Satisfaction of Diabetic Patients by the Quality of Management and Care in *Jabir Abu Eliz* Diabetes Health Center at Khartoum State, Sudan (2017)

Sausan Algali Yusif Mousa

MBBS: Elfashir University (2010)

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Supervision committee:

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<tr>
<td>Dr. Mohammed ELmukhtar Mohammed</td>
<td>Main Supervisor</td>
<td></td>
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<tr>
<td>Prof. Magda Elhadi Ahmed Yousif</td>
<td>Co-supervisor</td>
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Examination committee:

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<td>Chair person</td>
<td></td>
</tr>
<tr>
<td>Dr. Elfatih Mohammed Malik</td>
<td>External Examiner</td>
<td></td>
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<tr>
<td>Dr. Osman Hamid Abdulhamed</td>
<td>Internal Examiner</td>
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Date of Examination: / / 2018
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الذين ءامنوا وظمن قلوبهم يذكى الله
لا يذكى الله تظلم قلوب

سورة النساء 42
Dedication

This dissertation is dedicated

To

my father who always shining my way

To

my mother who gives me all support

To

my husband and my children

To

my sisters and brothers
Acknowledgements

Foremost, I would like to express my sincere gratitude to my supervisor Dr. Mohammed Elmukhtar Mohammed for the continuous support of my study and research, for his patience, motivation, enthusiasm, and immense knowledge. His guidance helped me in all the time of research and writing of this thesis.

Thanks to the staff of Jabir Abu Eliz diabetes canters and the patients included in the study for their cooperation during the conduction of the study.

I would like to thank my family: my parents, husband brothers and sisters, for supporting me spiritually throughout my life.
Satisfaction of Diabetic Patients by the Quality of Management and Care in *Jabir Abu Eliz* Diabetes Health Center at Khartoum State, Sudan (2017)

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Abstract

Patient satisfaction is of increasing importance and recognized as an important indicator for quality of care. It is influenced by the patients, physicians and practice's characteristics. The literature on diabetes has increasingly focused on the quality of care and its measurement. The study aimed to assess satisfaction of diabetic patients about quality of management and care. It is a cross-sectional, descriptive and analytical health care facility-based study. The study was conducted in Jabir Abu Eliz Diabetes Health Center, targeting diabetic patients (July 2017 to October 2017). The study sample included 384 diabetic patients. Data was collected using structured questionnaire (Annex 1). The study showed that the overall satisfaction of 132(34.4%) was full, 99(25.8%) moderately satisfied, 87(22.7%) low satisfaction and 66(17.2%) not satisfied. Regarding satisfaction of the respondents toward the health services provided by the center 113(29.4%) fully satisfied, 139(36.2%) moderately satisfied, 91(23.7%) low satisfaction and 41(10.7%) not satisfied. Full satisfaction by 83(21.2%), moderate satisfaction on care and treatment was reported by 197(51.3%) of the respondents, low satisfaction 66(17.2%) and no satisfaction was the impression of 38(9.9%) of the patients. On counseling and education full satisfaction was reported by 148(38.5%) of the respondents, moderate 95(24.7%), low satisfaction 92(24%) and no satisfaction 49(12.8%). Female gender, low educational level, low socioeconomic status, rural residence, longer duration of diabetes, longer duration of attendance to the centre and more frequency of visits per year were significantly associated with higher levels of patient's satisfaction. Patients with controlled HbA1c% showed higher levels of satisfaction than the patients with uncontrolled HbA1c%. Patients were fully satisfied toward care and management provided by Jabir Abu Eliz Diabetes Center. The increase in health services provided by the center may help to increase patients' satisfaction.
ملخص الدراسة

رضا مرضى السكري عن جودة العلاج والرعاية في مركز جابر أبو العز التخصصي السكري في ولاية الخرطوم

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ملخص الدراسة

رضا مرضى السكري هو من أهمية متزايدة ومتزايدة ومصر مؤشر مهم لجودة الرعاية. وهو يتأثر بالمرضى والأطباء وخصائص

الممارسة، وقد ركزت الأدبيات المتعلقة بمرض السكري بشكل متزايد على نوعية الرعاية وقياسها. هدفت الدراسة إلى تقييم مدى

رضاء مرضى السكري عن جودة العلاج والرعاية. وهي دراسة مقطعية مستندة إلى مواقف الرعاية الصحية وصفت الدراسة مركز

جابر أبو العز التخصصي، الذي يستهدف مرضى السكري (يوليو 2017 إلى أكتوبر 2017). شملت عينة الدراسة 384

مريضاً مصاباً بالسكري. تتم جمع البيانات باستخدام استبانات. كان الرضا الكلي 132 (34.4%) كافٍ، 99 (25.8%) راض

إلى حد ما، 87 (22.7%) رضي منخفض و 66 (17.2%) غير راض. فيما يتعلق بالاتصال للمستجيبين تجاه الخدمات

الصحية المقدمة من المركز 139 (36.2%) راضون إلى حد ما، و 113 (29.4%) راضون تماماً، و 91 (23.7%) رضاء

منخفض و 41 (10.7%) غير راضين. تم الإبلاغ عن رضا متوسط عن الرعاية والعلاج من قبل 197 (51.3%) من

المستجيبين، والاتصال الكامل بنسبة 83 (21.2%)، وروا منخفض 66 (17.2%)، ولم يكن الاتصال الإطاباع 38 (9.9%)

من المرضى. (5.148%) من المستجيبين، 95 (24.7%)، وروا منخفض 92 (24.7%) وروا منخفض 24 (24.7%) مرتبط نوع

المريض الأثل، وانخفاض المستوى التعليمي، والوضع الاجتماعي والاقتصادي المنخفض، والإقامة في المناطق الريفية، طول

مدة مرض السكري، وطول مدة الحضور إلى المركز، والتكرار الأكثر للزيارات في السنة ترتبط بشكل كبير مع المستويات

الأعلى من رضا المريض. كان معدل الرضا لدى المرضى ذوي التحكم في معدل السكر التراكي أعلى من غيرهم غير

المتحكمين في معدل السكر التراكي. أوضحت الدراسة أن المرضى لديهم درجة عالية من الرضا تجاه الرعاية والعلاج المقدمة

ال ידי مركز جابر أبو العز للسكري. زيادة مستوى الخدمات الصحية المقدمة بواسطة المركز يساعد في زيادة معدل الرضا

لدى المرضى.
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Abbreviations

ADA: American Diabetes Association
DM: Diabetes mellitus
FBG: Fasting Blood Glucose
GDM: Gestational diabetes mellitus
IDDM: insulin-dependent diabetes mellitus
IDF: International Diabetes Federation
NIDDM: non-insulin-dependent diabetes mellitus
RBG: Random Blood Glucose
SPSS: Statistical Packages for Social Sciences
WHO: World Health Organization
Chapter One
Introduction

1.1 Background
Diabetes mellitus often simply referred to as diabetes—is a condition in which a person has a high blood sugar (glucose) level as a result of the body either not producing enough insulin, or because body cells do not properly respond to the insulin that is produced. Insulin is a hormone produced in the pancreas which enables body cells to absorb glucose, to turn into energy. If the body cells do not absorb the glucose, the glucose accumulates in the blood (hyperglycemia), leading to various potential medical complications (Rother, 2007).

Most cases of diabetes mellitus fall into the three broad categories of type I or type II and gestational diabetes. A few other types are described. The term "type I diabetes" has replaced several former terms, including childhood-onset diabetes, juvenile diabetes, and insulin-dependent diabetes mellitus (IDDM). Likewise, the term "type II diabetes" has replaced several former terms, including adult-onset diabetes, obesity-related diabetes, and non-insulin-dependent diabetes mellitus (NIDDM). Beyond these two types, there is no agreed-upon standard nomenclature. Various sources have defined "type III diabetes" as: gestational diabetes (American Diabetes Association, 2005), insulin-resistant type 1 diabetes (or "double diabetes"), type 2 diabetes which has progressed to require injected insulin, and latent autoimmune diabetes of adults (or "type 1.5" diabetes).

Childhood diabetes mellitus is one of the most common endocrine problems in childhood and it is a life long disease (Albert, et al., 1991).

Patient satisfaction is of increasing importance and widely recognized as an important indicator of quality of the medical care. There was no homogeneous definition of patient satisfaction, since satisfaction concerns different aspects of care or settings, as well as care given by various professions (Hornsten et al. 2005).
Thus the interpretation of patients' satisfaction as an overall score is often difficult, but comparisons over defined dimensions of care being more appropriate (Kersnik, 2000).

Improving the quality-of-care for patients with chronic conditions like diabetes mellitus became an important focus of the health-care system and policy (Gulliford, et al 2007). The focus on diabetes mellitus was increasing because it became a major public health problem. In general, studies showed that number of adults having diabetes will be more than double between 2000 and 2030, with most increase occurring in Asia (Herman and Zimmet, 2012).

The literature on diabetes mellitus has increasingly focused on the quality of diabetes care and its measurement. The quality-of-care is a multidimensional concept with a combination of access, effectiveness of clinical care and interpersonal care (Maddigan, et al 2004). Health systems changed the way of thinking and delivering care i.e., patient became the center of the overall care process and new organizational models were applied in order to provide patient-centered services (Cornwell and Goodrich, 2009).

Furthermore, the quality of diabetes care is widely sub-optimal and most of the interventions depend on active involvement and participation of patients. Thus working through patient satisfaction may be an important way of improving diabetes care (Narayan, et al. 2003).

In Sudan Balla et al (2016) study aimed to measure satisfaction with diabetes services provided to diabetic patients attending primary care health centres compared to specialized diabetes centres in Khartoum state. The study showed that the proportion of patients satisfied with diabetic services in primary health care centres was significantly low compared to specialized diabetes centres, 113 (24.5%) and 145 (57.8%) respectively, P=0.001. The mean satisfaction scores in primary care health centres and specialized diabetes centres were 1.85 ± 0.23 and
2.12± 0.33 respectively, P=0.001. Five factors were extracted from the satisfaction scale which contributed by 56.76% to the total variance. The mean satisfaction scores were significantly lower in primary care health centres compared to specialized diabetes centres regarding consultation session, technical capacity and referral, information and counseling and general satisfaction.

1.2 Problem statement
Poor satisfaction of patients with diabetes mellitus comes from inadequate understanding of the relationship between the diabetic patients and health outcome. Limited satisfaction leads to reduction of patient's value and expectation about health center services and poor compliance with complications and control on the complications. Dissatisfaction of diabetic patients about the services provided by care center creates weak relationships with medical care services provides, so the patients take other options of treatment such as traditional medicine, which in turn may increase the complications of the disease.

1.3 Justification and rationale
- The burden of diabetes in Sudan increased.
- Satisfaction of diabetic patients should be addressed to improve the level of health services and education in Sudan.
- Most of the studies investigated the diabetes in general, complication, management and compliance with treatment.
- Up to researcher knowledge, there were no published studies that investigated the diabetic patient satisfaction about care and management in the specialized diabetes centers.
1.3 Objectives

1.3.1 General objective
To assess satisfaction of diabetic patients about quality of management and care in Jabir Abu Eliz Diabetes Health Center at Khartoum State (July – October 2017).

1.3.2 Specific Objectives

1. To measure satisfaction of diabetic patients about health services provided by the center.

2. To determine the level of satisfaction of the patients about care and management provided by the center.

3. To measure satisfaction of diabetic patients about counseling and education provided by the center.

4. To determine the association between sociodemographic factors and patients satisfaction.

1.4 Hypothesis
The study hypothesized that satisfaction of diabetic patients about health services provided by the center.
Chapter Two
2. Literature Review

2.1 Diabetes mellitus
Diabetes mellitus (DM) is defined as a chronic disease that occurs when the pancreas is deficient of insulin or does not produce enough insulin, or alternatively when the body cannot effectively use the produced insulin. Insulin is a hormone that regulates blood glucose concentration. Hyperglycemia, or raised blood glucose levels, is a common effect of uncontrolled diabetes and which over time leads to serious damage to many systems of the body, especially the nerves, eyes, kidneys and blood vessels (WHO, 2006).

2.1.1 Classification
Most cases of diabetes mellitus fall into the three broad categories of type 1 or type 2 and gestational diabetes. A few other types are described. The term diabetes, without qualification, usually refers to diabetes mellitus, which roughly translates to excessive sweet urine (known as "glycosuria"). Several rare conditions are also named diabetes. The most common of these is diabetes insipidus in which large amounts of urine are produced (polyuria), which is not sweet (insipidus meaning "without taste" in Latin) (American Diabetes Association, 2005).

The term "type 1 diabetes" has replaced several former terms, including childhood-onset diabetes, juvenile diabetes, and insulin-dependent diabetes mellitus (IDDM). Likewise, the term "type 2 diabetes" has replaced several former terms, including adult-onset diabetes, obesity-related diabetes, and non-insulin-dependent diabetes mellitus (NIDDM). Beyond these two types, there is no agreed-upon standard nomenclature. Various sources have defined "type 3 diabetes" as: gestational diabetes (American Diabetes Association, 2005), insulin-resistant type 1 diabetes (or "double diabetes"), type 2 diabetes which has progressed to require injected insulin, and latent autoimmune diabetes of adults (WHO, 2006).
2.1.1.1 Type 1 diabetes

Type 1 diabetes mellitus is characterized by loss of the insulin-producing beta cells of the islets of Langerhans in the pancreas leading to insulin deficiency. This type of diabetes can be further classified as immune-mediated or idiopathic. The majority of type 1 diabetes is of the immune-mediated nature, where beta cell loss is a T-cell mediated autoimmune attack (Rother, 2007). There is no known preventive measure against type 1 diabetes, which causes approximately 10% of diabetes mellitus cases in North America and Europe. Most affected people are otherwise healthy and of a healthy weight when onset occurs. Sensitivity and responsiveness to insulin are usually normal, especially in the early stages. Type 1 diabetes can affect children or adults but was traditionally termed "juvenile diabetes" because it represents a majority of the diabetes cases in children (WHO, 2007).

2.1.1.2 Type 2 diabetes

Type 2 diabetes mellitus is characterized by insulin resistance which may be combined with relatively reduced insulin secretion. The defective responsiveness of body tissues to insulin is believed to involve the insulin receptor. However, the specific defects are not known. Diabetes mellitus due to a known defect are classified separately. Type 2 diabetes is the most common type (WHO, 2005). In the early stage of type 2 diabetes, the predominant abnormality is reduced insulin sensitivity. At this stage hyperglycemia can be reversed by a variety of measures and medications that improve insulin sensitivity or reduce glucose production by the liver. As the disease progresses, the impairment of insulin secretion occurs, and therapeutic replacement of insulin may sometimes become necessary in certain patients (WHO, 2004).
2.2 Global epidemiology of diabetes mellitus

Due to aging, accelerated population growth, urbanization and high prevalence of obesity and inactive lifestyle, the number of people with diabetes is increasing globally at a rapid speed. Important differences have been reported in the occurrence of DM and its complications between countries and between ethnic, cultural and even age groups within the same country. The World Health Organization (WHO) predicts that the current diabetic population of 171 million (estimate in year 2000) people will increase to 370 million by the year 2030 (WHO, 2003). From another global estimate for the year 2000-2030, the total number of people with diabetes is projected to rise from 171 million in 2000 to 366 million in 2030 (Wild, et al., 2004).

The number is expected to approximately double between 2000 and 2030, based solely upon demographic changes. It has been estimated that 2.1% of the world population may have diabetes, which is predicted to rise to 3% by the year 2010 (WHO, 2003) and other study has estimated an increase to 2.8% in 2000, with projections of 4.8% in 2030 (Wild, et al., 2004).

The greatest relative increases will occur in the Middle Eastern Crescent, sub-Saharan Africa, and India. The incidence of type 1 DM is increasing in many parts of the world and especially in younger children (Beran and Yudkin, 2006). There are 300-350 new cases of diabetes per year among children aged less than 15 years. The number of new cases has doubled during the last three decades. Most of the expected population growth between 2000 and 2030 will be concentrated in the urban areas of the world (United Nations Population Division, 1999). The most striking demographic change in global terms will be the increase in the proportion of the population 65 years of age (Wild, et al., 2004).

In low and middle income countries the majority of people with diabetes are in the 45-64 year age range (King, et al., 1998). In contrast, the majority of people with
diabetes in developed countries are <64 years of age. By 2030, it is estimated that the number of people with diabetes <64 years of age will be more than 82 million in low and middle income countries and >48 million in high income countries (Wild, et al., 2004). The largest increases in the diabetic populations are projected to be in the most economically productive age groups (Bjork, 2003).

2.3 Diabetes mellitus in Africa

Africa is a large continent, but the health care systems of African countries face similar challenges in the delivery of health care. Resources are limited and systems are strained (Whiting, et al., 2003). Diabetes mellitus is no longer rare in Africa. Meta-analytic estimates and recent investigations based on the step-wise approach (Whiting, et al., 2003) for monitoring the risk factors of non-communicable diseases indicate a prevalence of between 1% and 20%.

The prevalence of DM in African communities is increasing due to an ageing population and lifestyle changes associated with rapid urbanization and westernization. Traditional rural communities still have very low prevalence, at most 1-2%, except in some specific high-risk groups, whereas up to 13% or more adults in urban communities have DM. Type 2 diabetes is the predominant form (70-90%), the rest being represented by typical type 1 patients and patients with atypical presentations. Due to the high urban growth rate, unhealthy dietary changes, reduction in physical activity and increasing obesity it is estimated that the prevalence of diabetes is going to triple within the next 25 years. In addition, long-term complications occur early in the course of diabetes and affect a high proportion of patients, and that could be partly explained by uncontrolled hypertension, poor metabolic control and possible ethnic predisposition. The combination of the rising prevalence of diabetes and the high rate of long-term complications in Africans will lead to a drastic increase of the burden of diabetes on health care systems of African countries. The design and implementation of an
appropriate strategy for early diagnosis and treatment, and population-based primary prevention of diabetes in these high-risk populations is therefore a public health priority (Sobngwi, 2001).

The disease burden is very high. Recent literature regarding healthcare for diabetes arises from a limited number of countries in Africa. Where assessments of health care have been made it is clear that the cover and quality of services are well below any reasonable minimum (Whiting, et al., 2003). Unknown diabetes in Africa is in the order of 60% to 80% in cases diagnosed in Cameroon, Ghana and Tanzania (International Diabetes Federation, 2006). The rate of limb amputations varies from 1.4% to 6.7% of diabetic foot cases. Annual mortality linked to diabetes worldwide is estimated at more than one million (WHO, 2005). In some countries of the Region, the mortality rate is higher than 40 per 10 000 inhabitants (WHO, 2004). Diabetes is particularly common in Egypt, with a prevalence of 4.3% (WHO, 2004).

The rising prevalence of diabetes, its increasing morbidity and mortality, its disproportionate effect on disadvantaged individuals, communities and nations, and its high human and economic costs clearly establish diabetes as a significant global public health problem (King, et al., 1998).

2.4 Diabetes mellitus in Sudan

The prevalence and incidence rates of DM in Sudan, as in many other low-income countries, are increasing to epidemic proportions, leading to the emergence of a public health problem of major socio-economic impact. In the northern states the crude prevalence in 1992 reached 3.4% in those above 25 years of age (United Nations Population Division, 1999). It was found to be 5.5% in the Northern State and 8% in Khartoum State. The prevalence was particularly high (10.8%) in a certain community in the Northern State (Elbagir, 1992). Type I DM is not rare in
Sudan, the prevalence being approximated to 0.1 % among children 7-14 years of age (Elamin, 1992).

Diabetes mellitus in Sudan is associated with poor glycaemic control, a high prevalence of complications, a low quality of life, and particularly with morbidity (Elbagir, 1992). Patients with a median duration of diabetes of 9 years showed a high prevalence of micro- and macro vascular complications (Eltom and Thompson, 2005). Retinopathy was evident in approximately 43%, dipstick proteinuria in 22% and neuropathy in 37%. Cardiovascular disease was reported in 28%. Peripheral vascular disease was reported in 10% and cerebrovascular accidents in 5.5%. As expected, patients with complications were significantly older, had longer disease duration and had higher serum cholesterol and triglyceride concentrations. The glycaemic control was only acceptable in 12.5% of the patients. The reasons for poor metabolic control are not difficult to understand. Drugs are extremely costly relative to income (Zhang, 2004).

According to International Diabetes Federation Middle East and North Africa (IDF MENA) region, in Sudan there were over 2,247.000 cases of diabetes in 2017 (IDF MENA, 2018).

2.5 Complications of diabetes mellitus

All forms of diabetes increase the risk of long-term complications. These typically develop after many years (10–20), but may be the first symptom in those who have otherwise not received a diagnosis before that time. The major long-term complications relate to damage to blood vessels. Diabetes doubles the risk of cardiovascular disease. The main "macro vascular" diseases (related to atherosclerosis of larger arteries) are ischemic heart disease (angina and myocardial infarction), stroke and peripheral vascular disease (Emerging Risk Factors Collaboration, 2010).
Diabetes also damages the capillaries (causes microangiopathy). Diabetic retinopathy, which affects blood vessel formation in the retina of the eye, can lead to visual symptoms including reduced vision and potentially blindness. Diabetic nephropathy, the impact of diabetes on the kidneys, can lead to scarring changes in the kidney tissue, loss of small or progressively larger amounts of protein in the urine, and eventually chronic kidney disease requiring dialysis (Boussageon, et al. 2011).

Another risk is diabetic neuropathy, the impact of diabetes on the nervous system most commonly causing numbness, tingling and pain in the feet, and also increasing the risk of skin damage due to altered sensation. Together with vascular disease in the legs, neuropathy contributes to the risk of diabetes-related foot problems (such as diabetic foot ulcers) that can be difficult to treat and occasionally require amputation. As well, proximal diabetic neuropathy causes painful muscle wasting and weakness (Boussageon, et al. 2011).

Several studies suggest a link between cognitive deficit and diabetes. Compared to those without diabetes, the research showed that those with the disease have a 1.2 to 1.5-fold greater rate of decline in cognitive function, and are at greater risk (Cukierman, 2005).

2.6 Diabetes care and management
Diabetes is complex and multisystem disease that requires management through systematic and multifaceted approach which relies on certain clinical guidelines. Periodical guidelines on management diabetes are provided by major organizing bodies such as the World Health organization (WHO), International Diabetes Federation (IDF) and the American Diabetes Association (ADA) (Oussama, 2006). The previous guidelines stated that management of diabetes should not be confined to lowering the blood glucose level only but also extend to life style modifications
and lowering the risk of developing diabetes complications. Moreover, it emphasizes on educating patients on self monitoring and management (Williams, 2015). Additionally, the IDF published guidelines in 2013 regarding management of type 2 diabetes in older population (Alan, et al 2013). The guidelines provided solutions for numerous challenges in management of diabetes in old people with special focus on long term diabetes complications. The guidelines, also, addressed less commonly tackled areas such as pain management and end of life care.

Eltom (2011) showed that the Federal Ministry of Health in Sudan constituted national guidelines to manage different types of diabetes. The guidelines were mainly based on the WHO recommendations but certain modifications were introduced to adapt to the local setting, especially the financial aspect. In our study, these guidelines were considered the standard reference for diabetes care in Sudan. The following points highlight the main features of the above mentioned guidelines (Eltom, 2011):

- The recommended management team consists of, at least, a general practitioner, diabetes educator, Nutritionist and a nurse. High risk patients should be referred to specialized units for screening and management of diabetes complications.

- In addition to the management team, the outpatient clinic should include adequate space and time for patients, system of documentation of diabetes consultations and means of referral and communication with specialized units.

- The guidelines define four areas to be included in the comprehensive management of diabetes patients (Eltom, 2011):
  - Medical history: Characteristics of patients, life style and eating patterns, drug history, diabetes-related complications and knowledge about self-management.
- Complete physical exam: BMI, blood pressure, comprehensive foot exam, Fundoscopy, neurological exams.

- Laboratory assessment: blood glucose tests (FBG, RBG and HbA1c), fasting lipid profile and urinalysis for micro albuminuria.

- Treatment plan: Medications used in glycemic control and treatment of associated risk factors i.e. dyslipidemia, hypertension and obesity.

  - The detailed plan of the tasks that should be performed during the follow-up visit and annual review are shown in Table 5. The guidelines lacked recommendations on the structure of medical documentation e.g. predesigned medical card/file for diabetes consultation. Thus, in developing the review checklist for the current study, we assumed that all the suggested tasks should be documented.

  - The guidelines mentioned two tests for monitoring of glycemic control, which are fasting and postprandial glucose level (at each visit) or HbA1c (every 3 months). In contrast to the international guidelines published by the WHO and the IDF where HbA1c is the only recommended test for monitoring of glycemic control. The added option may be due to the high cost and reduced availability of HbA1c in Sudan.

  - The guidelines emphasize that foot care is essential in diabetics and all physicians must perform foot exam regularly. Also, physicians should advice patients on suitable shoes, nail cutting and self inspection of the feet.

  - The guidelines provided standard targets for diabetes care measures and laboratory tests. The standard targets differ occasionally from the targets recommended in other guidelines, so it is assumed that it is more compatible
with diabetes patients in Sudan or the region. The following table shows the recommended targets for diabetes care (Eltom, 2011).

### 2.7 Diabetic Patients' satisfaction towards management and care

Health service researchers approve patient satisfaction as the key outcome indicator of medical care quality. Patient satisfaction with the doctor-patient interaction indicates the level of doctor’s success and competence in service provision (Kleeburg, et al 2008). Maintaining good technical as well as interpersonal skills is essential for the doctors to satisfy their patients (Abioye et al 2010). In addition, the demonstration of professionalism and ethical practice are also required to meet the expectations of patients (Chen, et al. 2008). The technical expertise of physicians is regarded as consisting of: maintaining an appropriate level of experience, ability to diagnose, performance of clinical procedures, prescribing medicine and learning about the latest medical developments. The success of technical procedures, treatment and medication depends upon favorable communication with patients (Hagedoorn, et al. 2003).

Patient’s consultation experience is positively associated with patient’s decision to re-visit a doctor. Empirical literature reveals that dissatisfied patients are more likely to discontinue seeking consultation with a physician whom they perceive as incompetent (Maseko, et al. 2014). Likewise, the delays in seeking medical consultation and self-medication are also frequently observed among dissatisfied patients. In scarce resource settings where alternatives are unavailable for patients from lower socio-economic background, patients continue seeking consultation in the same clinic irrespective of dissatisfaction (Abioye et al 2010).

Beck, et al (2002) completed an extensive review of the related research in this area arising from the years 1975 to 2000. The researchers found 22 relevant studies
from this time period- 14 studies related to verbal communication and 8 studies of nonverbal communication occurring during a primary care visit. The criteria for inclusion in the study included an evaluation of interactions using neutral observers who coded the observed patient-physician encounters and used video and audiotapes of the visits. These researchers concluded that most of the studies used different criteria to assess the quality of the visit and therefore specific recommendations were limited. However, they recommended a visit that focused on teaching and reinforcing behaviors known to promote favorable patient outcomes. Patient satisfaction with the visit was felt to be a critical indicator of patient outcomes.

Wagner et. al, (2001) reported that diabetic patients over 30 years of age were randomly selected from a diabetic registry. Patients in the control group received multi-staff interventions, group education and peer support meetings. The methodology included self-reported mailed surveys and telephone interviews for no respondents at baseline and at 12 and 24 months. In addition, HbA1c levels and health care use and cost data was examined. The researchers concluded that multi-staff primary care sessions were associated with better patient outcomes.

Another study of diabetic patients who rated their communication with their clinician as poor had lower adherence rates with oral diabetic medications (Ciechanowski et al, 2001). In contrast, patient who were satisfied with their relationship with their physician had better adherence to diabetic treatment plans (Von Korff et al, 1997).

Another study showed that many interventions intended to prevent and control diabetes are cost saving and strongly supported by evidence (Li et. al., 2010). For diabetes mellitus type II, in particular, intensive lifestyle and glycemic control interventions were found to be more effective than standard lifestyle
recommendations. Additionally, annual screening for diabetic retinopathy was also found to be a cost-saving measure. In a setting such as the UNHS clinics, the primary focus on preventative care can be used to help establish more stringent diabetic interventions to prevent further patient mortality down the road. Not only does this study show that patients would suffer less mortality associated with their diabetes, but also that the healthcare system would be less extended financially in caring for these patients. Diabetic care is complicated and is influenced by many factors such as culture, personal health choices and health and social policies (Marrero et al, 2013). The authors suggest that among the many variables impacting diabetic care and compliance is the need for the patient to implement the decisions made by the health care provider. It is therefore critical that physicians and patients interact within a context influenced by the individual’s unique characteristics, as well as the ability of the physician to engage the patient in decisions about care options. Further, the researchers’ note that it is difficult to manage the complexity of diabetic care in a brief primary care visit.
Chapter three

3. Methodology

3.1 The Study design

It is a cross-sectional, descriptive, and analytical health care facility-based study.

3.2 The study area and setting

The study was conducted at Jabir Abu Eliz Diabetes Health Center which is located in Khartoum South. The center was built in 1998 by the government to provide health services for diabetic patients in the area. The center receives about 400 patients per day. The center operates an outpatients and in-patients diabetic clinic. Care is provided throughout the week, patients received medical care including medicines when is available. This background makes the center a good location in the state to undertake the study.

3.3 Study Setting

Jabir Abu Eliz Diabetes Health center consists of one floor on 1200 square meter area. The center works 1 shift per day from 8pm – 4 am. There is 3-4 consultants per day (general surgery, diabetic foot, physician, ophthalmologist), 4 general practioners, dietitian and psychologist. The center consists of rooms for consultants, physicians, dietitian, counselor, lab, pharmacy, statistic unit, minor theater, and section for research.
3.4 Study population

The study included all diabetic patients in Jabir Abu Eliz Diabetes Health Center during conduction of the study.

3.4.1 Inclusion criteria

- Sudanese adult's diabetic patients (type 1 and 2), males and females.
- Aged 30 years and above.
- Attending the health center during conduction of the study.
- Measured HbA1c.
- Accept to participate in the study.

3.4.2 Exclusion

- Coming for the first time
- Gestational diabetes
- Young patients less than 30 years

3.5 Sample size and sampling technique

Every single patient fulfilled the inclusion criteria during the study period till complete the number 384. The sample was determined using the following formula:

\[ N = \frac{pqZ^2}{d^2} \]

\[ p = 95\% = 0.5 \]
\[ q = 100 - P = 1 - 0.5 = 0.5 \]
\[ N = \text{sample size} \]
\[ D = \text{desired precision (marginal error)} = 0.05 \]
\[ Z = \text{is the appropriate value from the normal distribution for the desired confidence} = 1.96 \]
\[ P = \text{anticipated prevalence} = 0.5 \]
\[ N = \frac{(1.96^2 \times 0.5 \times 0.5)}{0.05^2} = 384 \]

### 3.6 Data collection

#### 3.6.1 Structured questionnaire

The main method of data collection for this research was a structured questionnaire (Annex 1). The questionnaire consisted of three parts: part one extracted information about sociodemographic characteristics of the patients including age, gender, residence, economic status, and educational level. Part two about disease and visits information including duration diabetes mellitus, duration of attendance to center and frequency of visits to the center, level of HbA1c. Part three measures patients' satisfaction in three dimensions: the first dimension on health services provided by the center, the second dimension about care and management services and the third dimension about counseling education services provided by the center.

#### 3.6.2 Procedure

The questionnaire administered to the patients in Arabic language. Face to face interview took 15 minutes, which collected by group consisted of 4 nurses who were trained in a focus group discussion within two sessions and have good idea about the research objectives and the disease.

The measurement of satisfaction was based on the score of the patients on the three dimensions of the scale according to accumulation of the patients answers (graded according to Likert' Ladder from 1-5): 1 strongly dissatisfied, 2, dissatisfied, 3 satisfied, 4 very satisfied and 5 extremely satisfied). After that for
each dimension the level of satisfaction was categorized in four categories: 1 no satisfaction, 2 low, 3 moderate and 4 full satisfaction.

For the first dimension (11 statements) the total score was 55, thus theoretical mean is 27.5 thus categorization of satisfaction in this dimension could be as follow:

- No satisfaction 11
- Low 12-16.5
- Moderate 17-27.5
- Full 28-55

For the second dimension (14) the total score was 70, thus theoretical mean is 35 thus categorization of satisfaction in this dimension could be as follow:

- No satisfaction 14
- Low 15-21
- Moderate 22-35
- Full 36-70

For the first dimension (12 statements) the total score was 60, thus theoretical mean is 30 thus categorization of satisfaction in this dimension could be as follow:

- No satisfaction 12
- Low 13-18
- Moderate 19-30
- Full 31-60

For the overall satisfaction (37 statements: summation of the items of the three dimensions) the total score was 185, thus theoretical mean is 92.5 thus categorization of satisfaction in this dimension could be as follow:

- No satisfaction 37
- Low 38-55.5
• Moderate 56-92.5
• Full 93-185

3.6.2 Secondary data
Secondary data was collected from the available literature using books, previous research articles in the same area, the internet, and journals. Revision of records of HbA1c was made for the patients selected in the study.

3.7 Data Analysis
The data was analyzed using Statistical Package of Social Sciences (SPSS) version 23. Chi square test and mean values of the respondents were calculated, P value was considered significant if < 0.05.

3.8 Study variables
Independent variables: sociodemographic variables: age, sex, educational level, socioeconomic status, residence, duration of disease, duration of visit to the center, frequency of visit 12 months, and HbA1c.
Dependent variables: dimensions of patient's satisfaction (health services, care and management, counseling and satisfaction).

3.9 Duration of the study
The duration of this study was 4 months. It was conducted in the period from July 2017 to October 2017.

3.10 Ethical considerations:
• Ethical clearance from Gezira University Ethical Committee.
• Written consent was obtained from Jabir Abu Eliz Diabetes Health Center.
• Verbal consent was obtained from the participants.
• Privacy of data collected as considered (No names, data were coded; data was interpreted in form of statement tables & figures)
Chapter Four

Results

The following include 384 diabetic patients in Jabir Abu Eliz Health Center using structured questionnaire.

Figure (1) Distribution of the respondents according to age group (n=334)
Most of patients aged 51- above 60 years (55.2%) (Figure 1).

Figure (2) Distribution of the respondents according to sex (n=384)
Most of patients were females (56.5%) (Figure 2).
Respondents with either primary or secondary level of education were (63%) (Figure 3).

Most of them (58.9%) are of moderate socioeconomic status (Figure 4).
Most of them from urban areas 197 (51.3%) (Figure 5).

The majority of the respondents 160 (41.7%) became diabetic for 5-10 years, 128 (33.3%) for less than 5 years and 96 (25%) for more than 10 years (Figure 6).
Figure (7) Distribution of the respondents according to Duration of attendance to the center (n=384)

(47.4%) were attending to the center for less than 5 years (Figure 7).

Figure (8) Distribution of the respondents according to frequency of visits within 12 months (n=384)

56.2% of respondents visited 12 times or more within 12 months, while 46.8% visited less than 12 times. (Figure 8)
Within 12 months 216 (56.2%) of the respondents visited the center more than 12 visits and 168 (43.8%) 12 visits (Figure 9).
Most of the patients 220(57.3%) their HbA1c was uncontrolled (Figure 9).

Table (1) Distribution of the respondents according to satisfaction to health services

<table>
<thead>
<tr>
<th>Health services</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>41</td>
<td>10.7</td>
</tr>
<tr>
<td>Low</td>
<td>91</td>
<td>23.7</td>
</tr>
<tr>
<td>Moderate</td>
<td>139</td>
<td>36.2</td>
</tr>
<tr>
<td>Full satisfaction</td>
<td>113</td>
<td>29.4</td>
</tr>
<tr>
<td>Total</td>
<td>384</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Regarding satisfaction of the respondents toward the health services provided by the center 139(36.2%) moderately satisfied (Table 1).
Table (2) Distribution of the respondents according to satisfaction towards care and treatment

<table>
<thead>
<tr>
<th>Care and treatment</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>38</td>
<td>9.9</td>
</tr>
<tr>
<td>Low</td>
<td>66</td>
<td>17.2</td>
</tr>
<tr>
<td>Moderate</td>
<td>197</td>
<td>51.3</td>
</tr>
<tr>
<td>Full satisfaction</td>
<td>83</td>
<td>21.6</td>
</tr>
<tr>
<td>Total</td>
<td>384</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Moderate satisfaction on care and treatment was reported by 197(51.3%) of the respondents (Table 2).

Table (3) Distribution of the respondents according to satisfaction towards counseling and education

<table>
<thead>
<tr>
<th>Counseling and education</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>49</td>
<td>12.8</td>
</tr>
<tr>
<td>Low</td>
<td>92</td>
<td>24.0</td>
</tr>
<tr>
<td>Moderate</td>
<td>95</td>
<td>24.7</td>
</tr>
<tr>
<td>Full satisfaction</td>
<td>148</td>
<td>38.5</td>
</tr>
<tr>
<td>Total</td>
<td>384</td>
<td>100.0</td>
</tr>
</tbody>
</table>

On counseling and education full satisfaction was reported by 148(38.5%) of the respondents (Table 3).

Table (4) Distribution of the respondents according to overall satisfaction

<table>
<thead>
<tr>
<th>Overall satisfaction</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>66</td>
<td>17.2</td>
</tr>
<tr>
<td>Low</td>
<td>87</td>
<td>22.7</td>
</tr>
<tr>
<td>Moderate</td>
<td>99</td>
<td>25.8</td>
</tr>
<tr>
<td>Full satisfaction</td>
<td>132</td>
<td>34.4</td>
</tr>
<tr>
<td>Total</td>
<td>384</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table (4) shows that the overall satisfaction of 132(34.4%) was full.
Table (5) Distribution of the respondents according to overall satisfaction in relation to sociodemographic characteristics

<table>
<thead>
<tr>
<th></th>
<th>Overall satisfaction</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Low</td>
<td>Moderate</td>
<td>Full satisfaction</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-40 years</td>
<td>22</td>
<td>33.3</td>
<td>6</td>
<td>6.9</td>
</tr>
<tr>
<td>41-50 years</td>
<td>14</td>
<td>21.2</td>
<td>33</td>
<td>37.9</td>
</tr>
<tr>
<td>51-60 years</td>
<td>12</td>
<td>18.2</td>
<td>15</td>
<td>17.2</td>
</tr>
<tr>
<td>&gt; 60 years</td>
<td>18</td>
<td>27.3</td>
<td>33</td>
<td>37.9</td>
</tr>
<tr>
<td>Total</td>
<td>66</td>
<td>100.0</td>
<td>87</td>
<td>100.0</td>
</tr>
<tr>
<td>P value</td>
<td>0.018 &lt; 0.05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>21</td>
<td>31.8</td>
<td>42</td>
<td>48.3</td>
</tr>
<tr>
<td>Male</td>
<td>45</td>
<td>68.2</td>
<td>45</td>
<td>51.7</td>
</tr>
<tr>
<td>Total</td>
<td>66</td>
<td>100.0</td>
<td>87</td>
<td>100.0</td>
</tr>
<tr>
<td>P value</td>
<td>0.022 &lt; 0.05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>6</td>
<td>9.1</td>
<td>18</td>
<td>20.7</td>
</tr>
<tr>
<td>Primary</td>
<td>9</td>
<td>13.6</td>
<td>30</td>
<td>34.5</td>
</tr>
<tr>
<td>Secondary</td>
<td>12</td>
<td>18.2</td>
<td>21</td>
<td>24.1</td>
</tr>
<tr>
<td>University</td>
<td>39</td>
<td>59.1</td>
<td>18</td>
<td>20.7</td>
</tr>
<tr>
<td>Total</td>
<td>66</td>
<td>100.0</td>
<td>87</td>
<td>100.0</td>
</tr>
<tr>
<td>P value</td>
<td>0.035 &lt; 0.05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socioeconomic status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>6</td>
<td>9.1</td>
<td>3</td>
<td>3.4</td>
</tr>
<tr>
<td>Moderate</td>
<td>33</td>
<td>50.0</td>
<td>84</td>
<td>96.6</td>
</tr>
<tr>
<td>High</td>
<td>27</td>
<td>40.9</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>66</td>
<td>100.0</td>
<td>87</td>
<td>100.0</td>
</tr>
<tr>
<td>P value</td>
<td>0.014 &lt; 0.05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>18</td>
<td>27.3</td>
<td>15</td>
<td>17.2</td>
</tr>
<tr>
<td>Urban</td>
<td>48</td>
<td>72.7</td>
<td>72</td>
<td>82.8</td>
</tr>
<tr>
<td>Total</td>
<td>66</td>
<td>100.0</td>
<td>87</td>
<td>100.0</td>
</tr>
<tr>
<td>P value</td>
<td>0.019 &lt; 0.05</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sociodemographic characteristics of the patients were found to be significantly associated with the level of overall satisfaction, where low educational level, female gender, older ages, low economic status and rural residence were associated with full satisfaction (P value < 0.05) (Table 5).
According to Table (6) longer duration of diabetes mellitus, longer duration of attending the center and frequent visits more than 12 were significantly associated with full satisfaction (P value < 0.05). Patients with controlled HbA1c% showed higher levels of satisfaction than the patients with uncontrolled HbA1c% (P value < 0.05).
Chapter Five
Discussion

5.1 Discussion
This study aimed to assess satisfaction of diabetic patients about quality of management and care in Jabir Abu Eliz Diabetes Health Center at Khartoum State (July – October 2017). The context specific aspects influencing patient satisfaction such as demographic data of the patients and disease information and duration of attendance to the centers were tested against the level of satisfaction. The study showed that there is different levels of overall satisfaction among the respondents including overall satisfaction of 132(34.4%) was full, 99(25.8%) moderately satisfied, 87(22.7%) low satisfaction and 66(17.2%) not satisfied. The findings of correlation analysis demonstrated that being female was associated with higher satisfaction. The likelihood of full satisfaction decreases with increase of educational level and economic status, urban residence. These findings of this study were consistent with several international studies on diabetic patient satisfaction toward care and treatment in health centers and hospitals (Saeed and Ibrahim, 2005; Chen, et al. 2008; Khattak, et al. 2012). The positive the patient experiences about technical expertise of doctors, the higher the level of satisfaction with medical interaction (Abioye, et al. 2010; Deledda, et al. 2013) In the poor resource settings where public health is free of cost; researchers have found high patient satisfaction despite disrespectful behaviour of health service providers and long waiting time (Maseko, et al. 2014).

Almost all of the poor and uneducated respondents demonstrated an inability to understand the meaning of the latest medical developments, unnecessary exposure to risk and their right to privacy and respect. Overall, a considerable proportion of the patients responded “don’t know/uncertain” about the technical expertise of
their doctors and did not realise that they had the right to be respected by their physicians (Irfan, et al. 2012; Deledda, et al. 2013). Provision of good quality of health services and successful treatment can lead to improvements in patient satisfaction (Rocque and Leanza, 2015). Additionally, the illiterate patients with low level of education and socioeconomic status lacked knowledge of their right to privacy and respect, hence their satisfaction tend to be high regardless the quality of care provided by the center. Studies showed that poverty and illiteracy are associated with higher level of satisfaction with free of cost healthcare facilities (Moore, 2008; Chimbindi, et al. 2017; Tayef, et al. 2015).

In our study, levels of patients satisfaction regarding health services, although higher percentage were fully satisfied still others exhibited low or no satisfaction. This could be due to variations mentioned above in the demographic and disease duration were affected the level of satisfaction. For example patients with longer duration of attendance to center and more frequent visits per year had higher level of satisfaction. Previous studies showed that some studies had shown variation in diabetes care quality and outcome at level of patient, physician and clinic (O'Connor, 2004).

In this study, patient's satisfaction regarding treatment, education and counseling was found to be higher in most of them, with other patient's showed no or low satisfaction. Again the variations in the characteristics of the patients could be attributed for the differences of satisfaction on treatment, education and counseling in the center under the study. Several studies have looked at patients' assessment of their physician's technical skills and the effect on satisfaction, but the findings were contradictory (Little, 2001). Communication skills ranked the highest satisfaction level among other aspect of care in both diabetic and FM clinics (86.4% and 90%) respectively. Thus, physicians can promote higher rates of satisfaction by
improving the way of interaction with patients by all means with doctor-patient communication being the most important factor (Little, 2003). Frequent follow up closely associated with patients satisfaction as indicated by Wermeling et al (2013) who stated that when it comes to follow up frequency, majority of patient were satisfied with follow up system. The satisfaction with 6-monthly follow-up was high.

Patients with controlled HbA1c% showed higher levels of satisfaction than the patients with uncontrolled HbA1c% (P value < 0.05), it is clear that patients with controlled HbA1c% had more frequent visits to center and hence their satisfaction expected to be higher. Similar to previous studies linked between controlled HbA1c% and higher levels of patient's satisfaction for example O'Connor et al (2004) reported that variation in diabetes care quality and outcome at level of patient, physician and clinic. Another study by O'Connor et al (2006) found that more than 95% of variance in HbA1c values was attributable to the patient level. Patient age and intensification of pharmacotherapy were related to favorable change in HbA1c. In other hand, Von Korff et al (1997) reported that health-care professionals do not have to fear negative effects of an intensified treatment on self-rated health status, treatment satisfaction and distress.

Limitation of the study: health facility based all are utilizers and the study didn't explore non-utilizer who have no health insurance. In addition the study not included control group as well as it was restricted to health center and not included community based patients. The third limitation is that there are no up to date HbA1c readings available for all patients thus the researcher depended on what available readings regardless its duration, and this in turn it may not give quite enough picture when considered as independent variable in relation to patient's satisfaction.
5.2 Conclusion

- The study showed that the overall satisfaction of diabetic patients toward treatment and care in the studied center tend to be full in most of them, others showed low, moderate and no satisfaction.

- In the three dimensions of patients satisfaction highlighted in this study were services, treatment and education and counseling, on which the level of the satisfaction followed the same degrees reported in the overall satisfaction of the patients.

- Female gender, low educational level, low socioeconomic status, rural residence, longer duration of diabetes, longer duration of attendance to the centre and more frequency of visits per year were significantly associated with higher levels of patient's satisfaction.

- Patients with controlled HbA1c% showed higher levels of satisfaction than the patients with uncontrolled HbA1c%.
5.3 Recommendations

- Primary care professionals involved in diabetes care may improve satisfaction by using a more patient-centered approach.
- Special attention should be given for some diabetic care measures such as: Risk factor control, patient education and uncontrolled HbA1%.
- The clinic visits for diabetic patient should be structured proactively with concrete guidelines to optimize their care.
- Patient's waiting time should be also evaluated and ideally reduced or used as an opportunity for patient education.
- Bringing diabetic patients into special primary care sessions designed to meet their clinical, educational and psychosocial needs might be an effective way of improving their care and therefore improve satisfaction.
- The daily shift of the center should be increased to cover 24 hours.
- Diabetic patients should be encouraged to have health insurance.
- Establishment of diabetic patients groups will help in increasing patients’ awareness about the disease, control, healthy lifestyles and compliance with treatment.
References


• WHO. (2007). Survey of the STEP-wise approach for the surveillance of the risk factors of NCDs, Brazzaville, World Health Organization, Regional Office for Africa.


Appendix (1)

استبيان

الجزء الأول: بيانات ايموغرافية

1. العمر (سنوات)
   □ 30-40 سنة □ 41-50 سنة □ 51-60 سنة □ أكثر من 60 سنة

2. النوع
   □ ذكر □ أنثى

3. المستوى التعليمي:
   □ غير متعلم □ أساسي □ ثانوي □ جامعي

4. المستوى الاقتصادي الاجتماعي (من وجهة نظرك):
   □ منخفض □ متوسط □ مرتفع

5. السكن:
   □ حضر □ ريف

الجزء الثاني: بيانات عن السكري والزيارات للمركز

6. مدة الإصابة بالسكري
   □ أقل من 5 سنوات □ 5-10 سنوات □ أكثر من 10 سنوات

7. منذ متى أنت تدوم على الحضور إلى هذا المركز؟
   □ أقل من 5 سنوات □ 5-10 سنوات □ أكثر من 10 سنوات

8. عدد مرات الزيارة في آخر 12 شهر؟
   □ أقل من 12 □ 12-15 □ أكثر من 15 زيارت

9. معدل السكر التراكمي (من سجلات المريض بالمركز) (آخر قياس)؟
   □ أقل من 6% □ 6% - مقدم □ أكثر من 6%
الجزء الثالث: رضا المريض

1/ ما هو مدي رضاك عن الاتي
2/ مدي رضاءك عن الاتي
3/ غير راضي بشدة
4/ غير راضي جدا
5/ غير راضي
6/ غير راضي
7/ غير راضي
8/ غير راضي
9/ غير راضي
10/ غير راضي
11/ غير راضي

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<th>راضي جدا</th>
<th>غير راضي بشدة</th>
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<td>تلقي الخدمة العلاجية في اوقات محددة خلال اليوم</td>
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1/ يتم تشخيص المرض بواسطة اخصائي مرضى السكري.
2/ زيارة الطبيب والتعاون مع الطبيب.
3/ سهولة الاتصال بالطبيب في حالات الطوارئ.
4/ استغلال فرص الاتصال بالطبيب عند الحاجة.
5/ توفير خدمات الرعاية للمرضى بالرعاية الصحية الصغيرة.
6/ اهتمام الممرضين بالمرضى.
7/ الممرضون يلتزمون بال.jasperة والرعاية الصحية.
8/ الممرضون يلتزمون بال.jasperة والرعاية الصحية.
9/ الحصول على نتائج العلاج في فترة زمنية مناسبة.

10/ توفير الفحص الدوري لمريضي السكري كل ثلاثة أشهر.
11/ توفير الأدوية في مراكز الرعاية الصحية.
12/ توفير الدواء بشكل متكرر مع الجميع.
13/ توفير الدواء بالوصول في الصيدلية المطلوبة.
14/ توفير الدواء من الصيدلية الخارجية، حيث يمكن الحصول عليه من الصيدلية الخارجية.
15/ توفر الدواء بطريقة سهلة مع الارتباط والتوجيه.
16/ توفير الدواء في مراكز الرعاية الصحية.

هذا جميعًا تحسينات تشعر بها في مراكز الرعاية الصحية.
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