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Self - care Practices and Complications Among type 2 Diabetic Patients in Bamenda Health District, Northwest Region of Cameroon

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Abstract

Diabetes mellitus (DM) is an emerging lifestyle disease and is now an important public health concern globally and a silent killer. Its coexistence with other medical conditions contributes to about 88% mortality. This study aimed at investing self-care practices and complications of type 2 diabetic among patients in Bamenda Health District. A descriptive cross-sectional survey was conducted among 200 participants selected quarterly from three health facilities in Bamenda Health District. Data was collected using a structured questionnaire and analyzed using SPSS version 17.0and was considered significant at $P \leq 0.05$. The results showed that, of the 200 patients, 48% were male and 52% female and for both of them, 60% were aged above 50 years. Concerning dietary intake, 68% had no control on food intake and 54.5% ate more of energy yielding food. Majority of the patients (54%) do not indulge in physical activities. Only 12% of the diabetic patients washed and wiped their feet every day. Compliance to medication was 40.5%. It was observed that the most outstanding complications were high blood pressure (62%) and visual problems (60%). Self-carepractices (diet, physical activity, blood sugar testing, foot care, alcohol and medications) were significantly associated with complications ($p<0.05$). Resultsrevealed an overall poor approach to self-care among the patients, thus Type 2 diabetic patients in Bamenda health district still need more access to information on self-care.

Key words: diabetes type 2; self-care practices; complications; Bamenda Health district.

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1. Introduction

Diabetes mellitus (DM) is probably one of the oldest diseases known to man. It was first reported in Egyptian manuscript about 3000 years ago[1]. In 1936, the distinction between type 1 and type 2 DM was clearly made[1]. Type 2 DM (formerly known as non-insulin dependent DM) is the most common form of DM characterized by hyperglycemia, insulin resistance, and relative insulin deficiency[2]. Type 2 DM results from interaction between genetic, environmental and behavioral risk factors[3]People living with type 2 DM are more vulnerable to various forms of both short- and long-term complications, which often lead to their premature death , the commonness of this type of DM, its insidious onset and late recognition, especially in resource-poor developing countries like Africa[3].The number of people with type 2 DM is increasing in every country with 80% of people with DM living in low- and middle-income countries. DM caused 4.6 million deaths in 2011[4].It is estimated that 439 million people will have type 2 DM by the year 2030[5]. The incidence of type 2 DM varies substantially from one geographical region to the other as a result of environmental and lifestyle risk factors[6]. Studies examining data trends within Africa point to evidence of a dramatic increase in prevalence in both rural and urban setting, and affecting both genders equally[7]. It is predicted that the prevalence of DM in adults of which type 2 DM is becoming prominent will increase in the next two decades and much of the increase will occur in developing countries where the majority of patients are aged between 45 and 64 years[8]. Type 2 DM is due primarily to lifestyle factors and genetics[9].A number of lifestyle factors are known to be important to the development of type 2 DM. These are physical inactivity, sedentary lifestyle, cigarette smoking and generous consumption of alcohol [10].Obesity has been found to contribute to approximately 55% of cases of type 2 DM[11]. It is also a group of metabolic disorder of multiple etiologies characterized by chronic hyperglycemia with disturbances of carbohydrate, fat and protein metabolism, resulting from insulin secretion, insulin action or both [12]. Type 2 diabetes is brought on by environmental and behavioral factors such as sedentary lifestyle, over rich nutrition and obesity [13]. The global epidemic of type 2 diabetes has not spared sub-Sahara African countries and its economic burden on the patients, family, community and nation is enormous [14]. Cameroon lifestyle results in extreme risks of type 2 diabetes with a prevalence of about 7.5 and as of today, 80% of diabetes cases in Cameroon are undetected [4]. In Bamenda, as from 2003, the prevalence for both men and women was 6.9% [4]. Lifestyle modification is the best approach in the prevention of diabetes, rather than getting expensive medications are bought at high cost [15]. Patients with diabetes also need to work with health care providers (nurse, nutritionists, dieticians and physicians) to learn about self-management strategies. These strategies can assist patients with diabetes to develop skills necessary to reach the goal of glycemic control as the target of diabetes self-management strategies [16]. This study therefore assesses the self-care practices and complications among type 2 diabetic patients in the Bamenda health district.Findings from this study will help health authority to intensify their campaign in the fight against diabetes in Bamenda and beyond.

2. Materials and Methods

2.1 Study Site

This study was carried out in Bamenda Health District (BHD) found in Mezam division of the North West

Region of Cameroon. The BHD has a population of 360.522. The BHD is comprised of 17 health areas (public, private and confessional). BHD is bounded to the north by Bafut health district, to the west by Mbengwi health district, to the south by Bali and Santa health district and to the east by Tubah health district.

2.2 Study Design and Population

The study was a descriptivecross-sectional study. A convenient sample size was obtained by taking 10% of the total number of diabetic patients in the various health districts; that is 100 from regional hospital, 40 from saint Mary Soledad hospital and 60 patients from Centre MedicaliseD'Arrondissement (CMA)Nkwen. Only Type 2 diabetic patients residing in Bamenda Health District and attending diabetic clinics at the stipulated hospitals were eligible for the study.

2.3 Sampling Techniques

A purposive sampling method was used in the selection of hospitals because of the availability of diabetic clinics and hence availability of population relevant to the study. A quota sampling method was used for the selection of the patients as the study made use of the patients available.

2.4 Instrument of data collection

Structured questionnaire comprises of both open-ended and closed- ended questions was used in data collection. Questionnaire was designed to obtain information from patients on self-care practices for the management of DM as well as information related to complications.

2.5 Ethical Considerations

Authorizations for this study were obtained from the Head of Department for Social Economy and Family management, University of Bamenda, the Regional delegation of Public Health and the Directors of the Hospitals.Only individuals who volunteered to participate by signing a written informed consent, after adequate sensitization on the project objectives were enrolled.

2.6 Data Analysis

Data were double entered in Microsoft Excel and analyzed using SPSS Statistics 17.0 (IBM Corp, Atlanta, GA, USA). Descriptive statistics were carried out to measure percentages, averages, and relative frequencies of the variables. Relationships between quantitative variables, such as self-care practices and diabetic complications were assessed using the Spearman correlation coefficient (R). Statistical level of significance was set at $P \leq 0.05$.

3. Result and Discussions

Table 1 shows the distribution of demographic characteristics of the participants. Of the 200 participants, majority (52%) were females, > 50 years age group (60%) were retired (30.0%). Moreover, of those that

participated in the study, most of them (42.0%) had First school living certificate as their highest qualification and were of middle income (44.7%).

Table 1: Demographic characteristics of the study participants

Variable		Frequency	Percent frequency
	Male	96	48
Gender	Female	104	52
	30-39	20	10
	40-49	60	30
Age group	≥50	120	60
	Married	116	58
	Single	48	24
Marital Status	Widowed	36	18
	Farmer	44	22
	Housewife	12	6
	Pensioner	60	30
	Sedentary worker	44	22
Occupation	Others	40	20
	Primary	84	42
	Secondary	72	36
Level of Education	Tertiary	44	22
	Above average	52	27.7
	Average	84	44.7
Income	Below average	52	27.7

3.1 Self-care practices of the patients

Results revealed that majority (36%) of those who participated in the study has been suffering from type 2 diabetes for 0-5years (Table 2). This prevalence was however higher when compared to the national prevalence of 5.8% [17] and 9.4% gotten from similar studies conducted [18] in Cameroon. Our results further revealed that most of the patients (46.0%) eat three meals per day. This shows that the patients consume a full day supply of calories.[19] reported similar findings in Algeria. While 31.5% have two meals a day and 22.5% have just one meal a day. In the 24-hour recall, 68.5% of the patients had consumed an item from the fats and oil group. And from the milk and dairy product 64.5 of the patients had consume an item from the group. Some 59.5% had consumed an item from the starch and cereal group, only 55% of respondents had consumed an item from the vegetable group, 40% from the meat and poultry group and 32.5% from the fruit group. Previous studies revealed a remarkable increase in vegetable as well as fruits consumption among diabetic patients [20]. This indicates that respondents have it as a habit of consuming more of fatty foods, dairy products and starchy foods while their consumption of meat product and fruits is very low. Their vegetable consumption was better compared to meat and fruit groups but this was found to be largely because vegetables are used as accompaniments to many starchy foods. However, this consumption is not always in enough quantity. Table 2 further shows that majority of the patients consume fruits and vegetables twice a week (36.5%) while 27% eats

fruits and vegetables every day, whereas; 21.5% eats fruits and vegetable just once a week and 15% does not consume it at all. With respect to dietary restrictions, 22% of the patients do not consume salt, while 8% of them said they have been restricted from eating fatty foods,6% talked of restriction from sugar. The prevalence of alcohol consumption was 37%. From the table below, 68% of the patients said they have not been restricted from eating any food while 32% said they have been told by doctors or nurses not to consume some particular foods such as ripe plantains, cola nut, palm oil, red meat, foods with a lot of cholesterol and carbohydrates. From the findings on diet, it was discovered that a majority of the patients 68% did not have any meal plan and most of them 54.5% ate more of carbohydrates. This was not in line with the diabetic plate of[21], which constitutes more of vegetables and fruits. One reason for this could be due to the fact that most of the patients had some dietary restrictions with a majority of 22% of the patients having been restricted from salt. This goes in line with studies of [22] indicated that food restriction is the main reason for failure to adhere to diet by diabetic patients. Equally, 32% of the patients were restricted from certain foods (ripe plantain, colanuts, and carbohydrates) by either doctors or nurses whereas such restrictions are to be done by dieticians. This however puts the patients in confusion of not really knowing what to eat as [23] suggested that diabetic diet should include carbohydrate, proteins, fiber and fats. The fact that the number of dieticians is inadequate to provide nutrition care for diabetics and other patients could be a contributory factor for this. Majority of the patients [108(54%)] do not indulge in physical activities. Studies have shown that physical activity is a key element in diabetes type 2 self-care as it can help the patient to lose weight and also improve the body's insulin sensitivity and glycaemic control. Unfortunately, our results contradict that of [24] where an exercise participation of 62% was recorded. Those who did 46% performed exercise just once a week. This was not in accordance with the American diabetes institute [25]who said that strength developing activities should be performed at least twice a week and that it is also important to adopt other healthy lifestyle habits as well, for example climbing stairs and walking. With the above results however, Bandura's theory comes in whereby [13] carried out a similar study and results showed that adults with T2DM had a low confidence (59%) in performing exercise with regards to self-efficacy. In addition, Table 2 also shows that 40 (20%) of the patients acknowledged checking their blood sugar daily while 64 (32%) checked it twice a week, 32% talked of a monthly check and 14% talked of checking their blood sugar when need arises. This disagreed with studies carried out by [26]where patients were checking their blood sugar levels before each meal and at bed time if possible and also by [27] who posited that blood sugar should be checked at least four times per day. The results on the other hand were similar to those carried out by [28] where glucose monitoring was performed routine testing while the remaining 33% only tested when hypo or hyperglycemia was suspected. However, frequent checks will go a long way to prevent hypoglycemia and the patients can have control over his/her glucose levels. Foot care practices to diabetic is a very crucial aspect and if neglected, complications such as foot ulcers may occur. It was noticed that 12% of the diabetic patients said to avoid wounds, they wash and wipe their feet every day, 6% put on sandals and avoided prolong wearing of cover shoes, 18% wore good and comfortable shoes. It also shows that 14% avoid wearing tight fitting shoes, 2% used nail cutters and not blades to trim nails and 2% avoided sharp objects and 10% wore low shoes.With regards to the above findings on foot care, a majority of the patients had similar and related practices like washing and wiping of feet daily 12%, putting on of sandals and avoiding prolong wearing of covered shoes (16%), wearing of good and comfortable shoes (18%), no wearing of tight-fitting shoes (14%), use of a nail cutter and not a blade to trim nails (2%) and avoidance of sharp objects (2%).

Table 2: Self-care practices among diabetic patients

Variable		Frequency	Percent
	Once per day	45	22.5
	Twice a day	63	31.5
Eating habit	Three times per day	92	46
	0-5	72	37.5
	6-10	32	16.7
	11-15	20	10.4
	16-20	12	6.3
	21-25	32	16.7
	26-30	12	6.3
Duration with diabetes	30+	12	6.3
	Starch and cereal	119	59.5
	Fruit group	65	32.5
	Vegetable group	110	55
	Fats and oil group	137	68.5
	Milk and dairy product	129	64.5
Dietary recall	Meat and poultry	80	40
	Once a week	43	21.5
	Twice a week	73	36.5
Fruits and vegetable consumption	Everyday	54	27
	Never	30	15
	Salt	44	13.4
	Fat	16	4.9
	Sugar	12	3.7
	Salt, fat and sugar	8	2.4
	None	60	18.3
Dietary restrictions	Salt and fat	24	7.3
	Consumes Alcohol	74	37
Alcohol consumption	Does not consume alcohol	126	63
	Yes	64	32
Food restriction	No	136	68
Practice of physical exercise	Yes	92	46
	No	108	54
	Daily	40	20.4
	Twice a week	64	32.7
	Monthly	64	32.7
Blood sugar test	Others/when necessary	28	14.3
	Wash feet every day and wipe them	24	18.8
	Put on sandals, avoid prolong wearing of cover shoes (tight fitting)	12	9.4
	Wear good and comfortable shoes	36	28.1
	No tight-fitting shoes	28	21.9
Foot care practice	Use a nail cutter and not a blade to trim nails	4	3.1

	Avoid sharp objects	4	3.1
	Wearing low shoes	20	15.6

All these practices are supported by the American College of Foot and Ankle Surgeons [29] for the prevention of wounds which could lead to foot complications. This study is similar to that of [30], who carried out a descriptive study on foot care practices. Out of a possible score of 20, those without ulcers averaged 13.57. This showed some moderate level of self-care practices on the part of patients.

3.2 Medication compliance and complications among diabetic patients

Medication compliance among diabetic patients was low. Only 60 (40.5%) of the patients took their drugs as prescribed by the physicians (Figure 1). According to [31], medication compliance in diabetic patients play an important role in health management.

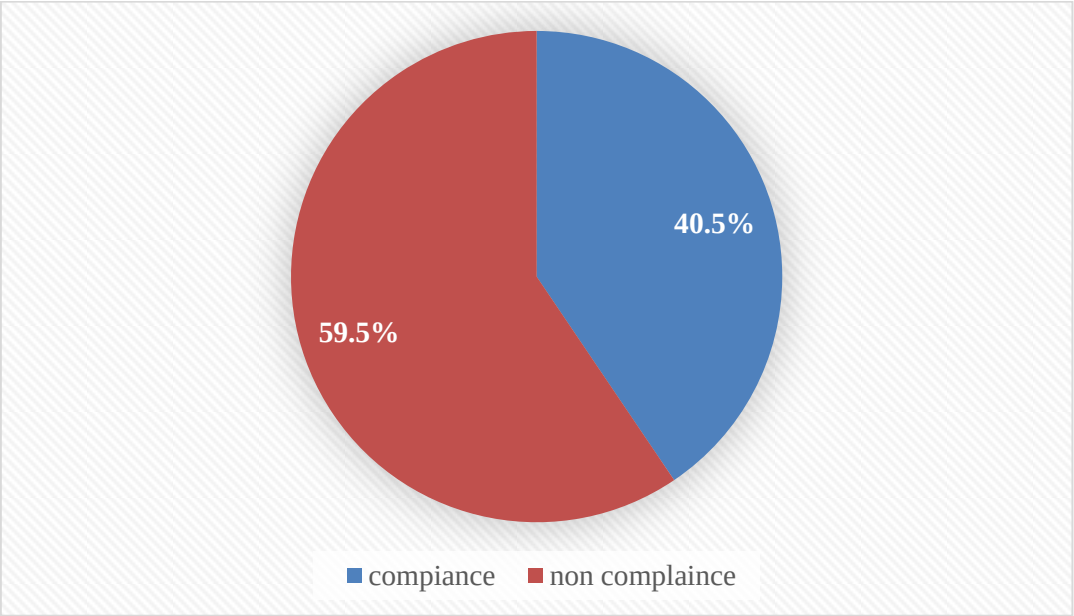

Figure 1: Medication Compliance in diabetic patients

It was observed from the results that the most outstanding complications were high blood pressure (62%), and visual problems (60%) (Figure 2). Other existing complications observed were tingling or crawling sensations (58.5%),wounds (29%) and difficulties in achieving erection (22%).

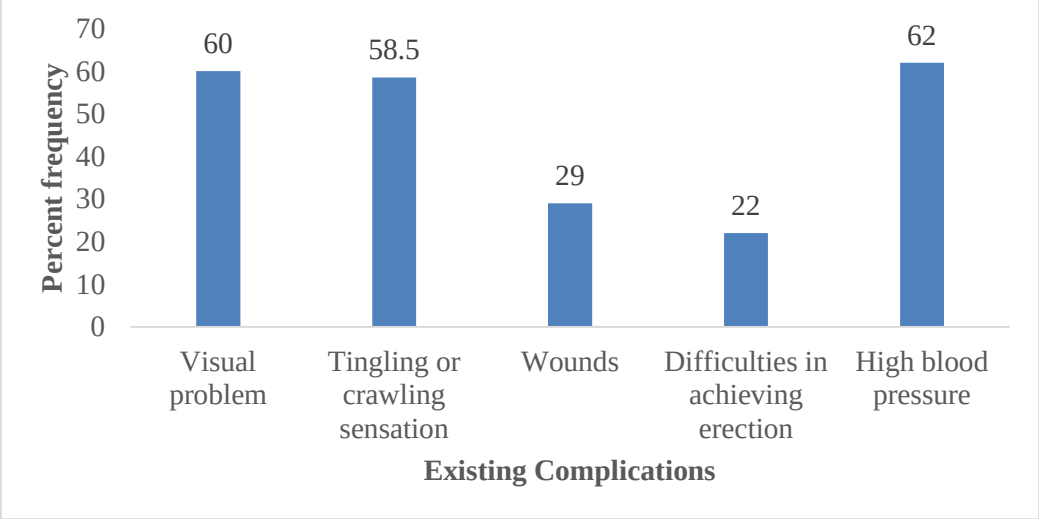

Figure 2: Complications among diabetic patients

3.3 Other persistent complaints

Figure 3 shows that majority(60) of diabetic patients with percentage of 30% complained of being obese, 20 (10%) had partial stroke or paralysis while 4 (2%) suffered from blurred vision and body pain (Figure 3). Obesity was outstanding as a persistent complains for most diabetic patients with percentage of 30%. This ties with the work of [32] who found out that obesity or over weight is one of the reasons why the blood cells lose their sensitivity to insulin. It can be seen from the above findings that a majority of the diabetic patients in Bamenda Health District had prevalent complications such as high blood pressure and visual complications. Hence research H2 was accepted which states that "Type 2 diabetic patients in Bamenda Health district have prevalent complications.

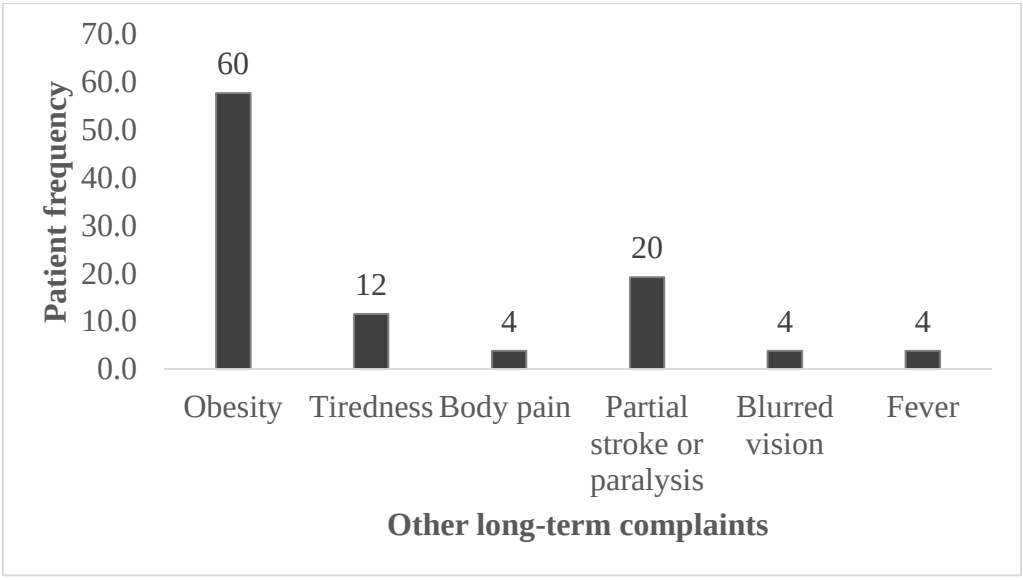

Figure 3: Other persistent complaints

3.4 Relationship between complications and self-care practices

It was observed that self-care practices (diet, physical activity, blood sugar testing, foot care, alcohol and medications) were significantly associated with complications ($p<0.05$) (Table 3). Self-care practices such as diet, physical activities, blood sugar test, foot care, alcohol consumption and medication compliance were found to be associated with complications ($P<0.05$)(Table 3). This study corroborates[33]. and[34] with similar findings.

Table 3: Association between self-care practices and complications

	Complications	
Self-care practice	**R**	**P- value**
Diet	0.742	0.0001
Physical activities	0.626	0.02
blood sugar test	0.861	0.0001
Foot care	0.732	0.002
Alcohol consumption	0.822	0.03
Medication	0.681	0.0001

4. Conclusion

Results revealed an overall poor approach to self-care among the patients. Amongst the six parameters assessed, patients were to some extent able to moderately practice good foot care. All other aspects of self-care were not satisfactorily implemented. Complications are a consequence of poor self-care practices with high blood pressure (62%) closely followed by visual complications (60%) being prevalent among the patients. Type 2 diabetic patients in Bamenda Health district still need to get more access to information on self-care and they also need to exercise more and adopt a healthy lifestyle into their daily life to improve the self-care and reduce the risk of diabetes complications.

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