

# **Barriers and Facilitators of Glycemic Control of Patients With T2DM in Sri Lanka**

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## **Introduction**

Diabetes mellitus is an identified major public health problem in the world (International Diabetes Federation, 2013). Type 2 diabetes (T2DM) is increasing rapidly worldwide, placing a considerable burden on health care services and patients. In Sri Lanka, a developing country, there has been a significantly high prevalence of DM over the last few decades (Ministry of Health, Annual Health Bulletin, 2008). The national prevalence of DM is 10.3% (Jayawardene et al, 2012). Pinideniyapathirage et al., (2011) found that 76.1percent of the subjects had suboptimal control of diabetes with a mean fasting glucose level of 190mg/dl in a health area of the Western province of Sri Lanka.

## **Research Problem**

However, most previous studies have focused on assessing the prevalence of diabetes, complications of diabetes and poor glycemic control among people with diabetes in Sri Lanka, relying on biomedical aspects. The biomedical point of view is too narrow in scope to handle the complex nature of a chronic disease like diabetes. Hence different perspectives towards the disease are required in order to improve the outcomes (Block, 2006). In Sri Lanka, there is limited data available on how adults with T2DM control their glycemic levels. No data are available with regard to the perspectives of people with T2DM or health professionals treating them, including barriers, reasons and suggestions to enhance glycemic levels to normal levels.

## **Objectives of the Study**

- To determine the glycemic control and behavioral factors influencing it among adults with T2DM.

## **Research questions**

- What is the current situation of glycemic control among adults with T2DM in Sri Lanka?
- What factors affect glycemic control amongst adults with T2DM in Sri Lanka?

### Methodology

A descriptive study with qualitative data collection methods was used. Quantitative data were collected by survey among 230 adults with T2DM. Qualitative data were collected from health care personnel including focus group discussions with nurses (n=30), in-depth interviews with doctors (n=16), and adults with T2DM (n=17). Descriptive statistics and Chi-square tests were used to analyze quantitative data. Qualitative data were analyzed by using matrix analysis.

### Key Findings

There were more female participants (63.51%) than males (36.50%), with the mean age being 54.11 years (SD=10.97). Glycemic control among the majority of adults with T2DM (71.3%) was not adequate with the mean of 175.17mg /dl. Chi-square test was used to compare the difference between the glycemic control behavior and glycemic control. There was a statistically significant association between medication taking behavior and glycemic control (P <.05) (Table 1).

**Table 1: Glycemic Control among Adults with T2DM Categorized by Glycemic Control Behaviors (N=230)**

Behaviors	Glycemic Control		$\chi^2$	P-value
	Controlled	Uncontrolled		
Diet control				
Yes	50 (30.3%)	115(69.7%)	.737	.391
No	16(24.6%)	49 (75.4%)		
Exercise				

Yes	9(26.4%)	25 (73.6%)	2.56	.277
No	57(29.0%)	139 (71%)		
Taking medication regularly				
Yes	58(32.9%)	118 (67.1%)	6.64	.010
No	9(16.3%)	45 (83.7%)		

Findings from qualitative data revealed three themes: 1) barriers to glycemic control, 2) reasons for adequate glycemic control, and 3) suggestions to improve glycemic control (Table 2).

**Table 2: Themes Arising From Interviews with Health Care Personnel and Adults with T2DM**

<b>Barriers to Glycemic Control</b>	
<b>As Perceived by Health Care Personnel</b>	<b>As Perceived by Adults With T2DM</b>
Insufficient knowledge about the illness	Insufficient of knowledge about the illness
Nature of the illness	Nature of the illness
Blood sugar control and consequences	Blood sugar control and consequences
Low socioeconomic status	Low socioeconomic status
Inadequate income	Inadequate income
Low health literacy	
Lack of family support	Lack of family support
Lack of family caregiver	Poor support for having separate meal

	Poor support for follow up
Poor compliance to health advice	Poor compliance to health advice
Denial in accepting the disease	Fear about diabetic medicine
Fear about diabetic medicine	Having, a busy life
Lack of motivation	Lack of motivation
Having, a busy life	Having other diseases
Having stress	
Insufficient diabetes care	
Lack of staff	
Unavailability of medicine	
Lack of relevant investigations	
Lack of facilities	
Understand about the illness	Understand about the illness
Knowledge about the diet control	Knowledge about diet control
Taking medicine regularly	Taking medicine regularly
Doing follow up	Doing follow up
Sufficient family support	Sufficient family support
Adequate income and education	Adequate income and education
Sufficient living status	Sufficient living status
Adequate educational status	
Motivation to control	Motivation to control
Commitment to follow health advice	Commitment to follow health

	advice
Perceived risk	Positive thinking
Avoid by blaming	Perceived risk
<b>Suggestions to improve glycemic control</b>	
Improving knowledge about diabetes	Adhering to health advice
Using appropriate teaching strategies	Do diet control
Educating family members	Do exercise
Raising awareness about patient responsibility	Take medicine regularly
Enhancing motivation to diabetes control	Follow clinics regularly
Providing better diabetes care	
Improve facilities	
Increase number of trained health care personnel	
Improve doctor-patient relationship	

## Conclusion

Glycemic control among the majority of adults with T2DM in the study was not adequate. A number of barriers and reasons to glycemic control were perceived by both health care personnel and adults with T2DM. In the former, suggestions to improve glycemic control included improving knowledge about diabetes and providing better diabetes care. However, the implementation of these suggestions was impractical in the Sri Lankan health setting due to the large number of patients attending the diabetes clinic daily, and scarcity of trained health care personnel to deliver the above recommended diabetes care.

Health education is in the curriculum of nursing education. However, it should be restructured to include the importance of culturally appropriate health education for adults with T2DM in Sri Lanka. Nurse educators can apply the findings to influence the administrators to promote community health nursing and policies for nursing education. Primary health care nurse cadre positions are an important health care worker group that are still lacking in the country. Nurses and doctors need to provide more culturally appropriate health education and more organized care for adults with T2DM in order to improve their compliance to control glycemic levels.

Community nursing at a primary care level needs to be urgently implemented in Sri Lanka. This study highlights the need to establish this specialization serving the community at a primary care level in Sri Lanka.

At a broader level the total care package for people with T2DM requires major review, government support and policies to provide appropriate and culturally relevant care in Sri Lanka.

This study design can be used to conduct further research on knowledge, attitudes and practice among adults with non-communicable disease in Sri Lanka.

**Keywords:** Diabetes Mellitus; Glycemic Control

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