biology and life sciences forum

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Proceeding Paper

Exploring Self-Care Management Practices among Patients Diagnosed with Type 2 Diabetes Mellitus (T2DM) at District General Hospital in Chilaw, Sri Lanka

G. R. I. K. Gamlath[1], O. M. I. Jayalath[1], S. M. S. N. K. Samarakoon[1], M. D. M. Shrimali[1], I. M. N. D. Iriyagolla[1], H.G.A.S. Samarasinghe[2], H. M. C. R. K. Thilakarathna[1] and T.D. Amarasekara[3]

[1] Faculty of Nursing, KIU, Battaramulla, Sri Lanka; chamani@kiu.ac.lk
[2] Department of Medical Science in Acupuncture, KIU, Battaramulla, Sri Lanka; amal@kiu.ac.lk
[3] Faculty of Allied Health Sciences, University of Sri Jayewardenepura, Sri Lanka; thamaraamarasekara@yahoo.com
* Correspondence: H.G.A.S. Samarasinghe; amal@kiu.ac.lk/amalsudaraka@gmail.com; Tel.: +94 704018144

Abstract: This study addresses the global challenge of effectively managing diabetes through self-care practices, including medication adherence, exercise, blood glucose monitoring, foot care, and diet. The research aimed to evaluate self-care practices among type 2 diabetic patients, using the validated Summary of Diabetes Self-Care Activities scale (SDSCA), and to analyze associations with age, gender, education, and socioeconomic status. The cross-sectional study was conducted at District General Hospital Chilaw, Sri Lanka, and involved 187 participants. Data analysis employed SPSS version 25. Results highlighted suboptimal self-care behaviors and medication adherence, emphasizing the need for integrated interventions to enhance knowledge and self-care among "Type 2 Diabetes Mellitus" patients.

Keywords: diabetes management, self-care practices, medication adherence

Citation: Lastname, F.; Lastname, F.; Lastname, F. Title. *Biol. Life Sci. Forum* **2022**, 2, x. https://doi.org/10.3390/xxxxx

Academic Editor: Firstname Lastname

Published: date

1. Introduction

Diabetes mellitus is a metabolic disorder marked by chronic hyperglycemia, affecting millions worldwide (Chinnappan *et al*., 2020) and the World Health Organization recognizes Type II Diabetes Mellitus (T2DM) as the third leading cause of premature mortality worldwide, underscoring its status as a major global health risk with projected increases in both developing and developed countries by 2030 (WHO,2022). In Sri Lanka, "Type 2 Diabetes Mellitus" (T2DM) is highly prevalent, primarily driven by multifactorial causes, including diet, physical inactivity, and obesity, while autoimmune type-1 diabetes is rare (Ranasinghe *et al*., 2015). Effective self-care practices in diabetes management encompass behaviors like regular monitoring of blood glucose levels, medication adherence, balanced diet, exercise, and health checkups, which significantly influence glycemic control, complications prevention, and cardiovascular risk reduction (Paudel et al., 2022).

Self-care encompasses individual actions taken within their specific environmental context (Orem, 1995). Efficient and consistent healthcare interventions, especially through regular follow-up, play a pivotal role in mitigating long-term complications associated with chronic diseases such as diabetes(Shrivastava et al., 2013;Yan Lu et al., 2016). The American Association of Clinical Endocrinologists and the World Health Organization both stress the pivotal role of patient education and active involvement in diabetes care (American College of Endocrinology, 2002; Hendra & Sinclair, 1997)). This study aimed

to examine self-care management practices among patients with T2DM in a District General Hospital in Sri Lanka.

2. Methods

This descriptive cross-sectional study was conducted at the diabetic clinic of District General Hospital Chilaw in Sri Lanka. The study was conducted with the approval of the KIU Ethic Review Committee (KIU/ERC/23/095), and additional permission was obtained from the Director of the District General Hospital in Chilaw, Sri Lanka. Stratified random sampling was employed to select a sample of 187 voluntary participants with T2DM for this study, with the sample size determined using the formula proposed by (Yamane,1967). The inclusion criteria for this study encompassed Type 2 diabetes mellitus patients aged 18 years or older, who were diagnosed at least 6 months prior and were currently attending the diabetic clinic for regular check-ups. The study employed the Summary of Diabetes Self-Management Questionnaire (DSMQ) (Toobert & Glasgow, 1994; Toobert et al., 2000)and an established analogous scale explained by (Schmitt *et al*., 2013) and adapted into three languages (Sinhala, English, and Tamil) for the questionnaire. Data was entered and analyzed using SPSS ver. 25 software.

3. Results

The current study was investigated by several key factors related to the self-care practices of 187 participants. Demographically, it was shown in Table 1 that the majority of the participants were female (80.9%, n=152). The age distribution revealed that 80.21% (n=150) were belonged to above 45 years. Furthermore, (n=43) 22.90% were illiterate and primary education was the most common educational attainment, comprising 29.8% (n=56) of the participants, as mentioned in Table 1. This indicated the need for more interventions regarding self-care and self-management educations by the healthcare professionals. In addition to that, the majority of patients were unemployed (n=93), 49.73%, and belonged to a lower socio-economic status (n=92), 49.20%.

Table 1. Demographic Features of the Study Sample.

Parameter	Frequency	Percentage
Age		
18-25 years	2	1.10%
26-35 years	5	2.70%
36-45 years	30	16.00%
46-55years	49	26.10%
56-65years	67	35.60%
66-75years	34	18.10%
Gender		
Male	152	80.90%
Female	35	18.60%
Educational Level		
Illiterate	43	22.90%
Primary education	56	29.80%
Secondary education (GCE O/L)	42	22.30%
Tertiary education (GCE A/L)	46	24.50%
Occupation		
Unemployed	93	49.73%
Unskilled	48	25.67%
Semiskilled	21	11.23%
Skilled	24	12.83%

Clerical	1	0.53%
Executive/professional	0	0.00%
Socioeconomic status		
Upper	0	0.00%
Upper middle	10	5.35%
Lower middle	26	13.90%
Upper lower	59	31.55%
Lower	92	49.20%
Religion		
Buddhist	31	16.58%
Hindu	24	12.83%
Catholic/Christian	83	44.39%
Muslim	49	26.20%
Marital status		
Married	175	93.58%
Unmarried	12	6.42%

The clinical profile of the study participants is given in Table 2. Regarding the duration of living with T2DM, the majority (51.1%, n=96) had been diagnosed for 1-5 years. It was observed that the majority had not received (n=113), 60.10%, self-management education. The study results showed that in terms of Body Mass Index (BMI), the majority (61%, n=114) of participants had a BMI greater than 25 kg/m2.

Table 2. Clinical Overview of the Participants.

Parameter.	Frequency	Percentage
Duration of diabetes mellitus		
Less than 1 year	39	20.70%
1-5 year	96	51.10%
5-10 year	32	17.00%
Greater than 10 year	20	10.60%
Self-management education		
Yes	74	39.40%
No	113	60.10%
Body mass index (BMI)		
Underweight(<18.49)	30	16.04%
Normal(18.5-22.9)	19	10.16%
Overweight(23-24.9)	24	12.83%
Obese (>25)	114	60.96%

When considering the prevalence of self-care practices among the study participants, the self-care activities were assessed using the Diabetes Self-Care Activities Questionnaire, as indicated in Table 3. Participants were asked to assess their diabetes self-care activities over the past 7 days. In cases where they had been ill during that period, they were instructed to recall the last 7 days when they were not sick. The investigation revealed that over the past week, 23.4% (n=44) of individuals reported a lack of adherence to a healthful eating plan, with 29.3% reporting adherence for just one day. Only 1.1% (n=2) of participants reported adherence to a healthy eating plan for a maximum of 5 days. When queried about their average adherence to an eating plan over the past month, 33% (n=62) noted that they had not followed it on any day.

Furthermore, when considering the past month, the average adherence to an eating plan by the patients was observed as follows: only one day (n=18), 9.6%; only 2 days (n=25), 13.3%; 3 days (n=38), 20.2%; 4 days (n=28), 14.9%; 5 days (n=10), 5.3%; 6 days (n=6), 3.2%; and no one followed it for all 7 days when considering the average of the past month.

When queried about the frequency of high-fat food consumption, including meat and full-fat dairy products, over the preceding seven days, 13.90% (n=26) of respondents reported the consumption of high-fat foods on all seven days. Additionally, 78.10% (n=146) of participants indicated that high carbohydrate foods, such as rice, wheat flour-based products, and sugary foods, were consumed by them on all seven days. For the consumption of five or more servings of fruits and vegetables in the last seven days, the following data were recorded: 18.71% (n=35) were reported as not adhering to this practice at all, with the majority of 19.79% (n=37) adhering to this practice for three days, and 18.18% (n=34) adhering for four days. Additionally, 17.65% (n=33) had consumed for five days per week. However, only 2.67% (n=5) were reported as consuming this amount for all seven days.

When examining daily physical activity levels, the study found that 25.13% (n=47) of the participants did not engage in any regular physical activities lasting at least 30 minutes during the past week. A mere 8.02% (n=15) were able to consistently maintain their engagement in physical activities for all seven days. In terms of vigorous physical activities per week, 26.20% (n=49) of the participants reported their involvement. However, only 0.54% (n=1) of the participants were discovered to engage in vigorous physical activities on a daily basis, going beyond their routine physical activity.

Blood sugar testing was carried out by 10.6% (n=20) of participants across the week. Additionally, 26.1% (n=49) of participants reported administering insulin shots one to two times daily, while 37.2% (n=70) utilized diabetes pills for sugar control. The self-care practices of the participants varied, with only 2.13% (n=4) exhibiting good self-care practices, 10.69% (n=20) scoring at a moderate level, and the majority (87.1%) demonstrating very poor self-care practices.

Within the field of foot care, a mere 10.70% (n=20) of the individuals within the study group were regularly inspecting their feet, while only 2.14% (n=4) chose not to participate in any form of foot care, as indicated in Table 3. Furthermore, it was observed that 39.40% (n=74) of the subjects were concurrently involved in smoking as well.

Table 3. The prevalence of self-maintenance routines in the research cohort.

Parameter	Frequency (Days)/Percentage (%)							
	None	**1**	**2**	**3**	**4**	**5**	6	7
Following a healthy diet plan per week	44(23.40)	55(29.30)	47(25.00)	28(14.90)	11(05.90)	2(1.10)	0	0
Consumption of high carbohydrate foods per week	0	0	0	02(01.07)	03(01.60)	15(08.02)	21(11.20)	146(78.10)
Consumption of high-fat foods per week	34(18.18)	9(04.81)	14(07.49)	22(11.76)	32(17.11)	25(13.37)	25(13.37)	26(13.90)
Consumption of fruits and raw vegetables per week	35(18.71)	6(03.21)	16(08.56)	37(19.79)	34(18.18)	33(17.65)	21(11.23)	5(2.67)
Feet examination per week	4(02.14)	11(05.88)	15(08.02)	23(12.30)	26(13.90)	46(24.60)	42(22.50)	20(10.70)
At least 30 min physical activities per week	47(25.13)	11(05.88)	24(12.83)	24(12.83)	31(16.58)	18(09.63)	17(09.09)	15(8.02)

Specific exercises per week	49(26.20)	33(17.65)	28(14.97)	31(16.58)	31(16.58)	13(06.95)	1(0.54)	1(0.54)
Blood sugar testing per week	58(31.02)	51(27.27)	45(24.06)	22(11.76)	08(04.28)	3(01.60)	0	0

In our investigation of the components comprising the Expanded Version of the Summary of Diabetes Self-Care Activities, we focused on the analysis of Self-Care Recommendations, which emanated from the multidisciplinary healthcare team, comprising medical professionals such as doctors, nurses, dietitians, and diabetes educators. Our findings reveal a spectrum of dietary advice provided to the participants: 14.9% (n=28) were encouraged to adhere to a low-fat eating plan, 12.2% (n=23) were advised to adopt a complex carbohydrate diet, 4.8% (n=9) were directed to reduce calorie intake for weight management, 3.2% (n=6) received counsel on consuming a higher quantity of dairy products, while 1.6% (n=3) were instructed to incorporate an abundance of fruits and vegetables. Similarly, 1.6% (n=3) were guided to limit their consumption of sweets. Notably, a substantial cohort of 48.4% (n=91) reported a lack of any dietary guidance from their healthcare team. Regarding exercise recommendations, 11.2% (n=21) were advised to engage in low-intensity exercise, 17.6% (n=33) were encouraged to partake in continuous exercise sessions lasting at least 20 minutes, a minimum of three times weekly, 13.3% (n=25) were prompted to integrate exercise into their daily routine, and a more detailed prescription, specifying the type, duration, and intensity, was provided to 22.3% (n=42) of the total sample.

5. Conclusion

This study highlighted the importance of self-care in managing T2DM. The research underscored demographic disparities in adherence to self-care practices, revealing gaps in diet, physical activity, and medication compliance. These findings emphasize the need for tailored interventions to enhance self-care behaviors, targeting specific demographic and socio-economic factors. As diabetes cases rise, addressing these gaps becomes crucial in improving disease management and preventing complications, ultimately enhancing the overall well-being of those affected.

Author Contributions:.

Funding:

Institutional Review Board Statement:

Informed Consent Statement:

Data Availability Statement:

Conflicts of Interest:

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