Clinic about managing wounds. The researcher found out that wound management in diabetes requires utmost attention. Two (2) out of the eighteen (18) participants revealed the information provided for them by their care providers when they once had wounds. Narratives by the participants are: “the Doctor said that the wound will not heal until I become serious about using the medicine prescribed for me and the insulin injection. And that I should make sure I keep the wound clean” (P11). Narrative of a forty- five (46) year old man who has been diabetic for over 10 years is that “ he (doctor) warned me not to stay at home without coming to the hospital in time whenever I have a wound. Otherwise it can result to amputation” (P12). Wound management likewise involves keeping the feet warm.

***Keep the feet warm*:** This sub – category comprised narratives of a participant who complained of her feet. She revealed to the researcher that she usually experienced the problem during the harmattan period. She said she complained to the Doctor and the following advice was given toher; “the Doctor told me to always put on socks to keep my feet warm and make sure I use my drugs”.

Category 7: Need to Share Information (2/18, 22.22%): This category comprised of narratives of participants on the information received from EC, ABUTH, Shika about the need to share information with care providers. The researcher found out from the participants that information forms the bedrock of any decision making in diabetes management. This category has sub- categories; lack of information (1/18, 6%) and hiding information (1/18, 6%). Responses to these sub – categories are explained as follows:

***Lack of information*:** This sub – category comprised the narratives of one participant in relation to not receiving information from the Endocrinology Clinic, ABUTH, Shika. The researcher found that the participant was not exposed to any information that she can utilize in managing the complicationsshe hadexperienced. She said “I was not given any information at the clinic about the complication I’m having (P10)”.

***Hiding information*:** This sub – category dwelt on the need for the patients to open up to their care providers. The researcher found out that a participant who has several complications refused to divulge vital information about her health to her doctor. She stated that “I did not tell the doctors the problems I’m having. I do that because I can manage the situation myself. I only go to the hospital to satisfy my husband” (P10).

Category Eight: Regulation of salt Intake (1/18, 6%): This category comprised information received from the Endo Clinic to combat high blood pressure. The researcher found out from the participants that it is a common phenomenon for a diabetic patient to be hypertensive. A participant who mentioned that he is suffering from high blood pressure stated that he complained to his Doctor. The response gotten from him is that; "they (doctors) said I should not be taking too much salt in my diets" (P4).

4.5.2 Making Sense of information received from Endocrinology Clinic, Zaria

This sub- section sought to find out how participants make sense of information received from EC to manage diabetic complications. Table 3.2 presents details about how participants make sense of health information received from EC.

Table 3.2 Making Sense of Information Received from EC, ABUTH, Shiks to manage complications

Research question	Categories	Sub categories	Frequency	Percentage
	1.Regular exercise	1.1Personal worldview	2	11.11
	Group total			11.11 %
	2.Personal Constructs	2.1 Personal experience	5	
	Group total		5	27.77 %
	3.Level of education	3.1Literacy level	3	16.66
		3.2 Enlightenment	2	11.11
	Group total		5	27.77%
	4. Cognition	4.1 Accommodation and assimilation	4	22.22

		4.2 schema	1	5.55
		4.3 Equilibration	5	27.55
	Group total		10	55.55%
	5.Doctor's guidance	5.1Trustof medical practitioners	5	27.77
	Group total		5	27.77%
	6.Routine EC lectures	6.1Formal education	2	11.11
	Group total		2	11.11 %
	7.Outcome expectancy	7.1Desired health outcome	1	5.55
	Group total		1	5.55 %

Source- Interview Analysis, 2016.

Category One: Personal worldview(2/18, 11.11%): This category comprised narratives of T2DM patients in the study about how their personal worldview had assisted in the making sense of information on regular exercise received from routine Endocrinology Clinic, ABUTH, Shika. The researcher found out from the participants that partaking in regular exercise has been mentioned repeatedly during consultation with the doctors. As a result of that, they felt it is mandatory to partake in one form of exercise if they actually want to prolong their life span. Two participants (1& 4) expressed thus respectively; "Always, I'm doing small exercise (P1)". "I regularly go to the field for exercise" (P4).

Category Two: Personal constructs (5/18, 27.77%): This category includes the narratives of T2DM patients in this study setting on how they construe reality out of the information made available at the Endocrinology Clinic, ABUTH, Shika for managing diabetic complications. This category has one sub category depicting personal experience (5/18, 28%). Responses from this sub category are highlighted as follows;

***Personal experience*:** This sub category comprised narratives on how personalexperience of T2DM patients had assisted in the making sense of information received from the Doctor at the Endocrinology Clinic, ABUTH, Shikato enable effective management of diabetic complications. The researcher found out that T2DM patients actually receive multiplicity of information from routine Endocrinology Clinic. But the patients are usually left alone to apply such information. One of the participants mentioned that whenever her Doctor prescribed drugs for her, it is emphasized that she should eat before taking the medication. To her, this meant that the drug will not be effective without her eating. She narrated her personal experience thus; "I make sense out of it (information) that without the food, perhaps my medication might not work…. So I try all the time to take my full breakfast before taking the medication" (P5). Similarly, another participant stated that "I don't follow what others say. I try as much as possible to look at the situation myself and apply the information in a way that is in line with my experience" (P12).

Category Three: Level of Education(5/18, 28%): This category includes narratives about how the level of education has actually assisted T2DM patients in the study setting in making sense of information provided for them at the Endocrinology Clinic, ABUTH, Shika for managing the disease. This category has two sub categories depicting formaleducation; literacy level (3/18, 17%) and enlightenment (2/18, 11%). Responses for the sub categories are explained below;

Literacy level: This sub category consisted of narration of the role of literacy in how patients organize information received from the Clinic for coping with diabetic complications experienced. Interaction between the researcher and the participants revealed that literacy level plays a significant role in the sense making of health information provided for T2DM patients. A 68year old retired Nurse disclosed that she does not have problem understanding information due to the fact that she is educated. Her narration is as follows: "I don't find any difficulty in

understanding the information, since I worked as a nurse and retired as one. I can understand the information very well". Literacy level makes an individual well enlightened.

Enlightenment: This sub – category consisted of participants' narratives about how being enlightened has assisted them in making sense of information received from EC in coping with and managing diabetes. The researcher found that enlightenment has played a significant role in the sense making of diabetic information received from the Endocrinology Clinic. This is evident from the responses of the participants; participants 2&3 stated that "…so I found out now that eating vegetables is good, I now take it often now. My eyes have now started to get clear not like before. I can see clearly now". Likewise, participant 3 related that "now I am enlightened about diet regulation. It has made me to realize the dangers of diabetes."

Category four: Cognition (10/18, 55.55%): This category includes narratives centering on how cognition has enhanced the sense making of diabetic information by T2DM patients. Cognition is the mental process of acquiring knowledge and understanding through thought, experience and the senses. It refers to the mental processes involved in gaining knowledge and comprehension (Glossary of Psychology terms, 2016). This category consisted of three sub- categories; accommodation and assimilation (4/18, 22.22%), Schema (1/18, 5.55%) and equilibration (5/18, 27.77%). These sub – categories are expatiated as follows:

***Accommodation and assimilation*:** this sub category described how accommodation and assimilation processes had assisted T2DM patients in making sense of information provided for them at the routine Endocrinology Clinic. Accommodation signifies when an individual comes in contact with new information. When such information is imbedded into existing ideas, it becomes assimilated and ready to be put into use or practice. Four out of the 18 participants

stated that they actually encountered new information. The following quotation represents the description of the participants on how they make sense of information they received from the Endocrinology Clinic. The researcher found out that some T2DM patients possess the ability to absorb information into existing ones and utilize such accordingly. Participant 10 said "….all information or advice they give me, I return home and look at the information very well and utilize the information. On my own, I don't want any complication".

***Schema*:** This sub category describes the experiences of how diabetic patients juxtapose series of information made available at the Endocrinology Clinic. It was observed by the researcher that patients are exposed to varying information that are essential for managing diabetes. This requires being able to follow them step by step in order to yield desired result. A participant said "whatsoever information they give me, I help myself by adhering to instructions. Because sometimes we (patients) are called for lecture, they advise us on what to eat and give us instruction how to check our sugar level by ourselves. So I always adhere to whatsoever information they give me by following them step by step".

***Equilibration*:** This sub- category describes the narratives relating to how participants transform information encountered so that it aligns within existing knowledge and also how they adapt their thinking to incoming information. The researcher discovered that patients get new information about diabetes management from time to time; most times it differs from what they are already aware of. They try to correlate such information into existing knowledge. This is evident in the responses of the participants who revealed that most of the time they received information which is quite different from what they knewbefore. The participants stated that though information is very vital to their wellbeing; but they must bring together with what is known by them before and new information encountered. Participant 7 expressed that he has

been confronted with new information which is essential to the management of diabetes. This information has to be embedded into existing information. He narrated thus; “I’m aware a diabetic patient can only take wheat before, but now I get to know that I can take maize flour in as much the chaft of the maize is not removed”.

Category five: Doctor’s Guidance (5/18, 27.77%). This category includes the narratives of how T2DM patients understand information made available for them at the Endocrinology Clinic for managing complications. This category has only one sub category trust of medical practitioners (5/18, 27.77%). Responses from this sub category are highlighted as follows;

Trust of medical **practitioners:**This sub category consists of the narratives of the participants about how using the concept of trust in making sense of information received from EC to manage diabetic complications.The researcher found out that trust of medical practitioners has played a significant role in the sense making of diabetic information received from the Endocrinology Clinic. Narrative of some of the participants is captured thus “I follow the advice provided for me by the medical doctors to the detail. They (doctors) have full knowledge about this disease. I have trust in them and do whatever they advise me about (P6).I feel the information provided for me by the doctor is the right one for me. Since I do not know much about the treatment, I trust information I get from them” (P7).

Category Six Routine Endocrinology Lectures (2/18, 11.11%): This category includes the narratives of how routine endocrinology lectures have assisted T2DM patients in understanding information for managing complications. This category has only one sub category formal education (2/18, 11%). Responses from this sub category are highlighted as follows;

***Formal education*:**This sub category consists of the narratives of the participants about how formal education training they had assisted in making sense of information received from EC to manage diabetic complications. Narratives of the participants in the study about the advantage of formal education in understanding health information are as follows; “ I have no problem understanding the information since I’m educated” (P3).“When I get home, I put into practice the information. I understand how to use the information because of my education” (P9). “Since I’m educated, I have no problem understanding the information”(P12).

Category seven: Outcome expectancy (1/18, 5.55%). This category consists of the narratives about how expected desired health outcome of using information appropriately has assisted the participants in making sense of information. The researcher found out that the participants understand information based on the effect the information will have on their state ofhealth.Narratives of some of the participants are as follows; “the information I get from the clinic educates me in keeping fit and makes me realize the danger of diabetes” (P2). “My sister told me that if I follow the rule and information about diabetes management that I will live better with less complication.But thatif I do not monitor what I eat, I will have problem monitoring my blood sugar level. I follow the information. As I am standing now, I feel very okay. I can walk for a long distance without feeling pains on my joints” (P6).

4.6Sources of Information Diabetic Patients Consult for Information to Manage Complications outside EC, ABUTH, Shika.

This research question comprises of two sub questions which sought to find out:(1) other sources outside EC through which T2DM patients receive information; (2) how they (participants’)

understand information received outside Endocrinology Clinic for managing diabetic complications. They are discussed as follows;

4.6.1 Other sources for information consulted outside Endocrinology Clinic, ABUTH, Shika

This section consists of the narratives of participants in relation to other sources of information apart from Endocrinology Clinic. Table 4.1 provides details about other sources of information utilized by T2DM patients for sourcing for information aside EC.

Table 4.1Sources of information consulted outside EC to manage complications

Research Question	Categories	Sub categories	Frequency	Percentage
Who does T2DM patients consult for information outside Endo Clinic for managing complications in the last six months	1. Family members	1.1. Family members	6	33.33%
		1.2 .Brothers	2	11.11%
		1.3. Sisters	2	11.11%
		1.4.Son	1	5.55%
	Group total		11	61.11%
	2. Friends	2.1.Friends	8	44.44%
	Group total		8	44.44%
	3. Traditional herbal doctor	3.1.Herbal medicine	2	11.11%
	Group total		2	11.11 %
	4. Acquaintances	4.1. Neighbours	1	5.55%
		4.2.Colleauges	1	5.55%
	Group total		2	11.11 %
	5. Other diabetic patients	5.1. diabetic patients	9	50%
	Group total		9	50 %
	6. Mass media	6.1. Newspapers	2	11.11%
		6.2. Internet	3	16.66%
		6.3. media houses	2	11.11%
		6.4 Textbook	2	11.11%
	Group total		9	50 %
	7. Spouse	7.1. Wife	1	5.55

		7.2. Husband	1	5.55
	Group total		2	11.11%
	Groups total		43	34.12 %

Source- Interview Analysis, 2016

The categories that emerged from the research question are discussed as follows;

Category One: Family members (11/18, 61.11%) category includes narratives related to how family members have enhanced participants in managing diabetes. This category has four sub-categories; family members (6/18, 33.33%), sisters (2/18, 11.11%), brothers (2/18, 11.11%) and son (1/18, 5.55%). Narratives of the participants in the study in relation to the three sub categories are explained thus;

Family members: This sub – category comprised explanations about how immediate family members have been assisting in sourcing for information that are beneficial for diabetes management. The participants were asked to identify other sources through which they source for information apart from those received from the Endocrinology Clinic. Six of the eighteen participants indicated that they equally receive information from their family members. One of the six participants narrated thus "when I discovered that I have diabetes, I consult my relatives and families. They provide me with information they know will be beneficial for me. They equally advise me that using all my drugs will help me a lot and that there are some traditional drugs that I can also use" (Participant 1).Likewise participant 7 narrated thus"…that is why I'm saying my woman is the backbone behind me because all those things about my diets, she is the one doing it". Family members equally include one's brothers.

***Brothers*:** This sub – category revealed the role that participant's brothers played in providing them with information they think will be of importance to a relation who is suffering from

diabetes. The researcher found out that diabetic patients receive information from their brothers aside information received from the Endocrinology Clinic. This is evident from the narrative of participant 12; who narrated thus "I get information from my elder brothers who are equally diabetic. They advise me to equally use local herbs because they use the herb too. When you see them, you won't know they are diabetic till you are informed". Family members comprises of several segments, one of which are sisters.

***Sister*:** This sub – category comprised of explanations about how sisters of diabetic patients have been a source through which information is received for managing diabetic complications. The researcher found out that diabetic patients also receive information from their sisters. This evident from the narration of Participant 6 who expressed thus "…as I have told you before, I get information from my sisters. They advise on the types of food to eat. I was made to understand that if I stick to what I eat, that I will live a better life". As had been stated in the sub categories, information is equally provided to a diabetic patient by their sons.

Son: This sub- category consisted of the narratives of T2DM patients on information received from their sons apart from what is known through the Endocrinology Clinic. The researcher discovered that diabetic patients use their son for sourcing for information formanaging the disease. Participant 8 explained thus "my son also assist me with information. When he meets diabetic patients, any information he gathers; he will come home and inform me about it". At times, those he interacts with are his friends.

Category TwoFriends: This category (8/18, 44.44%) includes narratives on the use of friends as a source of information aside the Endocrinology Clinic. Eight of the participants stated categorically that they receive information through their friends. Narrative related to this is

captured in the following phrase; “I get information for managing my illness from my friends” (Participant 3).In addition to information received through friends, participants also revealed that information was equally received through traditional herbal doctors.

Category ThreeTraditional Herbal Doctors (2/18, 11.11%): This category dwells on the information T2DM patients in the study setting receive from the traditional herbal doctors .It was revealed from the narratives of the participants in this study that they receive information from traditional herbal doctors. Participant 1 & 5 expressed their views on this as follows respectively. “There is one traditional doctor who gave me one herb. He said, if I should put the herb in my mouth it will be tasteless. I did that and it was actually tasteless. He said even if Itake sugar,that it will also be tasteless. Similarly, Participant 5 said that “there is someone – a traditional herbs man who is good about herbs. He gave me a book on herbs to read and equally gave me a seedling of an herb to plant; so that I will use it in coping with my illness (T2DM)”.

Category FourAcquaintance (2/18, 11.11%): This category includes narratives of T2DM patients in the study setting regarding information received from their acquaintance. This category consists of two sub- categories. These are neighbours (1/18, 5.5%) and colleague (1/18, 5.5%).

Neighbours: This sub category consists of the narratives of the participants about the role of neighbours in the management of diabetes mellitus. The researcher found that neighbours are of valuable assistance to individuals suffering from T2DM. This is evident from the revelations of the participants. Participant 2 specified that “I receive information from my neighbours on how to manage the disease. Mostly, about the use of herbs by someone who is suffering from type 2 diabetes mellitus. He told me that I should ensure that I take a lot of *zogalai* (moringa)”.

***Colleagues*:** This sub – category includes individuals whom one is in contact with and work together. This consisted of narratives about the information and assistance T2DM patients receive through colleague about diabetes management. The researcher found out that colleagues are equally being utilized as source of information for diabetes management. Participant 12 indicated that "I receive information from my colleagues, but their advice is that I should ensure that I go to the hospital regularly and not miss my hospital appointments".

Category Five Other Diabetic Patients (9/18, 50%): This category consists of participants' narratives on how other diabetic patients have been used as source of information for managing T2DM. This consist of one sub-category, diabetic patients (9/18: 50%). Narratives of the participants are captured as follows:

Diabetic Patients. This sub-category consists of narratives of T2DM patients in the study setting who expressed that they equally received information through other diabetic patients to manage complications. Participant 8 expressed thus: "There was a time my blood sugar was very low and feeling dizzy. I called a lady we attend EC together, she told what to do. It assisted me in boosting my sugar level". Similarly,Participant said she also consult other diabetic patients. Her narrative is "I discuss with other diabetic patients whenever we are waiting to see the Doctors on our appointment days. I learned a lot from such discussions".

Category SixMass media (11/18, 61%): This category consists of various organs of communication utilized by type 2 diabetes mellitus patients in the study setting to cope with and manage diabetic complications. This category consists of four sub – categories; newspapers (2/18, 5.5%), Internet (3/18, 17%) media houses (2/18, 33%), textbook (2/36, 5.5%). These sub – categories are explained in the following paragraphs starting with newspapers:

Newspapers: This sub – category consists of the narratives of T2DM patients who partook in the study on the information gathered from the dailies for the management of the diabetes. Participant 3 expressed: "as a librarian, I always read newspapers, to gather information relating to my health". Technology advancement had actually broadened the horizon for information search. This includes using the Internet as a source for information by participants in the study setting.

***Internet*:** This sub – category consists of narratives of T2DM who indicated that they utilize online sources for getting information that assists them in managing diabetes. This is obvious from the narratives of the participants; Participant 4 indicated that "sometimes, I use to browse for information online. I get valuable information from the internet; this has been very helpful with my health. It has assisted in monitoring my blood sugar and blood pressure. I use such information before my Clinic appointment". Similarly, Participant 16 stated that "I use the internet for getting information". Information that reaches out to multiplicity of users at a short period of time is referred to as mass media.

Mass Media Houses: This sub – category consisted of the narratives of T2DM patients who revealed that they get information from through TV and radio programmes. It is an established fact that the mass media has the potential of reaching out to a larger segment of the society. The researcher found from interaction with the participants that they usually utilize the mass houses for sourcing for information relating to diabetes management. The mass sources from which information is sourced includes TV and radio programme. Relevant issues relating to health issues are aired at specific periods. To buttress this assertion, some of the participants narrated thus "there is a programme on the TV. I listen to the programme; they are usually anchored by medical doctors. I learn a lot through the programme" (Participant 4). Similarly, Participant 3

stated as follows “There are some programmes they use to do from the hospital which are shown on the television channels and I watch them. I get useful information from the programme when I watch it”. In relation to sourcing information through radio programmes, participant 11 said “I gather information from programmes aired over the radio. I listen to such programmes because doctors are invited to talk on diabetes and its complications”. Textbooks are also considered as source through which T2DM patients get information.

***Textbook*:** This sub – category is also as a source through which valuable information for diabetes management is gotten. The researcher found out people living with diabetes also relies on relevant textbooks for sourcing of information. One of the participants explained that she also consults textbooks on areas she needs clarification. Her narrative goes thus: “Yes I have source for information outside the clinic. A man who is good in herbs gave me a textbook that I should read. This has to do with my diets”.

Category Seven Spouse:(2/18, 11%): This category includes narratives of the participants on sourcing for information about diabetes management through their spouses. Family members are supposed to assist close relations living with diabetes. This category has two sub – categories; husband (1/36, 5.5%) and wife (1/36, 5.5%). Participant’s narratives concerning these two sub categories are captured as follows;

***Husband*:** This sub – category comprises of narratives of a participant who revealed that her husband has been very helpful in making available information necessary for diabetes management. This became evident after the interaction between the researcher and the participant. Her narration goes thus “my husband a times provides me with information. Whenever he has contact with diabetic patients, he makes enquiries from them on how they are

coping with the disease. When he returns home, he shares such information with me. There was a time when one man amonghis friends who is diabetic was hospitalized and he visited him. When my husband came back home, he shared the information he gathered from there with me. He informed me that exercising is very important for me". Husband and wife play complementary roles for one another. The role of a wife to a diabetic husband can never be under estimated.

***Wife*:** This sub – category comprised of narratives of a participant who revealed that his wife has been another source of information whom he relies on his wife for valuable information related to coping and managing diabetic complications. The researcher found that wives of diabetic patients usually support their husbands in the search for information that are related to diabetes management. This is evident from that narrative of a participant who stated thus "My wife is my backbone. She goes out to ask people about diabetic diets, she then makes different diets for me. At times when my spirit is down, she encourages me to keep on adhering to the diets".

4.6.2 Making Sense of Information Received Outside Endocrinology Clinic (EC) ABUTH, Shika

The sub question investigated how T2DM patients in the study setting make sense of the information they gather outside the EC. Table 4.2 provides the tabular representation of how participants make sense of information received through other sources for diabetes management.

Table 4.2Making sense of diabetic information received outside EC to manage complications

	Categories	Sub categories	Frequency	Percentage
	1. Level of education	Level of education	4	22.22
	Group total		**4**	**22.22 %**
	2. Cognition	Accommodation and assimilation	1	5.55

		Adaptation processes	1	5.55
		Schema	2	11.11
		Organization	3	16.66
	Group total		**7**	**38.88%**
	3.Information filtering	Information filtering	5	
	Group total		**5**	**27.77%**
	4. Interactive discourse	Interactive discourse	1	5.55
	Group total		**1**	**5.55%**
	5. frame of reference	Personal understanding	1	5.55
	Group total		**1**	**5.55%**
	6. Socialization	Other diabetic patients	2	11.11
	Group total		**2**	**11.11 %**
	7. Diabetic education	diabetic education (Routine Endo lectures)	3	16.66
	Group total		3	16.66 %
	Groups total		23	18.25%

Source- Interview Analysis, 2016

The categories and sub categories are discussed as follows;

Category OneEducational level (4/18, 22.22%): This category consists of the narratives of T2DM participants on how level of educational attainment has been of assistance in making sense of information for managing diabetes mellitus.The researcher discovered that diabetic patientswho are educated do not have problem with understanding health information received outside the hospital setting. Four of the eighteen participants revealed that being educated has actually been of great value for them. It had assisted them in understanding information received outside the Endocrinology Clinic. Narratives of some of the participants are captured as expressed; “Since I’m educated, I don’t have problem making sense of the information I get through other sources.For instance through my friends” (Participant 11). Similarly, Participant 18

stated thus “I have no difficulty understanding the information I get outside the Endocrinology Clinic because of my level of education”.

Category TwoCognition (6/18, 38.88%): This refers to the mental processes involved in gaining knowledge and comprehension through thought, experience and the senses. The category (6/18, 33.33%) deals with how T2DM patients in this study use their individualistic mental ability in understanding information they encounter outside the Endocrinology Clinic. This category has four sub- categories; accommodation and assimilation (1/18, 5.55%), adaptation process (1/18, 5.55%), schema (2/18, 11.11%) and organization (3/18, 16.66%). The sub-categories are discussed in the following paragraphs:

***Accommodation and assimilation*:** This sub - category consists of the narratives of T2DM patients on how new information is being integrated into existing ones and used when necessary. The researcher found out that diabetic patients encounter new information from time to time. There is always the need to look at the information critically, add it to what is already known and make modifications when deemed necessary. The researcher found that participants are exposed to different information for diabetes management from time to time. This was revealed in the narratives of the participants. Participant 4 said “I try to analyze the information from my friends and family members based on my personal experience and look at the information that applies to the situation I am experiencing at the time”. Participant 6 equally stated that “I use my ways of doing things to understand the information. I don’t just use any information I get. I examine the information very well and assess if it is good for the problem I am having. If it is, I use it the way that it will bring result for me”. For information to be fully accommodated and assimilated, it must have passed through adaptation process.

***Adaptation process*:** this sub category consists of the narratives of T2DM patients about how new information is usually encompassed with existing knowledge. The participants revealed to the researcher that they had on several occasions been confronted with new information and experiences which they utilize for managing diabetes. The assertion of the participants on this goes thus "I watch television programmes on diabetes. Sometimes this has to do with the diets to take. At the hospital, we are informed before that we can take wheat only. But presently, I know that we can take any type of food but it has it to be in moderation. I try to understand the information; take the ones I know are good and leave out those I know are not relevant for me".

***Schema*:** This sub category consists of narratives of T2DM about the way in which they understand information about daily life experiences of living with diabetes. The researcher found out from the participants that it is very important for someone who has diabetes to be very conscious of all details about his/ her body. Participant 11 stated thus "If l hear how to prepare certain type of diet, when I get home; I follow the instruction about how to prepare the dish step by step".

Organization: This sub-category consists of the narratives of T2DM patients who participated in this study understood information for managing diabetic information. They indicated that there is need to organize information for managing their healthtype 2 diabetes mellitus. Explanation of one of the participants is as follows: Whenever I am requested to go for my blood sugar level. I had to take the first one before eating, then go and eat. After two hours, I have to go for another blood drawing". According to this, participant, she said if necessary steps is not followed, then desired outcome will not be achieved.

Category three: Information Filtering (1/18, 5.55%): This category consists of the narratives of participants on how they sort out valuable information from those they deem not useful for diabetes management. The researcher was exposed to the fact that diabetic patient get information from different sources. The participants revealed that they do not apply the information as received; they ensure that the substance is separated from the chaft. For instance, Participant 9 explained thus "When I am confronted with information, I usually take those ones which are important for usage and it is always beneficial for me".

Category four Interactive discourse (1/18, 5.55%): This category consists of the narratives of the participants on how interaction with other diabetic patients has assisted in their understanding of information received outside the Endocrinology Clinic, ABUTH, Shika. This became evident from the interaction between the researcher and the participants. Reflection of one of the participants goes thus:

"While waiting to see the doctors, we (patients) discuss among ourselves. For instance, there was a day one lady mentioned that she normally feels dizzy most of the time. At such period, she usually takes water and rest. But some other patients said, when they drink water, they visit the convenience often like a pregnant woman. Another patient equally asked about the essence of consuming bitter leaf (vegetable). That day, most patients present there explained to her why she should include vegetables in her meals. That is how we - the patients share ideas on several problems we have before dispersing to consult our doctors" (P5).

Category Five: Frame of reference (1/18, 5.55%): this category consists of the complex set of assumptions which T2DM patients used to filter information in order to create meaning. This

category has one sub-category; personal understanding (1/18, 5.55%). The narrative for the sub-category is explained as follows;

Personal understanding*:* This sub- category consists of the narratives about how personalunderstanding was used for understanding information received outside EC.The researcher found out from the participants that they are exposed to different information for managing their illness. Such information needs to be filtered before the usage. One of the participants substantiated the assertion as follows:

"You know people are of the opinion that diabetes is caused by sugar. And they told me that it is bitter leaf that can make the sugar level go down. I accept because bitter leaf is very bitter; that is how I understand it personally. Though I did not study medicine nor am I in the medical line. But I look it that when the sugar in the body is too high, if you take something bitter may be it might bring down the sugar level. That is why I started consuming bitter leaf frequently".

Category Six: Socialization (2/18, 11.11%): This category consists of the narratives of type 2 diabetes mellitus patients in this study on the importance of having good relationship with people (who are diabetic) around them has assisted in the understanding of information gathered outside the Endocrinology Clinic. This category has one sub – category linked to it which is other diabetic patient (2/18, 11.11%).Narratives of the participants for the sub - category is stated as follows;

Other diabetic patients: This sub – category consists of the narratives of the participants signifying the importance of how being in constant contact with fellow diabetic patients has been of great assistance in coping with and managing diabetes. The researcher found that people living with diabetes are usually in close contact with one another whereby they discuss how to

use certain information. Participant 8 expressed her view concerning this sub category as follows "I rely on my friends who are also diabetic. They explain to me properly how to use the information in a manner which I can use it especially about diabetic diets. Some will direct you to some places where you can get local medicine (*maganin Hausa*). You see, I enjoy being in closeness with other diabetic patients".

Category Seven: Diabetic Education (3/18, 16.66%): This category reveals the importance of instruction and guidelines provided for them had helped the patients in better integration of information from various sources. One sub category is attached to this category; routine Endocrinology lectures. Narrative of the participants in the study is discussed in the following paragraph.

***Routine Endocrinology Lectures*:** This sub- category highlighted on how routine lectures provided for patients at the EndocrinologyClinic, ABUTH, Shika had been a motivation in handling information encountered outside the Clinic. The participants revealed to the researcher that diabetic education they are exposed to at the Clinic had been of great assistance to them in having a better understanding of information they encounter from other sources apart from Endocrinology Clinic. Two of the participants testified to the fact that diabetic education being given to them by their care providers has been of high significance. Participant 11 narrated her stand on this category thus "Since I attend Endocrinology clinic regularly, I have no problem understanding the information. The information I get from these sources and those from Endocrinology Clinic are almost the same so I have no difficulty understanding them". Another participant expressed that "I don't miss my clinic appointment. The clinic had been helpful in making me understand the information I receive from other sources".

4.7 Contradictions between Patients' Prior Knowledge about Diabetes Mellitus and Information Received from Endocrinology Clinic, ABUTH, Shika

This research question comprises of two subs – questions. Both sub questions investigated prior knowledge of diabetic patients about the disease (1) before starting to attend Endocrinology Clinic (2) after commencement of Endocrinology Clinic.

4.7.1 Prior knowledge of diabetic patients before attending Endocrinology Clinic, Zaria

This section consists of the narratives of T2DM patients in the study setting about their prior knowledge about diabetes before commencement of Endocrinology Clinic, ABUTH, Shika. Table 5.1a provides details about T2DM patient's prior knowledge before their exposure to EC.

Table 5.1- T2DM Patient's Knowledge about Diabetes Mellitus before Commencement of Endocrinology Clinic, ABUTH, Shika.

Research question	Categories	Sub categories	Frequency	Percentage
How has your prior knowledge contradicted your knowledge about diabetes	1.Mortality rate	1.1.Early death	2	11.11
	Group total		2	11.11%
	2.Diets	2.1.Eat beans and wheat	4	22.22
		2.2. carbohydrates diets	2	11.11
		2.3. eat beans and acha	2	11.11
		2.4 Others	2	11.11
	Group total		**10**	**55.55%**
	3.Glycaemic control	3.1.sugar intake	2	11.11
		3.2. insulin regulation	1	5.55

	Group total		**3**	**16.66%**
	4.wound management	wound care	1	5.55
	Group total		**1**	**5.55**
	5.weight management	Weight loss	2	11.11
		Body Mass index	1	5.55
		Monitor weight	1	5.55
	Group total		**4**	**22.22**
	6. Herbal medicine	herbal drug regimen	1	5.55
	Group total		**1**	**5.55**
	7. Exercise	Regular exercise	1	5.55
	Group total		1	5.55
	Groups total		**21**	**16.66**

Source – Interview analysis 2016.

The categories and sub-categories are discussed as follows:

Category One Mortality Rate (2/18, 11.11%): This category consists of narratives of participants' awareness on the mortality rate of people living with diabetes mellitus before starting Endocrinology Clinic. This category has one sub – category; early death (2/16, 11.11%). Narratives for this sub category are discussed as follows;

***Early death*:** This sub- category consists of the perception of the participants on how frequently diabetic patients die. The participants revealed that interaction they hadwith people makes them to believe that once an individual is diabetic, the possibility of living long is ruled out. This is evident from the narratives of participant1 &14. Participant 1 expressed that "I was made to believe that anyone suffering from diabetes mellitus will die within a short period of time when

diagnosed with the illness". Participant 14 stated that "…….that one with diabetes mellitus will die quickly".

Category TwoDiets (10/18, 56%): This category consists of the narratives of the participants concerning their prior knowledge aboutthe diets which a diabeticsomeone suffering with the disease is supposed to maintain. The category has four sub –categories; eat beans and wheat (4/18, 22.22%), carbohydrate diets (2/18, 11.11%), eat bean and *acha* -phonio millet (2/18, 11%); others (2/18, 11%). Narratives for the sub categories are discussed in the following paragraphs;

***Eat beans and wheat*:** This sub – category consist of the narratives of the diabetic patients who partook in the study about their prior knowledge ofdiabetic diets. They(participants) signified that before they started attending the Endocrinology clinic; they only knew that their diets should consist of only beans and wheat. Four out of the participants said all they knew was that their diets should only be beans and wheat. Narratives of some of the participants are captured as follows; "a diabetic patient can only eat bean and wheat" (P2). "The only thing I knew about the food is that, I can only take beans and wheat" (P16). "I get to know through people who are close to me that I cannot eat anything apart from beans and wheat only" (P9).

***Carbohydrate diets*:** This sub – category consists of the narratives of diabetic patients in the study who stated that they know that an individual with diabetes is not supposed to take carbohydrates. The researcher found out that the patients believed that carbohydrate diet is forbidden for anyone living with diabetes mellitus. Two of the participants indicated thus "A diabetic patient I'm not supposed to take any carbohydrate diet like rice and cornmeal" (P5).

Participant 2 expressed her knowledge about diabetic diets before the commencement of Endocrinology Clinic as follows “a diabetic patient is to avoid carbohydrate foods”.

Eat beans, Wheat and Acha (**phonio millet)**: This sub- category consists of the narratives of type 2 diabetes mellitus patients about the type of diets to take known to them other side the Endocrinology Clinic, ABUTH, Shika. The revelation made to the researcher by the participants is that they knew that they are only to eat beans and *acha* (phonio millet). Assertion of the participants is captured in the following quotations; “The only information I know about the disease is one can only eat beans, wheat and acha (phonio millet) (P6)”. Participant 13 narrated thus “I’m aware that someone who is diabetic is to take only beans, wheat and *acha*”.

Others**:** This sub- category consists of the narratives of diabetic patients who stated they are aware that they are not to eat fruits and vegetables before commencement of Endocrinology Clinic. Some participants informed the researcher that they also know that they cannot take fruits and vegetables. While others stated categorically that they know they can eat pineapple and other fruits. Their narratives are as follows; “Friends tell me I can take pineapple but some of my visitors once said I cannot take pineapple .So which is which now? What am I to believe now? (P5)”. Participant 7 stated thus “I knew that I can only take things that are bitter such as bitter leaf; so also beans and wheat”.

Category threeGlycaemic control (3/18, 16.66%): This category highlighted the narratives of the diabetic patients who partook in the study about their knowledge of sugar control before starting EC. This category consists of two sub categories; sugar in take (2/18.11.11%) and insulin regulation (1/18, 5.55%). Narratives of the participants are stated as follows starting with sugar intake;

***Sugar intake*:** This sub- category consists of the narratives of the participants about sugar consumption before EC. The researcher found out from participants that they know sugar consumption is forbidden for people living with diabetes. Their narratives go thus; "….I should also avoid sugar" (P4). Participant 10 stated that "When I get to know that I have diabetics, I was told to stay away from sugar".

***Insulin regulation*:** This sub – category consists of the narratives of participants in the study settingabout prior knowledge about blood glucose control. The researcher surmised from conducted interviews that some of the diabetic patients believe they will have to continue to inject themselves with insulin to help control their blood sugar level. This is substantiated by the narrative of one of the participants; who expressed his awareness about blood sugar control thus "as a diabetic patient I was told that I will be injecting myself with insulin injection on daily basis".

Category four Wound Management (1/18, 5.55%): This category consist of the narratives of participants about diabetic wounds generally before being exposed to physician's guidance at the Endocrinology Clinic. The researcher gathered from the participants that wounds do not heal at all when a diabetic patient is affected. This is supported by the narrative of one of the participants. This category has only one sub – category; wound care (1/18, 5.55%). Narrative on this sub – category is captured as expressed by the participants in the following paragraph.

***Wound care*:** This sub – category consists of the prior knowledge of diabetic patientsin the study setting about wound care before exposure to guidance at the Endocrinology Clinic. The researcher gathered that diabetic patients in the study believe that wounds do not heal in anyone

living with diabetes. The participants who are in agreement with this assertion narrated thus; "I was made to believe that if I have wound it won't heal" (P5).

Category five: Weight management (4/18, 22.22%) category represents the view of the diabetic patients in the study about their prior knowledge on the effect of weight in diabetes management. This category consists of three sub – categories weight loss (2/18, 11.11%), body mass index (1/18, 5.55%) and weight monitoring (1/18, 5%). Narratives for the sub – categories are reflected in the following paragraphs starting with weight loss;

Weight loss: This sub –category consists of narratives of participants' prior knowledge on weight loss in individual living with diabetes mellitus. The researcher found that it is a general belief among participants that a diabetic patient will at some point start to lose weight drastically. This is revealed in the narratives of the participants. Participants 9 stated that "Information I have about the disease (T2DM) is that I will start losing weight and will become very thin". Participant 12 equally expressed the information known about weight loss in the following words "From the discussion with people, I get to know that I will start to lose weight seriously". Weight loss also embedded in body mass index.

***Body Mass Index*:** This sub- category consists of the narratives of the participants in relation to the body weight of someone suffering from diabetes. The researcher found that patients have the notion that if a person is diabetic, he/she will be immediately identifiable from the body structure. To substantiate this, participant 11 expressed her experience as follows; "Look at me very well. I was not light like this before. I was very robust. Let me show you one of my old pictures and you make comparison between now and then".

***Weight Monitoring*:** This sub-category consists of the narratives about prior knowledge on the needs for diabetic patients to monitor their body weight. The researcher found out from the participants that they knew it is essential to monitor the weight outside the Endocrinology Clinic. This they said they heard from general discussion from people. Participant 15 stated that "That I have to monitor my weight so that I will not start having problems. I asked which kind of problems but nobody could tell me the type of problem".

Category six: Herbal Medicine (1/18, 5.55%) category consists of the narrative of a participant who confessed their awareness of the use of herbal medicine in diabetes management before EC. This category have one sub category; herbal medicine regimen (1/18, 5%). Awareness of the participant about the use of herbal before the commencement of Endo clinic is expressed as follows;

***Herbal Drug Regimen**:* This sub – category consists of the awareness of the diabetic patients who participated in the study on the use of herbal medicine in managing diabetes mellitus. The researcher found out from the participants who said that they knew diabetic patients who use herbs for managing the disease. But the problem of the dosage to use becomes something of concern. On this subject, participant 8 expressed her stand in these words, "Some of my friends who are diabetic usually use local herbs. There was a day I was introduced to one, I bought it but did not use it. This is because there was an instance where a lady took a local herb and her blood sugar dropped drastically. She said she started feeling dizzy almost immediately as if everything was turning black. She said she had to drink the maltina her husband gave her before she started feeling normal. So I asked her where she got it from and they told her the quantity of the herb to take at a time".

Category sevenExercise (1/18, 5.55%); This category consists of the narratives of the participants on the importance of exercise in living with type 2 diabetes mellitus before staring EC. The category has one sub – category; regular exercise (1/18, 5%). Narrative for the sub – category is highlighted in the following paragraph;

***Regular Exercise*:** This sub category revealed the awareness of the participants who partook in the study on the need to exercise regularly before EC. The researcher found out that only one of the eighteen participants revealed that she is aware that a diabetic patient is supposed to exercise regularly. She knew through her friends before she started attending Endocrinology Clinic, Ahmadu Bello University Teaching Hospital, Shika ; Zaria. Her narrative is stated as follows "I was advised to get involved in regular exercise so that I will not be having problems. Though I was not told the types of problems" (P5). Most of the participants are not aware that exercising is important for diabetic patients.

4.7.2 Knowledge about Diabetes Mellitus after the Commencement of Endocrinology Clinic, ABUTH, Shika

This section captures the narratives of the participants in the study setting about knowledge they were exposed to after the commencement of Endocrinology Clinic. Table 5.2b provides details about knowledge acquired through EC about diabetes.

Table 5.2 T2DM Patient's Knowledge about Diabetes Mellitusafter Commencement of EC, ABUTH, Shika.

Research Question	Categories	Sub categories	Frequency	Percentage
	1. Diet monitoring	Eating moderately	4	22.22
		Dietary guidelines	5	27.77
		Dietary regulation	5	27.77

		Fruit consumption	4	22.22
		Taking maize with shaft	3	16.66
		Others	2	11.11
	Group total		**23**	**94.44%**
	2.Glycaemic control	Sugar intake	2	5.55
		Glycaemic control	2	5.55
	Group total		**4**	**11.11**
	3. Exercise	Regular exercise	3	16.66
	Group total		**3**	**16.66**
	4. Alcoholic consumption	Alcoholic consumption	1	5.55
	Group total		**1**	**5.55%**
	5. Wound management	Wound care	2	11.11
	Group total		**2**	**11.11%**
	6.Drug regimen	Drug regimen	1	5.55
	Group total		**1**	**5.55%**
	7. Loss of Sight	Loss of Sight	2	11.11
	Group total		**2**	**11.11%**
	8.Cognitive Dissonance	Confusion	1	5.55
	Group total		**1**	**5.55%**
	Groups total		**37**	**29.36%**

Source – Interview Analysis, 2016

Categories and sub-categories that emerged from the research question are discussed as follows;

Category one Dietary Monitoring (17/18, 94.44%) category consists of the narratives of the diabetic patients who partook in the study about knowledge gathered after they started attending the Endocrinology Clinic. The category consists of five sub – categories; eating moderately (4/18, 22.22%), dietary guidelines (5/18, 27.77%dietary regulation (5/18,27.77%), fruit consumption

(4/18, 22.22%), taking maize with shaft (3/18, 16.66%) and others (2/18, 11.11%). These sub – categories are discussed in the following paragraphs.

***Eating Moderately*:** This sub –category consists of the narratives of the participants about the quantity of food to eat at a sitting. The researcher found out from the participants that they got to know after their regular attendance at the Endocrinology Clinic, that they are notsupposed to overeat at a sitting. That diabetic patient is supposed to eat in piece meal. Narratives of some of the participants are captured thus; "I never knew a diabetic patient is not supposed to overeat, till I started attending Endocrinology Clinic" (P2). Not overeating is emphasized for patients at the clinic;they are to eat a small portion at a sitting. This is revealed in one of the participant's narration; "Before I started attending the clinic, I did not know that I should eat with moderation. I'm informed atthe Clinic that I must not over eat at a sitting. I should eat small at a time" (P6). "The information I received from the Endocrinology Clinic has really helped me. This is because I think I can eat as I want, it was at the hospital that the doctor told me I can only eat a small portion at a time" (P15).Eating moderately encompasses dietary regulations. An individual living with diabetes must eat with moderation as well as monitor diet intake.

***Dietary guidelines*:** This sub – category consists of the narratives of the diabetic patients who partook in the study on compliance with food intake of a diabetic person. The researcher found that there a lot of facts about diets which are not known to the participants till they got exposed to such information at the Endocrinology Clinic. Narratives of the participants pointed this out; Participant 6 expressed that "the doctor told me that I should eat small at a time. Also, I'm told to avoid alcoholic drinks". Participant 16 revealed that though the informationI heard before and after do not differ but there is more understanding since she started attending the Endocrinology Clinic. Her revelation is, "The information is the same with the ones I have before. Such as being

careful with what to eat, for example rice, maize and fruits. But there is more clarity on how to monitor what I eat. I'm advised not to eat too much at a sitting".The essence of diet monitoring is to stick to the dietary regulation.

Diet regulation: This sub –category consists of the narratives of the participants about knowledge gained about diet monitoring from the Endocrinology Clinic. This centres on the need to seriously watch the types of foods they eat. The researcher found out that some of the participants thought they can actually eat any type of food they desire, not until they started attending the Endocrinology clinic. Revelations by some of the participants are captured in the following sentences. "I know I'm not supposed to eat rice. But when I started attending the clinic, I was informed I can take rice but with plenty of vegetables" (P2). "I got to know that I can take carbohydrate foods but with plenty of vegetables" (P7).To ensure that a perfect diet guideline is maintained, there is need to monitor all intakes; dairy consumption inclusive

***Dairy Consumption*:** This sub –category revealed the knowledge of diabetic patients who participated in the study about consumption of dairy products. The researcher found that participants had thought they can eat egg as they desired. But they were told otherwise at the Endocrinology Clinic that it is not right for a diabetic patient to take eggs. The narrative of a participant is captured to buttress this point. Participant 3 stated that "it was after I started attending Endocrinology Clinic that I got to know that I'm not to take egg again". As diary consumption is to be avoided, some fruits are highly recommended for diabetic patients.

***Fruit Consumption*:** This sub – category consists of the revelations of the diabetic patients on the consumption of taking fruits by diabetic patients as instructed at the Endocrinology Clinic. The researcher found out that some of the participants said that they never knew that they can

take specific types of fruits. It was when they started attending routine Endocrinology Clinic that they realized that they can take some fruits. Narratives of some participants in the study are stated as follows; participant 9 expressed thus “before it was only wheat I had been taking and I’m even getting tired of it. I’m happy I know I can take fruits like watermelon, apple and garden egg. The information has really helped in coping with the diseases especially eating problem I had been experiencing”. Participant 11 expressed thus “it was when I started attending Endocrinology Clinic that I learned that I can take fruits such as water melon, garden egg, and apple. I thought a diabetic patient is not supposed to take them”. The essence of fruit consumption in diabetes management is to enhance living a better life. But this can be achieved if the right typesof food is taken. Maize meal can also be consumed but the chaft must not be of removed.

***Taking Maize with Chaft*:**This sub – category consists of the narratives of the participants about the possibility for them to continue to consume maize. The researcher found from the participants that they know that being diabetic, they must take maize. It was when they started attending the Endocrinology Clinic that their care providers informed them that they can continue maize, but must ensure the chaft of the maize is not removed. Expressions of some of the participants are stated as follows; participant 10 revealed that “It is when I went to the clinic that I was told that I can take maize but without removing the chaft”. Participant 14 expressed thus “I should monitor my food intake, not eating too much at once. But that I can eat maize without removing the chaft”. Total dietary regulation encompasses a lot details which are discussed in the othersub-categories.

***Others*:** This category consists of narratives of the participants who were specific on the information received at the Endocrinology Clinic on the types of food they can eat which was not

known to them before. The researcher found out that some of the participants are not aware that they can eat plantain and carbohydrates at all. But information from the Endocrinology Clinic revealed that they can consume carbohydrates. Their narratives are captured as follows; Participant 3 stated that "That I can take *acha*, wheat, Bambara nuts but avoid sugar. I was told I can take plantain but unripe ones". Likewise, participant 7 revealed that "I got to know that I can take carbohydrates foods but with plenty of vegetables".

Category Two Glycaemic Control (4/18, 22.22%): The category consists of the narratives of the diabetic patients who partook in the study about what they knew on sugar control having being exposed to routine Endo lectures. There are two sub – categories; sugar intake (2/18, 11.11%) and glycaemic control (2/18, 11.11%). Narratives for theses sub categories are as follows:

***Sugar intake*:** This sub – category captured the knowledge of participants about sugar intake by individuals who are diabetic. The researcher found out that some of the diabetic patients who partook in the study still persist in consuming sugar till they were told at the Endocrinology Clinic. They felt it is okay for them to continue to use sugar in their meals. Their narratives are reported as follows; participant 3 revealed that "I was advised to avoid using sugar completely". Participant 4 said "1learned that I should not take sweet things like sugar". The essence of avoiding sugar intake is to control the blood sugar level of a diabetic patient.

Glycaemic Control (Blood sugar monitoring) (2/18, 11.11%): This sub category consists of the narratives of the diabetic patients who participated in the study. The researcher found that the participants do not know that it is essential to monitor their blood sugar. And that they never knew the first step to take when the blood sugar gets too low is to take a drink with a high level

of sugar. Some of the narratives of the participants are captured as follows; “I got to know at the Endocrinology Clinic that when sugar is too low, one is asked to some sugary things to boost the sugar level” (participant 5). Participant 8 expressed her knowledge about blood sugar control from the Clinic thus “I get to know from the Endo clinic that when the sugar level is too low, one has to take sugary thing or drink to balance it”.

Category Three: Exercise(3/18, 16.66%): This category consists of the narratives of participants in the study setting about the importance of exercises in diabetes management. The category has one sub-category; regular exercise (3/18, 16.66%). Narratives for the sub – category is reflected in the next paragraph.

***Regular exercise*:** The researcher found out that participants are aware of the importance of exercise in diabetes management. Narratives of the participants relating to information revealed to them about exercise when they started attending the Endocrinology Clinic is ;“It was at the Clinic I got to know that exercise is very important for me” (participant 10). Similarly, participant 16 expressed with more clarity; “Though I’m aware about the importance of exercising in managing diabetes before and after I started the Endocrinology Clinic, but now there is much clarity. Also the doctor said I should ensure that I exercise regularly to help me in my blood sugar control”.

Category Four Alcoholic consumption (1/18, 5.55%): This category revealed the knowledge acquired by diabetic patients who participated in the study from EC on consumption of alcohol. The researcher found that some people living with diabetes who consume alcohol drinks feel that they can still continue taking it. They realized that they can no longer do so when they started attending Endocrinology Clinic, ABUTH, Shika. Narrative of one of the participants is captured

as follows; Participant 6 statedthat “I’m told by my doctor to avoid alcoholic drinks. I thought I can still continue drinking alcoholic drinks. My friends told me that I can take just a bottle per day. But I know better now”.

Category Five Wound management (2/36, 11.11%): This category consists of the narratives of the participants on the information they became exposed to about wound management when they started attending Endocrinology Clinic. The category has one sub – category; wound care (2/36, 11.11%). Narratives are discussed in the following paragraph.

***Wound Care*:** This sub – category revealed the information that was made available to the participants at EC on how to handle wound by a diabetic patient. The researcher found out that some individuals among the participants never knew it’s possible for wound to heal in someone living with diabetes mellitus. It was revealed to them through their care providers at the Endocrinology Clinic, that wound will heal if properly taken care of. Expression of some of the participants is as follows; Participant 7 said “I got to know from the Clinic that a wound would heal with proper management”. Similarly, Participant 11 also stated that “I also got the information that a wound can heal with much attentionat the clinic”.

Category Six Drug Regimen: (1/18, 6%): This category represents the narratives of the participants about the need to use their drugs as stipulated by the care providers. The researcher found that diabetic patients who participated in the study are not aware of the need to use their drugs as prescribed by their doctors. Participant 12 revealed that “I thought I can use my drugs whenever I want, but I was told at the clinic that I have to take my drugs regularly if I want to get well”.

Category Seven: Loss of Sight (1/18, 6%): category consists of the information which the participants became exposed to when they started attending the Endocrinology Clinic about eyes complications. It was revealed to the researcher through the participants that they never knew they could lose their sight as a result of being diabetic. Narratives of participant about this are captured as follows; Participant 7 expressed that they told them at the Endo Clinic that "When diabetes is not well controlled, it can lead to loss of sight". Also Participant 10 stated that "doctors tell me the implication of everything such as if I don't control my sugar level, I can lose my sight".

Category Eight: Cognitive Dissonance (2/18, 11.11%): This category consists of the narratives of the participants in this study about conflicting information they encountered at the Endocrinology Clinic.This category has one sub category; confusion (2/18, 11.11%). The sub category is discussed as follows:

***Confusion*:** This sub – category captured the narratives of the participants about the state of confusion in which some of the participants find themselves due to contradictory information they encounter at the Endocrinology Clinic. The researcher found that some of the participants receive information that are contradictory to what they used to know about diabetes management from the Endocrinology Clinic. Instances where the participants revealed this in their expressions is captured in the following paragraph.

Participant 1 stated that "I use to know that diabetic patients can only take wheat and beans alone. But now we are informed at the clinic that we (participants) can eat almost all types of foods but have to do that with moderation. So I'm confused about these sets of information". Similarly, participant 12 revealed that "I was told that I can take orange but just one or two but

that I must not take pineapple. I should take apple, carrot, cucumber, water melon. Now I'm confused because there are some fruits like orange I know I'm not to take, but I'm informed I can take one orange per day because my sugar level has been okay for over a long period of time".

4.8 Diabetic Patients' Understanding of Information Received from Endocrinology Clinic, ABUTH, Shika for managing diabetic complications

This research question sought to know from the participants what they think about the information provided at the Endocrinology Clinic (EC) for managing diabetes. To answer thisquestion, seven othersub- research questions were raised.Table 6 presents details about the understanding of received information from EC to manage diabetic complications.

Table 6- Understanding of Information Received from EC to Manage Diabetic Complications

Research Question	*Categories*	*Frequency*	*Percentage*
How do diabetic patients understand the information received from EC	Information is beneficial	13	72%
	Information is important	8	44%
	Information is insignificant	1	6%
	Information is critical	11	60%
	Information is helpful	3	17%
	Information is a necessity	2	11%
	Information is conflicting and confusing	6	33%

Source- Interview Analysis, 2016

The understanding of information is addressed based on specific information provided to manage diabetic complications. Starting with information received on exercise.

4.8.1 Understanding of information on exercise received from EC for managing diabetic complication

This sub-research question sought to find from the participants how they understood the information provided by the medical doctors at EC, Zaria for managing diabetic complications. Starting with their view about the importance of exercising in managing diabetes.

Category One Beneficial (8/18, 44%): The participants revealed that information is very beneficial for the management of complications arising from diabetes.This category revealed the narratives of the diabetic patients who expressed that the information received on exercise is, beneficial, relevant and useful for someone living with diabetes. The researcher found out from the participants in the study that they accepted information on exercise provided for them at the Endocrinology Clinic as very beneficial.

Participant 1 said “Yes, I accept what I’m told about exercises at the Endocrinology Clinic. My doctor told me that exercise is very important and beneficial for a diabetic person. Since I’m told that I should exercise, I have taken it as a way of life. I have to do it every day and I can see the benefit on my health (P1)”. Though some of the participants said the information received for exercise is beneficial but cultural belief hinders them from exercising freely. Narrative of participant 10 substantiates this; she said “the information is actually true but I find difficult exercising. I can’t exercise outside because people in the north behave negatively whenever a woman is seen exercising. My husband bought me a treadmill; I make sure I exercise before going to bed in the night”. Likewise, some of the participants 9 accepted that information on exercise is good but felt that there is no need for them to exercise because their daily routine is an exercise on its own. Participant 8 stated that “I know the information is good but I feel all the

ups and downs I go through doing housework is enough for me and I don't need to do any exercise again". One of the participants stated that "I accept that information on exercise I received from the Endocrinology Clinic is very beneficial for me as been told, but my husband will never allow me to go out alone for exercise without being accompanied. I find it difficult convincing my mate's kids to keep me company while going for the exercise".

4.8.2Understanding of Information on Diet Received from EC, ABUTH for managing diabetic complications

This sub – research question sought to find out how the participants understood the information on diets provided for them at the Endocrinology Clinic. Participant's narrative revealed two categories: Critical (11/18, 60%) and Confusing and conflicting (6/18, 33%). The categories are discussed as follows;

Category One Critical (11/18 60%): Participants revealed that information on diets is critical information in diabetes management. This category consists of the narratives of participants in the study who expressed that information about diets provided for them at the Endocrinology is very critical for managing diabetic complication. The researcher found out that the information has assisted them in living with the disease. Participant 6 stated that "I find the information very good and as well as very critical. People tell me that if I follow the information about diets for a diabetic patient, I will have a long life and fewer complications". Similarly, participant 7 revealed that "I feel the information provided by the doctor is the right one for me; as I accept it as good and critical for managing diabetes". Likewise, some of the participants revealed that they accepted that the information is very critical for diabetic patients but it is not convenient for them because they do not feel satisfied when they eat.

Category Two Conflicting and Confusing (6/18, 33%): Narratives by participants revealed that information received on diabetic diets is confusing and conflicting. This category consists of the narratives of the participants who revealed that the information diets provided for them about diets at the Endocrinology Clinic had created confusion for them. The researcher found from the participants that information received at the Endocrinology Clinic had left them confused. In relation to this, Participant 7 expressed that;

"In the clinic day, they (doctors) told us we (diabetic patients) are free to take wheat as we (diabetic patients) like. But later I went to the Clinic, they (doctors) told us that we cannot continue on eat wheat alone again. That diabetic patient can take corn without removing the chaft. We eat anything but with lot of vegetable. That diabetic patient can eat rice but with plenty vegetable. I am now confused with the information and do not know which one to follow".

4.8.3 Understanding of information on drug regimen received from EC for managing diabetic complications

This sub – research question sought to find out how the participants in the study setting understood the information on diets provided for them at the EC. Participant's narrative revealed one category, that is the information is Important (5/18, 28%). This category is discussed as follows;

Category One Important (5/18, 27.77%): This category consists of the narratives of the participants about how they understand the information on drug regime provided for them at the Endocrinology clinic. The researcher found out that diabetic patients who partook in the study revealed that they information on drug regime is very important for them. Participant 7 said "I'm advised to take my drugs regularly and not whenever I feel like taking it. Since I do not know

anything about drugs, I take it that all information provided for me by my doctor about drugs is good. He prescribed certain drug for me and instructed me to follow how the drug should be taken".

4.8.4Understanding of information on fluid intake received from EC for managing diabetic complications

This sub research question sought to find out how participants in the study setting understood information on fluid intake. One category emerged; information is classified as important (8/18, 44.44%) for managing diabetic complications.

Category One Important (8/18, 44.44%): This category consists of the narratives of participants on how the information on fluid intake received at EC as important. The researcher found out from the participants that they accepted the information as good since their care providers (doctors) had informed them that there is no problem with the way they drink water. Participant 5 revealed that "I take information as good and important information because my doctor advised me to drink water as often as possible. There is the popular saying that refers to water as life. I usually have bottle water by bed in the night. So I feel thirsty, I don't need to get out of bed". Likewise, participant 1 said "The doctor said there is no problem with the way I drink water. If my doctor tells me no problem, then I take it to be good for me to drink water whenever I am thirsty".

4.8.5 Understanding of Information on the Need to Promptly Seek for Help Received from EC for Managing Diabetic Complications

This sub-research question sought to find out how participants in the study setting understood information on the need to promptly seek for help. One category emerged; information is understood as a necessity (2/18, 11.11%) for managing diabetic complications.

Category One Necessity(2/18, 11%): This category consists of the narratives of the participants about how they judge the information on prompt decision making they received at the EC. The researcher found out from the participants that information about making decision promptly as very good. Participant 17 stated that "He (doctor) warned me not to stay at home without coming to the hospital whenever I have a wound. The information assisted me a lot with the last boil I had. I took the decision to go to the hospital in time and I did not suffer like the other time. Information on prompt decision making is a necessity for me".

4.8.6 Understanding of Information on the Need to Share Information Received from ECfor Managing Diabetic Complications

This sub-research question sought to find how participants in the study setting understood and classify information received about the need to share information in order to manage diabetic complications. Narratives of the participants are enumerated as follows;

Category One Insignificant (1/18, 6%): This category consists of the narratives of the participants concerning their feelings about the need to provide information about symptoms they experience. The researcher found out from one of the eighteen participants that she felt it is insignificant to provide information to the doctors. Participant 10 specified that, "I do not tell the doctors the way I am feeling because I feel it is not significant for me to tell them. I can take care of myself. I go to the hospital to satisfy my husband".

4.8.7 Understanding of Information on Regulation of Salt Intake Received from EC for Managing Diabetic complications

This sub-research question sought to find how participants in the study setting understood and classify information received about the need to regulate salt intake in order to manage diabetic complications (high blood pressure). Narratives of the participants are enumerated as follows;

Helpful (3/18, 17%): This category consists of the narratives of the participants about how they view the information on the need to regulate their salt consumption received from the EndocrinologyClinic. The researcher concluded from the participants that the information is very good and helped them in controlling their blood pressure. Participant 6 stated that "the information about salt regulation intake is very helpful and important. It has been helping me because since I reduced my salt intake as being advised by my doctor; my blood pressure is no longer high as before I got the information".

4.9 Personal Constructs Type 2 Diabetic Patients Applied in Making Sense of Information for Managing Diabetes Mellitus

This research question uncovered the personal constructs participants applied in making sense of information received from Endocrinology Clinic for managing diabetic complications. Nine typologies of information were provided to participants (discussed in research question 2 on page 73). These are information on exercise, diet, drug regimen, fluid intake, the need to promptly seek for help, the need to share information about state of health and finally information on salt intake.

For each of the eight typologies of information, personal constructs applied by participants are trust, fear, belief in other diabetic patients,belief in medical practitioner's experience, family

support, prior knowledge, personal judgement and Confusion. Table 7 provides details on personal constructs applied in sense making of information.

Table 7- Personal Constructs T2DM Patients Applied in Making Sense of Diabetic Information

Research Question	Categories	Sub-Categories	Frequency	*Percentage*
What personal constructs do T2DM patients applied in making sense of information for making diabetes mellitus				
	1.Trust of medical Practitioners		14	77.77%
	Group Total		**14**	**77.77%**
	2.Believein Other Diabetic Patients		10	55.55%
	Group Total		**10**	**55.55%**
	3.Fear of Complications		10	55.55%
	Group Total		**10**	**55.55%**
	4.Exprience	4.1 Personal Experience	17	94.44%
	Group Total		**17**	**94.44%**
	5.Confusion	5.1	1	5.55%

Confusion		
Group Total	**1**	**5.55%**
6.Prior Knowledge	2	11.11%
Group Total	**2**	**11.11%**
7.Personal Judgement	1	5.55%
Group Total	**1**	**5.55%**
8.Family Support	7	38.88%
Group Total	**7**	**38.88%**
9 Believe in Medical Practitioners	10	55.55%
Group Total	**10**	**55.55%**
Groups Total	**72**	**44.44%**

Source- Interview Analysis, 2016

These personal constructs are explained as follows, starting with concept of trust:

Category One: Trust of Medical Practitioners/ Other Diabetic Patients (14/18, 85 %). One of the personal constructs diabetic patients applied to make sense of information communicated to them at the Endocrinology Clinic about the need to exercise, maintain diet regulation; the danger of not exercising and not regulating diet is that diabetic patients use the notion of trust. This refers to the fact that diabetic patients trust the orthodox medical practitioners and also their

friends. Information about the dangers of not embarking on regular exercise; diet and information about the benefit of exercise and diet regulations are among the information communicated to diabetic patients. This category consists of the narratives of how diabetic patient's trust had helped them in making sense of information about exercises. Participants stated that they have trust their doctors. The doctors had repeatedly emphasized exercising and regulating diet for managing diabetes to the participants. Thus the trust the participants have in their doctors has made them to get involved in one form of exercise or the other. Narrative of the participants about how notion of trust in their doctors and friends had assisted in the understanding of information on exercise and diet is as follows;

Participant 1 revealed this; "The doctor advised me to exercise regularly. So I take it that without exercising, I will have problems that will be difficult for me to handle. I have trust in my doctor as a professional. Since the time my doctor told me about exercising, I started going to the field regularly to exercise. I am feeling much better now". Similarly, participant 5 revealed that "they (doctors) normally tell us not to stay without exercising. I put my trust in my doctor. Since they (doctors) always tell us repeatedly that exercising is necessary. I have been exercising regularly in form of early morning walk. I had been enjoying myself very well".

Similarly, participants indicated that trusting friends (who are diabetic) has been of great assistance to them in the understanding of information on diabetic diet. The researcher found out that friend of individuals living with diabetes had been very supportive in the understanding of diet information. Participant 14 expressed that "it is true that there several information that a diabetic patient is exposed to. For example, the types of food to eat and equally the portion that can be taken at a time. I do not understand the information. I relied on my friends to assist me about the things I'm not clear about and I trust whatsoever they tell me".

Likewise, participant 16 said “for me to understand information about diets very well and to be able to use it, I contact my friend who knows well about diabetic foods. I do not doubt anything he tells me because I trust him so much”. In the same vein, participant 2 said “when I don’t understand certain things, I call a friend of mine whom I trust because she knows more than me about diabetes. For instance, I know I can eat maize but I had to call my friend to ask her if she removes chaft of the maize before taking it for grinding”. Aside the notion of trust, fear of the complications seen in other diabetic patients had assisted in making sense of information received from Endocrinology Clinic. Believinginformation assists in managing a chronic disease like diabetes overcome fear of complications.

Category Two: Belief in Medical Practitioners (10/18, 39%). Belief is another personal construct applied by participants in the understanding of information received on diet, drug regimen and decision making at the Endocrinology Clinic. It is believed which participants have in their doctors and other diabetic patients. This category consists of the narratives of the participants about how believe in other diabetic patients and doctors had assisted them in the understanding of diabetic diet information. The researcher found out that some of the participants usually contact other patients when they do not understand information on diets. This narrative substantiated believe in other diabetic patients in understanding of diet information; “I have heard a lot about diabetes such as about the types of food to eat – maize, rice, beans. So also about fruits too like watermelon, garden egg, apple etc. sometimes I don’t understand some information. What I do is that, I usually contact other diabetic patients to help me out. I believe in whatsoever they tell me, since my interest is similar to that of other diabetic patients (P12)”.

Similarly, participants indicated that believing in their orthodox medical practitioner had helped in the understanding of information on drug regimen and fluid ingestion. The researcher found

out that participants in the study believe and rely solely on the medical doctors in order to understand in details information about drugs prescribed for them. Narrative of one of the participants about drug regimen is; “I complained to the doctor that I am having problem on my legs and hand (from the wrist to the elbow). The doctor prescribed some drugs for me and instructed me that I should take them as been told and not as I like. I use to think I can use the drugs at any time I want. Since I don’t know anything about drugs, I depend solely on what the doctors tell me and I follow the instruction (P7)”.

Likewise believe as a construct was applied by the participants for understanding information received on fluid intake from the Endocrinology Clinic. The researcher found out from the participants that since the doctors said there is no harm with drinking water frequently, they believe just as being told. Narrative of participant 5 on this is that “I usually feel very thirsty. Once I am feeling thirsty, I know I am getting dehydrated. I usually keep water by my bed. I believe that drinking enough water is the only way I can solve the way I usually feel thirsty”. In the same vein, participant 1 revealed that “the doctor said that there is no problem with the way I drink water. I accept the information because of my belief in my doctor. I had been drinking water as I want and no problem at all”.

Category Three Fear of complications (12/18, 66.66%): One of the personal constructs applied in the sense making of information received on exercise is fear. This fear is attached to the complications experienced by other diabetic patient. This category consists of the narratives of the participants of how fear of what they had seen in some other diabetic patients had made them to understand the need for them to get engaged in some form of exercise. The researcher found out from the participants that they understand the information on exercise as a result of fear. One of the participants revealed to the researcher that having seen complications

experienced by a diabetic patient, he tries as much as possible to get involved in regular exercise. His narrative goes thus; “I was told that exercising will help me in keeping fit. I had met with patients at the clinic who have legs problems because they do not exercise at all. The pain they told me they had been living with has created fear in me. Because of this, I ensure that I exercise regularly as being informed by the doctors (P2)”.

Category Four: Experience (17/18, 94,44%). This category consists of narratives of participants who indicated that they understood information about diabetic diets and the need to promptly seek for help based on personal experience and that of fellow diabetic patients. The researcher found out that participants in the study learn from experience of other patients through interactions with other diabetic patients. Participant 2 expressed that “I normally learn from the experiences of other diabetic patients. For instance, I know I can eat maize but I had to call a lady who is equally diabetic to ask him if he usually remove the shaft of the maize before grinding it”. Participant 3 equally said; “I usually discuss with other patients while waiting to see the doctor. This is assisting me on how I use the information about my diet when I’m alone”.

Personal experience is also applied as a construct in the understanding of information on the need to promptly seek for help. Participants in the study expressed that their personal experience had really assisted in understanding the importance of seeking for help promptly. This consists of the narratives of the participants who had once experienced diabetic boils which resulted in a serious wound. Seeking for help had assisted them in understanding information about making decision in time. The researcher found out that some of the participants who had experienced wound resulting from boil were advised by their doctors not to take any observed symptoms lightly. To substantiate this; participant 17 said “he (doctor) warned me not to stay at home

whenever I have wound without going to the hospital. I was advised to always make decision in time. Since then, I am very observant".

Category Five: Family support (7/18, 38.88%). Personal construct used in the understanding of information on diet and regulation of salt intake received from the Endocrinology Clinic was family Support. This category consists of the narratives of the participants who expressed that the support from their family members had been of great help in the understanding of information provided for them about diets. The researcher found out that some of the participants placed total reliance on their family for assistance in understanding of information about diets. Participant 10 expressed that "when I get information from the Endocrinology Clinic especially in relation to diets; I usually tell my husband when I get home. When I have problem understanding the information, my husband usually assists me".

Furthermore, family support had equally assisted participants in understanding information on regulation of salt intake. This consists of the narratives of participants who indicated that support from his sisters had assisted in understanding information about reduction of salt intake. The researcher found out that the participant understood the information about reducing salt consumption with the assistance of his sisters. The participant revealed that he complained of persistent headache and the doctor informed him that his blood pressure reading is high. His narrative is: "when I complained to the doctor that I usually have headache. He instructed me to reduce my salt intake. When I got home, I informed my wife what the doctor told me. My sisters all came and told me what to avoid and told my wife not to use seasoning for cooking again and reduce amount of salt she uses in my dishes. (P6)".

Category Six: Prior Knowledge (2/18, 11.11%). Another personal constructs participants applied in the understanding of information on diet is prior knowledge about diabetes. This category consists of the narratives of participants about how prior knowledge about diabetes has assisted them in the understanding of information about diabetic diets received from the Endocrinology Clinic. The researcher found out that those who are well informed about diabetes among the participants understood diet information better. In view of this, participant 5 said that "I am a dietician. So I usually compare the information provided about diets at the Endocrinology Clinic with what my prior knowledge about diabetes. If I am not convinced, I put my own knowledge into practice in using the information".

Category Seven: Personal Judgement (1/18, 5.55%). This category consists of the narratives about how personal judgement had assisted the participants in understanding the need to share necessary information that will guide in having a better insight of the patient's experience. The researcher found out from one of the participants that she does not reveal information about her experiences to the doctor. She felt that there is no need for telling her doctor how she feels. Her expression is "I did not tell the doctors the problem I'm having. I think I can take care of how I am feeling. I make judgment according to how I am feeling. (P10)".

Category Eight: Confusion (1/18, 6%). This category revealed the narrative of a participant who expressed that information provided had led to a state of confusion. The researcher found out that the information provided in the management of diabetes had resulted into state of anxiety and confusion for some of the participants. Narrative in relation to this is "I get information from various sources; doctors, friends and other patients. At a time, we were told at the Endocrinology Clinic that we can only eat wheat and beans. But now that we are informed at

the Clinic that we can take anything but ensure that it is combined with plenty vegetables. So I don't know which one to hold on to now. Now, my understanding is inconsistent (P7)".

4.9aPersonal Constructs Type 2 Diabetic Patients Applied in Making Sense of Information Received from Endocrinology Clinic for managing diabetes mellitus

This research question examined the personal constructs participants applied in making sense of the information received at the Endocrinology Clinic for managing diabetic complication. To answer this research question, seven (7) other sub – research questions were asked. These are explained as follows;

4.9.1 Personal Constructs type 2 diabetic patients applied in making sense of information on exercise

Participants applied two personal constructs to make sense of information on exercise communicated to them at Endocrinology Clinic. These are trust of medical practitioners and fear of complications seen in other diabetic patients.

Category One Trust in medical practitioners (8/18, 44.44%): This category consists of the narratives of how diabetic patient's trust inmedical practitioners had helped them in making sense of information about exercises. Participants revealed that they have trust in their doctors. The doctors had repeatedly emphasized exercising for managing diabetes to the participants. Thus the trust the participants have in their doctors has made them to get involved in one form of exercise or the other. Participant 1 recalled that "the doctor advised me to exercise regularly. So I take it that without exercising, I will have problems that will be difficult for me to handle. I have trust in my doctor as a professional. Since the time my doctor told me about exercising, I started going to the field regularly to exercise. I am feeling much better now". Similarly, participant 5

revealed that “they (doctors) normally tell us not to stay without exercising. I put my trust in my doctor. Since they (doctors) always tell us repeatedly that exercising is necessary. I had been exercising regularly in form of early morning walk. I have been enjoying myself very well”.

Category Two Fear of complications (12/18, 67%): Another personal constructs applied by diabetic patients is fear. This category consists of the narratives of the participants of how fear of what they had seen in some other diabetic patients had made them to understand the need for them to get engaged in some form of exercises. The researcher found from the participants that they understand the information on exercise as a result of fear. One of the participants revealed to the researcher that having seen complications experienced by a diabetic patient, he tries as much as possible to get involved in regular exercise. His narrative goes thus; “I was told that exercising will help me keep fit. I had met with patients at the clinic who have legs problems because they do not exercise at all. The pain they told me they had been living with had created fear in me. Because of this, I ensure that I exercise regularly as have been informed by the doctors (P2)”.

4.9.2Personal Constructs Type 2 Diabetic Patients Applied in Making Sense of Information about Diets to Manage Diabetes Mellitus

Personal constructs applied by participants to make sense of information on diet is the notion of belief, experience, trust, family support and prior knowledge.

Category One Belief in Other Diabetic Patients (10/18, 55.55%): This category consists of the narratives of the participants about how belief in other diabetic patients had assisted them in the understanding of diabetic diet information. The researcher found out that some of the participants usually contact other patients when they do not understand information on diets.

These narratives substantiate the assertion; “I have heard a lot about diabetes such as about the types of food to eat – maize, rice, beans. So also about fruits too like watermelon, garden egg, apple etc. sometimes I don’t understand some information. What I do is that, I usually contact other diabetic patients to help me out. I believe in whatsoever they tell me, since my interest is similar to that of other diabetic patients (P12)”.

Category Two Experience (6/18, 33.33%): This category consists of narratives of participants who indicated that they understand information about diabetic diets from the experiences of fellow diabetic patients. The researcher found out that participants in the study learn from experience of other patients through their interactions. Participant 2 expressed that “I normally learn from the experiences of other diabetic patients. For instance, I know I can eat maize but I had to call a lady who is equally diabetic to ask her if she usually removes the chaft of the maize before grinding it”.

Category Three Believe in OtherDiabetic Patients (6/18, 33.33%): This category consists of the narratives of the participants who indicated that trusting friends have been of great assistance to them in the understanding of information on diabetic diet. The researcher concluded that friends of individuals living with diabetes had been very supportive in the understanding of diet information. Participant 14 expressed that “it is true that are there several information that a diabetic patient is exposed to. For example, the types of food to eat and equally the portion that can be taken at a time. I do not understand the information. I rely on my friends to assist me about the things I’m not cleared about and I trust whatsoever they tell me”. Likewise, participant 16 said “for me to understand information about diets very well and to be able to use it, I contact my friend who knows well about diabetic foods. I do not doubt anything he tells because I trust him so much”.

Category Four: Family support (6/18, 33.33%): This category consists of the narratives of the participants who expressed that the support from their family members had been of help in the understanding of information provided for them about diets. The researcher found out that some of the participants place total reliance on their family for assistance in understanding of information about diets. Participant 10 expressed that "when I get information from the Endocrinology Clinic especially in relation to diets; I usually tell my husband when I get home. When I have problem understanding the information, my husband usually assists me".

Category Five Prior Knowledge (2/18, 11.11%): This category consists of the narratives of participants about how prior knowledge about diabetes has assisted them in the understanding of information about diabetic diets received from the EC. The researcher found out that those who are well informed about diabetes among the participants understand diet information better. In view of this, participant 5 narrated that "I am a dietician. So I usually compare the information provided about diets at the Endocrinology Clinic with my prior knowledge about diabetes. If I am not convinced, I put my own knowledge into practice in using the information".

4.9.3Personal Constructs Type 2 Diabetic Patients Applied in Making Sense of Information about Drug Regimen to Manage Diabetes Mellitus

Personal constructs applied by diabetic patients in the study setting in making sense of information on drug regimenis believe; that is believing in information emanating from the orthodox medical practitioners.

Category One Trust of Medical Practitioners (14/18, 77.77%): This category consists of the narratives of participants about how believe participants have in the medical doctors they consult had made them to have a better understanding of drug information. The researcher found out that

participants in the study believe and rely solely on the medical doctors in order to understand in details information about drugs prescribed for them. Narrative of one of the participants about drug regimen is; “I complained to the doctor that I am having problem on my legs and hand (from the wrist to the elbow). The doctor prescribed some drugs for me and instructed me that I should take them as been told and not as I like. I use to think I can use the drugs any time I want. Since I don’t know anything about drugs, I depend solely on what doctors tell me and I follow the instruction (P7)”

4.9.4 Personal Constructs Type 2 Diabetic Patients Applied in Making Sense of Information on Fluid Intake in Managing Diabetes Mellitus

Participants in the study setting applied the concept of believe in medical doctors as the construct in making sense of informationreceived on fluid intake.

Category One Trust of Medical Practitioners (3/18, 16.66%): This category consists of the narratives of the participants in relation to how information about water ingestion in the management of diabetes is understood. The researcher found out from the participants that since the doctors said there is no harm in drinking water frequently, they believe just as told. Narrative of a participant 5 on this is that “I usually feel very thirsty. Once I am feeling thirsty, I know I am getting dehydrated. I usually keep water by my bed. I believe that drinking enough water is the only way I can solve the way I usually feel thirsty”. In the same vein, participant 1 revealed that “the doctor said that there is no problem with the way I drink water. I understand because of I believe in my doctor. I had been drinking water as I want and no problem at all”.

4.9.5Personal Construct Type 2 Diabetic Patients Applied in Making Sense of Information on the Need to Promptly Seek For Help in Managing Diabetes Mellitus

Personal construct applied in making sense of information about the need to promptly seek for help is experience; individual experience.

Category One Experience (2/18, 11.11%): This category consists of the narratives of the participants who had once experience boils which results in a serious wound had assisted them in understanding information about making decision in time. The researcher found out that some of the participants who had experienced certain complications such as wound resulting from boil made the doctor to advise them not to take any observed symptoms lightly. To substantiate this; participant 17 said "he (doctor) warned me not to stay at home whenever I have wound without going to the hospital. I was advised to always make decision in time. Since then, I am very observant".

4.9.6Personal Constructs Type 2 Diabetic Patients Applied in Making Sense of Information about the Need to Share Information in Managing Diabetes Mellitus

Personal constructs applied in the making sense of information about the need to share information about state of health is personal judgement and anxiety.

Category One:Personal Judgement (1/18, 6%). This category consists of the narratives about how personal judgement had assisted the participant in understanding the need to provide information about their condition. The researcher found out from one of the participants that she does not reveal information about her experiences to the doctor. She felt that there is no need for telling her doctor how she feels. Her expression is "I did not tell the doctors the problem I'm

having. I think I can take care of how I am feeling. I make judgment according to how I am feeling. (P10)".

Category two: Confusion (1/18, 5.55). This category revealed the narrative of a participant who expressed that information provided had led to a state of anxiety. The researcher found out that the information provided in the management of diabetes had resulted into state of anxiety and confusion for some of the participants. Narrative in relation to this is "I get information from various sources; doctors, friends and other patients. At a time, we were told at the Endocrinology Clinic that we can only eat wheat and beans. But now that we are informed at the Clinic that we can take anything but ensure that it is combined with plenty vegetables. So I don't know which one to hold on to now. Now, my understanding is inconsistent (P7)".

4.9.7 Personal constructs type 2diabetic patients applied in making sense of information on regulation of salt intake in managing diabetes mellitus

Category One: Family support (1/18, 5.55%): This category consists of the narratives of participants who indicated that support from his sisters had assisted in understanding information about reduction of salt intake. The researcher found out that the participant understood the information about reducing salt consumption with the assistance of his sisters. The participant revealed that he complained of persistent headache and the doctor informed him that his blood pressure reading is high. His narrative is: "when I complained to the doctor that I usually have headache. He instructed me to reduce my salt intake. When I got home, I informed my wife what the doctor told me. My sisters all came and told me what to avoid and told my wife not to use seasoning for cooking again and reduce amount of salt she uses in my dishes. (P6).

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Introduction

This chapter is on the discussion of findings from six research questions which guided the study. The chapter is presented under the following sub-headings;

a. Complications experienced by type 2 diabetes mellitus patients in Endocrinology Clinic, Zaria.
b. Information type 2 diabetes mellitus patients received from Endocrinology Clinic, Zaria to manage diabetes mellitus.
c. Sources of information consulted outside Endocrinology Clinic, Zaria for managing complications from diabetes mellitus.
d. Contradiction between information received from Endocrinology Clinic, Zaria and participants' prior knowledge about diabetes mellitus.
e. Diabetic patients' understanding of information received from Endocrinology Clinic, Zaria for managing diabetic complications.
f. Personal constructs type 2 diabetic patients applied in making sense of information received from Endocrinology Clinic, Zaria for managing diabetes.

Discussion of findings are as follows, starting with complications experienced by diabetic patients in Zaria metropolis who attend EC, ABUTH, Shika.

5.2 Complications experienced by type 2 Diabetes mellitus patients in EC, ABUTH, Shika

To answer this research question, the researcher investigated types of complications experienced by the participants.

Findings from the research question revealed that thirteen complications were experienced. These are;myopathy, diabetic neuropathy, osmatic symptoms, diabetic retinopathy, weight loss, orthostatic hypotension, vasculopathy, resting tachycardia, dysglycaemic, diabetic peripheral neuropathy, diabetic boils, diabetic foot ulcer and erectile dysfunction. Discussion on complications experienced is as follows starting with weakness of the body (myopathy).

Weakness of the body and lack of strength:

The most common complications experienced by the participants are weakness of the body and lack of strength. Weakness of the body and lack of strength is known as myopathy. Myopathy is a group of disorders characterized by a primary structural or functional impairment of the skeletal muscle (Goldstein, 2017). Findings of the study revealed that participants usually feel weak and lack the strength to carry on with daily routines. This complication gets them down making them inactive. Lack of strength is a common and distressing complaint among participants. This hinders the ability to perform daily diabetes self-management task. This could be the main reason why women with type 2 diabetes mellitus finds it difficult to perform chores expected of an ideal African married woman.Simialrly, participants experienced weakness of the body. This is associated with severe pain in the low region.

Studies have reported that weakness of the body is associated with pain (Lewinski, Anderson, Vorderstrasse, Fisher, Pan& Johnson, 2018; Sadick, 2017; Woodfield, 2016;Marks, 2016; Fritschi & Quinn, 2010). Some of the participants have difficulty moving around as a result of pain. Though they are able to move around but it will hurt. This is not surprising, as it have been reported by Kruicik (2016). Weakness of the body; and lack of strength is a common feature among people living T2DM. Though medical solution has been proffered to combat the

symptoms; mainly concerning prescribed drugs. No study has been conducted that explore the way in which people withT2DM interact with information in order to cope with weakness of the body. From the information perspectives, weakness of the body and lack of strength can be managed with the use of information to cope with pain.

Information forms the backbone for human survival. Information need is triggered when there is a recurring problem. Information need is an individual or group desire to locate and obtain information to satisfy a conscious need or unconscious need. This is is suprising though as Yusuf (2012). Continuous weakness of the body will necessitate information search. This process involves looking for information to facilitate decision making. Purposeful search for information is initiated in order to cope with a problem. Individuals who experience recurrent weakness of the body will definitely set out to search for information that will help in reducing the symptom. Coping with this should be enhanced through the provision of information resources that will assist in managing weakness of the body. Living with a condition such as weakness of the body in T2DM can be further simplified through motivation of patients towards achieving set goals involved in diabetes management. Motivation is the process of stimulating to act in order to accomplish a goal. Thus T2DM can be motivated using the attribution theory (AT) by Fritz Heider.

AT basically examines how people make sense of their world; what cause and effect inferences they make about the behaviour of others and of themselves. Attribution is based on explaining a situation by a cause. Convincing an individual who experiences body weakness to utilize information, he/she should be aware of the cause of the symptom and how to make sense out of the situation. It is then that cognitive control will be achieved. Ability to separate substance from insignificant information indicates cognitive ability. Making attribution gives order and

predictability to people's life. It helps individuals to cope and also assists in situation analyzes through making inferences. Inferences lead to cultivating a particular behavior. Once an individual coping with weakness of the body in T2DM realizes the importance of physical exercise, the behaviour will be embraced.

The implication of this finding is that weakness of the body is inseparable from type 2 diabetes mellitus but can be reduced and managed. Management entails patients being involved in physical exercise to strengthen the muscle system.

Apart from weakness of the body, participants also reported lack of strength. Most of the the participants' complained having weak muscles and lack of strength. This is condition that had led to people living with diabetes developing weakened and flabby muscles after a while. The partciapnts do not possess the physical ability to carry out daily activities. Lack of strength in patients with T2DM can be very overwhelming. Participants find everyday tasks difficult; they struggle to meet the demand of some tasks. Lack of strength among T2DM patients initiates a cycle of physical inactivity such as regular exercise which negatively affects their diabetic condition.

Studies (ADA, 2004; Nickerson &Dutta, 2012; Likwat, Goh, Hussein, Malek, Prusty & Khamseh, 2013; D'Souza, Sajee & Hawke, 2013; Woodfield, 2016) have reported that lack of strength is a common feature among T2DM patients.Diabetes mellitus (DM) is reported to have a significant effect on the skeletal muscle. Similarly, physical activity is emphasized for diabetic patients to strengthen weak muscles. In spite of the studies, people living with diabetes still complain of inability to cope with daily activities. These studies are based on the medical perspectives not on information behaviour of people whom the studies are targeted at.

Information behaviour is the term used to describe the ways in which human beings interact with information in particular the ways in which people seek and utilize information (Bates, 2010). In Library and Information Science, it refers to sub – discipline that engages in a wide range of research to better understands human relationship with information. Access to information is not enough to justify usage but rather understanding the information to enhance decision making. Understanding of information will assist in coping with pains and complications experienced by participants in the study setting.

This finding implies that patients with T2DM often feel tired and fatigued and that patients utilize information received through the care providers for effective management.

Pains on the arm, neck and back (diabetic neuropathy)

Participants indicated that they had pains on the arm, back and neck region. Medically, these symptoms are referred to as diabetic neuropathy. Some of the participants emphasized the fact that pains experienced on the arm, neck and back hinders their day to day activities. Furthermore, participants who have the complication had revealed that getting up early in the morning is likewise a difficult task due to pains.This complication makes it difficult for participants in the study setting to perform their daily activities. Especially, women living and coping with type 2 diabetes mellitus. This pain hinders some of the participants from performing their role as a wife. Such as getting up early in the morning to cater for the family. The complication have led to disaggrement among spouse; and even had resulted in divorce.This experience is associated with diabetic neuropathy.

In the medical circle, diabetic neuropathy is a prevalent complication of type 2 diabetes mellitus; with major impact on health of the affected patients (Timar, Timar, Gauta, Ouncea, Levai &

Lungeanu, 2016).Diabetic neuropathy refers to the damage that affects the nerves of the body in people who have diabetes (Nordqvist, 2016). Studies (Schreiber, Nones, Rers, Chichoro & Cunha, 2015; Taylor & Davis, 2016) had reported that diabetic neuropathic pain is a common complication of type 2 diabetes mellitus which affects over 90% of diabetic patients.Since it is evident from the narratives of the participants that they experience pain on the arm, neck and back, it becomes important to seek for information to address pain experienced. Those (participants in the study setting) experiencing pains make conscious effort to seek for information on how to reduce the challenges associated with pain.

In Library and Information Science, purposeful information seeking is used to describe the process whereby individuals suffering from a need search for information to address the problem. People with pain such as diabetic neuropathy tend to be drawn close to one another. This is to help and support each other in coping with the complication. This is enhanced with the availability of information resources. Therefore, resources that will promote decision making in diabetes management should be made available for the use of people coping with pain to facilitate diabetes self- management. Self- management is the ability of individuals to manage a condition with little or no assistance. This is highly essential in blood sugar control.

The implication of the finding is that diabetic patients will experience pains from time to time. Coping with pains as it arises involves ensuring that information on blood sugar level is utilized for monitoring and getting involved in regular exercise.

Water ingestion (osmatic symptoms)

Another complication revealed through the findings is persistent feeling of thirst that necessitates excessive drinking of water. This is known as osmatic symptoms. Osmatic symptom is a medical

name for thirst, dry mouth and need to urinate. Participants exposed that rate at which they drink water is worrisome. It gets to a point whereby individuals who experience this complication have to keep drinking water frequently. This finding reveals that high blood sugar makes diabetic patients to always feel thirsty. The more water ingested, the more the urge to keep on passing the water out. This finding is not surprising as it had been reported by Khardori & Khardori (2018) that diabetes mellitus patients will always feel the urge to take water often due to thirst.

It is essential to keep the body hydrated through water ingestion. People living with diabetes lose water through frequent urination and excessive sweating. Individuals living with chronic diseases such as T2DM need to keep the body hydrated. There is increasing evidence from particpants' that mild dehydration plays a role in the development of various morbidities. Importance of taking enough water by diabetic patients have been reported by Manz & Wentz(2005). It assists in the control of diabetic patient's blood glucose. But in spite of the fact that studies emphasize the importance of rehydration in T2DM, many patients still do not take water appropriately. This can be enhanced through proper interaction with information.This is embedded in human information behaviour.

Human information behaviour exhibits justification for taking certain decision/s. Participants in the study made decision about water ingestion based on their experience. Experince play a great in understanding thoughts and learning. Cognitive theorists such as Piaget andFritscher(2014) explained human behaviour by understanding the thoughts and processes of learning. Cognition is the mental action or processes of acquiring knowledge and understanding through thoughts, experience and senses. It is assumed that humans are logical beings who are capable of making decisions on their choices that make sense to them. Participants in the study setting expressed

that based on persistent thirsty feeling; water is taken to suppress the constant feeling of thirst. Action is usually funneled based on individual experiences.

Implication of this finding is that excessive thirst is not healthy for diabetic patients. People living with diabetes mellitus lose fluid through frequent urination and sweating. Water should be taken frequently to keep the body hydrated. Apart from feeling of thirst, participants in the study equally experience eye complications (diabetic retinopathy).

Diabetic Retinopathy (Eye complications)

Another complication experienced by participations is eyes problem. This type of complication is known as diabetic retinopathy. Diabetic retinopathy (DR) is when high blood glucose levels cause damage to blood vessels in the retina of the eyes. In general, diabetes affects the eyes in extreme ways; this is widely shared and publicized. Participants disclosed that they had been having problems with their eyes after being diagnosed with diabetes mellitus. Eye complication experienced differs from one participant to the other. Some said they felt as if there are particles in their eyes, while some said that they cannot see properly. This finding did not come as a surprise in that Lee, Wong & Sabanayagam (2015) had reported that diabetic retinopathy (DR) is a leading cause of vision-loss globally. In 2015 Lee *et al.* reported that of an estimated 285 million people with diabetes mellitus worldwide, approximately one third have signs of diabetic retinopathy.

It is no longer news that diabetes mellitus causes vision loss on a global scale. It is reported in medical literature (Duh, Sun & Stitt ,2017) that eye complications has left many incapacitated and not been able to support themselves. Though treatment for vision- threatening complications has improved over years, there is need to explore other opportunities to the management of DR.

Despite several researches, there is no research agenda that addresses way in which patient's understand information to manage eye complications. Though the general body of knowledge in medicine makes provision for information on symptoms, prognosis and treatment, none on how concerned individuals manage information for coping with DR. It is when health information is well synthesized that desired health outcome is achieved.

This finding implies that diabetic patients can lose their sight as a result of not understanding of information and the improper monitoring of blood sugar/ glucose. It implies that people living with T2DM can develop eye complications with time. Complications that relates to sight should not be taken for granted.

Weight Loss

Weight loss and body mass index are common features among diabetic patients. Most individuals living with T2DM usually lose a lot of weight. This is due to the fact that diabetic patients regulate and monitor their diets. T2DM is associated with overweight which necessitates reduction in body weight. People living with type 2 diabetes are advised to control their weight in order to control blood sugar. Sudden weight loss in people generally is usually viewed negatively. Participants admitted that evaluating the information received on exercising from Endocrinology Clinic have motivated them in performing regular exercise. However, most diabetic patients believe in themselves that they can control their body weight. This is to achieve desired blood sugar level.Participants in this study setting revealed that they feel they are the centre of attention. Loss of weight in the study setting is associated with AIDS/HIV. This is a great source of concern among participants who were previously overweight. It was revealed that they (participants) are confronted by people frequently about loss of weight. This loss of weight

participants leads to stigmatization in the environment. Stigmatization is to mark out or describe something as bad. In most cases, it is rooted in culture. In some cultural settings such as this study setting, people make other's affair theirs. Reactions to stigma attached to weight loss among T2DM patients can be explained using self –efficacy; one of the constructs of Social cognitive theory (SCT). It is a general theory or Meta theory applicable to various types of human behaviour including human information behaviour.

Ren (1999) and Miwa (2000) used SCT as a model / metatheory to explain human information behaviour in the context of everyday life emphasizing on self- efficacy. Self-efficacy, one of the constructs of SCT theory explains justification for the loss of weight among the participants. It postulates that people generate their thoughts, behaviour and affective states. This in turn affects their thoughts, behaviour and affective states and equally action to be taken. People living with chronic diseases usually have set goals towards managing illness. If individuals believe in their ability to accomplish set goals, then nothing will hinder the accomplishments of set goals. It have been reported by Leontis (2018) that having belief in one's ability plays a great in achieving positive health outcome.

Implication of this finding implies that diabetic patients are bound to lose weight; as a result of diet monitoring and regulation. Weight loss should not only be an issue, but rather living healthy life devoid of diabetic complications.

Orthostatic hypotension (Dizziness)

Findings in this study revealed that participants also experienced dizziness. Participants said they feel dizzy especially at the early hours of the night. Dizziness is medically known as orthostatic hypotension. Orthostatic hypotension is also called postural hypotension. This is a form of low

blood pressure that happens when an individual stands up from sitting or lying position. Dizziness affects three of the participants; stating that getting out of bed especially in the night is a major task. Severe accidents such as falling or fainting can result from dizziness. This finding is very significant as it is life threatening. If dizziness is experienced close to a dangerous object/place, it can lead to severe consequences or to death. This finding is not surprising in that studies (Hateren, Kleefstra, Blanker, Ubink-Velmaat, Groenier, Houweling, Kamper, Meer &Bilo, 2012; Smith, 2013) had indicated that orthostatic hypotension is increasingly recognized as an important factor for cardiovascular disease and mortality. Dizziness is recognized as one of the devastating diabetic complications, but can be managed through access to information.

Access to information makes individual to be well informed about life threatening situations. Providing information for people coping with dizziness is critical. This complication is very devastating when it occurs and help does not come in handy. It can result in serious injury such head injury, fire burns and partial stroke. In some cases, it can result in loss of life. One of the participants who experience this complication revealed that she usually feels dizzy in the middle of the night while lying down. In some cases, her husband is not always around. Her children are still very young and cannot offer her any assistance. Individuals who experience this often should be exposed to information that will inform them on what to do when feeling dizzy. Informing a diabetic patient is wrapped around diabetic patient education. Patient education is crucial in diabetes mellitus management. It is reported in medical literature (Low & Tomalia, 2015) that educating a diabetic patient is hinged on relevant information that will assist individuals in taking necessary decision when feeling dizzy.

The implication of this finding is that people living with T2DM are prone to dizziness. Dizziness can be devastating and disastrous. Diabetic patients should know how to address dizziness, to avoid problems such as head injury.

Blood Vessels Disorders (Vasculopathy)

The finding revealed that participants had complications linked with the blood vessels. These are high blood pressure, headache and insomnia. These indications are referred to as vasculopathy. Vasculopathy is a general term used to describe any disease affecting blood vessels. This complication according to the participants makes sleeping difficult due to persistent headache. Majority of diabetic patients are also hypertensive, and hence have to pay attention to details in coping with and managing diabetes.

Studies have reported that (Rahman, Majumder, Shaban, Rahman, Ahmed, AbdulRahman& D'Souza, 2011; Chawla, Chawla & Jaggi, 2016) type 2 diabetes is a chronic, degenerative, and non-communicable disease, and is associated with a high prevalence of cardiovascular morbidity and mortality. The complications of diabetic vasculopathy are commonly grouped into microvascular and macrovascular complications. In diabetes mellitus, macrovascular complications are the commonest cause of morbidity and mortality and are responsible for a high incidence of vascular diseases.

Implication of this finding is that individuals living with type 2 diabetes mellitus can have stroke or heart failure when improperly handled. Diabetic patients who are equally hypertensive should monitor their blood pressure regularly and rest often/frequently.

Resting tachycardia (Heart beats rate)

Finding revealed that participants had complications linked with heart beat rate. Heart beats (Pulse rate) is the number of heart beats per minute. The resting pulse rate for an average adult is between 60 and 80 beats per minute.Irregular heartbeats signify all is not well. Cardiovascular disease (CVD) is the leading cause of mortality and morbidity in patients with DM. However, diabetes-related microvascular complications also have a significant impact on morbidity and mortality. A participant disclosed that her heartbeat rate scares her a lot. At such times, she said she feared that she might drop dead. It is reported that three quarters of people with type 2 diabetes will die from cardiovascular disease. Hence it is advised that help should be sought promptly by people living with T2DM when irregular heartbeats are experienced.

This finding is not surprising as it have been reported (Low & Tomalia, 2015) that resting tachycardia is a serious condition in type 2 diabetes mellitus management.Resting tachycardia refers to a fast resting heart rate, usually over 100 beats per minute (Nordqvist, 2017; Steinbaum, 2017). This condition can be dangerous, depending on its underlying cause and on how hard the heart has to work. The participant who had this condition disclosed that whenever she has this, breathing becomes very difficult for her. She sweats profusely and this scares her. Some people with tachycardia may have no symptoms or complications. However, tachycardia significantly increases the risk of stroke, sudden cardiac arrest, and death.

The heart is the muscular organ which pumps blood through the blood vessels in the circulatory system. Coping with a chronic metabolic disease implies that the heart is under constant pressure than normal to function. Approaches to managing chronic diseases such as T2DM are shifting from the primary physician or diebetologist to a paradigm of multidisciplinary approach with the patient in the centre of management, playing a key role in guiding his care in partnership with the other specialists. Fostering this paradigm requires patients to be able to interact comfortably with

information to enable self-management of the illness. Self – management is the ability to be able to make decision in relation to illness with little or no support.

Emphasizing patient responsibility and following instructions of healthcare providers, promote using self –management in coping with chronic illness is mandatory. That is moving beyond education to teaching individuals to actively identify challenges and solve problems associated with their illness. Encouraging the fostering of this paradigm is hinged on the provision of appropriate information resources on information behaviour of people with health challenges.

Studies (Fisher &Tahrani, 2017; Wang, Li, Liu, Wang, Guo, Zhao, Li, Fan, Zhou, Mao, Zhang &Wang, 2017; Grady & Gough, 2014) had been conducted that reported that resting tachycardia is one of the causes of mortality and morbidity globally. Resting tachycardia and pulse pressure are convenient measurements but important indicators of cardiovascular diseases. Irregular hearts indicate that concerned individual is about developing heart problem. Cardiovascular disease (CVD) is the leading cause of mortality and morbidity in patients with DM (Fisher & Tahrani (2017).

The implication of this finding is that people with this complication is at risk of having cardiac arrest. It can lead to stroke or death.

Dysglycaemic (Fluctuation of blood sugar)

Findings revealed that participants' blood sugar was not stable. It keeps fluctuating; sometimes it is high or low. Fluctuation of blood sugar level is a common phenomenon in T2DM. Dysglycaemic makes diabetic patients to always feel tired and thirsty. Therefore, diabetic patients suffering from dysglycaemic condition should endeavour to always monitor and control

their blood sugar level.This finding is not surprising as Corsino, Dhatariya & Umpierre (2017) also reported the prevalence of dysglycaemic among hospitalized diabetes patients.

Monitoring of blood glucose level requires diabetic patients to be well informed. To be informed entails having unrestricted access to information that will enhance decision making. Diabetes mellitus is a disease that requires treatment through multi-dimensional approach; starting point is the orthodox medical practitioners, dieticians, information professionals and patient themselves. Interdisciplinary collaboration is the current global trend whereby professionals from various fields collaborate towards societal problem solving. The interdisciplinary approach can be effective in delivering health care to people with chronic disease such as T2DM. This is due to the fact that they require information for self- management and major lifestyle alterations (McGill, Blonde, Chan, Khunti, Lavalle &Bailey, 2017). Information essential for self-management is enhanced through patient education.

The nature of patient education is changing: patients increasingly seek for health information online and offline. Libraries simplify searches for information for both the patients and medical practitioners. Searching for information is becoming cumbersome as a result of information overload. Information overload a situation in which individuals receive information at one time and cannot think about in a clear way to enhance decision making. Physicians are faced with information overload, which hinders their ability to develop high quality patient education (Al-Suqri, Al- Hasmi &Al- Toobi, 2013). Esparza, Shi &Banks (2013) study sought the effect of a clinical medical librarian (CML) on in- patient care outcome. They reported that the most frequent requester of information was attending physicians, followed by third – year medical students on the team. Though it reflected that there was no significance difference between the two groups of in – patients used for the study; but the study stated that it is the largest attempt to

prospectively measure changes in patient outcomes when physicians were accompanied by CML on rounds. According to the authors, they speak out that the approach may serve as a model for further studies to define when and how CMLs are more effective.

In Library and Information Science (LIS), creating access to information is the main mission. People living with chronic diseases such as T2DM requires information to supplement information received through care providers' provision of information. Librarian's role is to ensure unrestricted access to information by healthcare professionals whose schedule is so tight; so also for patients who will require information for decision making. This is highly essential for diabetic patients since the management of the disease is mainly that of self – management. Librarians assist with proper documentation of information and record keeping. Documentation is a fundamental aspect of care provision; in the absence of patient's records, continuity of patient care becomes almost impossible.

The implication of this finding is that improper control of blood sugar level can result in several complications such as diabetic coma; that will require hospitalization to manage/control.

Diabetic Peripheral Neuropathy (Nerve damage)

Participants revealed that they have leg and joint problems. Leg and joint problem is a common phenomenon among T2DM patients. Lower extremity muscle strength is reduced in people with diabetes (Lizerman, Schaper, Melai, Meijer, Williams & Savelberg, 2012). This is so due to the high deposit of blood in the blood stream. Most diabetic patients have leg and joint problem. This complication obstructs daily life activities of T2DM patients.

Leg problem

It is revealed from the findings that participants had leg complications. This is known as diabetic peripheral neuropathy. It is the diabetes damage is the arm region or leg; it is called diabetes peripheral neuropathy. This condition is the result of long – term high blood glucose levels in those who have diabetes (Heizt, 2016). It is a nerve damage caused by persistently high blood sugar. The severity was exposed in the manner in which participants describe the pain they experience. They complained of inability to move about and loss of sensation on the legs. This complication affects the well-being of diabetic patients and day to day activities. This finding is not surprising because it had been stated by Juster-Switlyk &Smith (2016) that diabetes causes a broad spectrum of neuropathic complications including acute and chronic forms of pain affecting each level of the peripheral nerve, from the root to the distal axon.

Joint Charcot (deformity/pain):

Findings revealed that most of the participants have joint problems. This is evident in ways in which most of the participants in the study setting move around. Some of them complain that they feel as if the joint of the leg is stiff. It makes moving about difficult for patients. This is not surprising as this finding has been reported by Juster-Switlyk &Smith (2016) who reported that pain in the feet joint region is a common feature among T2DM patients.

The implication of this finding is that diabetic patients are bound to experience pains on the leg and at the joints. Regular exercise and blood sugar monitoring will reduce the effect of the pain.

Diabetic boils (Boils)

Participants divulged that they do have boils. They indicated that they have phobia for having boils because they learned that the wound from boil will not heal. Boils are skin abscesses. Boils is normal occurrence among diabetic patients (Childs, 2009). This is because they have

reduced immune systems (Tucker, 2012).At times boils can be very exhilarating when diabetes mellitus is uncontrolled. Boils usually is not to be taken lightly in patients with T2DM. This is because its leads to in and out hospitalization. Improper handling of diabetic boils can lead to sore which doesn't heal and subsequently result in amputation if it happens on the leg region. It is dangerous for T2DM to have boils because high blood sugar encourages growth of bacteria, therefore resulting in infections.

Studies (Tucker, 2012; Hatch & Hamstrong, 2016) reported that keeping blood glucose within recommended level for diabetic patients can reduce the occurrence of boils among T2DM patients. Boils are usually caused by bacteria and they can be minimized in individuals living with diabetes by maintaining blood sugar level through goal settings. Goal setting is one of the constructs of SCT. Goals are set in order to achieve desired outcomes. Diabetic patients must be determined to maintain their blood sugar level. Effective management of blood sugar will reduce the tendency of having boil.

The implication of this finding signifies that boils should be handled with utmost urgency by diabetic patients. This will prevent it from deteriorating into such a critical condition that will lead to hospitalization or amputation.

Diabetic Foot Ulcer

Participants disclosed that they do have wounds. They indicated that they have great fear of wounds because they learned that they do not heal, and often leads to long hospitalization or eventually amputation.

Fear appeal makes people living with T2DM to dread this diabetic complication.A fear appeal is a persuasive message that attempts to arouse fear in order to divert behavior through the threat of

impending danger or harm. Fear makes people to be conscious of the vulnerability to risk, and then may, or may not suggest a form of protective action. Despite the fact fear appeal facilitates participants' understanding of information as beneficial; some of the participants do not exercise as a result of cultural norms in the study setting.

Scholars have reported that diabetic foot ulcer is a common occurrence among diabetic patients. Similarly foot complications are considered one of the most expensive diabetic complications to treat. Studies (Miriam, Alemayehu, Tesfaye, Mequannt, Temessgen, Yetwale & Lemnin, 2017; Mishra, 2017; Hatch &Hamstrong, 2016)reported that diabetic foot ulcer is the strongest significant risk factor for amputation. Likewise,Jeffcoate (2018) reported that foot ulcers significantly contribute to morbidity and mortality of patients with diabetic mellitus.

Erectile Dysfunction

Male participants indicated they do experience erectile dysfunction. This can be experienced in two ways; premature ejaculation and poor erection. Finding indicates that ED is reported in different ways; premature ejaculation and poor erection. Participants with this complication were so bitter about their sexual performance. According to them, it is affecting their relationship with their spouses and demoralizing them psychologically. One participant was shy and not willing to divulge the information, but he did eventually as a result of probing. Probing is a scientific technique used by interviewers on individual or focus groups to generate further explanation from research participants.

This is not surprising as medical literature (Maiorino, Bellastella & Esposito, 2014: Binmoammar, Hassounnah, Alsaad, Rawaf &Majeed, 2016) have reported thatED is one of the associated complications of diabetes mellitus that diabetic patients rarely discuss. Erectile

dysfunction is defined as the persistent inability to achieve or maintain penile erection for successful sexual intercourse causing decrease of life of man. It is observed that risk of erectile dysfunction is higher in type 2 diabetes men with poor blood glucose.

The implication of this finding is that having erectile dysfunction can render a male who is diabetic impotent. This can lead to psychological problems resulting in broken home, depression or suicide.

5.3 Information Type 2 Diabetes Mellitus Patients Received from Endocrinology Clinic, ABUTH, Shika to Manage Diabetes Mellitus

To answer this research question, the researcher investigated types of information received by T2DM patients to manage diabetic complications from the Endocrinology Clinic, ABUTH, Shika. Furthermore, the researcher sought to know how participants' make sense of information received to manage diabetic complications.

Findings from research question two revealed that eight typologies of information were received from the Endocrinology Clinic to manage diabetic complications. These include: information on exercise, diet, prescribed drugs, boosting energy, need to promptly seek for help, need to share information and regulation of salt intake. For creating meaning out of the information received to manage complications; trust of orthodox medical practitioners, formal education, personal experience, diabetic education, health outcome and cognitive processes were used.

Table 8- Information received from EC, ABUTH, Shika to manage diabetic complications.

S/NO	Complications	Information received from EC to manage complications	How participants' make sense of information received from EC
1.	Weakness of the body and lack of strength (Myopathy)	- Drug regime - Exercise - Energy boost	- Personal experience - Trust of orthodox medical practitioners
2	Fluid intake (Osmatic symptoms)	Water ingestion	-Trust of orthodox medical practitioners
3.	General body pains (diabetic neuropathy)	- Exercise - Drug regimen	- Personal experience - Trust of orthodox medical practitioners
4	Weight loss	Diet	- Diabetic education
5	Dizziness (orthostatic symptoms)	-Need to share information -drug regimen	- trust of orthodox medical practitioners - personal experience
6	Irregular heart beats	- Need to share information - Drug regimen	- trust of orthodox medical - personal experience
7	High blood glucose (dysglycaemic)	Diet - Diet monitoring - Eating moderately	- Personal experience - Health outcome - Level of literacy - Cognitive processes
8	wound (Diabetic foot ulcer)	Seek for help	- Personal experience - Trust of orthodox medical practitioners
9	Poor erection (erectile dysfunction)	Drug regimen (prescribed drug)	- Trust of orthodox medical practitioners
10	Eye problem (diabetic retinopathy)	Diets (consumption of fruits and vegetables)	- Personal experience - Trust of orthodox medical practitioners
11.	High blood pressure (vasculopathy)	- Need to share information - Drug regimen	- Personal experience - Trust of orthodox medical practitioners
12	Diabetic boils	Seek for help	- Personal experience
13	Leg problem (Diabetic peripheral neuropathy)	Exercise	- Personal experience - Trust of orthodox medical practitioners

Source – Interview Analysis, 2016

Discussion on information received from EC for managing diabetic complication is as follows; starting with information about exercise.

Information about exercise

Findings revealed that participants were instructed to exercise regularly. This is to combat leg problems that participants' experience. Participants' in the study revealed that involvement in regular exercise has assisted in the blood sugar/ glucose level. It is evident from the revelation of the participants that exercising assist in managing diabetes. This finding is not unexpected as Thent, Das &Henry (2013) had reported that exercise plays a crucial role in improving T2DM. It does not only improve glycaemic control, but it can also improve the insulin sensitivity and restore the associated complications such as cardiovascular damage which consider as one of the major complications. Exercise also helps people with type 2 diabetes avoid long term complications, especially heart problems (Leontis, 2017).Regular exercise physical activity are a key part of managing diabetes mellitus. Though some of the participants stated that exercising has assisted in improving their state of health, but societal beliefs and norms in the cultural setting had hindered some of the participants' from exercising.

Societal beliefs are defined as enduring beliefs shared by society members, with contents that are perceived by society members as characterizing their society (Bar- Tal, 2012). A social norm is the accepted behavior that an individual is expected to conform to in a particular group, community, or culture. These norms often serve a useful purpose and create the foundation of correcting behaviors. It is believed in this setting that a woman shouldn't go out to exercise alone except she is accompanied by a member of the family.

Studies have stressed the benefit of physical exercise in the management of T2DM. In line with this assertion, Odunaiya & Oguntibeju (2014) reported that regular physical activity improves blood glucose. Exercise plays a major role in the prevention and control of insulin resistance, prediabetes, gestational diabetes mellitus (GDM) and type 2 diabetes related health complications. Exercising consistently can lower blood glucose level and improve A1C (ADA,

2016). Likewise, Leontis (2018) indicated that physical activity is an important component of treatment plan for type 2 diabetes mellitus. It's also important to have a healthy meal plan and maintain the blood glucose level through medications or insulin, if necessary.

This Implication of the finding is that not exercising regularly by diabetic patients can lead to muscle problems, general body pains, pains in the lower extremities and high blood pressure. In as much as exercising is emphasized in diabetes management, caution must be put into place before embarking any type of physical exercise. Diabetic patients need to consult his/her healthcare provider before choosing the type of exercise to engage in.

Information about Diet

Finding of this study revealed that information on diet is the most important aspect in diabetes management. This is because it helps in blood sugar (glucose) monitoring. Participants mentioned that information received on diet was on five different types of diets. These are; on fruits and vegetables, dietary regulation, inadequate fruit consumption, avoidance of beef consumption and avoidance of starchy foods. According to the participants, since they had been eating right, they noticed the effect on their health. This finding has also been reported earlier by Kam, Puranik, Yadav, Pierre, Manwaring, Srivastava &Yadav (2016) that diet can have a great influence on life quality of those who suffer T2DM as well as those at risk of diabetes. Diabetic diet covers the consumption of fruits and vegetables.

Fruits and vegetables: Participants stated that they received information on fruits and vegetables to manage diabetic complications. They revealed that since they had improved on the consumption of fruits and vegetables, their blood sugar had been stable. Fruits and vegetables are effective in controlling of blood sugar. This finding is not surprising as Asif (2011) reported

based on his study that fruits and vegetables among others things such as exercise, drug regimen; are major approaches to use for treatment of and control of diabetes mellitus. In addition, participants expressed that inadequate consumption of fruits is responsible for the indigestion usually been experienced. According to Asif (2014), fruits play a vital role in human nutrition by supplying the necessary growth regulating for maintaining normal health.

Diet regulation: Findings from the study revealed that dietary regulation is important in the management of diabetes. Participants expressed that their healthcare provider informed them that it is highly essential for them to eat in moderation. The researcher found out that though diet is not the only factor, it plays a crucial role in blood glucose (sugar) level. Diabetic patients are not supposed to eat in large quantity at a sitting; so as not to overburden the body organ. This finding is not surprising as it was also reported by Gray (2015) that diet for individuals with diabetes is based on concepts from clinical research, portion control and individualized life changes. It further mentioned that leading authorities and professional organizations have concluded that proper nutrition is an important part for the treatment of diabetes.

Avoid Red Beef: Participants expressed that they were advised to avoid red beef. According to the study participants, consumption of red beef in diabetes management is not encouraged. It is to be avoided especially by diabetic patients who are equally hypertensive. According to Barnard, Levin & Trapp (2014), meat consumption has been frequently investigated as a variable associated with diabetes risk. Consumption of red beef thrives well among the community where the study was conducted. It is one of the main sources of protein for the populace. Therefore it is important to inform people living with diabetes of the dangers of consuming red beef.

Avoid Starchy Foods: Findings revealed that participants were advised by healthcare providers to cut down on starchy foods. This is to assist in controlling their blood sugar. The researcher found out that in spite of the fact that people suffering from diabetes are advised to reduce intake of starchy foods, some of the patients still take delight in the consumption of starchy foods. They continue to take starchy foods due to the fact most of the participants expressed that there is no alternative to what to eat. Carbohydrate diets should be reduced by individuals living with type 2 diabetes mellitus. This finding is not out of place, Ajala, English & Pinkney (2013) also pointed out that lower carbohydrate and Mediterranean diets assists in lowering blood glucose level in diabetic patients. Diet in diabetes management covers whole range of food intake. Though food composition is essential in diabetes management; it also managed with drug therapy.

Eating well and right is significant to individual's well-being. We eat to live and not live to eat. Composition of foods individuals eat is meant to boost the immune system. Eating well is important whether one is living with diabetes or not. Compositions of foods individuals choose to eat not only make a difference for managing diabetes, but also for individual's wellbeing. Diabetic patients are to strictly adhere to specified diets if they want live without complication.

Comprehensive diabetic diets includes information is on fruits and vegetables; diet regulations; avoidance of starchy foods and avoidance of red beef consumption. Diabetic diets are healthy – eating plan that's naturally rich in nutrients and low in fat and calories. Key elements of diabetic diets are fruits, vegetables and whole grains. In fact, a diabetic diet is the best eating plan for most everyone (Mayo, 2018). It helps to control and monitor blood sugar (glucose), manage weight and control risk factors for heart disease such as high blood pressure and high blood fats.

Diet monitoring in diabetes in one of the most essential routines required of a diabetic patient. This is enhanced through the observation of other diabetic patients whom they are acquainted with. According to the participants, they observe other diabetic patients since it is discovered that those who had been restricting themselves to specify diabetic diets have no problem controlling and maintaining blood glucose. This is similar to the finding reported by Gray (2015) which stated that diet for individuals with diabetes is based on concepts from clinical research, portion control and individualized life changes. It further mentioned that leading authorities and professional organizations have concluded that proper nutrition is an important part for the treatment of diabetes.

Studies revealed that modern dietary management of diabetes involves modification of the quality and quantity of food to be taken (Asif, 2014). It is reported that there is no cure for diabetes; however it can be managed through diets (Johnson, 2019). Feinman, Pogozolski, Astrup, Bernstein, Fine, Westman *et al.* (2015) reported that dietary carbohydrate restriction reliably reduces high blood glucose level and leads to the reduction or elimination of medication. The study presented major evidence for low- carbohydrate as first approach for diabetes management. In the same vein, Kam, Puranik, Yadav, Manwaring, Pierre, Srivastava & Yadav (2016) revealed that diet can have a great influence on life quality that suffer from, as well as those at risk of, diabetes. As such, it becomes imperative for a diabetic patient to pay rapt attention on nutritional aspects; this should cover dietary intervention. The number of people suffering from diabetes globally is on the increase (WHO, 2016), thus it becomes highly important to develop preventive measures involving intervention of diet. In addition to information on diet, participants disclosed that information was received on drug regime.

Information on Prescribed Drugs

Findings revealed that participants realized the importance of prescribed drugs especially drug regimen because healthcare providers emphasized on using the drug as had been prescribed. Drug regimen is very important in the management of diabetes. Drug regimen leads to better outcome in diabetes management. As drug regimen assists in avoiding and managing diabetic complications. According to Singh, Singh, Kumar, Bhandari, kaur & Dureja (2013) educating of patients about prescribed drugs is becoming an increasingly important aspect of public health systems throughout the world. Non adherence to drug regimen, a diabetic patient is susceptible to diabetic complications such as dysglycaemic (high blood glucose), stroke and retinopathy (eye complications) among others.

Studies have emphasized that appropriate management of chronic diseases such as diabetes mellitus, includes proper use of medications (Rodis, Sevin, Awad, Porter, Glasgow, Fox & Pryor, 2017). It leads to better disease control, decrease disease – related complications and improve overall health. A study on the adherence to anti diabetic drug therapy and self-management practice among type- 2 diabetics conducted in south western Nigeria showed that about two third of patients are not adherent (Yusuff, Obe &Joseph, 2008). Adherence to drug regime is promoted through use of drug information.

Utilization of drug information requires the ability to be able to interact with the information. To effectively understand and apply health information in disease management, it must be well synthesized (Robinson, 2010). Kupadia – Kundu (2013) observed that to better understand information, needs of the patients should be identified and efforts be made to provide resources to meet the challenges. This requires proper understanding of health information.

To facilitate understanding of health information, patients should be put through an approach to guide them on how to use sensitive health information for decision making. Use of health information enhances management of diseases (IOWA Health System,). Promoting health literacy, patients' perception on capacity to obtain, process and understand basic health information and services for health decision must be examined.

Recovering from illness depends on the effective use of prescribed drugs by the patients. Using drugs arbitrary will never yield desired health outcome. Patients should be properly informed about drugs recommended for them. Though prescribed drugs do have leaflets about drug information, not many of the patients take the time to go through the information about the drugs they use for coping with their state of health. Nor do they understand information contained on such leaflets to enhance patient education.

Patient education is highly essential for patients who are coping with chronic diseases. This involves teaching individuals on necessary procedures in managing diseases especially, drug information. Patient education in turn fosters patient involvement. Patient involvement is highly essential in diabetes management; in that they are saddled with the responsibility of utilizing information provided for them at the Endocrinology Clinic. It is the active participation in health care decision making, concept of patient participation, patient involvement in health care consultations, factors associated with patient involvement, impact of patient participation in clinical outcome that enhances diabetes management. Patient – centred care is an important paradigm in current care systems (van Pufflen, Rijken, Heijmans, Nijpels, Rutten& Schellevis, 2015).

The implication of this finding implies that managing of chronic diseases such as T2DM involves use of drugs as specified by the healthcare providers. Using drugs indiscriminately means desired health outcomes will not be achieved. It can result in dire consequences.

Information on Boosting Energy

Participants revealed that they receive information on boosting of energy. Boosting of energy is necessitated due to fatigue which is common in diabetes management. Fatigue is not to be taken for granted by individuals living with T2DM. According to Singh, Teel, Sabus, McGinnis & Kluding (2016), fatigue is a persistent symptom, impacting quality of life in people with type 2 diabetes mellitus. Participants said they complain to the healthcare providers. Based on the complaints, participants were advised on the need to boost their energy.

Boosting of energy is necessary due to weakness of the body and lack of strength experienced. To combat the complications, it becomes imperative to boost the energy.Patients with type 2 diabetes regularly experience fatigue, which influences their self-care and quality of life. Fatigue is a classical symptom of hyperglycemia, but the relationship between chronic fatigue and diabetes has not been systematically studied (Goedendorp, Tack, Steggink, Bloot, Bazelmans & Knoop, 2014).

Studies stated that as many as 85% of people with diabetes experience fatigue (Spero, 2016; WHO, 2016). One of the participants revealed that since being diagnosed with diabetes, daily routine has suffered. This is because the strength to function is lacked. And it affects economic status of the family. It is reported that living with diabetes can be tiring, not from the actual diabetes but also from managing the condition in general (Sadick, 2017; Spero, 2016).

Implication of this finding is that T2DM will often feel tired and will require the need to reduce the effect of lack of strength in order to improve their quality of life.

Information on Regulation of Salt Intake

Findings revealed that high consumption of salt is discouraged for individuals living with chronic diseases such as diabetes and hypertension. Participant disclosed that consumption of salt was reduced based on the information received through the healthcare professionals as a result of the complication experienced. Finding from this study equally revealed that some individuals living with diabetes are also hypertensive; which has necessitated the need to reduce the consumption of sodium (salt). For example, participants said that blood pressure reading was so high over a period of time. To combat that, salt intake has to be reduced.

Regulation of salt involves reduction of salt intake. Diabetic patients who are equally hypertensive are not to consume high concentrate of salt or not to take at all. This is to monitor and control blood pressure. Managing both diabetes mellitus and high blood pressure can be very demanding. This is because different information will be required to manage both illnesses.

Diabetes UK (n.d) reported that although salt does not affect blood glucose levels, it's important to limit the amount taken as part of diabetes management because too much salt can raise blood pressure. In 2015, Gray indicted that the recommendation for the general population to reduce sodium to less than 2,300mg per day is also appropriate for people with diabetes. According to him, he is of the opinion that for individuals with both diabetes and hypertension, further reduction in sodium intake should be individualized.

Implication of the finding is that excessive consumption of salt is discouraged for diabetic patients who are equally hypertensive. It will affect the blood pressure and could result in stroke.

Information on the Need to Promptly Seek for Help

Finding from this study revealed that it is very important to know when and how to seek for help if living with diabetes. If complication is been experienced, seeking for help or advice straightaway from the healthcare professionals is highly necessary. Participants revealed that they had complications during data collection for this study but did not go to the hospital in time. Not seeking for assistance in time lead to them been hospitalized. Tidy (2017) pointed out that acting quickly and following advice helps to keep glucose levels in the normal range or slightly high. Because it can sometimes be difficult to control blood glucose levels, treatment in the hospital may be needed. Participants who revealed that they were advised to always seek help quickly expressed that, doctor warned that they should not stay at home whenever they have a wound. According to the participants, not seeking help in time resulted in a serious problem. Since then, they have been prompt in seeking for help whenever there is unusual situation. Mertig (2011) observed that it is very important for care givers and the patients to recognize when the need to seek for help arises. This type of education should be included in diabetes teaching and reinforced throughout the ongoing care process provided through medical support.

Seeking for help promptly requires an individual to source for information that will enhance illness management. This will enhance decision making and reduce complications. Seeking for assistance when is rather late is discouraged in medical circles. Handling of diabetic complications is simplified if help is sought in time. For instance, some of the participants complained of having boil. They stayed home at without seeking for medical intervention. That neglect led to months of hospitalization; due to the fact that wound from the boil refused to heal in time.

Studies (Binmoammar, Hassounnah, Alsaad, Rawaf & Majeed, 2016; Bhutani, Karla, Lamba, Verma, Saini& Meenakshi, 2015) emphasized the importance of seeking help in time to manage medical conditions. It is believed that a stitch in time saves nine. Acting appropriately as when due goes a long way in addressing problems. Unfavorable experience of people with T2DM have necessitated that help should be sought whenever they have any complications. This will help in designing intervention to put the situation under control.

In LIS, information seeking is usually triggered when there is need for information. Individuals usually seek for information to address a pressing problem such as diabetic wound. This is embedded in human information behaviour. Information behavior is the term currently used to describe the many ways in which human beings interact with information in particular, the ways in which people seek and utilize information (Bates, 2010). Similarly, Case (2002) defined information behavior as behavior that encompasses information seeking as well as the totality of other unintentional or passive behaviors (such as glimpsing or encountering information) as well as purposive behavior that do not involve avoiding information. Information seeking is the purposive seeking for information as a consequence of a need to satisfy a goal (Wilson, 2000). Information needs stress the requirement of the identification of a need. It affects the entire information seeking process depending on the rightly determined information. Similarly Devin (1983) defined information needs to implies a state that arises within a person suggesting some kind of a gap that requires filling. Participations in this study setting seek for information from EC to address various complications experienced.

The Need to Share Information

Finding of this study revealed that the need to share information is paramount to right diagnosis and providing care in the management of chronic diseases such as T2DM. This will enable the care provider to provide the necessary information for the patients. Revealing necessary information by the patients will point out where to direct needs; guide in the prescription of the right drugs to combat diabetic complications. Information is needed by the doctors who take care of patients; so that they give the best possible care and treatment. Participants who refused sharing information with her healthcare provider felt she can handle the situation by herself. Chiropodist (2017) stated that sharing information about diabetic complications is something that should not be taken carelessly. Some participants feel they can handle situation by themselves. Thus they fail to share critical information with healthcare providers. Effective management of type 2 diabetes is said to begin with the very first conversations held between an individual and their physician (IntroDia, n.d.). This is because it helps people in maintaining a healthy life. Data sharing capabilities are important for faster communications and results can greatly benefit the patient (Booth, 2017).

Information sharing entails providing detailed information that will facilitate providing care and decision making. It is generally believed that problem shared, is problem solved. This will be achieved if information is shared appropriately. It is the responsibility of the patient to share information about his/her state of health with the healthcare provider. One of the participants who had resting Tachycardia, insomnia and orthostatic hypotension but she mentioned she did not reveal the complications to her healthcare providers whenever she attend Endocrinology Clinic. Patients who often hold back from asking questions or sharing information / opinions, ends up being less involved than they could be in their own decision making (Weir, 2012). This is not surprising as Zill, Christalle, Muller, Harter, Dirmaier & Scholl (2014) observed that

effective communication with healthcare providers has been found as relevant for physical and psychological health outcomes as well as patient's adherence. In a scenario whereby a patient hide information from healthcare provider, it usually lead to providing a wrong guide and will definitely result in inappropriate apportion of blames when the unexpected happens.

Not sharing information with the care providers is linked to information avoidance. Information avoidance is the deliberate selection of information to use or not to use. It is a deliberate act. Participants in the study setting use information avoidance to create their own reality (Ratner, 2016). People actively avoid information that they feel might threaten their sense of wellbeing or happiness. People often avoid information that can help them make better decisions; usually when they the information is painful. Hoarding of information is synonymous with not sharing information.

Hiding of information is when patients deliberately withholds health information from their care providers. Care providers usually want to know a lot about a patient's medical history to treat them effectively. Participants decide to withhold at least some information from their doctors. Many people simply hide sensitive information from their doctors as it is today, and so giving patients more control could increase how much information they feel comfortable sharing–and improve their care in the process. In some cases, hiding information can be visualized from social cognitive perspective.

Social Cognitive Theory (SCT) can be used to explain the act of not sharing information with healthcare providers especially in relation to cultural beliefs. Most of the participants in the study are Northerners in Nigeria; it is frowned out for a woman to interact with a man who isn't a family member. Most people who have this notion fail to differentiate between sharing

information on life threatening situation and a normal day activity. The researcher encountered this scenario with one of the participants who usually do not share information with her doctor. An enquiry about complication experienced that is supposed to be shared with the doctor was sought from the researcher who is not a medical practitioner. The researcher took it upon herself to contact a doctor; shared the information with him. The situation was addressed accordingly and information relayed back to the participants. This is in line with the construct – Triadic reciprocal, one of the constructs of SCT.

The implication of this finding is that when patients hide information, it misleads the healthcare provider; thereby distorting decision making. Providing help to individuals with a chronic disease is usually guided based on the information revealed by the participants/patients through probing. Not sharing information will result in in wrong prescription, complications and in severe cases it can end in loss of life; and inappropriate decision making.

For sense making of information received through Endocrinology Clinic, participants expressed that they understood the information through personal experience, formal education, diabetic education, literacy level, assimilation and accommodation of information. They are discussed as follows starting with personal experience.

Personal experience and worldview of people serves as guide when making decisions. Personal experience of a human being is the moment-to-moment experience and sensory awareness of internal and external events or a sum of experiences forming an empirical unity such as a period of life. Experience is said to greatly assist in managing and coping with chronic diseases such as type 2 diabetes mellitus (Namukhula, 2015). Live experience usually simplifies the understanding of information. Complications experienced by diabetic patients enhance decision

making whenever information related to the complication is shared among the patients. Aside personal experience, diabetic education is mentioned to have assisted in making sense of information.

Diabetic education is the routine lecture given to diabetic patient at the Endocrinology Clinic. Diabetes education is the cornerstone of diabetes management, because diabetes requires day-to-day knowledge of nutrition, exercise, monitoring, and medication (Bonsignore, 1997). Diabetes education allows patients to better incorporate education into their lives and make the essential changes to improve your lifestyle. Educating diabetic patients will assist them in taking the illness as a way of life (Khunti, Gray, Skinner, Carey, Realf, Dalloso, Fisher, Campbell, Heller & Davies, 2012). Diabetic education is enhanced with the ability to mentally process information received through the EC. This mental ability will facilitate assimilation, accommodation and equilibration of information. Diabetic patients are exposed to multifarious information for managing diabetes mellitus. Ability to apply the information relies on the assimilation of the information.

Assimilation is the process of taking in and fully understanding information or ideas. T2DM involves self-management by the patients. Self-management is a dynamic process in which individuals actively manage a chronic illness (Schulman- Green, Jaser, Martin, Alonzo, Grey, McCorkle, Wald, Redeker, Reynolds & Whittermore, 2012). It is only when information is well understood that will enhance self-management practices. The success of population health and chronic disease management in this present day of information explosion requires patients to assimilate health information from various sources (Mortona, Dennisona, Mayb, Murrayc, Littled, McManuse & Yardleya, 2017). Utilization of information from sources for management of T2DM is not limited to assimilation alone but accommodation.

Accommodation is changing and altering our existing schemas in light of new information and putting it into use (Piaget, 1997). Information for diabetes management is dynamic. Studies on diabetes management are continuing, to assist patients to lead a quality life. When diabetes patients encounter new information for instance information about diabetic diet, there will be the need to alter the existing known knowledge and put it into use in order to achieve desired health outcome.

Equilibration allows a person to strike a balance between existing and newly acquired knowledge. T2DM patients must be able to strike such a balance between existing information and new one. Emergence of new information is centred mostly on diabetic diets. It is expected of the patients to be able to accept new information. This is to enhance effective management of the disease in order to avoid diabetic complications. Self-management of diabetes involves exercising regularly.

5.4Sources of Information Consulted outside Endocrinology Clinic, ABUTH, Shika for Managing Complications from Diabetes Mellitus

This research question investigated other sources of information through which participants received information for managing diabetic complications outside Endocrinology Clinic. To answer this research question, the researcher requested the participants to identify other sources of information aside EC.

Seven sources were identified by participants as other sources of information utilized for managing diabetic complications outside Endocrinology Clinic. These sources are; family members, friends, traditional medical doctors, neighbours, other diabetic patients, mass media

and colleagues. Discussion of finding is as follows starting with family members as sources of information for managing diabetes mellitus. Family members are instrument to managing chronic diseases such as type 2 diabetes mellitus.

Family Members as Source of Information

Finding revealed that participants receive information through their family members' for managing diabetes mellitus aside information received from Endocrinology Clinic. These include information from spouse (wife/husband), sons, daughters, brothers and sisters. Participants expressed that they received information through their family members. These are information on diabetic diets, the need to exercise regularly and taking medications regularly.

This finding is not surprising as studies (Rad, Bakht, Feizi & Mohebi, 2013; Muller & Dimatteo, 2013) have emphasized the importance of family members in coping with chronic diseases such as type 2 diabetes mellitus. Much of a patient's diabetes management takes place within the family and social environment (WHO, 2002). In 2013 Muller & Dimatteo, reported that family members play cognizant role in the lives of individuals living with diabetes. Social support from family provides patients with practical help and can buffer the stress of living with the illness. One of the participants narrated that her husband participates intensely in the management of her illness. In 2013, Rad, Bakht, Feizi & Mohebi observed that getting the family member especially the spouse involved in self- care behaviour can be of significance importance in providing health care to people living with diabetes. Similarly, another participant stated that she relies heavily on her son for information. She is not literate, so her son assists her in gathering viable information in diabetes management. According to Dimatteo (2004), social support can benefit patient's health by buffering stress, changing affective states, increasing self – efficacy and influencing

change in negative health behaviours. It is evident from the narratives of the participants that family members are more or less like the backbone of their strength in living with diabetes.

Studies have not actually indicated the role of family support in the control of blood sugar levels (Rindala, 2013; Baig, Benitez, Quinn, & Burnet, 2015). Though it had been reported that family members play a crucial role in maintaining lifestyle changes and optimizing diabetes management. In another vein, Vitger, Langberg & Grabowski (2017) support the fact that assistance from family members is essential in diabetes management but that not all support is reliable. In other words, they (Vitger, Langberg & Grabowski, 2017) are of the opinion that relatives can also have negative impact on patient's management by representing a barrier rather than a facilitator towards healthy behaviour. It was revealed by one of the participant that one of his family members usually cajoles him to take alcoholic drinks. That a little of alcoholic drink will not affect his state of health in anyway. This affirms the assertion of Vitger, Langberg & Grabowski (2017) who are of the view that relatives do not always provide relevant information for illness management.

The implication of this finding is that since family members plays active role in a patient's disease management, involving them in self – care intervention will positively influence patient's diabetic outcome. People tend to believe in their immediate family member than someone not known to them. Equally, diabetic patients should be wary of information received from family members. Such information should be confirmed before utilizing it for managing their condition. Use of inappropriate information will result in an unwanted outcome which might likely lead to hospitalization and economy burden

Friends as aSource of Information

Participants stated that they received information through friends. Finding of the study exposed that participants emphasized how supportive their friends had been in the management of diabetes mellitus. Participants in the study setting revealed that relationship with their friends had been a great impetus assisting them in managing diabetic complications experienced. Information received from the source participants indicated that it has been of great importance to them because they relate to them in a way in which they understand easily. Friends are an important but often overlooked source of support for chronically ill (Rosaland, Heisler, Janevic, Connell, Langa, Kerr & Piette, 2013).

Studies have reported and emphasized the importance of social support people in coping with chronic diseases. Social support through friends play significant role in help –seeking process. Patients search for information from people around them to enhance decision making. Low, Tong & Low (2010) reported that social influence plays a significant help in information seeking process for people living with chronic illness such as type 2 diabetes mellitus. Once diagnosed, the patient source for information from people around them to enhance decision making. This is funneled through placing reliance on the source of information.

Individuals have great reliance on information received through friends. Friends actively influence and provide information related to the management of diabetes. Most of the participants in this study stated that they receive information through their friends that had been assisting them in the management of diabetes at varying periods. Friends are pivotal when living with a chronic disease (Metzger, 2016) and play important roles in influencing decision making. People living with chronic diseases usually have more contact with friends. They tend to rely more on information that emanate from this source. It is therefore in order to say friends are supportive organ for an individual living with diabetes mellitus. Friend support for persons with

diabetes is of benefit to their self-care (Vaccaro, Exebio, Zariri & Huffman, 2014) and positive social support in coping with diabetes (Peters, Nawjin & van Kesteren, 2014). Findings from this study revealed that friends are very instrumental in the lives of people living with diabetes mellitus. Social support plays a pivotal role in patients with diabetes and it is important in enabling them to cope effectively with the disease (Ramikisson, Pillary & Sibanda, 2017). It helps in reducing emotional distress associated with living with diabetes.

The implication of this finding is that burden of bearing the weight of a problem will be made easier through support and encouragement received as resulting of bonding. Providing assistance to individuals living with chronic disease/s will enhance effective management. They will be encouraged to accept at the condition as a way of life instead of creating a state of denial.

Colleagues as a Source of Information

Similar to friends being used as source of information, colleague/s equally featured as a source of information for managing diabetes mellitus. It was revealed from the findings by participants that their colleagues share information they encounter about diabetes mellitus with them. They do that because their health status is known to fellow co – workers. It had been reported by Kadirvelu, Sadaswan & Ng (2012) that colleagues play a role in disease management. They emphasized the importance of support from colleagues and that healthcare providers should not be restricted to prescription only but to also engage in having a deep communication with patients in order to know other sources of information.

Colleagues at work can be instrumental in providing information to an ill colleague. This is enhanced through information sharing. Information sharing involves discussing issues with others whom one relates with. Colleagues can encounter information which is crucial to

managing an illness. Such can assist in coping and managing illness. Colleagues can only render assistance to a co-worker when the concerned person/s makes their state of heath known to others. Ruston, Smith & Fernando (2013), have a contrary opinion about this finding. Their study reported that little research has examined the way employees with diabetes manage their disease in the workplace. Furthermore, it stated that there is need to increase the awareness of managers of the long and short term economic benefit of supporting employees with diabetes to manage their disease effectively whist at work.

The implication of this finding is that if the colleague providing the information to the patient is not an individual who well informed, it will further complicate the problem for the patient instead of assisting in the coping and management of diabetes.

Neighbours as a Source of Information

Based on the finding of this study, it is evident that participants equally received information for managing diabetes mellitus through neighbours. To manage the impact of chronic condition like diabetes successfully, chronically ill people need adequate support from healthcare providers and equally support from their informal network It is held that neighbours are closer to individuals than immediate family members and are the first rescuers in times of emergency. Helping a neighbour is like giving a loan; it can be repaid in kinds. Neighbours / spirituality/ faith interfere positively in addressing the barriers and difficulties of life, strengthening the resilience of the patient, thus improving their quality of life (da Rocha & Ciosak, 2014).

People living with chronic diseases such as T2DM tend to rely on information received through social ties, socialization and use of the sources is as a result of the trust. Participants' in the study in this study setting received information from sources associated to social ties (family members,

friends, colleagues and neighbours). Social ties are the connections among people that are used for sharing information, knowledge, feelings, and experiences. Social ties can be weak, strong, or latent based on the extent of exchanges and interactions between two nodes. Likewise, socialization is broadly defined as "a process in which an individual acquires the attitudes, behaviors and knowledge needed to successfully participate as an organizational member (SHRM, 2006). Socialization is an ongoing process that sometimes lasts for a year. It represents a sense-making process that helps new hires adapt, form work relationships and find their place in the organization. In as much as sources of information associated with social ties and socialization is indicated as important in coping with chronic diseases, trusting the sources is equally a subject of concern. Trust is the firm belief in the character, strength or ability of someone or something. It also means to place confidence in something. This accounts for fact why participants in this study setting rely on information received through family members, friends and colleagues. Trust is central to interpersonal relationships.

In the literature (Cole, 2017; van Houtum, 2015;Vaccaro, Exebio, Zariri & Huffman, 2014;da Rocha & Ciosak, 2014)(; Rosaland, Heisler, Janevic, Connell, Langa, Kerr & Piette, 2013; Kadirvelu, Sadaswan & Ng, 2012) social ties is confirmed to be a significant source of information for people coping with chronic illnesses. Family members are responsible for giving meaning to life and also main source of strength to cope with chronic illness such as T2DM (. It is not surprising that participants' in this study setting indicated that information received through socialization and tie strength has been assisting in coping with diabetes mellitus. These individuals are always around when a family member is battling with chronic illness. Information from this source is trusted by a sick person; it is held that they will never do anything to have a negative effect on their state of health.

Implication of this finding is that having a cordial relationship with social ties such as family members, friends, colleagues and neighbours can come in handy in times of emergency; help usually come through such medium and it could be lifesaving. Therefore, it is recommended that people living with chronic diseases should be make their state of health known to those living close to them. This will assist in providing the necessary help in time of emergency.

Traditional Herbal Doctors as a Source of Information

Finding from this study revealed that participants also received information through the traditional herbal doctor for managing diabetic complications. They added that though they go for routine Endocrinology Clinic but they still rely on information received through traditional herbal doctors.

Social Construction of diseases of T2DM in Zaria metropolis is rooted in culture. Social construction of reality of the participants' is beclouded by their immediate environment. Social constructionism holds that individuals and groups produce their own conceptions of reality, and that knowledge itself is the product of social dynamics. There is a distinction between the medical notion of disease and the social constructionist concept of illness. Social constructionists' concept of illness posits that illness/diseases are the social meaning of the condition. On the other hand, medical practitioners believe that disease/illness is abiological condition, universal and unchanging whereas particpants' believed otherwise. Illnesses are socially construed at observed level based on how individuals come to understand and cope with illness. This is evident among the participants' in this study setting. They used herbal medicine due to the fact that it is widely accepted in their domain.

Herbal medicine is popular among general populace in developing countries like Nigeria for treating illnesses. Herbal medicine is used by individuals due to different reasons. It is been used by some individuals because of easy availability. Likewise, those who sell those herbal drugs use advertisement to convince people to buy them. Similarly, such herbs are usually taken to the domain of the intended users; creating easy access for people who might need them. People coping with chronic illness tend to use herbal medicine due the ease in accessing information from such sources. They do not have to go through any protocol before accessing information unlike in an orthodox medical setting. Use of traditional medicine in managing diabetes had been reported in Nigeria.

Studies (Chege, Okalebo, Guantai, karanja & Derese, 2015; Rutrbemberwa, Lubega, katureebe, Oundo, Kiweewa & Mukanga, 2013;Conrad & Barker, 2010) also stated that herbalist in Kenya are unduly consulted for the management of many diseases including Type 2 diabetes mellitus. Particpants' use traditional medicine due to the fact that the orthodox care centres are out of reach and having difficulties accessing hospitals.

The implication of this finding is that orthodox medical practitioners should always probe the patients intensely so that conflicts will arise in the diabetes outcome based on treatment received from both the orthodox and unorthodox platform.

Other Diabetic Patients as a Source of Information

Finding revealed that participants in the study setting equally received information for managing diabetes through other diabetic patients with whom they attend EC together. Information is usually shared through interaction between the patients while waiting to see their healthcare providers. Interactive discourse between two or more individual is usually beneficial because it provides opportunity for patients to rob minds and share ideas. Interaction among patients is further enhanced through socialization.

Socialization among participants assists in creating the reality of the disease to enhance coping and managing the disease. Socialization is the process by which individuals acquire knowledge, language, social skills and value to conform to the norms and roles required for the integration into a group or community (Cole, 2017). Social support and informal socializing is of great help in glycaemic control among participants. According to the participants, interaction they have with friends had helped on several occasions especially on the types of food to eat and quantity; so also about the right time to take the reading of blood sugar.Socialization between participants' had assisted in keeping track of blood glucose level.

Studies(Yokobayahi, Kawachi, Kondo, Nagamine, Tani, Shirai, & Tazuma, Tucker (2016)2017; St Jeans,2012) have reported that socialization have assisted in coping with chronic diseases such as T2DM. Scholars are of the view that it is easy to align with individuals of like interest who provide information based on life's experiences. Also in 2012, St Jeans stated that management of disease by individuals living with a chronic disease is based on personal experience or interaction with someone who has similar condition. Coping with chronic disease such as type 2 diabetes mellitus is enhanced through interaction with social groups. It is much more effective than public participation. The participants in the study revealed that they learn

from one another through discussions usually centred on individual experiences in living and coping with diabetes mellitus.

The finding of this study did not come as a surprise at all as Bostrom, Isaksson, Lundman, Graneheim & Hornsten (2015) also stated that it is important to achieve interaction that is patient – centred that reveals each patient's individual needs and avoid responding to all patients in the same way.

Mass Media as a Source of Information

Aside information received through other diabetic patients, participants' equally indicated information is received through the mass media. Based on the finding of this study, participant also received information through mass media; specifically through the radio, television, textbook and Internet for managing diabetes.It is revealed that both the educated and uneducated among the participants received information through the various mass media. But the enlightened one usually surfs for information that assists them in managing their illness. According to the participants, using the various media of information has been of great benefit to them. This source was revealed to have assisted in controlling participants' blood glucose. They emphasized that they use the various media for sourcing for information before their appointment with their healthcare providers. Participants disclosed that they listen and watch various programmes on both the radio and television. This, they said had been assisting them in managing their condition. According to the participants, they usually target the programmes because they are very informative. One of the participants who said he received information through the mass media stated that, he does not need to see his healthcare provider before he knows his blood pressure reading and sugar level. This is because he learned how to do that through the media.

This findings have been reported in the literature (Oldensberg, Taylor, O'Neil, Crocker & Cameron, 2015;Wakefield, Loken & Hornik, 2014; Catalan – Matamoros, 2011;de- Graft Aikins, Bojnton & Atanga, 2010) that media campaigns have been used in an attempt to affect health behaviours in mass populations.Mass media is the means used for communicating information to the general populace. A vast majority of the populace worldwide relies on the mass media for information on various issues.Mass media are widely used to expose high proportions of population to messages through routine uses of existing media, such as television, radio, and newspapers. Mass media are intensively employed in public health .These media are employed at all levels of public health in the hope that three effects might occur: learning of correct health information and knowledge, the changing of health attitudes and values; and the establishment of new health behavior. Mass media can produce positive changes or prevent negative changes in health behaviours across large populations.Mass media is a key site for disseminating information on chronic diseases such as diabetes. The mass media can be used to foster changes in lifestyle behaviour that foster the development of chronic diseases.

The implication of this finding is that since it is evident that reliance is placed on media outlets for information, experts should be involved in various programmes that are meant to promote health behaviour change in individuals with chronic illness.

5.5 Contradiction between information received from Endocrinology Clinic, ABUTH, Shika and Participants' Prior Knowledge about Diabetes Mellitus

To answer this research question, the researcher sought the participants' prior knowledge about diabetes mellitus before exposure to information at Endocrinology Clinic, Zaria. Furthermore, participants' knowledge after commencement of EC was equally investigated (See Chapter 4,

pp.:102). This enabled the researcher to establish how information received from EC contradicted participants' prior knowledge about diabetes mellitus. Discussion of finding is as follows starting with participants' prior knowledge before commencement of EC.

Prior Knowledge about DM before Commencement of EC, ABUTH,Shika

Seven areas were identified by participants concerning their prior knowledge about diabetes management prior to attending Endocrinology Clinic. These are diabetic patients will die early; people with diabetes can only take beans; they believe wound will not heal, excessive weight loss, drug regimen, physical exercise and conflicting information. Details about participants' prior knowledge are shown on table 9.1.

Table 9.1 – Participants' Prior Knowledge about Diabetes Mellitus before Commencement of EC, ABUTH, Shika

S/No	***diabetes mellitus***	***Participants' prior knowledge***
1.	Early death	Participants believed once diagnosed with diabetes mellitus, they will die early.
2	Diabetic diet	Diabetic patients can only take beans and cannot take anything sweet.
3	Diabetic wound	Participants that they believe wound in someone with diabetes cannot heal.
4	Weight	That anyone living with diabetes mellitus will lose weight excessively.
5	Drug regime	Medications can be taken anytime.
6	Physical exercise	Do not know that physical exercise is important for managing diabetes
7	Information for managing diabetes	Participants revealed that they are not aware that eating in portion in very important.

Source: Interview Analysis, 2016.

Information received about DM from EC

Eight areas were identified relating to knowledge acquired about diabetes management from Endocrinology Clinic. Participants learned that being diagnosed with diabetes does not mean

dying early, a diabetic patient can eat anything, exercising is important for diabetic patients; prescribed drugs are to be taken as indicated by care providers, having diabetes does not necessarily mean patients will lose weight, wound can heal with proper attention; that low blood sugar can be boosted taking a soda water. Also, participants said knew that it is important to exercise regularly, diabetes can lead to loss of sight; also participants said they never knew that drinking alcoholic drinks is bad for diabetic patients. Also participants indicted that they are in state of confusion in regards to information received about diabetic diets. Information from EC is reflected on table 9.2.

Table 9.2- Information Received from EC, ABUTH, Shika.

S/No	***Information about diabetes mellitus***	***Information received from EC about diabetes mellitus***
1	Early death	Living with diabetes does not lead to early death.
2	Diabetic diet	A diabetic patient can eat anything but in ration and plenty of vegetables. That information about diabetic diets results in a state of confusion.
3	Diabetic wound	Diabetic wound would heal with proper management.
4	Weight	Having diabetes mellitus is not associated with excessive weight loss.
5	Drug regime	Medications have to be taken as specified by care providers.
6	Physical exercise	Physical exercise is very important for someone living with diabetes mellitus.
7	Information for managing diabetes	It can lead to loss of sight. Also that a diabetic patient should avoid alcoholic drinks.

Source: Interview Analysis, 2016.

Contradictions between Prior Knowledge about DM and Information Received from EC

Findings of this study revealed that seven areas were identified by the participants on which information received from Endocrinology Clinic contradicted their prior knowledge about diabetes mellitus. This is information on mortality rate, dietary regulations, wound management, weight management, herbal medicine, physical exercise and conflicting information. Areas in

which information received from Endocrinology Clinic contradicted prior knowledge is presented on table 9.3;

Table 9.3 Contradictions between prior knowledge about diabetes mellitus and knowledge acquired from EC, ABUTH, Shika.

S/No	***Prior knowledge of diabetes before commencing EC, ABUTH, Zaria***	***Knowledge of participants about diabetes after commencing EC, ABUTH, Zaria***
1	Participants believe they will death early from diabetes mellitus	Diabetes mellitus do not cause early death.
2.	Diabetic patients can only eat beans and acha.	Diabetic patients can eat anything but in moderation and high portion of vegetables. Specific fruits can be taken.
3.	Participants said they thought they use prescribed at anything diabetic patients without adhering drug regimen.	Drugs should be taken as specified by the healthcare providers.
4.	Participants do not know it is important to partake in physical exercise.	Physical exercise is important in diabetes management.
5.	Participant said they can never take sugar.	Sugar or sweet carbonated drink can be taken to boost low blood sugar.
6.	Once diagnosed with diabetes, there will be drastic weight loss and not aware that weight should be controlled among overweight individuals.	It is important to control weight among overweight people. Also, living with diabetes does not necessarily mean a drastic weight loss.
7.	Participants that wound will never heal when living with diabetes mellitus.	Wound will heal with prompt attention and care.

Source: Interview Analysis, 2016.

Finding in this study setting reveals that prior knowledge of diabetic mellitus patients in Zaria metropolis is rooted in social construction of reality, habitus and normative behaviour. Social construction of reality refers to the way we present ourselves to other is shaped partly by our interaction with others as well as by our experiences (SparkNotes Editor, 2006). Habitus is ingrained habits, skills, and dispositions. It is the way that individuals perceive the social world around them and react to it (Bourdieu, 1977). These dispositions are usually shared by people with similar backgrounds (such as social class, chronic diseases, nationality, ethnicity, education, profession etc.). The habitus is acquired through imitation and is the reality that individuals are

socialized which includes their individual experience and opportunities (Lizardo, 2004). Thus, the habitus represents the way group culture and personal history shape the body and the mind, and as a result, shape present social actions of an individual. Likewise, normative behaviour is those people use in society that is agreed upon by society as correct (Elsenbroich & Xienitidou, 2012). Society and culture are interactive as culture are the behaviors, ceremonies, values and beliefs of society and creates the behaviors accepted by or rejected by society.

On the basis of social construction of reality, habitus and normative behaviour, individuals can construe reality in any way that conforms to what is accepted in the society. Participants are exposed to information that do not foster the control, coping and managing diabetes mellitus outside the Endocrinology Clinic. Prior knowledge of diabetic mellitus patients in Zaria metropolis is that mortality rate is high among people diagnosed with type 2 diabetes mellitus. Mortality rate is a measure of the number of death during a particular period of time among a particular group of people. The participants revealed that they were informed outside Endocrinology Clinic that once an individual is diagnosed with diabetes, lifespan is automatically reduced. Finding from this study reveals that participants believed that they thought they are liable to die early once they are diagnosed with diabetes mellitus. Such information led to loss of lives among DM patients. Similarly, type 2 diabetes mellitus patients in Zaria metropolis lack knowledge about diet regulations. Finding in this study indicated that participation have no idea that diet is supposed to be monitored/regulated by a diabetic patient. Some of the participants indicated that they believed that it is only wheat and beans that they can consume. Similarly, they indicated that prior to commencement of routine Endocrinology Clinic; they thought a diabetic patient is supposed to avoid fruits and vegetables.

Having identified areas of contradictions between prior knowledge and information received from EC, social construction of reality of DM patients in this study setting has contradicted the social construction of reality of orthodox medical practitioners as regards information received from EC. Furthermore, contradictions between prior knowledge of participants and knowledge acquired from Endocrinology Clinic were; diabetic diet is not restricted to wheat and *acha* only but can eat anything but in moderation. Also, that particular fruits and vegetables can be taken by diabetic patients. Participants indicated that belief that wounds will never heal in a diabetic patient is wrong.Wounds heal with proper care. Participants expressed that prior knowledge on the consumption of sugar is that diabetic patients cannot consume sugar. They knew after commencing the Clinic that sugar can be consumed to control low blood sugar. Similarly, participants specified that they thought medications can be used when they like, but they now it is necessary to use medication/s as said by the doctors. Also, participants revealed that they never knew of the importance of exercising in diabetes management; but attending Endocrinology Clinic made it known to them that regular exercise is important for blood sugar control. Contradictions between prior knowledge of participants and what became known to them at the Endocrinology Clinic created confusion among the participants. They admitted that what they believed all along was that only beans and acha should be consumed by diabetic patients; but now anything can be eaten. This has created a state of confusion in participants in the study as a result of conflicting information received at the Endocrinology Clinic. Participants stated that they do not know which information to believe.

Conflicting and confusing information among people coping with chronic illness like type 2 diabetes results in rejection and non-use of health information. Participants revealed that it is previously known that it is only beans and *acha* that should be eaten. But now, care providers

advised that they can eat any type of food with a high percentage of vegetables. Also that fruits can be consumed by diabetic patients. Conflicting information results in cognitive dissonance.

Cognitive dissonance is the discomfort experienced by persons who simultaneously hold two or more contradictory beliefs, ideas or values. Contradictory information about diets led to the rejection of information among the participants in the study. Information rejection is the refusal to accept information due to disbelief or error. Participants indicated that they initially knew that only beans and *acha* should be eaten; but now it is said that they can eat anything. As such, participants indicated they will stick to what is known previously. New information or ideas are rejected or ignored as a result of prior knowledge, prejudices, cultural, or religious attitudes. Additionally, there is an inherent human response of distrust in information that gives a reluctance to accept new ideas. Participants indicated they do not believe that they can eat anything so they refuse accommodating new information into existing knowledge.This new information can be conflicting to initially held beliefs.

Conflicting health information is a growing problem worldwide. It is reported (Townsend, 2017;Carpenter, Geryk, Chen, Nagler, Dieckmann & Han, 2015;Carpenter, Elstad, Blalock & DeVellis,2014;Elstad, Carpenter, Devellis & Blalock, 2012;Vidal, Shavit, Fraser, Paul & Lleibovici 2005;Eysenbach, 2003) that patients, providers, caregivers and policy makers are expected to evaluate conflicting health information from different sources, judge whether the information is credible and decide how to respond. Helping type 2 diabetes mellitus patients in Ec, ABUTH, Shika process and evaluate conflicting health information is an increasingly important need in health care, yet for several reasons, this need remains largely unmet. Studies of the prevalence, causes and effects of conflicting health information have been limited. People may encounter conflicting information actively, while searching for health information or

passively, as recipients of unsolicited health advice. Conflicting health information originates from professional and lay sources including the Internet, written materials and personal testimonials. Cognitive dissonance can be combated through transformative leaning.

Transformative learning involves experiencing a deep, structural shift in the basic premises of thought, feelings, and actions. It is a shift of consciousness that dramatically and irreversibly alters our way of being in the world. Such a shift involves our understanding of ourselves and our self-locations; our relationships with other humans and with the natural world; and our sense of possibilities for social justice and peace and personal joy (O'Sullivan, 2003). Transformative learning is a creative, epistemic shift in someone's perceptions and set of beliefs that results in enhanced self-awareness and greater global consciousness (Taylor, 2007). Transformative learning posits that individuals are capable of re-framing their worldview by challenging previous perceptions, and acquiring new knowledge and this result can lead to greater meaning in our lives. Participants in the study setting were exposed to information at EC, ABUTH; Shika that upgrade their views, beliefs and worldview in relation to prior knowledge about DM.

It is not surprising though as scholars' (Oliphant, 2010; Poureslami, Nimmon, Rootman & Fitzgerald, 2017) have emphasized the importance of prior knowledge in managing chronic diseases like type 2 diabetes mellitus.Prior knowledge is essential in managing chronic diseases such as diabetes mellitus. Similarly, studies (Poureslami, Nimmon, Rootman & Fitzgerald, 2017; Al – Maskari, El –Sadig, Al – Kaabi, Afandi, Nagelkerke & Yeath, 2013; Odili, Isiboge & Eregie ;2011) equally reported that diabetes knowledge is deficient and poor in diabetic patients, which hinders management of the disease. This is related to misconceptions in diabetes diet and knowledge of blood glucose monitoring. Understanding the nature and impact of health literacy is a priority in health promotion and prevention of chronic diseases. Prior knowledge is a

prerequisite required for thriving in any life challenges or situation. In the field of medical practice literature (Dierer & Lohler, 2016; Eldredgbe, 2000) reported that large scale clinical trials and systematic reviews of those clinical trials are regularly conducted in support of evidence- based medicine. This concept has equally been applied to the practice of medical librarianship.

In Library and Information Science (LIS), human information behaviour reflects how individuals' interact with information to address problems at hand. Human information behaviour is the totality of human behaviour in relation to sources and channels of information, including both active and passive information seeking and information use. Information searching behavior is the 'micro-level' of behavior employed by the searcher in interacting with information systems of all kinds. It consists of all the interactions with the system, whether at the level of human computer interaction. Information use behavior consists of the physical and mental acts involved in incorporating the information found into the person's existing knowledge base. It may involve, therefore, physical acts such as marking sections in a text to note their importance or significance, as well as mental acts that involve, for example, comparison of new information with existing knowledge.

The implication of this finding is that prior knowledge is essential in the management of type 2 diabetes mellitus; exposure to information that is not healthy for managing diabetes mellitus can result in dire consequences such as loss of sight, amputation, heart problems and death.

5.6 Diabetic Patients' Understanding of Information Received from Endocrinology Clinic, ABUTH, Shika for Managing Diabetic Complications

This research question investigated participants' understanding of information received from EC, ABUTH, Shika on exercise, diet, drug regimen, energy boost, regulation of salt intake, need to promptly seek for help and the need to share information to manage diabetic complications. That is capturing how participants' viewed information participants are exposed to from EC.

Seven categories emerged from this research question. These are that; information is beneficial, critical, important, insignificant, helpful, confusing and conflicting. Participants' understanding of the typologies of information received from the EC, Zaria is presented on table 10.

Table 10 Participants' Understanding of Information Received from EC, ABUTH, Shika

S/No	***Information received from EC***	***Participants' understanding of information***
1	Information on Exercise	-Beneficial
2	Information on Diet	-critical -confusing and conflicting
3	Information on Drug regimen	-beneficial
4	Information on Energy Boost	-Important
5	Information on Regulation of Salt intake	-Helpful
6	Need to promptly seek for help	-Necessity
7	Need to share information	-Insignificant
8.	Fluid intake	-Important

Source - Interview Analysis 2016.

Understanding of information received by participants from EC is discussed as follows starting with the understanding of participants that "information provided to them at EC is beneficial".

Information is Beneficial

Participants' said that information provided at Endocrinology Clinic is beneficial to them for the management of diabetic complications. Participants are particularly happy that information on exercise is of importance. Diabetic patients considered information beneficial because they can move around without leg and general body pains. Fear factor makes participants to understand information as beneficial.

Fear appeal is a crucial factor in the understanding of information as beneficial. A fear appeal is a persuasive message that attempts to arouse fear in order to divert behavior through the threat of impending danger or harm. It presents a risk, presents the vulnerability to the risk, and then may, or may not suggest a form of protective action. Despite the fact fear appeal facilitates participants' understanding of information as beneficial; some of the participants do not exercise as a result of cultural norms in the study setting.

A lot of studies (Simpson, 2017; Ruiter, Kessels, Peters & Kok, 2014) have reported that appeal to fear has been used in health promotion campaigns for sixty years or more with the intent of modifying behaviour. Fear arousal is widely used in persuasive campaigns and behavioral change interventions. A lot of health information programmes are rooted on the principles of fear factor. Principles of fear appeal includes: emotion, anxiety and depression.

Information is Critical

Participants stated that information received from Endocrinology clinic is critical to them. The information is said to be critical because it assists diabetic patients in avoiding wound complication. Participants are particularly contented that information on diet is of significance. According to the participants, information on diet is very critical because that it had assisted them in avoiding hospitalization. Similarly, information is on diet is understood to be critical because it helped in wound healing process. Personal experience, peer testimony and symbolic interaction make participants to understand information as critical.

Peer testimony, personal experience and symbolic interactionism make participants to understand information as critical. The three concepts affect how individuals understand information. Personal experience is what individuals have passed through; this influence decision making. Symbolic interactionism refers to how people act toward things based on the meaning those things have for them; and these meanings are derived from social interaction and modified through interpretation. Furthermore, peer testimony refers to testimony that is given by someone who is not an expert in a given area or subject. People give this type of testimony about daily life's experiences more attention.

Studies (Blodt, Kaiser, Adam, Adami, Schulte, Muller-Nordhrn & Holmberg, 2018; Crossman, 2018; Poureslami, Nimmon, Rootman & Fitzgerald (2016; Liu, 2015; Smith, 2015) have stressed that understanding of health information as critical is a key to coping with chronic diseases like T2DM. Understanding health literacy as critical is a priority in health promotion and chronic disease prevention and treatment. (Information is understood as a critical management tool for handling chronic diseases and its (potential) consequences. Patients' unmet needs for information might not be easily solved by a simple increase in the amount of information but by the importance patients apply to it.

Information is Important

Finding revealed that information received from Endocrinology Clinic on fluid intake is important to the participants. Diabetic patients considered information as important. This is because it has assisted in controlling excessive thirst participants' reported they usually experience. Most of the participants expressed they feel thirsty most times. Health literacy is important for everyone because, at some point in our lives, we all need to be able to find, understand, and use health information and services. Despite the fact that information is viewed as very important for diabetic complications, some of the participants are of the view that information exposed to at the Endocrinology Clinic is not important based on believability.

Much effort by studies (Kwan, Arbour-Nicitopoulos, Lowe, Taman, & Faulkner; 2010; Souden & Rubenstein 2006; Livingstone 2006;Bates, 1994) has been put into developing and distributing health information rooted in the believability's perspective. Information that emanates from health medical staff and university health educators were perceived to be the most believable sources. Listening to patients could promote a better understanding of health information and accepting such information as important. In order to create a believable character, it is not necessary to create a realistic one or a replica of something real. Believability is a crucial factor in understanding of health information as important. Believability is to have confidence in the truth, the existence, or the reliability of something, although without absolute proof that one is right in doing so: It is only when one believes in something that will enhance someone to act purposefully. Believable does not mean an honest or reliable character, nor does it require human form in order to be believable, but one that provides the illusion of life and thus permits the audience's suspension of disbelief.

Information is Insignificant

Finding from this study reveals that information received from EC is insignificant to the participants. Participants who believe that health information is insignificant said they handle situations themselves. People who believe that health information is insignificant mostly do not reveal the true state about their health to healthcare providers. In most cases, this is based on cultural norms and personal worldview.

Cultural norms, personal worldview and information seeking behavior are issues that necessitate participants' to undwerstand information as insignificant. Cultural norms are standard we live by. They are shared expectations and rules that guide behaviour of people within social groups. They are learned and reinforced from parents, friends, teachers and others while growing up in a society. Culture is learned and shared within social groups particpants belong to and is transmitted by nongenetic means. It is necessary to understand a participant community's concepts of chronic health before engaging in mental health promotion. Each culture influences the way people understand mental health and their regard for it. Difficulties in understanding health information and negative attitudes may form a barrier for effective information use by older people and people living with chronic illness.

Studies ((Mor, 2018;Sieck, 2018; Enwald, Kangas, Simila, Jams & Korpelainen, 2016;Agency for Healthcare Research and Quality, 2015) have stressed the influence of cultural norms in the understanding of health information as insignificant in the management of chronic diseases. Cultural norms, beliefs, and ethnic customs can influence how patients understand health concepts, how they take care of their health, and how they make decisions related to their health.

Without proper training, clinicians may deliver medical advice without understanding how health beliefs and cultural practices influence the way that advice is received.

Information is Helpful

Similarly, finding exposed that information received from Endocrinology Clinic ABUTH, Shika; Zaria is helpful in managing for managing diabetic complications. This is helpful due to the fact it had assisted in the control of their high blood pressure. They expressed that being regular at the routine Clinic had exposed them to vital information which is unknown to them previously about type 2 diabetes mellitus through strong ties with closes friends and colleaugues.

Strong ties and perceived health outcome is a crucial factor in the understanding of information as helpful. Strong ties are our close friends and colleagues, the people we really trust. Weak ties are our acquaintances, the people we know casually. Participants expressed that strong ties with people around them had assisted in understanding information on regulation of salt intake as helpful. Perceived health outcome refers to the perception of the positive consequences that are caused by a specific action. In behavioral medicine, the term perceived outcome is frequently used to explain an individual's motives of performing a behavior and adopting an intervention or treatment.

Studies (Asburner, Horn, O'Keefe, Zai, Chang, Wagle & Atlas, 2017;Natalucci, Becker, Becher, Bickle, Landolt & Bucher, 2013; Agency for Healthcare Research and Quality; 2008)have reported that health information is mainly to promote health and assists management of chronic illness. A lot of health information programmes and interventions were rooted on perceived health outcome and strong ties. Also, health information can improve the quality of care received by the chronically ill and exposure of people with chronic diseases to health information leads to

better health outcomes. Though participants' disclosed that information received at the Endocrinology Clinic is helpful in coping with day to day experiences, some are confusing and conflicting.

Information is Confusing and Conflicting

Participants expressed that information received from Endocrinology Clinic is confusing and conflicting. Information on diabetic diets received from Endocrinology Clinic contradicts their knowledge about diabetes management. Some of the participants said they are in a state of confusion. According to the participants, they knew that diabetic patients can only take beans and wheat. But they are now informed that they can take any type of foods but in moderation. Also the consumption of vegetable is highly encouraged. Likewise, they are now informed that they can equally take fruits especially watermelon. This information about diabetic diet has left participants in a state of confusion and conflict based on their prior knowledge.Type 2 diabetes mellitus patients in Endocrinology Clinic, ABUTH, Shika are confused based on information exposed to them about diabetic diets; this does not facilitate self-care of diabetes. Helping people process and evaluate conflicting health information is an increasingly important need in health care, yet for several reasons, this need remains largely unmet.

Personal worldview, objective reasoning and personal constructs are instrumental to how T2DM in Zaria metropolis understands information received through EC. Personal worldview is the set of beliefs about fundamental aspects of reality that ground and influence one's perceiving, thinking, knowing and doing. Likewise, objective reasoning means reasoning that is independent of the specific context not influenced by personal characteristics, feelings or opinion on the subjects. Also, personal constructs refer to the way in which individuals create meaning. People

develop meanings about how the world works and then use these to make sense of their observations.

Studies by (Cherry, 2018;Complexity Labs, 2018; Russell, Ogunbanjo, Newham, Hestop-Marshall, Netts, Hanratty, Beyer & Kaner,2018;Tewahido & Berhane,2017; Kupadia – Kundu, Sullivan, Safi, Trivedi & Velu,2013;van der Kooiji, Ruyters & Miedema, 2013;Jordan, Buchbinder & Osborne, 2009) have stressed that exposure to health information which results in confusion and conflicting prior knowledge hinders use of information. Studies of the prevalence, causes and effects of conflicting health information have been limited. Information that contradicts initially held view is not healthy for people living with type 2 diabetes mellitus; in that it hinders utilization of health information.

Implication of this finding is that understanding the worldview of people living with chronic disease about health information will assist in identifying intervention that will be accepted and used by those need help.

5.7 Personal Constructs Type 2 Diabetic Patients Applied in Making Sense of Information Received from Endocrinology Clinic, ABUTH, Shika for Managing Diabetes

This research question investigated the personal constructs participants in the study setting applied in making sense of information received from EC. Eight types of information are information on exercise, diets, drug regimen, energy boosting, regulation of salt intake, need to promptly seek for help and the need to share information. Personal construct is a way in which individuals construe reality. That is way of creating meanings.

Finding of this study revealed that participants applied eight types of personal constructs in making sense of information received from EC. These constructs are: trust of medical practitioners, fear of complications, believes in other diabetic patients, personal experience, family support, prior knowledge, personal judgement and confusion. Table 11 provides details of the personal construct applied in the understanding of information received from the Endocrinology Clinic, ABUTH, Shika, Zaria.

Table 11- Personal constructs applied in making sense of information received from EC, ABUTH, Shika.

Information received from EC	Understanding of Information received from EC	Personal Constructs applied for making sensing of information
1.Information on exercise	- Beneficial	- trust in orthodox medical practitioners - belief in other diabetic patients - fear of complications - family support
2.Information on diets	- Critical - Confusing and conflicting	- other diabetic patients - family support - personal experience - prior knowledge - confusion
3.Information on drug regimen	- beneficial	- trust in orthodox medical practitioners
4.Information on energy boost	- important	- trust in orthodox medical practitioner
5.Information on regulation of salt intake	- helpful	- family support
6.Information on the need to promptly seek for help	- necessity	- personal experience - fear of complications
7.Information on the need to share information	- insignificant	- Personal judgement
8.Fluid intake	- Important	- Trust of orthodox medical practitioners

Source – Interview Analysis, 2016

Personal constructs applied in making sense of information received from EC,ABUTH, Shika is discussed as follows starting with the construct of family support.

Family Support as a Personal Construct for Making Sense of Information

Family support is used as a construct in the making sense of information that information on exercise diets and regulation of salt intake is beneficial. Issues on diets are family issue that involved everyone being put into consideration. Family members are usually to closest ones to people living with chronic diseases like T2DM. Family members are interconnected; every person within a family has a role to play within the life of the family coping with chronic diseases such as T2DM. It is not surprising therefore that understanding of information by participants is simplified as result of support received through their families.

Scholars such as Davison & Ziscook (2017) and Goldberg (2013) have used family members to investigate issues related to how people react to information. The concept of family support as a way of making sense of information has been stressed by scholars (Fisher, Erdelez & McKechnie, 2005; Wilson, 2004; Savolainen, 1995; Dervin, 1999; Bates, 1989) in hehavioural changes to investigate the impact of family support in the making sense and understanding of information by people coping with chronic disease like T2DM. They emphasized that people living with chronic illness/diseases tend to understand information when a close family member is involved in assisting a patient in the self-management of chronic diseases. Family members make sense of information by adapting to the situation of the critically ill in the family circle; also making sense of what to do as caregiver. For instance, Social network play a significant role in making sense and use of health information.

Belief in Other Diabetic Patients as a Personal Construct for Making Sense of Information

Belief in other diabetic patients was applied as a construct for the making sense of information on diets as critical and also, same construct is used to make sense of information on exercise as confusing and conflicting. Participants indicated they used the construct of believe in other diabetic patients to make sense of information on diabetic diet. They stated that they believe in whatsoever other diabetic patients tell them. Similarly, support received from family members was used as a construct in making meaning out of diet information received from EC.Participants in the study revealed that socialization with other T2DM patients had assisted in understanding of information received from EC.

Socialization and integrated worldview fosters making sense of information among participants in this study setting with like interest such as people coping with chronic diseases. Socialization is the process through which individuals are taught to be proficient members of the society (Little, & McGiven, 2012). It describes the ways people come to understand norms and expectations to accept societal beliefs and to be aware of societal values. Integrated worldview is the process where values, beliefs, assumptions, meaning, purpose and judgements are identified and related to how individuals perceive reality (Dossey, 2015).

In LIS, studies (Goldberg, 2013; Spink & Cole, 2004;Wilson, 2000;Pirolli & Card,1999; Savolainen, 1995) have been conducted that investigated human information behaviour focusing on human behaviour related to information seeking, foraging, retrieving, organizing and use. Information behaviour as the totality of human behavior in relation to sources and channels, including both active and passive information seeking and information use. In line with this, it is therefore not out of context when participants in this study used the construct of family support as a personal construct for making sense of health information for managing diabetes. Information behaviour has historically been a predominant seeking approach in LIS research.

Though, other major approaches have also been added to information seeking problem solving approach; these includes everyday life information seeking approach which incorporates sense-making and information foraging approach.

Prior knowledge as a personal construct for making sense of information

Also, participants revealed that they used prior knowledge as a construct to make sense of information on diabetic diets as confusing and conflicting. It is based on their previous information known to them about diabetic diets that simplified making sense of information on diabetic diets. Participations' revealed that they were exposed to different information in relation to what they can eat and what not to. People build on what they already know and have to make sense of information through personal experiences and prior knowledge. People develop attitudes and beliefs as they progress through life.

Studies(Song, Ma, Yi, Wang, Sun, Tian, Wang, Zheng, Zhang, Xu & Marley, 2013; Berkman, Sheridan, Donahue, Halpern & Crotty, 2011;Sudore, Mehta, Simonsick, Harris, Newman & Satterfield, 2006) have stressed the importance of prior knowledge in investigating how people living with chronic diseases like T2DM interact with information. Coping with chronic illness is reliant on the prior knowledge of individuals. Deficits in prior knowledge is associated with poorer health outcome.

In LIS, prior knowledge and human information behavior have been investigated and evaluated across various disciplines and context; and in relationship to several variables like gender, experience, personality among others. This finding have been reported by studies (Khossrowjerdi & Iranshahi, 2011;Kerstetter & Cho, 2004)that there is positive relationship between information

seeking and prior knowledge. Likewise, prior knowledge is multidimensional construct that when addressed independently will influence individuals' search for information and use.

Trust of Orthodox Medical Practitioners as a Personal Construct for Making Sense of information

Likewise, participants specified that trust was used as a construct in making sense of information received from EC on exercise, drug regimen, fluid intake and information on energy boosting as beneficial and important. Trust is an important factor affecting the making sense of health information. It was indicated that they believed in their doctors because they are trained professionally on health issues. Trust is used to inform decision making. Reliance is placed on information received through orthodox medical practitioners due to information asymmetry.

Information asymmetry, information imperfection, information dependency and information distribution accounts for the reason why people living with chronic illnesses to trust information received through medical doctors. Information asymmetry is a situation in which one party has more information than the other (Afzal, 2010; Akerloff, 1970).Information asymmetry is a result of informational disturbances. Also information imperfection indicates information which is less than ideal for many conceivable reasons. Likewise, information dependency is when total reliance is placed on information emanating from a particular source/s. Information asymmetry will be incomplete if distribution is left untouched. Distribution is implies that is an event or matter of concern about which information is being generated and then distributed. Trusting in information becomes mandatory when an individual do not know about the subject area.

Scholars in LIS (Collins, Juvina & Gluck, 2015; Dervin, 1999; Bates, 2000; Wilson, 2004)have reported the notion of trust as a way of making sense of information and has drawn considerable

attention. Trust mechanism is necessary to explain human behavior across multiple conditions. A sub-field branded as human information behaviour specifically focusing on health information behaviour evolved to investigate how individuals interact with information to enhance decision making and solving problems at hand. This includes many elements such as character or context of an information need, activating mechanism (including/coping), intervening variables (barriers to seeking information) and others.

Studies in the philosophical field (Pedersen, Ahlstrom-Vij & Kappel, 2014; Clark & Payne, 1997) approached trust from different perspectives. One of them is ethics and the other is theory of knowledge. The topics philosophers look into when they looking into trust are three; nature of trust, rationality of trust and the ethics of trust. Building trust is part of what is required to maintain good ethics. Ethical behavior and choices help build trust. High trust environments encourage better ethics. When trust is lost, people are less likely to uphold the organization's ethics. When ethics is absent, trust is elusive. Trust plays a crucial role in our cognitive and practical lives. We exhibit an attitude of trust towards other sources of information by acquiring beliefs testimonies and by acting on them. We trust others to do certain things or display a certain kind of behavior. Nature of trust is important as well as dangerous. It is important in that it allows people to form relations but when trust is betrayed by people trusted it becomes dangerous.

Fear of Complications as a Personal Construct for Making Sense of Information

Fear of complications is used as a personal construct for making sense of information received through EC on the need to seek for help as a necessity. Participants stated that seeing other diabetic patients' ordeal coping with complications enhanced their understanding of information

about diabetes management. For instance, participants mentioned that they saw diabetic patients with amputated lower limbs as a result of not seeking help in time. This created fear in most participants; it made them to have better understanding of information about diet, drug usage and regular exercise in coping and managing diabetes.

The concepts of fear as a way of making meaning of health information are guided by anxiety, phobia, dread and terror. Fear is used for making sense of information to prevent negative outcomes and avoid complications from chronic diseases such as T2DM. The word fear itself is polysemantic (having different meanings), and explanations of fear range from the clinical and neural to the philosophical. All humans experience anxiety especially people living with chronic diseases. It is a natural human state and a vital part of our lives. Anxiety helps us to identify and respond to danger. It can motivate to us face up to dealing with difficult challenges. The 'right' amount of anxiety can help us perform better and stimulate action and creativity. Phobia is an excessive and irrational fear reaction. Phobia can lead to experiencing a deep sense of dread or panic when the source of fear is encountered. In this context, it is the fear of diabetic foot ulcer. Unlike general anxiety disorders, a phobia is usually connected to something specific. Also, dread affects health information sense making. Because of its implicit danger to consumer health, it is logical to assume that dread affects health risk perception. Dread has an effect on judged severity; in the case of a higher level of dread, there is a higher judged severity (Mullet, Ciutad & Rivière-Shafighi, 2004).

Fear has been well characterized by scholars (Solan & Wodele, 2017;Mental Health Foundation, 2014;LeDoux, 2013; Gangemi, Mancini & van den Hout, 2012; Rachman, 1991, 1977; Davey, 1997) and theories such as Social Learning theory (SLT) to investigate issues related to how people react and understand information. Fear affects way in which individuals reacts to

information. It is reported that fear is used scientifically in two ways which causes confusion. Fear refers to conscious feelings and to behavioural and physiological responses. Using fear to denote feelings helped participants in this study setting to avoid misunderstanding of health information. Experience of participants' in this study accounts for the use of fear in the making sense of information received from Endocrinology Clinic, ABUTH, Shika. These experience facilitates adult phobia; i) direct aversive experiences through which a stimulus comes to evoke a fear response by association with some traumatic outcome learning through observing others (vicarious learning); and iii) the transmission of negative information. Cognitive models view fear as playing a crucial role in the making sense of health information. An explanation of how this contribute to the making sense of information is the beliefs is that patients use complications experienced by other patients as a construct for understanding information about the situation.

Confusion as a Personal Construct for Making Sense of Information

Similarly, participants exposed that the being in a state of confusion as result of conflicting information enhanced making sense of information. Specifically, they stated the different information about diabetic diet is confusing. According to the participations, they prefer to remain in alignment with information they had been using than to adopt what they are not convinced about.

Confusing and conflicting health information among people living with chronic diseases develops as a result of information explosion, information overload and information asymmetry. Information explosion is a term used to describe the rapidly increasing amount of published information and the effects of this abundance of data .Likewise, Information overload is the term used to describe the difficulty of understanding an issue and effectively making decision when

one has too much information an issue The resultant effect of confusing health information is avoidance and rejection of information. This will form a barrier to the effective information use. Also, confusion of health information in the management of chronic diseases such as T2DM is a hidden epidemic.

Confusion of health information has used by scholars (Gebele, Tscheulin, Lindenmeier, Drevs & Seemann,2014;Cambridge Dictionary, 2008;Graham & Brookey,2008).to investigate issues related to how people coping with chronic diseases react to information to manage their situation. Participants' are confused by the nature, as well as the amount of information, quality of information when making choices among healthcare care providers. Information provision is considered essential to decrease information asymmetries between healthcare service providers and patient. The entire health care system relies on the assumption that patients can understand complex written and spoken information.

Personal Experience as a Personal Construct for Making Sense of Information

Personal experience was used as a construct for the making sense of information on the need to promptly seek for help as a necessity. Participants expressed that making sense of information is facilitated by what they had experienced with diabetic wound.

Personal experience as a construct has been stressed as importance in the making sense of information. People's decision making is influenced by their previous experiences. People actively construct or create their own subjective representations of objective reality. New information is associated to prior knowledge, thus mental representations are subjective. Experiences are subjective. Subjectivity is the unique relation that a person has with the outside world. Subjectivity also includes the consciousness of a self which has a past, a present, and a

future. A subjective experience also has truth for an individual. Individuals' experience in way of knowing is a constructivism paradigm.

Constructivism as a paradigm or worldview posits that learning is an active, constructive process Constructivism is of the opinion that people bring their personal experience into making sense of information. These experiences in turn have tremendous effect on how individuals' view how the world works. Constructivism states that learning is an active, contextualized process of constructing knowledge rather than acquiring it. Knowledge is constructed based on personal experiences and hypotheses of the environment.

Personal Judgement as a Personal Construct for Making Sense of Information

Personal judgement was used as a construct for the making sense of information on the need to share information as insignificant. Participants revealed that they can understand information based on their own initiative and do not see any reason for sharing information with healthcare providers. As far as they are concerned, they can handle situations relating to their health based on their personal judgement. People use their own judgement to build mental frameworks that help them make sense of the world. Personal judgement is clouded by pluralistic ignorance and peer testimony.

Pluralistic ignorance occurs when people erroneously infer that they feel differently from their peers, even though they are behaving similarly. Pluralistic ignorance refers to the social phenomenon in which individuals guess wrongly about a group's beliefs and values.This occurs where majority of individual in a group accept that others are different in a way, while they are more similar than they realize. Peer testimony is given by a person who does not have expertise in a particular matter. Majority of the participants are of the opinion that information received

from EC, ABUTH, Shika, is helpful, important and critical, while some among the participants are of the opinion that the information is insignificant. And prefer to go by testimony they hear from peers.

Previous researchers (Van Grootel, Van Laar, Meeussen, Schmader & Sczesny, 2018; Miyajima &Yamaguchi, 2017; Williams,2015; Schofferman, 2007) have stressed pluralistic ignorance in how people react to information. They stressed that pluralistic ignorance has forced individuals to suppress their own worldviews about situations or issues. Thereby suppressing their personal opinions and aligning with the popular opinion. Pluralistic ignorance hinders most of the particpants' from acting based on their judgement without external interference. Similarly, stated that men to shy away from traditionally female roles and occupations as a result of popular opinion.

This finding have been reported by Kelly (1955) that a person's processes of construing realities are psychologically channelized by the ways in which he anticipates events. People develop internal models of reality, called constructs in order to understand and explain the world around them. Constructs thus start as unstable conjecture, changing and stabilizing as more experience and proof is gained. These are often defined by words, but can also be non-verbal and hard to explain. Creating meaning is guided by corollaries. These are Construction corollary, individuality corollary, organization corollary, dichotomy corollary, choice corollary, range corollary, experience corollary, modulation corollary, fragmentation corollary, commonality corollary, and sociality corollary. All these corollaries guide individual's personal constructs.

Personal construct is instrumental to achieving desired health living with chronic diseases like type 2 diabetes mellitus. Ways in which people living with type 2 diabetes mellitus make sense

of information have effect on the blood sugar control. Personal construct have different corollaries which influences how meaning is created out of health information to manage diabetic complications. For example, individuality corollary, people have different experiences and therefore construe events in different ways. Experiences of people play a great role in making meaning from health information. Participants who indicated they have seen other diabetic patients spend long period on hospital admission will never neglect use of health information. Another type of corollary is organization corollary. Individuals organize their personal constructs in a hierarchical order, with some constructs in a superordinate position and others subordinate to them. This organization allows us to minimize incompatible constructs. Diabetic patients are exposed to different types of information to enhance quality life. In most cases, such information must be organized and used as instructed by healthcare providers to avoid diabetic complications. For instance, diabetic patients go for laboratory test to check blood sugar level prior to Endocrinology Clinic. First blood sample is taken before eating, after which patients are instructed to go and eat; return for the second blood sample drawing. This involves organization of information in order to achieve the correct blood sugar reading.

Similarly, people can choose to gain new experiences to expand existing constructs or stay in the safe but limiting zone of current constructs. Participants are exposed to various types of information about diabetes management. They receive new information from time to time, in some cases they accept such information and at times it is rejected. This is reflected in participants' expression relation to conflicting information they were exposed to. Individuality corollary affect making sense of health information. Diabetic patients' experience differs in relation to experienced complications; as such their constructs will equally be different.

Also, commonality corollary is very influential in making sense of information. Experiences of diabetic patients are similar and/or shared, leading to similarity of constructs with others. Participants in this study setting indicated that they usually shares experiences while waiting to see healthcare providers at Endocrinology Clinic. Ideas learned from other diabetic patients, they mentioned had assisted in making sense of health information. Individuals interact with others through understanding of their constructs is sociality corollary. Interactions between people with common interest assist in having a better understanding of a situation. Individuals experiencing common situation relates better to one another. Participants specified that they make sense of health information through their friends who are equally diabetic patients. Also, fragmentation corollary affects the way in which individuals make sense of health information. Once information contradicts what is known previously, such information is not applied, even when it is correct. When constructs are challenged or incomplete the result is emotional states such as anxiety, confusion, anger and fear.

The implication of this finding is that when diabetic patients make sense of health information negatively patients will reject information that contradicts previously held views. It will have consequential effect on their state of health. Diabetic patients should not live in isolation. Friends can come in handy whenever there is doubt about information in relation to their illness. It can be used as a first point of contact before their appointment date at routine Endocrinology Clinic. Not understanding health information by diabetic patients can result dire consequences such as partial loss of sight, diabetic coma, leg problem, heart problem and even death.

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CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter provides the summary of the study, summary of the major findings, conclusion, recommendations, contribution to knowledge and suggestions for further study.

6.2 Summary of the Study

The purpose of this study is to examine how T2DM patients who attend Endocrinology Clinic, ABUTH, Shika; Zaria, Nigeria made sense of information received to address diabetic complications. Chapter one comprises of background to the study, problem which guided this study. The study has six research objectives. To achieve those objectives, six research questions were raised respectively. Chapter two comprises the literature review. It reflected previous studies that were conducted on sense making of information using Social Cognitive Theory asintervention. Chapter three comprises the research methodology employed for the study.The study adopted qualitative research methodology. The researcher designed the study as a qualitative case study using the interpretive paradigm in order to capture experiences of the voiceless. Eighteen participants who had been living with diabetes for at least over six months starting 2015 -2018 and attend Endocrinology Clinic, ABUTH, Shika were recruited. Chapter four comprises the data presentation and analysis.Data were presented based on each research question. Chapter Five comprises discussion of findings. Chapter Six comprises of the summary, conclusion, contribution to knowledge and recommendations of the study.

6.3 Summary of the Major Findings

Based on the data collected and analyzed for this study, the followings are the major findings:

1. Complications experienced by T2DM patients who attend Endocrinology Clinic, ABUTH, Shika, Zaria, Nigeria were: myopathy, diabetic neuropathy, osmatic symptoms, diabetic retinopathy, weight loss, orthostatic hypotension, vasculopathy, resting

tachycardia, dysglycaemic, diabetic peripheral neuropathy, diabetic boils, diabetic foot ulcer and erectile dysfunction.

2. Information received from Endocrinology Clinic, ABUTH, Shikato manage diabetic complications were: information on exercise, diet, boosting energy, fluid intake, drug regime, need to promptly seek for help, need to share information and lastly regulation of salt intake.
3. Other sources of information apart from Endocrinology Clinic for managing diabetes are: family members, friends, traditional medical doctors, neighbours, other diabetic patients, mass media and colleagues.
4. Contradicts between prior knowledge about diabetes and information received through Endocrinology Clinic were: on mortality rate, dietary regulations, glycaemic control, wound management, drug regimen, weight management, herbal medicine and physical exercise.
5. Understanding of information received from the Endocrinology Clinic, ABUTH, Shika; Zaria were: information is beneficial, information is critical, information is confusing and conflicting, information is important, information is a necessity, information unimportant and information is helpful.
6. Personal constructs applied in making sense of information were: trust of medical practitioners, fear of complications, belief in other diabetic patients, personal experience, family support, prior knowledge, personal judgement and confusion.

6.4 Contributions to knowledge

The findings from this study make several contributions to the literature of diabetes patients' everyday life health information behaviour in general as follows: the study established that:

1. This study provides an empirical documentation of the everyday life experiences of type 2 diabetes mellitus patients and sense making behaviour. This determines the effective self - management of diabetes. Thus, their (participant's) input to knowledge provides a broader spectrum on how health care providers can address people with chronic diseases as an entity instead of treating cases collectively.
2. The study is highly noteworthy in that it is the first study on sense making of health information among T2DM patients in Zaria metropolis and it contributes to knowledge of everyday life health information behaviour of diabetic patients. It exposed how diabetic patients who participated in the study organize, accommodate and assimilate information for coping and managing diabetic complications.
3. Coping with chronic diseases such as type 2 diabetes mellitus goes beyond hospital setting. It confirms that sense making of health information is facilitated by various factors; fear of complications, trust of medical practitioners, family members, prior knowledge, personal experience and cognitive dissonance.
4. It is established that access to information alone does not signify usage. Rather how meaning is created out of information to address critical condition or situations. The study discoveredthat diabetic patients utilizes information from various sources(family members, friends, traditional herbal doctors, acquaintances); point of intersection should be created to harmonize information from the sources and information received from the hospital. This is to facilitate management of the disease.

6.5 Limitations of the study

In the course of conducting the fieldwork phase of the research, the researcher met with some challenges. The first was getting in touch with two of the selected samples. Their contact

numbers were not reachable when it was time to collect the data. The researcher had to go back to Endocrinology Clinic to get two samples to replace those who could not be reached through their mobile phone number. Secondly, one of the selected samples refused the interview to be conducted in her house. She suggested a noisy location by the roadside; the researcher went to the suggested spot and waited hours for her there but she failed to show up. The said sample automatically exited from participating in the study. Her exit though did not affect the study sample due to the fact that the researcher recruited more than the intended sample population.

6.6 Conclusion

This is the first study to focus on the sense making of health information among T2DM patients Zaria Metropolis, Kaduna State, Nigeria to the best of the researcher's knowledge. Based on the findings, it is concluded that: type 2 diabetes mellitus is inseparable from complications. Also, information required for coping with and managing with the diseases is from both orthodox and unorthodox sources and individuals do not require same type of information. Furthermore, the findings revealed that diabetic patients do not limit themselves to information received through Endocrinology Clinic; they also consult other sources.Based on the findings, it was evident that personal worldview of participants influence the way they understand health information. The findings also confirmed that participants visualize information received as important/unimportant/good, helpful, critical, conflicting and confusing and a necessity. Similarly, from the findings, it is evident that individuals' ways of understanding information is based on personal worldview and that personal constructs is crucial in accepting, rejecting and the use of information when living with chronic diseases.

6.7 Recommendations

Based on the findings of the study, the following recommendations are made:

1. People living with T2DM should be encouraged to take the illness as everyday lives experiences; invariably becoming a way of life and mastery of life. Way of life is order of things based on the choices that individuals make. Mastering of life is general preparedness to approach everyday problems in certain ways in accordance with one's values. It is then that individuals will be able to cope effectively with the self-management of the disease. Likewise, the patients should be encouraged to share information about how they feel with their healthcare provider. Sharing of information will aid providing the right intervention.

2. Diabetic education provided at Endocrinology Clinic should be specifically designed to address different types of complications associated with diabetes. Also, support groups should be constituted among the patients. This is because findings revealed that patients rely on fellow diabetic patients for information. Similarly, a good avenue should be created whereby patients will feel relaxed to interact with healthcare providers. Patients should be encouraged to play active role in managing their ailment. Furthermore, it is recommended that extensive probing be carried out about people living with chronic diseases. Probing is to enquire into someone or something thoroughly. This will shed light on the factors that influence how individuals create meaning from information received for managing diabetes. This will help in mastering self-management behaviour. Self-management is the ability to be able to handle situation/s without much interference.

3. All sources of information for diabetic patients should be harmonized in order to coordinate and monitor information diabetic patients are exposed to. This will assist in achieving the desired health outcome. Equally, extensive mass media programme should be developed and aired due to

fact that diabetes mellitus is becoming endemic with over 10 million Nigerians living with the disease.

4. It is recommended that prior knowledge of people about diabetes mellitus should be investigated. Gaining better knowledge of this will help in guiding where to commence intervention to address the illness.

5.Based on this finding, it is recommended that ways of creating meaning by people with chronic illness should be properly investigated. It is when health information is well understood that desired health outcome will be achieved. Understanding diabetic patients construe reality, it is then that intervention can be designed to assist in coping and managing diabetic complicationsIndividuals coping and managing diabetes mellitus should not be addressed as the same. Investigation should be carried out to determine the perspectives of individuals on information received to manage diseases /illness. Armed with this knowledge, it will be easy to develop programmes and interventions that will assist in managing chronic diseases such as T2DM.

6. It is recommended that people living with chronic diseases like type 2 diabetes mellitus should be well informed about current trends in managing and coping with various illnesses. To better understand information, patients'need should be identified and efforts be made to provide resources to meet the challenges which requires proper understanding of health information. To facilitate understanding of health information, patients should be put through an approach to guide them on how to use sensitive health information for decision making.To guard against inappropriate decision making, it is recommended that diabetic patients should ensure that necessary information is shared with the concerned individual charged. Sharing of information

serves as guide to path of rendering help to people. Patients will have the urge to well inform their health care professionals if they are well relaxed in their presence. Also, since it is evident that diabetic patients' prior knowledge play a significant role in the management of diabetic complications; community health workers should be trained so that they can move from communities and educate the populace about the management of type 2 diabetes mellitus. Also, literatures in local languages about the management of chronic diseases such as type 2 diabetes mellitus should be provided for easy understanding. Similarly, radio programmes about diabetic complications and management should be intensified to assist diabetic complications to manage the illness effectively.

6.8 Suggestion for Further Studies

1. Conflicting and confusing information is one of the constructs that influences creating of meaning out of health information among diabetic patients. Therefore, future studies need to be conducted to explore the impact of cognitive dissonance in making sense of health information among T2DM patients.
2. Family members and friends had been identified as sources of information by diabetic patients. Thereby, future studies should be conducted to actually determine the role of these sources and how they participate actively in assisting relations.
3. Personal Constructis identified as a factor used in the understanding of health information. As such, future studies should be conducted on the role of personal constructs in coping and managing chronic diseases such as diabetes mellitus, chronic kidney disease, and cardio diseases etc.
4. Exercise is important for managing diabetes mellitus. In spite of the importance of exercising in diabetes management, women in Hausa community do not partake in

exercise. Future studies can be conducted on how best to communicate information on exercise to women in Hausa society who do not engage in exercise.

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Appendix I-Application for Ethical Clearance

Department of Library and Information Science,
Faculty of Education,
Ahmadu Bello University,
Zaria.
30th April, 2015.

The Assistant Dean Postgraduate,
Faculty of Medicine,
Ahmadu Bello University Teaching Hospital,
Zaria.

Through,

The Head,
Department of Library and Information science,
Faculty of Education,
Ahmadu Bello University,
Zaria.

Dear Sir,

Application for Ethical Clearance

I write to apply for ethical clearance to enable me conduct a study on type 2 diabetes patients who attend routine clinic at the Endocrinology Clinic of the hospital.

I am a Ph. D student of the above mentioned Department conducting a study on the "Sense Making of Comprehensive Diabetic Care Information among Type 2 Diabetes Patients Attending Endocrinology Clinic, Ahamdu Bello University Teaching Hospital, Shika, Nigeria".

It will be highly appreciated if my application is given a favourable consideration

Thank you.

Yours faithfully,

Romoke Opeyemi Quadir

PhD/Educ/10202/2011- 2012.

Appendix II (a)

Sample Recruitment Letter

Date :

Dear ……

I am a Ph.D student in the Department of Library and Information Science, Faculty of Education, Ahmadu Bello University, Zaria. Under the Supervision of Prof. Abdullahi I. Musa (chairman), Dr. Baba S. Aduku and Dr. Yusuf Tanko. In partial fulfilment of degree, I am undertaking a study on the ways in which type 2 diabetes mellitus patients make sense and use information in the management of the disease.

My research work will focus on the day to day experience of patients on how they interact with information from varied sources and the application of such information. Specifically it will examine the use of the constructs Social Cognitive Theory in Self – Management abilities by patients.

I am writing in order to seek assistance in the recruitment of Type 2 Diabetic Patients to partake in the study. Confidentiality will be highly maintained and participants' identity will be protected. Participants might decide to withdraw from the study at any time or refuse to answer any question. Interview will be recorded on tape which lasts between 45 to 60 minutes.

Thank you.

Yours Faithfully,

Romoke Opeyemi Quadir (PhD/Educ/10202/2011 – 2012)

Appendix II (b)

Sample Recruitment Letter (Hausa)

Date:

Dear: Assalam Alaykum

Ni daliba ce da take karatun Ph.D a sashen Layibrari da kimiyar Sanarwa, a yankin Ilmina Jami'ar Ahmadu Bello, Zaria, a karkashin lurar Dr Abdullahi I Musa (Chairman), Dr Baba S. Aduku da Dr Tanko Yusuf . A sashen bukatu na digiri di na, ina dauke da wani bincike akan hanyoyin da masu ciwon suga (Diabetes mellitus) ke samun, anfani, fahinta da kuma tattance fadakarwa game da kulawa da ciwon suga.

A dalilin haka, aikin bincike ne zai bad a hinma akan al'amuran masu ciwon sugar yadda suke cudanya da fadakarwa daga wurare daban – daban da kuma amfani da wannan ilmin a ruyuwasu nay au da kullun. Musanman, biciken zai gwada anfanin da ake yi da "qiyasin fihintar rayuwa" a wajen iya kulawa da ciwon ga marasa la fiyan da kan su.

Ina rubutu ne saboda nema taimako ta fannin daukan masu ciwon suga (Type 2 Diabetes Mellitus) a cikin binciken. Za a tsare sirrin masu ciwon da kuma sanin su. Wanda ya yarda ya shiga wannan binciken, ya yi hakan ne akan yardasa, kuma tamyoyin da za a yi masa/mata sune aka bayar a mahadin wannan wasikar (appendix). Wanda ya yarda na iya janyewa daga binciken a kowane lokaci ko kuma yaki bayar da amsa anka kowane tambaya. Za a dauki tambayoyin ne a kastin radiyo ko waya, kuma zai ci tsawon lokaci mintina arba'in da biyar zuwa sittin.

Na gode.

Ni ce gareku,Romoke Opeyemi Quadir (PhD/Educ/10202/2011 – 2012)

Appendix III

Consent Form

Title of Dissertation: Sense Making of Comprehensive Diabetic Care Informationamong Type 2 Diabetic Patients Attending Endocrinology Clinic, Ahmadu Bello University Teaching Hospital, Shika, Kaduna State, Nigeria.

As a participant in the study; sense making behavior among type 2 diabetes patients, I understand the general nature, purpose and procedures of the research as explained to me by the researcher. I equally understood that the information generated from my participation in the study will not reveal my identity and will be strictly used for research purposes only.

I hereby give my permission for a tape recording of my interview with the investigator.

……

Participants Signature

……

Investigators Signature

……

Date

Romoke Opeyemi Quadir.

Department of Library and Information Science

Faculty of Education, Ahmadu Bello University, Zaria.

08036880014

Appendix IV-Sample Interview Schedule

Introduction

I appreciate you for spearing me your precious time to discuss with me your experiences in coping and living with type 2 diabetes. Your time and contribution will be highly and greatly appreciated.

The interview to be conducted is mainly to gather information on how diabetic patients understand and make sense of information for self - management of the disease. Furthermore, to investigate the level of awareness of patients on the possibility of utilizing the constructs of social cognitive theory in self-management of type 2 diabetes mellitus.

Research Title: Sense Making of Comprehensive Diabetic Care Information among type 2 diabetic Patients attending Endocrinology Clinic in ABUTH, Shika, Kaduna State Nigeria.

Research Question I - What complications do T2DM patients in Zaria experience?

1. Can you share with me your experiences after being diagnosed with T2DM?
2. Can you share with me the types of complications you experience in the last six months?

Research Question II – What information do T2DM patients receive from Endocrinology Clinic to manage diabetic complications?

1. For each of the complications, tell me which type of information you receive from the Endocrinology Clinic to manage the complications?
2. For each of the complications, tell me how you make sense of the information received from Endocrinology Clinic to manage the complications?

Research Question III – Who do T2DM patients consult for information outside Endocrinology Clinic for managing complications?

1. For each of the complications, tell from whom you receive information outside Endocrinology Clinic?
2. For each of the complications, tell me how you make sense of the information received outside the Endocrinology Clinic?

Research Question IV –What is your prior knowledge about diabetes before the commencement of Endocrinology Clinic?

1. Can you share with your knowledge about type 2 diabetes mellitus before commencement of Endocrinology Clinic?
2. Share with me the information received from the Endocrinology clinic that shows there have been a gap in information available to you?

Research Question V – How do T2DM patients understand the information received from Endocrinology Clinic for managing complications?

1. Can you share with me how you categorize the information you received from EC for managing complications?

Research Question VI – What personal constructs do diabetic patients apply in making sense of information for managing diabetes?

Share with me what assist you in understanding the information for managing complications?

Appendix V

Table 12: Classification ofCategories

S/No	Classification of categories
1	Myopathy
2	Osmatic symptoms
3	Diabetic Neuropathy
4	Weight management
5	Orthostatic symptoms
6	Resting Tachycardia
7.	Glycaemic control
8.	Diabetic foot ulcer
9	Erectile dysfunction
10	Physical exercise
11	Personal constructs
12	Cognition
13	Diabetic Education
14	level of education
15	Personal expectation
16	Dietary regulation
17	Energy boost
18	Fluid intake
19	Drug regime
20	Prompt decision making
21	Wound management
22	Information provision
23	Information filtering
24	Interactive discourse
25	Family members
26	Friends
27	Other diabetic patients
28	Mass media
29	Traditional herbal doctor
30	Socialization
31	Frame of reference
32	Mortality rate
33	Information is Good
34	Information is critical
35	Information is helpful
36	Information is Important
37	Information is unimportant
38	Information is confusing and conflicting
39	Information is necessity
40	Trust of medical practitioners

41	Fear of complications
42	Believe in other diabetic patients
43	Personal experience
44	Family support
45	Prior knowledge
46	Personal judgement
47	Confusion

Source, Interview Analysis, 2016

Table 13 – Illustrative quotes of the classified categories

S/No	Categories	Illustrative quotes
1.	Myopathy	" My problem of diabetes comprises of many things especially weakness of the body" "The complications I face with diabetes is general body weakness".
2.	Osmatic symptoms	"I always experience dizziness".
3.	Diabetic neuropathy	" I feel my leg are not mine"
4.	Weight management	"……loss of weight". "….not being to eat as normal".
5.	Orthostatic symptoms	"When I wake up, I feel very dizzy".
6.	Resting Tachycardia	"If I'm sleeping in the night and I wake up, my heart beats too fast".
7.	Glycaemic control	"I've been having non – consistency of blood sugar level". "…..that I will be injecting myself with insulin injection on daily basis". "When sugar is too low, one has to take sugary thing to balance it…."
8.	Diabetic foot ulcer	"I had a wound sometimes ago on my leg and that wound was serious"
9.	Erectile dysfunction	"I experience poor erection and premature ejaculation"
10.	Physical exercise	"I should ensure that I do little exercise". "Especially he (doctor) gave me some advice that I should exercise regularly ".

		"I was advised to exercise regularly".
11.	Personal constructs	"I don't follow what other people say; I try as much as possible to look at the situation in a way that is with my person". "Rely on the experiences of other diabetic patients (commonality corollary)". "I apply my own understanding (individuality corollary)". "Call my friend to ask (Sociality corollary)".
12.	Cognition	"…all information or advice they give me, I return home, I think over the information and utilize the information".
13.	Diabetic education	"I understand the information provided for me at the Endocrinology Clinic very well". "I know the good and bad from it, so I do follow the information". "I simply adhered to the doctor's".
14.	Level of education	"….God made me a little educated, so whenever they give me such things I also help myself by adhering to instruction". "I have no problem understanding the information since I'm educated".
15.	Outcome expectancy	"….that if I follow the rules I will leave better".
16.	Diet	"I was instructed to take enough vegetables and fruits especially watermelon and apple". "….and really to pay attention to the types of food". "I should watch what I eat and don't eat too much at a time".
17.	Energy boost	"…. I should mostly take with fruits and take this drink emm…lucozade for strength…."
18.	Fluid in take	"The doctor said there is no problem with the way I drink".

19.	Prescribed Drugs	"…..I'm advised to take my medicine regularly and not when I like" "….the doctor gave me one tiny medicine like that and instructed that I should take it as being told". "They always ask me to follow the rules, take the medicine according to what they give me".
20.	Need to Promptly seek for help	"He (doctor) warned me not to stay at home without coming to the hospital whenever I have a wound".
21.	Wound management	"….I complained about the wound. They (doctors) say that the wound will not heal until I become serious about the medicine and that insulin".
22.	Need to share information	" I was not given any information at the clinic about the complication I'm having" " I did not tell the doctors the problem I'm having"
23.	Information filtering	" I can differentiate between relevant information" "I look at the information and separate the good and the bad information". "I try to analyze the information based on my personal experience and see the ones that I can apply to situations ".
24.	Interactive discourse	"Okay, you know at times when we go to Clinic; so we talk among ourselves. And so well will I say sharing of information"
25.	Family members	" I use too get information as I told you from my sisters" "My son also assist me. When he meets diabetic patients, any information he gathers; he will come home and inform me" "…that is why I'm saying my woman is the backbone behind me because all those things (dietary regulations) she is the one doing it". My husband at times provides me

		with information”
26.	Friends	“…I rely on my friends who are equally diabetic”.
27.	Other diabetic patients	“we the patients we meet ourselves and discuss” “…the sources are from those who have been having the problem “. “When we sit down with other people, we sit down and began to talk. And everybody will bring their contribution”
28.	Traditional herbal doctor	“…then there is one man (herbal doctor) who gave me one medicine….” “….that only herbs can control diabetes”
29.	Mass media	“Sometimes, we read newspapers and sometimes on the internet “. “…. He (herbal medicine man) gave me a book”
30.	Socialization	“ I receive information from my neighbours”
31.	Frame of reference	“Emmm….you know this diabetes is something they say is caused by sugar ehh! And when they told that it is emm…bitter leaf will reduce it. I accept because bitter leaf is something bitter. That is why, how I read my own o”.
32.	Mortality rate	“ I was to belief that anyone with diabetes will die in a short period of time”
33.	Cognitive Dissonance	I was told that I can take orange but just one or two but that I must not take pineapple. I should take apple, carrot, cucumber, water melon.Now I’m confused because there are some fruits like orange I know I’m not to take, but I’m ask to take one per day because my sugar level has been okay for over a long period of time.

34.	Information is Good	"The information is actually good but I find difficult exercising. I can't exercise outside because people in the north behave negatively whenever a woman is seen exercising. My husband bought me a treadmill; I make sure I exercise before going to bed in the night"
35.	Information is critical	"I find the information very good and helpful. People tell me that if I follow the information about diets for a diabetic patient, I will have a long life and fewer complications. As far as I'm concerned, the information is critical to my health".
36.	Information is helpful	"The information about salt regulation in take is very helpful form. It is good because since I reduced my salt intake as been advised by my doctor; my blood pressure is no longer high as before".
37.	Information is Important	"Yes, I accept what I'm told about exercises at the Endo Clinic. My doctor told me that exercise is very important for a diabetic person. Since I'm told that I should exercise, I have taken it as a way of life. I have to do it every day".
38.	Information is unimportant	"I do not tell the doctors the way I am feeling because I feel it is not important for me to tell them. I can take care of myself".
39.	Information is confusing and conflicting	"On the clinic day, they (doctors) told us we (diabetic patients) are free to take wheat as we (diabetic patients) like. But later I went to the Clinic; they (doctors) told us that we cannot continue take wheat alone again. That diabetic patient can take corn without removing the shaft. We eat anything but with lot of vegetable. That a diabetic patient can eat rice but with plenty vegetable. I am now confused with the

		information and do not know which one to follow".
40.	Information is necessity	"He (doctor) warned me not to stay at home without coming to the hospital whenever I have a wound. The information assisted me a lot with the last boil I had. I took the decision to go to the hospital in time and I did not suffer like the other time. Information on prompt decision making is a necessity for me".
41.	Trust of medical practitioners	"The doctor advised me to exercise regularly. So I take it that without exercising, I will have problems that will be difficult for me to handle. I have trust in my doctor as a professional. Since the time my doctor told me about exercising, I started going to the field regularly to exercise. I am feeling much better now".
42.	Fear of complications	"I was told that exercising will help me in keeping fit. I had met with patients at the clinic who are having leg problems because they do not exercise at all. The pain they told me they had been is leaving with had created fear in me. Because of this, I ensure that I exercise regularly as been informed by the doctors "
43.	Believe in other diabetic patients	"I have heard a lot about diabetes such as about the types of food to eat – maize, rice, beans. So also about fruits too like watermelon, garden egg, apple etc. sometimes I don't understand some information. What I do is that, I usually contact other diabetic patients to help me out. I believe in whatsoever they tell me, since my interest is similar to that of other diabetic patients".

44.	Personal experience	"The doctor warned me not to stay at home whenever I have wound without going to the hospital. I was advised to always make decision in time. Since then, based on my experience, I am very observant".
45.	Family support	"When I get information from the Endo Clinic especially in relation to diets; I usually tell my husband when I get home. When I have problem understanding the information, my husband usually assists me".
46.	Prior knowledge	"I am a dietician. So I usually compare the information provided about diets at the Endo Clinic with what my prior knowledge about diabetes. If I am not convinced, I put my own knowledge into practice in using the information".
47.	Personal judgement	"I did not tell the doctors the problem I'm having. I think I can take care of how I am feeling. I make judgment according how I am feeling".
48.	Confusion	"I get information from various sources; doctors, friends and other patients. At a time, we were told at the Endo Clinic that we can only eat wheat and beans. But now that we are informed at the Clinic that we can take anything but ensure that it is combined with plenty vegetables. So I don't know which one to hold on to now. Now, my understanding is inconsistent".

Source- Interview Analysis, 2016

Table 14 Description of Sub categories

Research Questions	Sub Questions	S/No	Categories	Description
1.	**1**	1.	Myopathy	Comment related to complications experienced by T2DM patients
		2	Diabetic neuropathy	
		3	Osmatic symptoms	
		4	Diabetic retinopathy	
		5	Weight loss	
		6	Orthostatic hypotension	
		7	Vasculopathy	

		8	Resting tachycardia	
		9	Dysglycaemic	
		10	Diabetic foot ulcer	
		11	Erectile dysfunction	
2.	**1.**	12.	Diet	Comments related to information received from the Endo Clinic to manage complications
		13.	Energy boost	
		14	Prescribed Drug	
		15	Need to Promptly seek for help	
		16	Need to share Information	
		17	Regulating salt intake	
	2.	18	Exercise	
		19	Physical exercise	Comments related to how patients understand information received from Endocrinology Clinic
		20	Outcome expectancy	
		21	Personal experience	
		22	Educational level	
		23	Cognition	
		24	Doctor's guidance	
		25	Routine Endo Lecture	
3	**1**	26	Family members	Comments related to whom T2DM patients consult for information outside Endocrinology Clinic
		27	Friends	
		28	Traditional herbal doctors	
		29	Neighbours	
		30	Spouse	
		31	Mass media	
	2	32	Educational level	Comments related how T2DM patients understand information received outside Endocrinology Clinic
		33	Cognition	
		34	Information filtering	
		35	Interactive discourse	
		36	Frame of reference	
		37	Socialization	
		38	Diabetic education	
4	**1**	39	Mortality rate	Comments related to patients prior knowledge about diabetes before starting routine Endocrinology Clinic
		40	Dietary regulation	
		41	Glycaemic control	
		42	Wound management	
		43	Weight management	
		44	Herbal medicine	

	2.	46	Glycaemic control	Comments related to patient's knowledge after commencement of Endocrinology Clinic
		47	Physical exercise	
		48	Alcoholic consumption	
		49	Wound management	
		50	Herbal medicine	
		51	Drug regime	
		52	Cognitive Dissonance	
5	**1**	53	Information is good	Comments related to how patients understand diabetic information
		54	Information is important	
		55	Information is unimportant	
		56	Information is critical	
		57	Information is helpful	
		58	Information is necessity	
		59	Information is confusing and conflicting	
		60	Trust of medical practitioners	Comments related to personal constructs applied in making sense of information received from Endocrinology Clinic
		61	Believe in other diabetic patients	
		62	Fear of complications	
		63	Personal experience	
		64	Family support	
		65	Prior Knowledge	
		66	Personal judgement	
		67	**Confusion**	

Source –Interview Analysis, 2016

Table 15– Data analysis steps

Research Question	Sub Research Questions (SQ)	Categories	Sub Categories
1. What complications do T2DM patients	Can you share with me the type of complications you	Myopathy	Weakness of the body

experience?	experience?		Lack of strength
		Diabetic neuropathy	Body pain
			Neck pain
			Back ache
		Osmatic symptoms	Water ingestion
		Diabetic retinopathy	Eye problem
		Weight loss	Eating problem
			Body mass index
		Orthostatic hypotension	Dizziness
		Vasculopathy	High blood Pressure (BP)
			Headache
			Insomnia
			Irregular heartbeats
		Resting tachycardia	Pulse rate
		Dysglycaemic	Fluctuation of sugar level
		Diabetic peripheral neuropathy	Leg problem
			Joint problem
		Diabetic boil	Boil
		Diabetic foot ulcer	Wound
		Erectile dysfunction	Premature ejaculation
			Poor erection
2. What information do T2DM patients receive from Endo clinic to manage diabetic complication?	Can you share with me information received to manage complications?	Exercise	Regular exercise
		Diets	Fruit and Vegetables
			Component of foods
			Inadequate fruit consumption
			Avoid Starchy foods
			Avoid red beef
		Prescribed drugs	Drug information
			Drug regimen
			Drug instruction
		Energy Boost	

		Fluid intake	Water ingestion
		Need to promptly seek for help	Wound management
			Keep the feet warm
		Need to share information	Lack of information
			Hiding information
		Regulation of salt intake	
	Can you share with me how you make sense of information received to manage the complications?	Personal worldview	
		Personal Constructs	Personal experience
			Formal education
			Literacy level
			Enlightenment
		Cognition	Accommodation and assimilation
			Schema
			Equilibration
		Information on exercise	Regular exercise
Who do T2DM patients consult for information outside EC for managing complications?	For each of the complications, tell from whom you receive information outside Endo Clinic?	Information about diet	Fruits and vegetables
			Diet regulation
			Avoid red beef
			Avoid starchy foods
		Family members	Brothers
			Sister
			Son
		Friends	
		Traditional herbal doctors	
		Acquaintance	Neighbours
			Colleagues
		Mass media	Newspapers
			Internet
			Mass media houses

			Textbook
		Spouse	Husband
			Wife
	For each of the complications, tell me how you make sense of the information received outside the Endo Clinic?	Educational level	
		Cognition	Accommodation and assimilation
			Adaptation
			schema
		Information filtering	
		Interactive discourse	
		Frame of reference	
		Good relationship	Other diabetic patients
		Diabetic education	Routine Endocrinology lectures
Research Question IV: what is your prior knowledge about diabetes before the commencement of EC?	Can you share with your knowledge about type 2 diabetes mellitus before commencement of Endocrinology Clinic?	Mortality rate	Early death
		Diets	Eat beans and wheat
			Carbohydrates diets
			Eat beans and acha (phonio millet)
			Others
		Sugar control	Sugar intake
			Insulin regulation

		Wound management	Wound care
		Weight management	Weight loss
			Body mass index
			Weight monitoring
		Herbal medicine	Herbal medicine regimen
		Exercise	Regular exercise
	. Share with me the information received from the Endo clinic that shows there have been a gap in information available to you?	Dietary regulations	Eating moderately
			Dietary regulations
			Dietary guidelines
			Dairy consumption
			Fruit consumption
			Taking maize with shaft
			Others
		Sugar control	Sugar intake
			Blood sugar monitoring
		Exercise	Regular exercise
		Alcoholic consumption	
		Wound management	Wound care
		Drug regimen	
5.**How do T2DM Patients understand information. received from EC for managing complications?**	Can you share with me how you classify the information received from EC for managing complications?	Information is Beneficial	
		Information is Important	
		Information is insignificant	
		Critical	
		Helpful	

6.What personal constructs do diabetic patients apply in making sense of information for managing complications?	Conflicting and confusing	
	Trust of medical practitioners	
	Believe in other diabetic patients	
	Fear of complications	
	Personal experience	
	Family support	
	Prior knowledge	
	Personal judgement	
	Confusion	

Source- Interview Analysis, 2016

Figure 1- Complications experienced by T2DM patients in EC, ABUTH, Shika

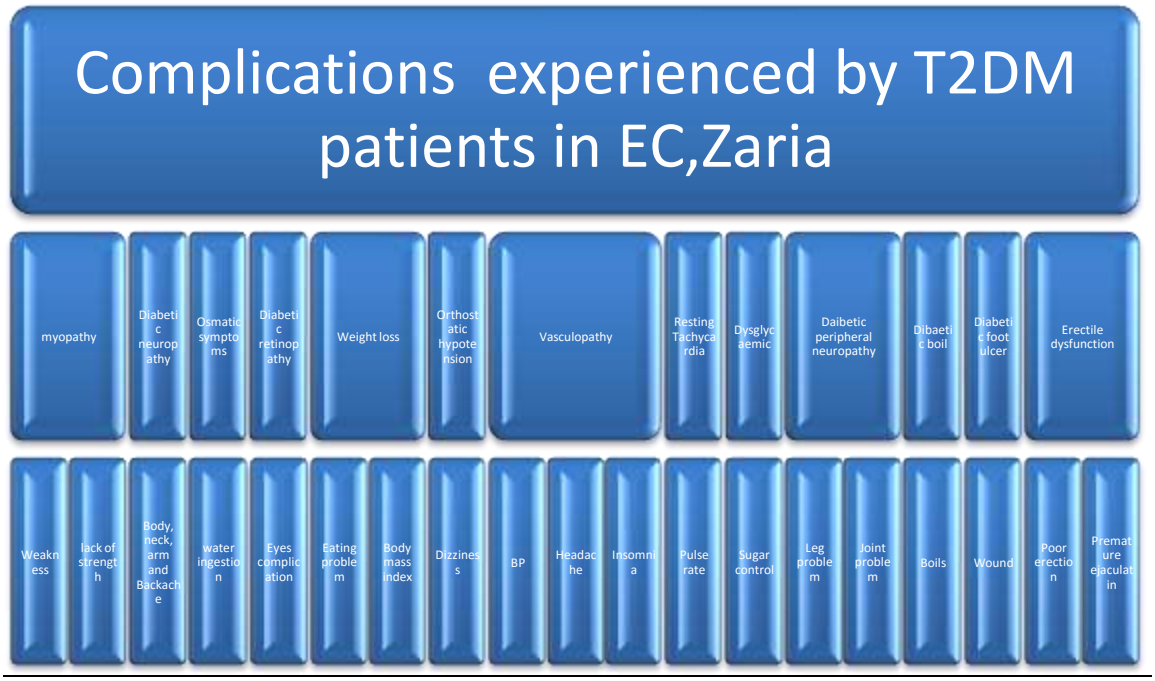


Figure 2 Information received from EC, ABUTH, Shika to manage diabetic complications



FIGURE 3 Sources of information consulted by T2DM patients outside EC,ABUTH, Shika

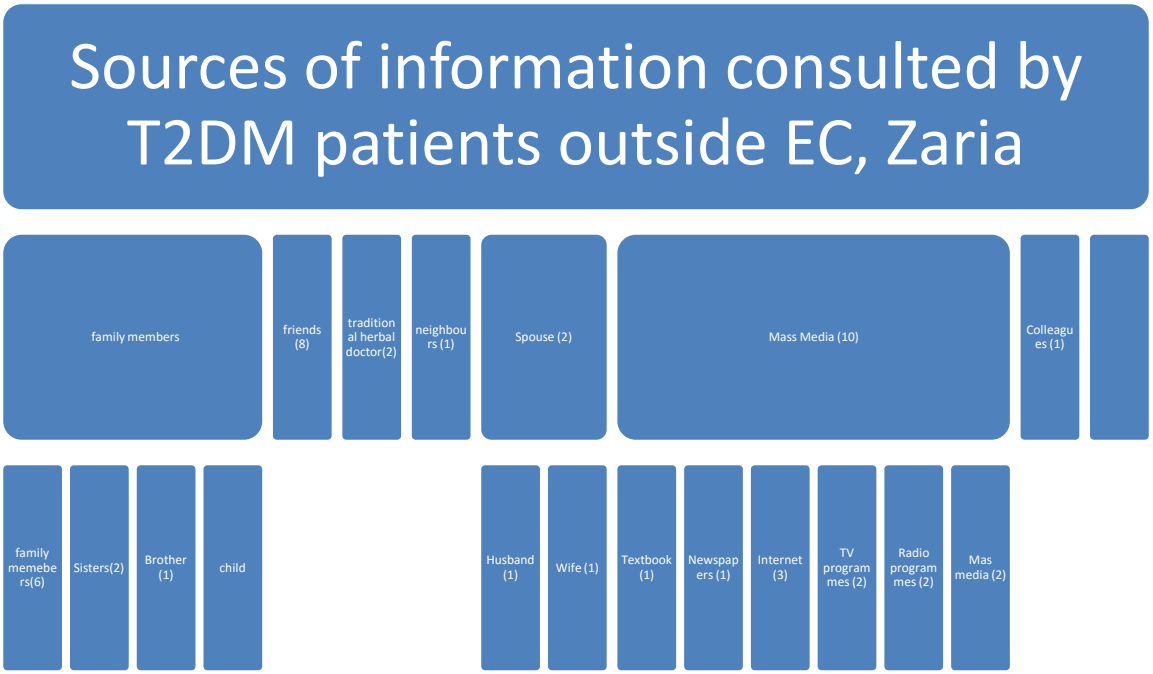


Figure 4.1 prior knowledge about DM before Commencement of EC, ABUTH, Shika

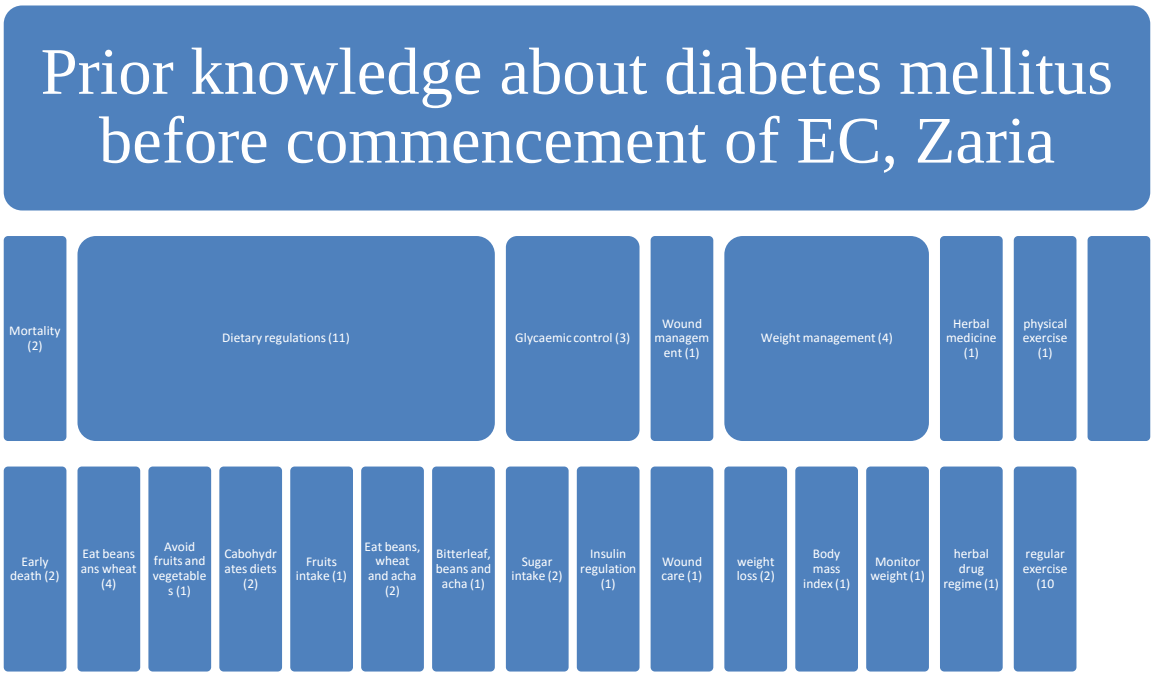


Figure 4.2. Information acquired through EC, ABUTH, Shikafor managing DM

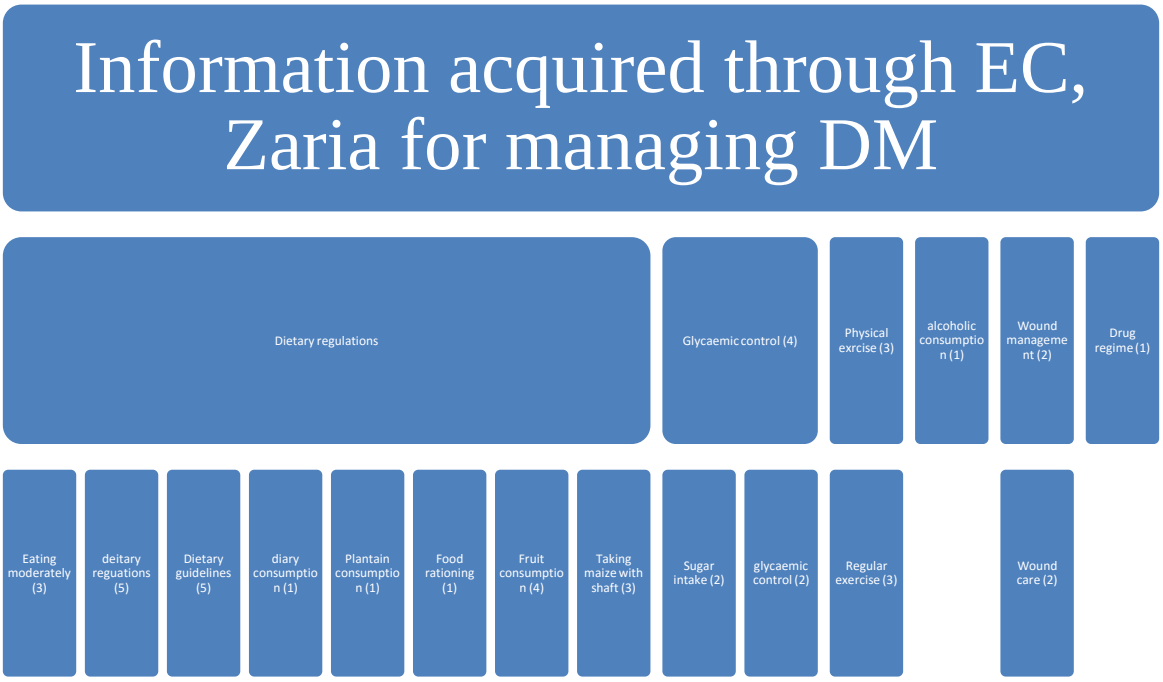


Figure 5 Understanding of information received from Endocrinology Clinic for managing diabetic complications



Figure 6Personal constructs T2DM applied in making sense of information received from EC, ABUTH, Shika

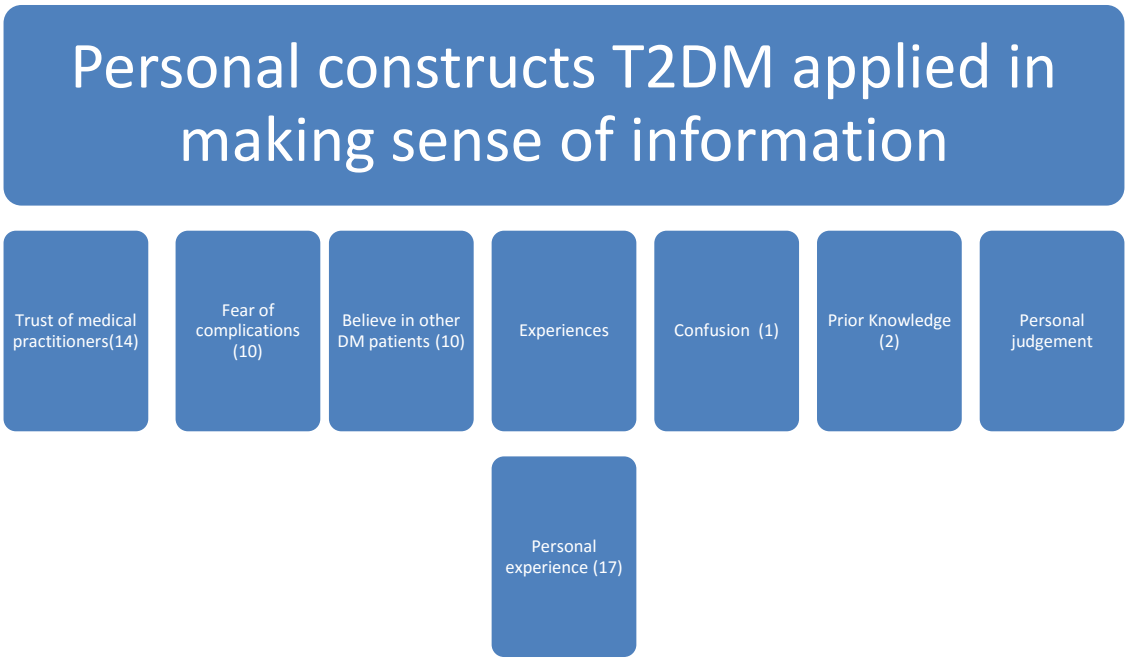


Fig 7 Data Analysis Process



Figure 8- Conceptual Framework



Table 16 – Sample of Research Question coding

RESEARCH QUESTION III - Who doT2DM patients consult for information outside Endocrinology Clinic, ABUTH, Shika for managing diabetes?

Sub research question	Participant	Narrative	Open code	Related open code	Sub-categories	Related sub categories	Categories
Sub research question 1. For each of the complications, tell me from whom you receive informat	**1**	**Narrative After all those gave me advice that I should… when in my home area;**	**Open Code 1.Some of my relatives 2.friends 3.**	**Some of my relatives (P1) • Families (P1) Family members (P2) family equally advise me**	**• Family members (6)**	**Family members (6) Sisters (1) Brothers (2) Son (1) Wife (1) Husband (1)**	

ion outside the Endo Clinic	**when I disclosed that I have the disease of diabetes. There are some of my relatives, friends and families, they will give me some advice that after taking all those drugs there are some certain traditional drugs that I use to take especially vegetables. Then there is one man who gave me one medicine …is emm. You know as an hausa man; he gave me some certain medicine that I should take. If I take them.**	**families 4.Then there is one man who gave me one e**	**(P10) Family (12) Family members (P14)**

	He gave me some type of medicine that I should take them in my mouth and it was tasteless. Even if I take sugar, enter into my mouth I find it tasteless with no sugar. So that is what I receive outside Endo Clinic.