





ORIGINAL RESEARCH ARTICLE

Effect of Educational Intervention Programme on Self-Management Practices of Individuals with Type 2 Diabetes Mellitus in South-East, Nigeria

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Abstract

Background: Diabetes mellitus (DM) is a chronic disease that has great impact on health and affects quality of life of DM sufferers. Despite its chronic nature, DM is also a self managed disease that requires adequate knowledge of DM self management, in order for the sufferers to actively participate in their self care.

Aim of the study: The study was aimed at determining the effect of educational intervention programme on the self-management practices of persons with type 2 diabetes (T2DM) in South East, Nigeria.

Methodology: A quasi experimental study involving three hundred and eighty-two (382) persons with type 2 DM were proportionately selected from the four tertiary health institutions in South Eastern, Nigeria. Data was collected using the Summary of Diabetes Self Care Activities (SDSCA) Scale. The SDSCA instrument assessed self-care practice on areas such as exercise, diet, self blood glucose monitoring (SBGM), foot-care and medication which are areas of daily self-care activities for individuals with DM. The questionnaire was administered to persons with T2DM that attended diabetic out-patient clinic. Responses on SDSCA was ranked and rated as poor, moderate and good self-care behavior. Pearson Chi square test statistics was used to

compare between pre and post intervention self-management practices of intervention and control participants.

Result: No significant difference was observed in self-management practices between the experimental and control groups prior to intervention ($\chi^2 = 0.180 - 3.351$, $p > 0.05$). However, 6-months after intervention, significantly higher mean rank was observed in intervention group in the diet domain ($\chi^2 = 23.817$, $p = 0.001$), exercise ($\chi^2 = 11.545$, $p = 0.003$) and in foot-care ($\chi^2 = 168.217$, $p = 0.001$) indicating the effectiveness of educational intervention.

Conclusion: Educational intervention was very effective in improving self-management practices in persons with diabetes mellitus, hence should be included in all diabetes care plans.

Keywords

Type 2 DM, Self-management practice, Educational intervention, Experimental (intervention), control (comparison) group

Introduction

Diabetes Mellitus (DM) also referred to as diabetes is a chronic and non communicable disease that affects people of all ages and races. It is a group of metabolic disorders characterized by a state of high blood glucose (hyperglycemia) over a prolonged period [1,2]. It is considered one of the common chronic diseases in approximately all countries, as well as one of the major global health problems of modern society [2,3]. It was once regarded as the disease of the affluent in developed countries, but is now a growing health problem in developing countries [3,4]. Adeyeye, et al. [4] had stated that diabetes mellitus is not only assuming a pandemic proportion worldwide but also poised to affect the developing countries of the world much more than their developed counterparts. Nigeria being one of such developing countries is not exempted from the burden of diabetes as demonstrated by the prevalence of diabetes in Nigeria [5,6]. World Health Organization (WHO) [6] had reported that more than 80% of diabetes related deaths occur in low and middle income countries. American Diabetes Association and Adeyeye, et al. [7,8] had classified diabetes into four categories namely: Type 1 diabetes previously known as Insulin Dependent or juvenile Diabetes Mellitus (IDDM), Type 2 diabetes previously referred to as Non Insulin Dependent Diabetes Mellitus (NIDDM), Gestational diabetes and other forms of diabetes mellitus. Of the four types of diabetes, type 2 is the commonest, affecting more than 85% of the diabetic population [9].

Several authors have observed a progressive increase in the prevalence of diabetes both at global, regional and national levels [5,6,8-10]. In 2011 and 2013, an estimated 285 million and 382 million adults respectively were affected with DM globally [6,9,10], with a prevalence of 3.8% as reported by International Diabetes Federation (IDF) [11] and Shu and HuFrank [12]. In 2014, the global prevalence rose to 9% with an estimated 387 million adults living with diabetes [1]. Report from IDF in 2017 revealed that nearly half a billion adults were estimated to be living with diabetes [11]. Available record revealed the prevalence of diabetes in Nigeria to be within 8%-10% of the population [8].

This progressive increase in the prevalence of diabetes as posited by Saeedi, et al. [10] is associated with lifestyle changes, overweight/obesity, physical inactivity, alcohol consumption, dietary changes and cigarette smoking which are factors that are potentially modifiable. Being a chronic disease with chronic complications, diabetes sufferers are often faced with the challenge of managing their disease on daily basis as they have to exercise regularly, eat carefully, monitor blood sugar level, care for their feet and take their medications. All these are necessary in order to reduce hospital admission/readmission and early development of complication associated with poor quality of life.

As a result, individuals with diabetes need adequate knowledge of self management practices to be able to actively participate in their care. Furthermore, diabetes is a self managed disease and the treatment and prevention of complications depends largely on the patients' decisions on a daily basis [13].

Self management refers to a set of skilled behaviors, individuals engage in to manage their illnesses [13]. It emphasizes the role of an individual in managing his/her disease. Successful self-management of DM requires that individuals with DM frequently monitor their blood glucose levels and take required action in order to keep blood sugar within physiological level, adhere to prescribed diet, exercise, and comply with prescribed medications. Wattana, Scrisuphan, Pothiban and Upchurch [14] posited that knowledge of self-management of diabetes is an important aspect of care for better glycemic control and better quality of life. Unyime, et al. [15] observed that the more knowledgeable persons with diabetes are; the better their attitude towards the care of their own diseases. D'Souza, Venkatesaperunal, Ruppert, Karkada, and Jacob [16] also observed that the ability to manage one's diabetes positively significantly predicts the quality of life and helps to achieve better glycemic control. However, most persons with diabetes lack adequate knowledge of self care, hence this study to determine the effect of educational intervention programme on the self-management practices of persons with type 2 diabetes (T2DM) in South East, Nigeria.

Diabetes self-management education (DSME) is the process of providing the person with diabetes the knowledge and skills needed to perform self-care, manage crisis and make lifestyle changes required to successfully manage the disease [17]. Diabetes education is concerned with encouraging independence and self confidence so that people carry out their self care activities. It has been recognized as the cornerstone for effective diabetes care for decades, leading to the establishment of national standards for diabetes self-management education (DSME) [18]. The goal of the process is to enable the patient to become the most knowledgeable and hopefully the most active participant in his or her diabetes care [17]. It also aims at optimizing metabolic control, prevent acute and chronic complications and improve quality of life [19]. Therefore, this study was aimed at determining the effect of educational intervention programme on the Self management practices of individuals with type 2 DM in South East, Nigeria. The specific objectives of this study were to (1) assess and compare self-management practices of individuals with type 2 DM who received educational intervention (experimental group) and those who did not (control group) prior to intervention (2) to determine and compare changes in self management practices between the intervention

(experimental group) and control groups of persons with type 2 DM, six months post intervention.

Methods

Three hundred and eighty two (382) persons with type 2 DM were recruited from four tertiary health institutions in South East, Nigeria. The health institutions were selected and randomly assigned to experimental (intervention) and control (comparison) health institutions using simple random sampling technique. This was achieved by writing numbers 1, 2, 3, 4, 5, 6 in a pieces of paper, same folded and placed in a basket (odd numbers for experimental hospital and even numbers for control or comparison hospital). Four (4) girls (each representing a health institution or hospital) were asked to pick a piece of paper from the basket. Hence, participants from health institutions that picked odd numbers formed the experimental (intervention) group, whereas participants from health institutions that picked even numbers formed the control group. This was done to ensure adequate control and to make sure that the educational information did not filter to control group during intervention.

Ethical approval was obtained from the ethics committee of the health institutions where the study was conducted. Informed consent was obtained from each participant. The participants were made to understand that the study is not associated with any hazard as the researchers were only interested in eliciting information from them on diabetes self management practices. The researchers at all times of the study maintained the confidentiality of all participants' information. The study participants were shared into groups of 25 persons per group for easy administration of questionnaire. Each group was invited to the DM clinic of their hospital on a particular day for pre-intervention data collection. The instrument was administered as pre test to all the participants, both intervention and control group participants. Thereafter, education was commenced for the intervention group participants. A booklet titled "MANAGING YOUR DIABETES" developed by the researcher from a module of Diabetes Self Management Education (DSME) was given to each participant in the intervention group to go home with.

Educational intervention material covered areas such as daily adherence to diet therapy, daily blood glucose monitoring, daily physical activity/exercise, daily foot care, daily adherence to medication, weekly or regular blood pressure monitoring, six monthly eye checkups, 3-monthly health care use (even in the absence of symptoms), 3-monthly laboratory test for glycated hemoglobin (HbA1c), lifestyle changes, recognition of symptoms of hypo and hyperglycemia and actions to take, emotional and stress management.

They were followed up and two weekly meetings were arranged with them to emphasize more on diabetes self-

management as well as encourage them to practice self-management. Phone call was made between meetings to answer the participant's questions. After six months copies of questionnaire on self care were administered as post test to both the intervention and control groups.

Data collection was done using standardized questionnaire (the Summary of Diabetes Self Care Activities Scale (SDSCA) and a researcher developed questionnaire. The SDSCA consists of five (5) scales with 16 question items that assessed self-care in the dimensions of exercise, diet, self monitoring of blood glucose (SMBG), and foot-care and medication adherence. These are areas of daily self-care activities for individuals with diabetes mellitus. The researcher developed instrument that contains questions on laboratory blood glucose monitoring (Glycated hemoglobin (HbA1c) monitoring), blood pressure monitoring, prevention of hypoglycemia, eye check and use of healthcare which are not daily self-care activity rather other aspects of the diabetes self-care behavior. Hence they are not contained in a scale. The SDSCA instrument contains numbers 0 -7 indicating number of days of performance of self-care in a week by the participant. The participants were requested to tick a number against each question item in the questionnaire that showed the number of days they performed self-care in a week. To determine performance for each scale, the responses on each scale was summed up, same divided by the number of items in that scale ([Supplementary](#)). This gives the mean score for each scale. The mean score was rated and ranked as follows:

Zero (0) represents no performance of self-care and it is rated as 0

Mean score of 0.1 to 2.99 was ranked 1 - Poor performance

Mean score of 3 to 4.99 was ranked 2 - Moderate performance

Mean score of 5 - 7 was ranked 3 - Good self-care performance

Data analysis was done using the Statistical Package for Social Sciences (SPSS) version 20. Data collected were summarized using frequency and percentages. Mean and standard deviation was used to determine differences in age between the two groups. Pearson Chi square test statistics was used to compare between pre and post intervention self-management practices of intervention and control participants, p-value less than 0.05 alpha level was considered significant.

Results

Both groups had similar proportions of participants across gender as well as similar proportion of participants exhibiting similar clinical characteristics and lifestyle. The mean age of participants in the experimental (intervention) group (58.52 ± 11.40 , $t = 1.87$) was similar

Table 1: Demographic/Clinical Characteristics of study participants.

Demo characteristics		GROUP				
		Exp Freq (%)	Control Freq (%)	Total (%) Freq N (%)	χ^2	p-val
Gender	Male	79 (39.9)	84 (45.7)	163 (42.7)	1.29	0.256
	Female	119 (60.1)	100 (54.3)	219 (57.3)		
	Total	198 (51.8)	184 (48.2)	382 (100%)		
Type of treatment	Oral hypoglycemic	160 (80.8)	150 (81.5)	310 (81.2)	4.898	0.086
	Insulin	5 (2.5)	12 (6.5)	17 (4.5)		
	Both	33 (16.7)	22 (12.0)	55 (14.4)		
	Total	198 (51.8)	184 (48.2)	382 (100%)		
Have high BP	Yes	123 (62.1)	109 (59.2)	232 (60.7)	0.332	0.564
	No	75 (37.9)	75 (40.8)	150 (39.3)		
	Total	198 (51.8)	184 (41.2)	382 (100%)		
Currently taking medication	Yes	117 (59.1)	104 (56.5)	221 (57.9)	0.592	0.744
	No	6 (3.0)	5 (2.7)	11 (2.9)		
	Total	123 (62.1)	109 (59.2)	232 (60.7)		
Characteristic	Group	N	Mean	SD	T-test	P -value
Age	Exp	198	58.52	11.4	1.866	0.063
	Control	184	56.29	11.92	1.863	

Table 2: Chi square test comparing self-management practices between intervention and control groups prior to intervention (Pre test).

Selfcare activity	Group	RANK					
		Poor (%)	Mod (%)	Good (%)	Total (%)	χ^2	p-val
Diet	Exp	14 (7.1)	74 (37.4)	110 (55.6)	198 (51.8%)	3.351	0.187
	Control	19 (10.3)	79 (42.9)	86 (46.7)	184 (48.2%)		
	Total	33 (8.6)	153 (40.1)	196 (51.3)	382 (100%)		
Exercise	Exp	72 (36.4)	91 (46.0)	35 (17.7)	198 (51.8%)	0.180	0.914
	Control	70 (38.0)	84 (45.7)	30 (16.3)	184 (48.2%)		
	Total	142 (37.2)	175 (45.8)	65 (17.0)	382 (100%)		
Self Blood sugar Testing	Exp	76 (38.4)	55 (27.8)	67 (33.8)	198 (51.8%)	0.415	0.813
	Control	68 (37.0)	48 (26.1)	68 (37.0)	184 (48.2%)		
	Total	144 (37.7)	103 (27.0)	135 (35.3)	382 (100%)		
Footcare	Exp	156 (78.8)	33 (16.7)	9 (4.5)	198 (51.8%)	3.256	0.196
	Control	131 (71.2)	39 (21.2)	14 (7.6)	184 (48.2%)		
	Total	287 (75.1)	72 (18.8)	23 (6.0)	382 (100%)		
Medication	Exp	2 (1.0)	20 (10.1)	176 (88.9)	198 (51.8%)	3.013	0.222
	Control	5 (2.7)	12 (6.5)	167 (90.8)	184 (48.2%)		
	Total	7 (1.8)	32 (8.4)	343 (89.8)	382 (100%)		

to that of the control (56.29 ± 11.92) group ($t = 1.86$, $p = 0.063$) (Table 1).

Majority of participants from experimental (78.8%) and control (71.2%) groups indicated poor self-care practice in foot-care. A good proportion of participants (38.4%) from intervention group and control (37.0%) groups indicated poor self-care in daily self blood

sugar testing. However, no significant difference was observed in self-management practices between the intervention and control groups prior to intervention ($p > 0.05$), (Table 2).

There were significant difference between intervention and control groups in laboratory blood glucose monitoring ($\chi^2 = 18.383$, $p = 0.001$); greater

Table 3: Comparison of participant's self-management practices between intervention and control groups in some other self-care activities prior to intervention.

Selfcare activities	Responses	Group				
		Exp	Control	Total	χ^2	p-val
How often participants go to lab to monitor blood glucose	Have not gone	151 (76.3)	105 (57.1)	256 (67.0)	18.383	0.001*
	Once every 3 months	9 (4.5)	21 (11.4)	30 (7.9)		
	Once every 6 months	3 (1.5)	10 (5.4)	13 (3.4)		
	Has not been prescribed by doctor	35 (17.7)	48 (26.1)	83 (21.7)		
	Total	198 (51.8)	184 (42.8)	382 (100%)		
Regular check of BP	Yes	124 (62.6)	96 (52.2)	220 (57.6)	4.266	0.039*
	No	74 (37.4)	88 (47.8)	162 (42.4)		
	Total	198 (51.8)	184 (42.2)	382 (100%)		
How often participants Check their BP	Once or more per week	103 (52.0)	82 (44.6)	185 (48.4)	4.721	0.193
	Once a month	73 (36.9)	68 (37.0)	141 (36.9)		
	Once in 6 months	5 (2.5)	9 (4.9)	14 (3.7)		
	Once in a long while	17 (8.6)	25 (13.6)	42 (11.0)		
	Total	198 (51.8)	184 (42.2)	382 (100%)		
Last time participants check their BP	Within one week ago	108 (54.5)	90 (48.9)	198 (51.8)	1.383	0.709
	Over one month ago	61 (30.8)	61 (33.2)	122 (31.9)		
	check when I feel unwell	15 (7.6)	17 (9.2)	32 (8.4)		
	Cannot remember	14 (7.1)	16 (8.7)	30 (7.9)		
	Total	198 (51.8)	(42.2)	382 (100%)		
How often participants go for eye check	Once in 6 months	22 (11.1)	41 (22.3)	63 (16.5)	25.775	0.001*
	When the need arises	39 (19.7)	48 (26.1)	87 (22.8)		
	On appointment with Dr	37 (18.7)	8 (4.3)	45 (11.8)		
	Have no need for eye check	100 (50.5)	87 (47.3)	187 (49.0)		
	Total	198 (51.8)	184 (42.8)	382 (100%)		
Measures taken to prevent Hypoglycaemia	Do nothing	35 (17.7)	47 (25.5)	82 (21.5)	6.817	0.078
	Take glucose drink	84 (42.4)	82 (44.6)	166 (43.5)		
	Eat high carbohydrate diet	35 (17.7)	19 (10.3)	54 (14.1)		
	Consult health care provider	44 (22.2)	36 (19.6)	80 (20.9)		
	Total	198 (51.8)	184 (42.2)	382 (100%)		
Where participants normally go for Diabetes treatment	Trado-medical practitioners	-	5 (2.7)	5 (1.3)	11.35	0.010*
	Private hospital	38 (19.2)	23 (12.5)	61 (16.0)		
	Tertiary health institution	152 (76.8)	140 (76.1)	292 (76.4)		
	Primary Health Care center	8 (4.0)	16 (8.7)	24 (6.3)		
	Total	198 (51.8)	184 (42.8)	382 (100%)		
How often participants Go to hosp for diabetes consultation	Once in 3 months only	32 (16.2)	22 (12.0)	54 (14.1)	6.569	0.087
	Once in 6 months	6 (3.0)	16 (8.7)	22 (5.8)		
	Once per year	8 (4.0)	8 (4.3)	16 (4.2)		
	On appointment with Dr	152 (76.8)	138 (75.0)	290 (75.9)		
	Total	198 (51.8)	184 (42.2)	382 (100%)		

*Post intervention effect.

Table 4: Changes in the self-management practices between intervention and control groups 6-months post intervention (Pretest-Posttest).

Pre Test Rank	Post Test Rank											
	Grp	Poor (%)	Mod (%)	Good (%)	X ²	P-val	Grp	Poor (%)	Mod (%)	Good (%)	X ²	P-val
Selfcare	Exp	14 (7.1)	74 (37.4)	110 (55.6)	3.351	0.187	Exp	3 (1.5)	55 (27.8)	140 (70.7)	23.817	0.001*
	Contr	19 (10.3)	79 (42.9)	86 (46.7)			Contr	14 (7.6)	82 (44.6)	88 (47.8)		
	Total	33 (8.6)	153 (40.1)	196 (51.3)			Total	17 (5.5)	137 (35.9)	228 (59.7)		
Exercise	Exp	72 (36.4)	91 (46.0)	35 (17.7)	0.180	0.914	Exp	45 (22.7)	103 (52.0)	50 (25.3)	11.545	0.003*
	Contr	70 (38.0)	84 (45.7)	30 (16.3)			Contr	70 (38.0)	83 (45.1)	31 (16.8)		
	Total	142 (37.2)	175 (45.8)	65 (17.0)			Total	115 (30.1)	186 (48.7)	81 (21.2)		
Blood sugar Testing	Exp	76 (38.4)	55 (27.8)	67 (33.8)	0.415	0.813	Exp	64 (32.3)	71 (35.9)	63 (31.8)	5.417	0.144
	Contr	68 (37.0)	48 (26.1)	68 (37.0)			Contr	64 (34.8)	48 (26.1)	71 (38.6)		
	Total	144 (37.7)	103 (27.0)	135 (35.3)			Total	128 (33.5)	119 (31.2)	134 (35.1)		
Foot-Care	Exp	156 (78.8)	33 (16.7)	9 (4.5)	3.256	0.196	Exp	12 (6.1)	142 (71.1)	44 (22.2)	168.217	0.001*
	Contr	131 (71.2)	39 (21.2)	14 (7.6)			Contr	129 (70.1)	40 (21.7)	15 (8.2)		
	Total	287 (75.1)	72 (18.8)	23 (6.0)			Total	141 (36.9)	182 (47.6)	59 (15.4)		
Medication	Exp	2 (1.0)	20 (10.1)	176 (88.9)	3.013	0.222	Exp	1 (0.5)	11 (5.6)	186 (93.9)	0.087	0.957
	Contr	5 (2.7)	12 (6.5)	167 (90.8)			Contr	1 (0.5)	9 (4.9)	174 (94.6)		
	Total	7 (1.8)	32 (8.4)	343 (89.8)			Total	2 (0.5)	20 (5.2)	360 (94.2)		

*Post intervention effect.

proportions (76.3%) of participants from intervention group do not monitor their blood glucose in the laboratory every 3 months. Also, there was significant difference between the experimental and control groups on regular blood pressure check ($\chi^2 = 4.266$, $p = 0.039$). A good proportion (62.6%) of participants from intervention group regularly checked their blood pressure. There was significant difference between the groups in eye check up ($\chi^2 = 25.775$, $p = 0.001$) and in the use of tertiary health institution for the treatment of diabetes ($\chi^2 = 11.350$, $p = 0.010$); fewer proportion (11.1%) of participants from intervention group go for eye checkup once in every six months (Table 3).

Pretest results reveal no significant difference in self-management practices between the intervention and control groups. However, after educational intervention, a significant shift in mean rank from low to either moderate or high self-care was observed in the intervention group in the following self care practices: Diet ($\chi^2 = 23.817$, $P = 0.001$), Exercise ($\chi^2 = 11.545$, $P = 0.003$) and Foot-care ($\chi^2 = 168.217$, $P = 0.001$). No significant difference was observed between the groups in self blood sugar testing and medication 6-months post intervention (Table 4).

Discussion

Findings on self-management practices of the two groups prior to intervention revealed that a good number of participants had good self-care behavior in adherence to diet (51.3%) as well as in taking medication (89.8%). Self-management behavior of the intervention and control groups prior to educational intervention were similar, no statistically significant difference was observed in any of the domains of self care activity measurement between the two groups. This finding agrees with the findings of Zahra, Batool and Elahe [20], in which no significant difference was observed between the two groups before intervention. However, 6-months after educational intervention, significantly higher mean rank scores was observed in the intervention group in the diet domain, exercise and foot-care domains respectively. Significant proportion of intervention group participants had good self-care behavior in adherence to diet, improved markedly in exercise and foot-care practices. No significant difference was observed between the two groups in self blood sugar testing and medication. These findings concur with the findings of Reisi, Javadzade, Sharifirad, Mostafavi, Tavassoli & Imanzad [21], where significant difference was observed in intervention group in the diet, physical activity and foot-care domains of self-care, and no significant difference was observed in blood sugar testing and medication after intervention. This implies that notwithstanding the differences in study locations and the populations involved in the different studies, educational intervention had similar effect on the self-management practices of the various diabetic populations.

The findings in this study on the effect of educational intervention on diet and exercise domains also concurs with the findings of Nazli, Tanju and Kenan [22], but it contradicts their findings on regular self blood sugar monitoring among their participant. In this study, the researcher observed no significant difference on daily self blood sugar testing in both groups 6-months post intervention. This lack of difference in blood sugar testing after intervention may be attributed to the fact that majority of the participants both from control (81.5%) and intervention (80.8%) groups were still on oral hypoglycemic drugs during post test period and they complying with their medication as prescribed by their physicians.

On other aspects of self management practice, significant difference was observed between the two groups on regular check of blood pressure, a good number of participants from intervention group monitor their blood pressure regularly. This finding contradicts that of Nazli, Tanju and Kenan [22] who observed no significant difference between intervention and control groups of their study participants on regular blood pressure check before and after intervention ($p = 0.797$ & 0.790 respectively). On the other hand, findings in this study on measures of preventing hypoglycemia agrees with the findings of Nazli, Tanju and Kenan [22] in which no significant difference was observed between the groups before and after intervention. It is possible that the participants (both groups) are getting adequate information on diabetes prevention measures from their various health clinics.

The result further revealed significant difference between the two groups in eye check up, fewer proportions of individuals from intervention group went for eye check up every six months as recommended. Significant difference was also observed between the intervention and control groups in the use of tertiary health institution for the treatment of diabetes ($\chi^2 = 11.350$, $p = 0.010$); more participants (19.2%) from intervention and fewer (8.7%) from control groups use private hospital and Primary Health Center respectively for DM consultation. This implies that some diabetic persons still access care from diverse health institutions other than specialist hospital where endocrinologists are usually found; this behavior may affect the information they receive on diabetes self-care. However, no significant change was observed on other aspects of self management practices, 6-months post intervention. This may imply that participants in this study may need to be given more time for the expected change in behavior to take place.

Conclusion

Findings from this study suggest that educational intervention had positive effect in improving self-management practices of persons with type 2 diabetes.

Recommendation

Healthcare workers particularly nurses, doctors and health educators should take diabetes education very serious as well as having it included in all diabetics care plans.

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Conflict of Interest

None.

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The Summary of Diabetes Self-Care Activities Scale (SDSCA)

The questions below ask you about your diabetes self-care activities during the past 7 days. If you were sick during the past 7 days, please think back to the last 7 days that you were not sick.

Days of performance of self-care

S/N	SELF CARE ACTIVITIES	0	1	2	3	4	5	6	7
	DIET								
1	On how many of the last SEVEN DAYS have you followed a healthful eating plan?								
2	On how many of the last SEVEN DAYS did you eat five or more servings of fruits and vegetables?								
3	On how many of the last SEVEN DAYS did you avoid sugars, sweets and sweetened foods or drinks								
4	On how many of the last SEVEN DAYS did you reduce your intake of fried foods, high fat foods like red meat or full-fat dairy products?								
	EXERCISE	0	1	2	3	4	5	6	7
5	On how many of the last SEVEN DAYS did you participate in at least 30 minutes of physical activity? (Total minutes of continuous activity, including walking around your house/compound).								
6	On how many of the last SEVEN DAYS did you participate in a specific exercise session (such as swimming, walking, biking) other than what you do around the house or as part of your work?								
7	On how many of the last SEVEN DAYS were you involved in activities such as farming, cleaning the house, washing clothes and doing other household chores								
	BLOOD SUGAR TESTING	0	1	2	3	4	5	6	7
8	On how many of the last SEVEN DAYS did you test your blood sugar?								
9	On how many of the last SEVEN DAYS did you test your blood sugar the number of times recommended by your health care provider?								
	FOOT CARE	0	1	2	3	4	5	6	7
10	On how many of the last SEVEN DAYS did you inspect the inside of your toes?								
11	On how many of the last SEVEN DAYS did you wash your feet?								
12	On how many of the last SEVEN DAYS did you soak your feet?								
13	On how many of the last SEVEN DAYS did you dry between your toes after washing?								
	TAKING OF MEDICATION	0	1	2	3	4	5	6	7
14	On how many of the last SEVEN DAYS, did you take your recommended diabetes medication?								
15	On how many of the last SEVEN DAYS did you take your recommended insulin injection?								
16	On how many of the last SEVEN DAYS did you take your recommended number of diabetes oral drugs?								