Life Experience of Patients with Type-2 Diabetes Aged above Forty Years at North Kinangop Catholic Hospital, North Kinangop, Kenya

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Abstract

Background: Type-2 diabetes is an epidemic disease constitutes a major public health challenge especially in developing countries like Kenya where the health care and other related services are suffering from limited resources. Diabetes related complications and mortality generate social and economic challenges that seriously impact the lives of the affected person, the families, businesses and the Community [1]. At the national level, the disease impedes efforts to fight poverty, making it difficult to achieve global development goals such as the Sustainable Development Goal, which aims to ensure healthy lives and to promote the well-being of all people. The WHO estimates that the prevalence of diabetes in Kenya at 3.3% [2] and predicts a rise to 4.5% by 2025 [8]. Additionally, two-thirds of Kenyans with diabetes may be undiagnosed [2]. In Kenya, particularly among the North Kinangop communities, limited information is available about challenges faced by patients with type-2 diabetes. Hence the aim of this study is to determine the life experience and challenges of patients with type-2 diabetes at North Kinangop Catholic Hospital, North Kinangop, Kenya.

Materials and Methods: This was both quantitative and Qualitative study employed a purposive sampling method which targeted respondents (N = 54) with type-2 diabetes aged above 40 years. Systematic random sampling method was applied to recruit the study respondents. A pre-tested semi-structured questionnaire (both open ended and closed ended) was employed to collect information about life experiences of type-2 diabetic patients. Quantitative data was analyzed using SPSS software version 22.0 whereas qualitative data was analyzed thematically.

Results: Of the respondents, majority, (72%), could not afford buying diabetes related commodities such as drugs, regular attendance to diabetes clinic and laboratory tests. Most, (56%), of the respondents were unable to find or buy diabetes friendly foods. Majority, 69% and 56% of the respondents were unable to work and attend social services such as church, market due to frequent hospital admissions secondary to diabetes. A good number, 48%, of the respondents had problem with transportation facilities to and from the health facilities. Others, 37% of them had problems of cooking/eating with family members. Moreover, respondents who were single, divorced and widowed displayed a negative attitude towards management of the condition as compared to the married respondents (72.2%).

Conclusion and Recommendation: The study revealed that patients with type 2 diabetes at North Kinangop Catholic Hospital, north kinangop, Kenya had multiple challenges including unable to afford buying diabetes management related commodities, transportation facilities to and from the health facilities, frequent absenteeism from work and missing social services due to recurrent hospital admissions. Having diabetes management related commodities such as drugs, laboratory tests and diabetes related diets at an affordable or subsidized price and improving social services would help diabetic patients be less stressed and cope with the long-term management of their condition thus improves their quality of life.

Keywords: Type 2 Diabetes; Life Experiences; Challenges

Introduction

Type-2 diabetes accounts for about 85- 90% of total diabetes burden [2]. Type 2 diabetes is one of the largest health emergencies of the 21st century, associated with serious complications and co-morbidity and considerable costs. Globally, one in every 11 adults (415 million) have diabetes and in every 6 seconds a person dies from diabetes making 5.0 million deaths yearly [3]. The number of people with diabetes has risen from 108 million in 1980 to 422 million in 2014 [4]. However, it is estimated that about 46.5% of adults with diabetes

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in the world are undiagnosed. In Africa, about 13.6 million people are suffering from type 2 diabetes and 7 million of them are living in sub Saharan Africa (SSA) and this figure is estimated to reach 15 million by 2025 [5]. It is estimated that the prevalence of diabetes in urban SSA was 5-6% (Ayah., *et al*. 2012). According to the WHO, the prevalence of diabetes in Kenya at 3.3% [2,6,7] and predicts a rise to 4.5% by 2025 [8]. Additionally, in Kenya, two-thirds of people with diabetes may be undiagnosed [2].

Several modifiable risk factors come to fore as driving forces of the rising prevalence of type 2 diabetes in Kenya. These factors associated with urbanization include: consumption of refined carbohydrate, consumption of high-fat diets, lack of physical activity due to sedentary lifestyles, lack of exercise or circumstantial reduction of physical exercises occasioned by the availability of motorized transport, watching television and computer games for long hours [2]. Excessive body weight is known to be an independent risk factor for development of type 2 diabetes mellitus [4].

Type-2 diabetes is a significant public health problem, associated with high mortality and long terms morbidity rates and its related economic, social and psychological crisis to the individual and the whole society. Diabetes doubles the risk of coronary heart disease in men, and quadruples it among women. Stroke in people with diabetes is three times higher than in people without diabetes. Diabetes is the leading cause of end stage renal disease. Diabetic retinopathy accounts for 5 percent of all cases of blindness globally. Someone with diabetes is at more than 25 times greater risk of limb amputation than someone without diabetes. As a result of these complications, type 2 diabetes can reduce a person's life expectancy by up to 10 years [9] and according to the IDF there were around 5 million deaths in 2014 as a result of diabetes and its related diseases.

The effects of type 2 diabetes are devastating to the economy of the family, the community and the nation by decreasing individuals work productivity and increasing health care costs. The cost of direct healthcare for diabetes and its complications was around 11 percent of total healthcare costs worldwide in 2014. This is equivalent to $612 billion, which is greater than the entire GDP of countries such as Nigeria or Sweden. This cost is due both to the high prevalence of diabetes and to the fact that people with diabetes incur higher lifetime healthcare costs than their counterparts. For example, in the US lifetime healthcare cost are 2.3 times higher for people with diabetes compared to the average population [10]. In September 2011, it was recognized by the UN General Assembly that diabetes is a global health and development challenge. Diabetes cost the global economy nearly US$500 billion in 2010, and that figure is projected to rise to at least US$745 billion in 2030 [11].

Although there is no information about the direct and indirect cost of diabetes related management at the individual and national levels, in lower income communities like Kenya, the socio-economic impact is heavy, making it difficult to achieve global development goals such as the Sustainable Development Goal (SDG), which aims to ensure healthy lives and to promote the well-being of all people.

Materials and Methods

Study Setting

The study was conducted at North Kinangop, Catholic Hospital in North Kinangop, Nyandarua County. North Kinangop Catholic Hospital is situated in Ndunyu Njeru Location approximately about 100 km North West of Nairobi. The hospital offers both outpatient and inpatient services such as medical, surgical, orthopedic, obstetrics and gynecology, pediatrics; preventive services such as Ear, Nose and Throat (ENT) clinics, HIV counseling and testing services and rehabilitative services such as physiotherapy.

Study design and respondents

This was a Phenomenology design, Qualitative study employed a purposive sampling method which targeted respondents (N = 54) with type-2 diabetes aged above 40 years. Systematic random sampling method was applied to recruit the study subjects. A pre-tested semi-structured questionnaire (both closed and open ended) was employed to collect information about patients' experiences living with type 2 diabetes. According to the hospital records, about 180 type 2 diabetic patients attend to the hospital monthly, the period during

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which the data was collected. The sample size was determined using Mugenda and Mugenda whereby, a sample size of 30 percent from the accessible population is ideal to represent for a population that does not exceed 10,000. Accordingly, the sample size was calculated to be 54 (30 percent of 180).

Data collection tools

Data was collected using a pre-tested semi-structured questionnaire regarding patients' experiences and challenges living with type 2 diabetes. A closed and open ended questionnaire was used to capture the socio-demographic and economic characteristics; body Mass Index, duration of years living with type-2 diabetes, working history and lifestyle changes and the main challenges experienced by the study respondents. Focus group discussion (FGDs) comprised 10 patients were utilized to explore their experiences and main challenges living with the condition.

Data Analysis

The data was organized and checked for completeness. It was coded and entered into the computer. The demographic and socio-economic characteristics, body Mass Index, duration of years living with type-2 diabetes, working history and lifestyle changes of the respondents were analyzed using Statistical Package for Social Science (SPSS) version 22.0 and the main challenges experienced by respondents were analyzed thematically.

Ethical consideration

The ethical approval to conduct the study was obtained from Kenyatta National Hospital-University of Nairobi Ethical Research Committee (Approval No.UP934/12/2016). The institutional permission was granted by the hospital's research committee. The consent was obtained from the subjects both verbally and in written before data collection was commenced.

Results

Socio-demographic characteristics of the respondents

The mean age of the respondents was 62.85 years with SD ± 12.09. The highest number of the respondents, 38.9%, was in the age group of 50 - 59 years. Regarding gender, majority of the respondents, 55.6%, were female. Most of the respondents, 72.2%, were married while 18.5% were widowed, 5.6% were single and 3.7% were divorced. Concerning level of education, the result showed that 37.0% of the respondents attained primary level of education, 29.6% secondary level, 16.7% tertiary level of education and 16.7% had no formal education. Majority of the respondents, 74.0%, were self-employed whereas the rest of the respondents (13.0%) were employed either private or government and 13.0% were unemployed. All of the respondents were Christians.

Variables	N	Percent (%)	Variables	N	Percent (%)
Age in years			**Education**		
40 - 49	6	11.1	None	9	16.7
50 - 59	21	38.9	Primary	20	37.0
60 - 69	10	18.5	Secondary	16	29.6
70 - 79	10	18.5	Tertiary	9	16.7
80 - 89	6	11.1			
90 - 99	1	1.9			
Gender			**Occupational status**		
Male	24	44.4	Employed	7	13.0
Female	30	55.6	Self-employed	40	74.0
			Unemployed	7	13.0
Marital status			**Religion**		
Single	3	5.6	Christian	54	100.0
Married	39	72.2	Muslim	0	0.0
Divorced	2	3.7			
Widowed	10	18.5			

***Table 1:** Socio-demographic characteristics of the respondents.*

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Socio-economic characteristics and working history of the respondents

Table 2 below shows the monthly income of the respondents. Most (55. 6%) of the respondents had monthly income of less than Ksh 10, 000 equivalent to 100 USD. Majority (83%), of the respondents had monthly income of Ksh 30,000 (300 USD) or less. Regarding the respondents' working experience, nearly half (48.2%) were working less than 8 hours after being diagnosed with diabetes. Additionally, 22.2% of the respondents could not able to work after diagnosed with diabetes. Only 29.6% of the respondents were working 8 or more hours after they diagnosed with diabetes.

Monthly income (Ksh.)	Monthly income (USD)	N	Percent (%)
Less than 10, 000	Less than 100	30	55.56
10, 000 - 30,000	100 - 300	15	27.78
31,000 - 50,000	310 - 500	4	7.41
51,000 - 70,000	510 - 700	1	1.85
71,000 - 90,000	710 - 900	0	0
Above 90,000	Above 900	4	7.41
Working history of respondents before and after diagnosis with type 2 diabetes			
Working hours	N	Percent (%)	N	Percent (%)
	Before diagnosis		After diagnosis	
None	3	5.6	12	22.2
< 8 hours	23	42.59	26	48.15
≥ 8 hours	28	51.85	16	29.63

Table 2: *Monthly income and working history of the respondents.*

Body Mass Index of the respondents

Majority of the respondents (77.8%) were either overweight or obese. Only 20.4% of the respondents were in the recommended range of BMI 18.5 - 24.9.

Body Mass Index		
BMI	N	Percent (%)
N/A	1	1.9
18.5 - 24.9	11	20.4
25 - 29.9	22	40.7
> 30	20	37

Table 3: *Body Mass Index (BMI) of the respondents.*

Respondents' duration of years living with type-2 diabetes

Majority (61.1%) of the respondents have lived with diabetes between 1 and 10 years whereas some of the respondents (26%) have lived with diabetes between 10 and 20 years. A few of the respondents (13%) have lived with the condition for more than 20 years.

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Duration of years living with the condition		
Number of years	**N**	**Percent (%)**
1 - 5	16	29.6
5 - 10	17	31.5
10 - 15	8	14.8
15 - 20	6	11.1
> 20	7	13.0

Table 4: *Duration of years living with type-2 diabetes.*

Main challenges of the respondents living with type 2 diabetes

Of the respondents, majority (72%), could not afford buying diabetes related commodities such as drugs, regular attendance to diabetes clinic and laboratory tests. Most (56%), of the respondents were unable to find or buy diabetes friendly foods. Majority 69% and 56% of the respondents were unable to work and attend social services such as church, market, social gatherings or functions, funeral etc. due to frequent hospital admissions secondary to diabetes. A good number 48%, of the respondents had problem with transportation facilities to and from the health facilities. Others 37% of them had problems of cooking/eating with family members. Majority (77.8%), of the respondents had expressed that they have difficulties to lose weight.

Challenges	N	Percent (%)
Unable to afford buying diabetes related commodities	39	72.2
Unable to find/buy diabetes friendly foods	30	55.6
Problems of cooking/eating with family members	20	37.0
Difficulties in changing and adopting to diabetes foods	26	48.1
Lack of family/psychosocial support system	15	27.8
Lack of affordable transportation facilities to and from the health facilities	26	48.1
Unable to work due to the condition	37	68.5
Unable to attend social services because of diabetes related conditions	30	55.6
Unable to handle family matters because of diabetes related conditions	17	31.5
Difficult in losing weight	42	77.8%

Table 5: *Main challenges faced by the respondents.*

Discussion

Of the respondents, majority (55.6%) were females. Most of the respondents (77.8%) were either overweight or obese. Majority (77.8%) of the respondents expressed that they have difficulties to lose weight. Losing weight is difficult as it is but it is an even bigger challenge when you have diabetes. Obesity and diabetes are intimately linked [12]. Although the benefit of weight loss in the management of diabetes is a critical component, it remains challenging for patients with type 2 diabetes due to various factors. Many conventional glucose-lowering agents commonly result in weight gain [13,14]. Metabolic, psychological and behavioral factors also affect the ability of people with diabetes to lose weight [15,16]. For individuals with diabetes, studies have shown that a loss of 5 - 10% of body weight can improve fitness, reduce HbA1c levels, improve cardiovascular disease (CVD) risk factors and decrease use of diabetes, hypertension and lipid-lowering medications [17,18]. Regarding respondents understanding about managing diabetes and its related conditions, all

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respondents understood the importance of dietary changes, exercises and seeking medical care despite the financial and social challenges they had experienced to cater for all this needs. This finding is in line with a study done in Kenya by Gitonga in 2015 [19] concerning patients' understanding about the importance of exercise and dietary changes in the management of type 2 diabetes. Majority of the respondents were aware that self-management of diabetes requires a good lifestyle and continuous monitoring of glycemic status.

Main challenges of the respondents living with diabetes

The study revealed that majority (72%) could not afford buying diabetes management related commodities such as drugs, diabetes friendly foods and doing laboratory tests regularly. Majority (55.6%) of the respondents had monthly income of less than Ksh 10,000 (100 USD). Majority of the participants expressed that financial challenges is a big problem to cope with the disease. Diabetes is associated with a range of costs that can negatively affect the patient, the family and the healthcare system. Despite advances in treatment for type 2 diabetes in recent decades, many patients are failing to achieve adequate glycemic control due to lack of basic commodities related to diabetes management. Poor glycemic control has been shown to have a detrimental effect on patients' health and well-being and to have significant negative financial implications for both patients and healthcare systems. The financial crisis related to diabetes management is a big challenge particularly in developing countries like Kenya where most of the social services are suffering from limited resources.

Treating diabetes is costly, with each person with diabetes requiring double to triple the healthcare resources compared to people without diabetes [20]. The direct costs of diabetes (i.e. costs of consultation/prescription medications and hospital inpatient care) are a major financial burden for patients and the healthcare system. In a US study, 75.7% patients reported a perceived financial burden of diabetes, with an average of 36% of patients citing cost as the main reason for non-adherence to diabetes medication [21]. This is often higher for patients in developing countries like Kenya. In addition, a numerous of indirect costs substantially affects the patients, their families and the health care system because of reduced work productivity from absenteeism, unemployment due to chronic disability, premature mortality and reduced performance at work/home.

The study also found that majority (69%) of the respondents were unable to work due to frequent hospital admissions resulted in additional financial crisis to the patients and their families. Hypoglycemia is a major contributor to absenteeism especially in insulin-treated patients. For patients without the option of sick leave, this can result in a direct loss of wages. Absenteeism also significantly affects the national workforce and the economy overall, because employers need to cover costs. A study in the United States found that 18.3% of people with diabetes have needed to leave work early or miss a full day because of non-severe hypoglycemic events occurring during business hours, with patients losing an average of 9.9 working hours for each event [22].

The study further revealed that majority (56%) were unable to attend social services such as church, market, social gatherings/ functions and other social services because of frequently admissions in hospital. This justifies that most of the respondents could not tightly control of their glycemic status. This finding is in line with a study done in the United States which showed that patients lost an average of 14.7 working hours due to nocturnal non-severe hypoglycemic events, with 31.8% of patients reporting that they had missed a meeting or work appointment, or failed to finish a work task as a result of nocturnal hypoglycaemia [22]. The same study also revealed that one third of people with diabetes report that non-severe hypoglycemic events negatively affect their ability to carry out everyday activities, such as housework, socializing, sports and sleeping [22].

Another challenge for people with diabetes is availability of diabetes friendly foods at affordable cost. The study established that above half (56%) of the respondents were unable to find or buy diabetes friendly foods. Most of the respondents had challenges of getting diabetic friendly foods such as brown flour, brown rice and white meat in their community which is a big challenge to modify their lifestyles. In order to get specific diabetic friendly foods, these patients or their families should travel to the main towns which are far from their residence and the cost of transportation is unaffordable by most of them. This finding is in agreement with a study carried out in Canada by Vanstone., *et al.* [23] on how diet modification challenged a great number of people living with diabetes.

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Psycho-social support system of the respondents: The study found that majority, (72%) of the respondents had a functional psychosocial support system mostly from their immediate family members. Psycho-social support system for patients with diabetes is an important component of the holistic care of the patient in catering the medical and dietary needs of the patient as well as giving psychological hope to deal with the condition. This study is in agreement with a study done in Nigeria by Bethrand., *et al*. [24] and India by Bajwa., *et al*. [25] that showed family involvement plays a significant role in the long term management of diabetes. Family members are key influencers in the management of diabetes from assisting in catering for medical and dietary needs so as to reduce the number of complications the patient might develop.

The study however revealed that respondents who were single, divorced and widowed had challenges with psycho-social support system and displayed a negative attitude towards management of diabetes as compared to the married respondents. This finding is in line with a study done in Iran by Abolghasemi and Sedaghat in 2014 [26] and Harvey in 2015 in U.K. [27] that showed married respondents especially women with type-2 diabetes showed positive outcomes towards diabetes management.

Conclusion and Recommendations

The study concluded that majority of the respondents had multiple challenges including unable to afford buying diabetes management related commodities, transportation facilities to and from the health facilities, frequent absenteeism from work and missing social services due to recurrent hospital admissions. Having diabetes management related commodities such as drugs, laboratory tests and diabetes related diets at an affordable or subsidized price and improving social services would help diabetic patients be less stressed and cope with the long-term management of their condition thus improves their quality of life.

Acknowledgements

Conflict of Interest

The authors have no conflict of interest.

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