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Types of Self-Care Recommendations Given for Adults with Type 2 Diabetes Mellitus, Attending a Diabetic Clinic in a Selected Teaching Hospital, Sri Lanka

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ABSTRACT

Type 2 Diabetes Mellitus (T2DM) is a worldwide health problem and a significant issue in Sri Lanka. Self-care recommendations on diabetes self-care activities for patients with T2DM are vital parts of the clinical management of diabetes. There is a paucity of data regarding the types of self-care recommendations given by healthcare professionals for patients with T2DM in Sri Lanka. A descriptive cross-sectional study was conducted among purposively selected adults with T2DM (n=300)to determine the types of self-care recommendations given by healthcare professionals. Data were analyzed using descriptive statistics. Ethical approval was granted from the Ethics Review Committees of the Faculty of Medical Sciences and the Sri Jayewardenepura General Hospital. Types of self-care recommendations were assessed by using a pre-tested diabetes self- care activities questionnaire, which includes recommendations regarding diet, physical activities (PA), self-monitoring of blood glucose (SMBG) and testing urine for sugar. Out of 300 participants, the majority (68.7%) were female. From the participants, more than half (52.7%) had good glycaemia control (FBS≤ 126 mg/dl). Most of the participants (99.3%) received at least a single recommendation regarding their diet. Less than half (39%) of the adults have received all the recommendations regarding their PA from the list. Majority of the adults (73.3%) have received recommendations to get exercise such as walking and jogging daily. Of the sample, 67% received a recommendation to use a glucometer to self-monitor their blood glucose levels. Self-care recommendations were not significantly associated with glycaemia control. The health professionals need to provide more health education for adults with T2DM to maintain their self-care activities regularly.

KEYWORDS: *Type 2 diabetes, Self-care, Recommendations, Sri Lanka*

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1 INTRODUCTION

Type 2 Diabetes Mellitus has become a worldwide epidemic that touches above 377 millions individuals globally, with a projected total number of cases increase to a frightening 642 million people by 2040 (Ogurtsova *et al*., 2017). Most patients with T2DM live in low- and middle-income countries and this prevalence will increase within the upcoming twenty years (Guariguata *et al*., 2014). Dietary modifications, physical activities, Self-Monitoring Blood Glucose (SMBG) and testing urine for reducing substances have a promising effect on glycaemic control (D'Souza *et al*., 2017). Further, a better diet, medication, exercise, foot care practices have an impact on glycemic control (D'Souza *et al*., 2017). As there is no cure for diabetes, self-care recommendations which lead to self-care activities are promising activities to blood sugar control among patients with T2DM. However, improving diet, physical activities, Self-Monitoring Blood Glucose (SMBG) and testing urine for sugar have an effect on glycemic control (D'Souza *et al*., 2017). Therefore, in the absence of a cure for diabetes, self-care recommendations related to diet, physical activities, Self-Monitoring Blood Glucose (SMBG) and testing urine for sugar should be encouraged, in compliance with the treatment regimens, to improve patients' sugar control, and family members should be advised of their crucial part in supporting patients' glycaemic control (Howteerakul *et al*., 2007).

This study was conducted to identify the types of self-care recommendations given by the health care team for adults with T2DM.

Diabetes self-care recommendations and education have been reported to improve the glycaemic control measured by glycated haemoglobin (HbA1c) by as much as 1% in patients with T2DM (Steinsbekk *et al*., 2012). Besides this vital reduction, diabetes self-care recommendations, education and support have shown a positive impact on other clinical as well as psychosocial, and behavioural aspects of diabetes. Moreover, according to the evidence, diabetes self-care reduces the onset as well as the progression of diabetes complications (Diabetes Control and Complications Trial Research Group,1993; Stratton, *et al*., 2000). Furthermore, diabetes self-care supports to increase behaviors such as having a healthy diet and doing regular physical activity (Toobert *et al*., 2011)

However, despite verified benefits and general acceptance, the numbers of patients who are referred to and who received self-care recommendations are undesirably small (Powers *et al*., 2017).

2 RESEARCH METHODOLOGY

2.1 Study design and study setting

This study was a descriptive cross-sectional study, and 300 adults with T2DM who have registered in the diabetes clinic at Sri Jayewardenepura General Hospital (SJGH) were recruited.

SJGH is a semi-government hospital situated in Colombo. The Diabetic clinic is held only on Wednesdays and Thursdays.

According to their data, around 30 T2DM patients attend sessions per clinic.

2.2 Study population

Patients attending the diabetic clinic at SJGH with a diagnosis of T2DM were included in the study. A minimum duration of a 6-month diagnosis was regarded as inclusion criteria, considering the time needed by a newly diagnosed patient to adapt to the illness and to practice diabetes self-care. Patients who were diagnosed with T2 DM and had cognitive impairment were excluded.

2.3 Sampling method and sample size

Purposive sampling was used. According to clinical statistics, usually 60 patients

attend the clinic per week. Based on the inclusion and exclusion criteria, the purposive sampling method was used. The sample size was 300.

2.4 Data collection instrument

A questionnaire administered by an interviewer was used to collect data. The questionnaire has four parts as follows: Part A: sociodemographic questions, part B: diabetes related information and part C: types of self-care recommendations given for the patients and Part D: revised version of self-care recommendations (with the permission of the author).

The questionnaire was initially created in English and translated into Sinhala, back translated into English. The two versions of English questionnaires were compared with an expert to ascertain whether any error occurred during the translation process. Among 10 patients with T2DM, the Sinhala version of the questionnaire was pre-tested to determine comprehensibility, feasibility, acceptability and appropriateness, and these participants were not included into the study proper.

2.5 Data collection and Ethical considerations

Ethical approval was obtained from the Ethics Review Committee of the Faculty of Medical Sciences University of Sri Jayewardenepura as well as from the Ethics Review Committee of SJGH. Further permissions were taken from the consultant and nurse in charge of the diabetic clinic. Without disturbing the clinic routine, a convenient time for participants was used for data collection. The written informed consent was obtained after explaining about the study with the information sheet. Then an interviewer-administered questionnaire was used to collect data from subjects who consented to participate. The questionnaire was completed in less than 20 minutes. All the participants were informed adequately before the study, and the information was collected anonymously. To maintain the anonymity of data, names and patients' registration numbers were not obtained in the data collection procedure. All the participants were informed that confidentiality and privacy will be ensured during all steps of the study. Hence, all the participants had the right to avoid the participation at any time of the study. All data collected were considered as private and confidential. Anonymity was maintained. The data was

only used for research purpose. All data were stored in a password secured file, which could be accessible by the investigator and supervisor.

2.6 Data analysis

By using descriptive statistics, sample characteristics were analyzed. SPSS (Statistical Product and Service Solutions) 20.0 version was used for the analysis. The association between Self-care Recommendations with Glycaemic control was tested by using Pearson's Chi-squared test. Results were presented by using descriptive statistics, including graphical methods and percentages. A confidence value of 95% and the probability of <0.05 was considered statistically significant for all tests.

3 RESULTS & DISCUSSION

Socio-demographic characteristics of adults with T2DM are presented in Table.1. Three hundred adults with T2DM participated in this study. There were 206 (68.7%) female participants. One hundred and forty-three (47.7%) from the participants were in 50-64 age group. Sixty-seven (22.3%) participants were in the 65-70 age group, and there were few (2.7%) young people in the 18-29 age group. Two hundred and fifty-three (84.3%) were married, and only 10 (3.3.%) were single. Considerable number of (34%) participants was educated up to ordinary level. More than half (51.3%) were educated up to Advanced Level or above. One hundred and thirty-nine 139 (46.3%) were housewives, and 84 (28%) were retired.

Table 1. Socio-demographic characteristics of adults with T2DM (*n* = 300)

Characteristics	**Frequency**	**Per cent (%)**
Gender		
Male	94	31.3
Female	206	68.7
Age (years)		
18-29	8	2.7
30-49	59	19.7
50-64	143	47.7
65-70	67	22.3
≥ 71	23	7.7
Ethnicity		
Sinhala	273	91.0
Tamil	13	4.3
Muslim	12	4.0
Burgher	2	0.7
Educational status		
Not attained to the school	1	0.3
Grade 1-5	3	1.0
Grade 6-10	40	13.3
Ordinary level	102	34.0
Advanced level	99	33.0
Higher education	55	18.3
Marital status		
Single	10	3.3
Married	253	84.3
Other	37	12.3
Occupation		
Housewife	139	46.3
Retired	84	28.0
Professional	21	7.0
Vendors & sellers	21	7.0
Technical & clerical	13	4.3
Skilled manual workers	12	4.0
Unskilled manual workers	5	1.7
Unemployed	5	1.7

3.1 Diabetes-related information of adults with T2DM.

Clinical characteristics of adults with T2DM are presented in Table 2. Among the participants 134(44.7%) had been diagnosed with T2DM for 2-10 years. Most of the adults (73%) had a family history of diabetes. More than half (52.7%) from the participants had a good fasting blood glucose level (≤ 126 mg/dl) while the majority (75.7%) demonstrated poor HbA1c value (≥7%). Two hundred and sixteen (72%) controlled their blood glucose levels using oral hypoglycemic agents.

Table 2. Diabetes related information of adults with T2DM (n = 300)

Characteristics	Frequency	Per cent (%)
Duration of diabetes		
6–12 months	11	3.7
>1–2 years	30	10
>2–10 years	134	44.7
>10 years	125	41.7
Family history of Type 2 diabetes mellitus		
Yes	219	73
No	80	26.7
Do not know	1	0.3
HbA1c value.		
Good Control< 7%	73	24.3
Poor control. ≥ 7%	227	75.7
Fasting blood sugar value.		
Good Control ≤ 126 mg/dl	158	52.7
Poor control > 126 mg/dl	142	47.3
Medication		
Oral pills only	216	72.0
Oral and Insulin	71	23.7
Insulin only	13	4.3

3.2 Self-care recommendations regarding diet

All most all (99.3%) adults have received at least a single point of advice regarding their diet from the list of health education advice that is mentioned in Table 3. The same percentage of adults received advice to eat very little sweets (for example desserts, non-diet sodas, candy bars). Fourteen percent from the adults did not receive advice to follow a low-fat eating plan and 14.3% did not receive recommendations to reduce the number of calorie consumption to lose weight. A considerable number of adults (69.7%) received advice regarding their diet.

Table 3: Self-care Recommendations regarding diet (*n* = 300)

Self-Care Recommendations - Diet	**Yes**	**%**	**No**	**%**
1. Consume a less-fat eating plan	258	86	42	14
2. Consume a complex carbohydrate (grains, vegetables) diet	272	90.7	28	9.3
3. Eat more food high in dietary fibre	271	90.3	29	9.7
4. Eat more (at least five servings per day) fruits and vegetables	275	91.7	25	8.3
5. Eat very little sweets (for examples: candy bars, desserts, carbonated drinks)	298	99.3	2	0.7
6. Healthcare team did not provide any advice on my diet	2	0.7	298	99.3
7. Received all of the above advice (1-5)	209	69.7	91	30.3

3.3 Self-care recommendations regarding physical activities

One hundred and seventeen (39%) adults have received all of the above advice regarding their physical activities from the list of health education advice that is mentioned in Table 4. Forty-nine (16.3%) adults have said that they have not been given any self-care recommendation about exercise by their health care team. Large (73.3%) number of adults have received the advice to exercise, such as walking and jogging daily.

Table 4: Self-care recommendations regarding physical activities (*n* = 300)

Self-care Recommendations - Physical activities.	**Yes**	**%**	**No**	**%**
1. Get low-level exercise (such as walking) on a daily basis.	220	73.3	80	26.7
2. Exercise continuously for at least 20 minutes at least 3 times a week.	201	67	99	33
3. Fit exercise into your daily schedule (for example, use stairs instead of elevators/when travelling home by bus, get off from the prior bus stop closer to your house and walk that distance)	183	61	117	39
4. Engage in a specific amount, type, duration and level of exercise. (walking, swimming, cycling)	185	61.7	115	38.3
5. I have not been given any advice about exercise by my health care team.	49	16.3	251	83.7
6. Received above all of the advice (1-4)	117	39.0	183	61.0

3.4 Self-care recommendations regarding SMBG and testing urine for sugar.

201 (67%) participants have received advice to use a glucose meter to measure blood sugar level (SMBG) while 3% received advice to test urine to measure the sugar level in urine.

Table 5. Self-care Recommendations regarding self-monitoring blood and Testing urine for sugar (n = 300)

Self-Care Recommendations - self-monitoring blood and Testing urine for sugar.	**Yes**	**%**	**No**	**%**
1 Use a glucose meter to measure blood sugar level (SMBG).	201	67.0	99	33.0
2 Test urine to measure the sugar level in urine.	9	3.0	291	97.0
3 I have not been given any advice either about using a glucose meter to measure blood sugar level or about testing urine to measure the sugar level in urine.	99	33.0	201	67.0
4 All advice Received above all advice (1-2).	9	3.0	291	97.0

3.5 Association of self-care recommendations with glycaemic control

Associations of self-care recommendations and glycaemic control are shown in Table 6. Accordingly, none of the self-care recommendation categories were found to be significantly associated with glycaemic control.

Table.6 Association of self-care recommendations with glycaemic control (n = 300).

	Glycaemic control (HbA1c)					**Glycaemic control (FBS)**				
	Good Control < 7%	**Poor control ≥7%**	**OR**	**95% CI**		**Good Control ≤ 126 mg/dl**	**Poor control > 126 mg/dl**	**OR**	**95% CI**	
				Lower	**Upper**				**Lower**	**Upper**
Diet										
Received all advice	54	155	1.32	0.73	2.39	116	93	1.46	0.89	2.39
Not received all advice	19	72				42	49			
Physical Activities										

Received all advice	35	82	1.63	0.96	2.78	61	56	0.97	.61	1.54
Not received all advice	38	145				97	86			
SMBG (Use Glucose meter)										
Received advice	47	154	.86	0.49	1.49	107	94	1.07	.66	1.73
Not received advice	26	73				51	48			

According to the current study, 39% of participants have received all of the self-care recommendations related to the PA mentioned above. A Sri Lankan study of 453 patients with T2DM showed that nearly 80 % of adults were advised on the importance of physical activities while their knowledge about physical activities was comparatively low (58.3%) (Kumara and Siriwardena, 2016). In this study, self-care recommendations were not significantly associated with glycaemic control. This may be due to the availability of free health care services. However, Saleh *et al*., (2017) have identified an improved scenario after providing the self-care recommendations to the patients: they could find significant improvement in monitoring the blood-glucose level, by performing physical exercise and practicing foot care activities, and by cross-checking over the diabetes guidebook of patients after health education sessions.

4 CONCLUSION & RECOMMENDATIONS

There was a lack of self-care recommendations received by the patients related to physical activity when compared to the self-care recommendations received related to the diet. There is a need for an awareness program on diabetes self-care recommendations that emphasise the importance of regular physical activities for patients with T2DM. Diabetic health educators should emphasize further the need for regular physical activity to control glycaemic levels among patients with T2DM.

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