



Assessment of Patients' Satisfaction with Diabetes Education Provided in Diabetes Mini-clinics, Khartoum State, Sudan

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Background: Assessment of patient satisfaction with diabetes education is important as it is associated with positive outcomes.

Aim: The aim of this study was to assess satisfaction of diabetic patients with the diabetes education services provided in the diabetes mini-clinics (DMCs) at primary care level, Khartoum state 2016.

Materials and Methods: This was a cross sectional health facility-based study, carried out during June 2016 in 22 DMCs. The study population was diabetic adult patients attending DMCs. A sample of 277 patients was selected and interviewed by structured questionnaire. Three point Likert scale was used to measure satisfaction with diabetes education. Ethical clearance and patients' consent were considered. Data was managed and analyzed by SPSS version 22, descriptive statistics was presented and logistic regression model was used to identify factors associated with patients' satisfaction.

Results: The mean age of the patients was 56.03 ± 13.8 and most of them were females (61.7%). The formal educated patients were 85.9%. Patients satisfied with diabetes education in DMCs

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accounted to 65%. Satisfaction with education place, education materials and waiting time for education accounted to 75.1%, 97.8% and 92.1% respectively.

Patients accessed the DMCs by public transport and walk were 58.1% and 33.9% respectively. Patients with diabetes duration more than five years were 50.2%. The patients received diabetes education in DMCs for more than six months prior to the time of the study were 66.4%. Satisfaction was affected by Illiteracy and recent receive of diabetes education, OR: 4.612 (CI: 1.77, 11.98) and OR: 0.312(CI: 0.168, 0.580) respectively.

Conclusion: Patients' satisfaction with diabetes mini-clinics services was high. Most of patients were satisfied with the general setting and communication skills of the educators. Illiteracy and recent receive of education were significantly associated with overall satisfaction. Further studies on adherence of patients to education are recommended.

Keywords: Diabetes mini-clinics; satisfaction; diabetes education; Khartoum State.

1. INTRODUCTION

Patient satisfaction is an important outcome indicator used for measuring the quality in health care. It also affects the timely, efficient, and patient-centered delivery of quality health care [1]. Satisfied patients are more likely to comply with treatment regimens and to be adhering to education information [2]. Health professionals may benefit from satisfaction studies to identify potential areas for service improvement [3]. Patients' satisfaction optimizes the health expenditure by patient-guided planning and evaluation [3]. Diabetes Mellitus (DM) is one of the non-communicable diseases that leads to complications in many parts of the body and increases the overall risk of dying prematurely [4]. Its prevalence is steadily increasing everywhere, most markedly in the middle-income countries [4]. In Sudan, the national prevalence of diabetes in adults is 7.7% in 2015 and is expected to reach 10.8% in 2035 [5].

Diabetes self-management education (DSME) is the ongoing process of facilitating the necessary diabetes self-care [6]. It equips the diabetic patients with the knowledge, skills, and attitude to in line with the optimum self-care [6]. It is an interactive process between the diabetes educator and the person with diabetes, the caregiver and the family [7]. DSME helps to achieve behavior change goals that in turn lead to better clinical outcomes [7]. Ongoing patient DSME and support are the effective methods to prevent acute diabetes complications and reducing the risk of long-term ones [8]. Resources for diabetes care in Sudan are limited because the system is directed towards the care of illnesses rather than prevention. There was limited number of trained diabetes educators at primary care level and almost education run by other health care providers [9]. In this context,

the Diabetes Programs Promotion Organization (DPPO) established diabetes education program in collaboration with the University of Ahfad and the Federal Ministry of Health. Diabetes established mini-clinics program is a project carried out by a non-profit organization. Its main feature is training delivered by well-informed diabetes educators and medical practitioners to enhance self-management and care of diabetic patients [10]. The objective of this study was to assess patient satisfaction with diabetes education program provided in diabetes mini-clinics in Khartoum state 2016.

2. MATERIALS AND METHODS

This was a cross sectional, health facility based study carried out during June, 2016. The study area was Khartoum State. The study area was 22 primary health care health centers chosen out of 30 ones that included diabetes mini clinics. The selection based on attendance rates of diabetic patients during the three months prior to the study to ensure the availability of patients during the study period.

The study population was adult diabetic males and females, above 18 years of age. Pregnant women with gestational diabetes and severely ill patients (patients with diabetic ketoacidosis, hypoglycemia, Diabetic septic foot) were excluded from the study.

The following formula was used for determination of sample size of diabetic patients:

$$n = \frac{z^2 \times pq}{w^2}$$

The proportion of the phenomenon under study (p) was derived from a study conducted in Egypt that predicted the proportion of satisfaction

of diabetes education provided in primary health centers which was found to be 23.6% [11].

The calculated sample size was 277. The sample size was divided proportionally between the mini-clinics based on attendance rates of diabetic patients. Study variables were: age, gender, marital status, education, occupation, family income, the way of attending to clinics, diabetes duration and duration of education and satisfaction with education.

Patients were interviewed by a structured pretested questionnaire. The questionnaire consisted of 17 items` scale about satisfaction with the education program as follows: General settings (3 items), communication of educator (3 items) and information provided about diabetes (11 items). The scale was constructed based on the items of basic educational requirements stated in the Clinical Practice Guidelines and Standards of Care of Diabetes Mellitus in Sudan 2011 [12]. Other characteristics were modified from the published literature [13]. The Cronbach's Alpha of the scale was > 0.78. Data was managed by statistical package for social science software version 22. Descriptive statistics presented the patients' characteristics, satisfaction scores of the scale items that were measured by three point Likert scale, 3. Satisfied, 2. Neutral, 1. Dissatisfied. The mean satisfaction of overall scale scores was 1.9 and it was used as a cut-off point between satisfied and dissatisfied. Logistic regression analysis was used to test the relationship between overall satisfaction and age, gender, marital status, education, occupation, family income, the way of attending to clinics, diabetes duration and duration of education.

3. RESULTS

The study group was patients who had type 1 or type 2 diabetes, excluding severely ill patients and women with gestational diabetes. Most of the patients were in the age groups of 50-64 years and 65 years and above, 39.7% and 31% respectively. The mean age was 56.03 ± 13.8. Most of the study population was female sex, 61.7%. The majority of patients were married, 73.3%. The formal educated patients represented 85.9%. Housewives represented 42.2%, Patients whose income was 1000 Sudanese Geneh and more were 58.1% (Table 1).

Table 1. Distribution of diabetic patients attending the DMCs by their characteristics (n=277)

Characteristic	n (%)	
Age	20 - 34	20 (7.2)
	35 - 49	61 (22.0)
	50 - 64	110 (39.7)
	65 and above	86 (31.0)
Gender	Male	106 (38.3)
	Female	171 (61.7)
Marital status	Married	203 (73.3)
	Not married	74 (26.7)
Education level	Illiterate	39 (14.1)
	Basic	70 (25.3)
	Secondary school	121 (43.7)
Occupation	University/postgraduate	47 (17.0)
	Laborer	6 (2.2)
	Employee	53 (19.1)
	Unemployed	55 (19.9)
	Housewife	117 (42.2)
Income	Free business	46 (16.6)
	Less than 1000 SP	116 (41.9)
	1000 SP and more	161 (58.1)

Patients who reach the clinic using public transport were 58.1%, and 50.2% of patients had diabetes for more than five years and 66.4% of patients started the education program for more than six months (Table 2).

Table 2. Distribution of diabetic patients by accessibility to the DMCs and diabetes education (n=277)

Accessibility to education program	n (%)	
Way to reach clinic	Walk	94 (33.9)
	Public transport	161 (58.1)
	Drive	22 (7.9)
Duration of education	< 6 months	93 (33.6)
	6 months and more	184 (66.4)

Overall satisfaction with the education program in Diabetes Mini Clinics showed 65% of diabetic patients were satisfied (Fig. 1).

Satisfaction with general settings had shown that 75.1% of patients were satisfied with education place, 80.1% were satisfied with education material and 92.1% satisfied with waiting time (Fig. 2).

To identify the factors related to overall satisfaction with education in DMCs, age,

gender, marital status, education, occupation, family income, the way of attending to clinics, diabetes duration and duration of education were included into logistic regression model. The model excluded all factors except two factors that significantly related to overall satisfaction with

diabetes education; receiving diabetes education within last 6 months prior to the study and the illiteracy. Less duration of receiving education contributed to overall satisfaction by 31% and being illiterate had 4.6 folds of being literate regarding overall satisfaction (Table 3).

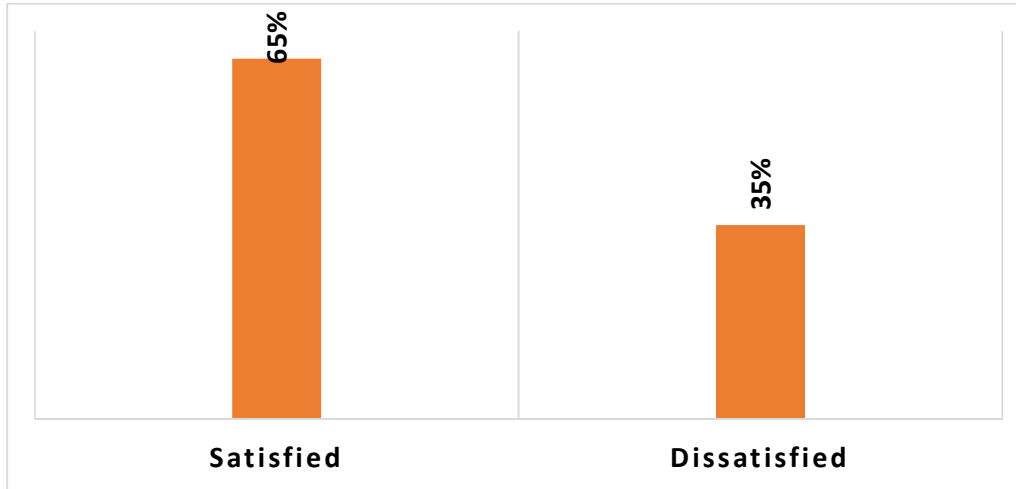


Fig. 1. Distribution of patients attending DMCs by overall satisfaction with the diabetes education program

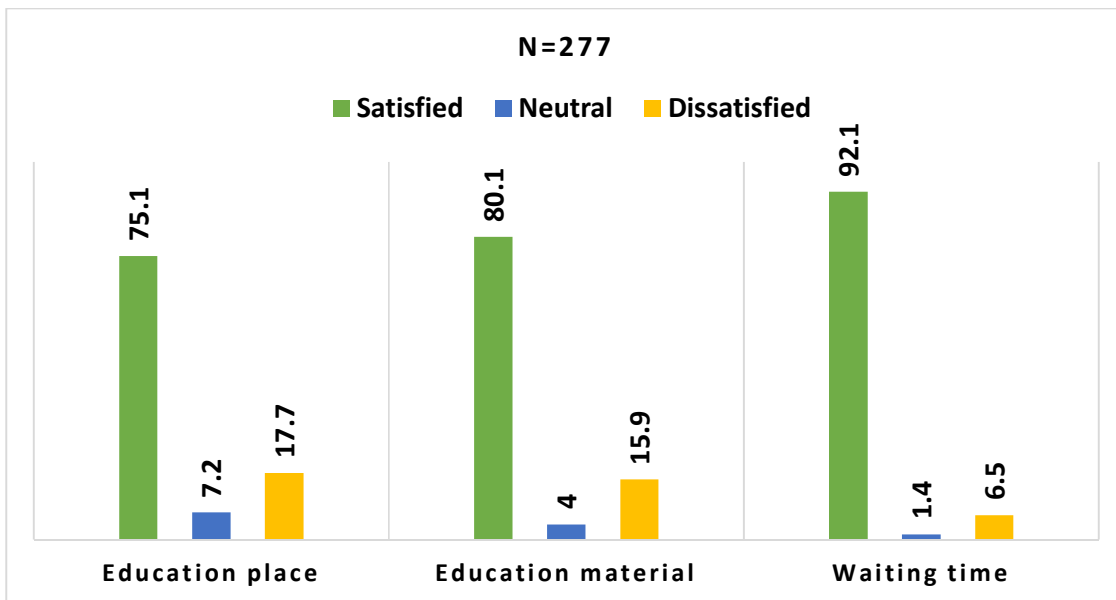


Fig. 2. Satisfaction with general settings for education in DMCs, Khartoum State 2016

Table 3. Factors related to overall satisfaction with education in DMCs in Khartoum State 2016

Factors	Test statistic	Odds ratio (OR)	95% CI interval for P- value OR	P- value
Education level (Illiterate)	9.854	4.612	(1.77, 11.98)	0.002*
Duration of education less than 6 months	13.547	0.312	(0.168, 0.580)	0.001*

* Significant P-value (less than 0.05)

4. DISCUSSION

In this study, the high satisfaction rate with diabetes education in DMCs reflects indirectly the competence of diabetes educators and the quality of education process. This is supported by a study in King Abdul-Aziz Medical City regarding satisfaction with education provided by doctors during clinical consultation [14]. Similar studies showed high proportion of diabetic patients received education from doctors and small proportions received education from other care providers [15,9]. The high satisfaction rate with education provided by educators could be due to the scaling up of diabetes education in DMCs within the health centers [10]. This emphasizes the role of educators in the education process for diabetic patient as far as they are trained on diabetes education and solely devoted to provide education.

In this study, illiterate patients were 4.6 times more satisfied than those who have different levels of education. In a study conducted in Dubai; patients with university and secondary education are less satisfied [16]. This indicates significantly increased awareness, knowledge and thus expectations of people as their education increases while illiterate patients receive new information thus show greater satisfaction. Satisfaction with the services decreases as the duration of receiving care increases. In this study receiving education less than six months prior to the time of the study contributed to satisfaction by 31%. This is supported by a study in Iran resulted in high satisfaction score among patients who did not previously attended to health center compared to patients who attended regularly [13]. The less duration of education reflects the recall memory of patients and does not reflect the long term satisfaction. Therefore; education should be goal- orientated and individualized to meet the changing in patients' expectations.

Regarding communication skills of the educators, more than 90% of patients satisfied with the time spent in education, understanding the information provided by the educator and answers for their questions. It worth mentioning that the scaling up of education in DMCs increased the satisfaction of diabetic patients that is similar to satisfaction with communication skills of doctors in a study carried out in King Abdul-Aziz Medical City [14].

The time spent with the educator is a strong point as literature showed that better outcomes have

been shown to be associated with the amount of time spent with a diabetes educator [17].

Diabetic patients were satisfied with the education setting in DMCs in terms of education place, education materials and waiting time. It has been shown that the amount of time the patient spends in the waiting area plays a very important role in determining the patients' satisfaction as an outcome quality care [1]. Various methods like verbal education, written information (handouts, articles in popular magazines, etc.), group-based learning, audiotapes, videotapes, can be used to educate the patient about the disease and they are found to promote successful education and hence patient satisfaction [18].

In this study, almost most of the diabetic patients were satisfied with the information about diabetes provided in DMCs. Literature showed that when planning an education program, there is a need to take into account the patients' satisfaction [19]. Patients' satisfaction produces the motivation of the diabetic educators. Also it emphasizes the educators' role in adjustment of the patients' needs that enhances the adherence to medication treatment, food planning, physical activity, foot care and self-monitoring of capillary glucose [19].

5. CONCLUSION AND RECOMMENDATIONS

The level of patients' satisfaction about the diabetes mini-clinics program in Khartoum state was high. Most of patients were satisfied with the general setting for diabetes education in DMCs. More than 90% were satisfied with communication skills of the educators. Illiteracy and recent receive of education were significantly associated with overall satisfaction with diabetes education in DMCs. Further studies on adherence of patients to education in the diabetes mini-clinics are recommended.

ETHICAL CLEARANCE

Ethical clearance was obtained from ethical committees in the Ministry of Health in Khartoum State and Faculty of Medicine in University of Khartoum. Informed consent was taken from each patient after explaining the benefits and risks of the study. Data confidentiality was assured.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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