

Hindawi Publishing Corporation  
Journal of Diabetes Research  
Volume 2016, Article ID 9158943, 7 pages  
<http://dx.doi.org/10.1155/2016/9158943>



## Research Article

# Predictors of Diabetes Self-Management among Type 2 Diabetes Patients

Azylina Gunggu,<sup>1</sup> Chang Ching Thon,<sup>1</sup> and Cheah Whye Lian<sup>2</sup>

<sup>1</sup>Department of Nursing, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia

<sup>2</sup>Department of Community Medicine and Public Health, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia

Correspondence should be addressed to Chang Ching Thon; [ccthon@unimas.my](mailto:ccthon@unimas.my)

Received 12 April 2016; Revised 28 June 2016; Accepted 30 June 2016

Academic Editor: Marcus Pezzolesi

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Diabetes mellitus is a public health concern in Malaysia. Treatment of diabetes is costly and can lead to complications if disease is poorly controlled. Diabetes self-management (DSM) is found to be essential for optimal glycemic control. This cross-sectional study was conducted among samples from four randomly selected diabetes clinics in Sarawak, Malaysia. The aim was to determine the predictors for DSM. Face-to-face interview using questionnaire was used to collect data. Four hundred respondents with type 2 diabetes mellitus (T2DM) were recruited. Majority of the respondents were Sarawak Bumiputra (Iban and Bidayuh, 48.6%) and female (68.6%). The mean age was 58.77 years (SD = 11.46) and approximately half of the respondents (50.6%) had T2DM for six years (SD = 4.46). The mean fasting blood glucose (FBG) was 8.06 mmol/L (SD = 2.94), with majority (76.1%) having the level higher than 6.1 mmol/L. Multiple logistic regression tests showed significant linear relationship between DSM and belief in treatment effectiveness ( $p = 0.001$ ), family support ( $p = 0.007$ ), and self-efficacy ( $p = 0.027$ ). Health care personnel must convince patients with T2DM of the effectiveness of the treatment, empower and enhance their self-efficacy, and enlist the family support so as to ensure patients sustain their DSM efforts.

## 1. Introduction

As Malaysia progresses both socially and economically, noncommunicable diseases have also fast become its public health concern. One of these diseases is diabetes mellitus (DM). Malaysia burden of DM continues to increase between 2009 and 2012; Malaysia National Diabetes Registry registered a total of 653,326 patients diagnosed with T2DM. The prevalence of diabetes in Malaysia is projected to be 21.6% of its adult population by the year 2020 [1]. DM has been shown to be closely related to increased premature and preventable mortality, as well as macro- and microvascular complications such as heart disease, stroke, end-stage renal failure, blindness, and amputation. It is also very costly to treat patients with DM. A study in Malaysia showed that Ministry of Health Malaysia spent a calculated amount of RM386,531.21 for a 6-month period to manage DM [2]. The same study showed that estimated direct cost per patient was RM2,684.24 and for indirect cost RM1,062.88 annually.

To reduce the complications of DM and in turn the cost of treatment, it is important for patient to achieve good glycemic control. Good glycemic control can be measured by HbA<sub>1c</sub> test. A study found that a 1% reduction in HbA<sub>1c</sub> was associated with a 37% decrease in risk for microvascular complications and a 21% decrease in the risk of death related to diabetes [3]. Evidence from many previous studies shows that self-management training in T2DM is effective for short-term glycemic control [4]. Another study found that adherence to self-management is crucial in the overall management of diabetes and those who perform diabetes self-management (DSM) effectively achieve better short- and long-term health [5].

Sarawak, one of the states in East Malaysia, registered a total of 43,333 patients with T2DM during the period of 2009 to 2012 [1]. Out of those who had HbA<sub>1c</sub> test, 39.1% achieved the Malaysian glycemic treatment target of HbA<sub>1c</sub> <6.5%. The percentage of those who achieved the glycemic treatment target would even be lower if those who did not have HbA<sub>1c</sub>