UNIVERSITI TEKNOLOGI MARA

PEDOMETER DETERMINED PHYSICAL ACTIVITY LEVEL AND ITS ASSOCIATED FACTORS AMONG TYPE 2 DIABETES MELLITUS PATIENTS ATTENDING A UNIVERSITY PRIMARY CARE CLINIC

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Physical activity exerts many positive health benefits for patients with type 2 diabetes mellitus (T2DM). Exercise exerts an immediate effect of increasing insulin sensitisation while regular exercises reduce symptoms of depression and improved health-related quality of life, a common problem in those with T2DM. While there is extensive evidence on physical activity assessment among T2DM patients worldwide, however locally, there is a lack of objective physical activity measurement among Malaysian T2DM population. This study aims to assess the physical activity level based on average steps/day and its associated factors among T2DM patients attending a university primary care clinic.

A cross-sectional study was conducted between January 2017 and August 2017 in Primary Care Medicine Clinic, UiTM Selayang Campus. Using convenient sampling, patients who were more than 18 years old and was diagnosed with T2DM for least for six months were recruited. Information on sociodemographic characteristics, anthropometry measurements and related clinical data were recorded in a proforma. Patients were monitored of their regular daily physical activity using a pedometer, a wearable steps tracker for the whole day, starting from early morning get up until bedtime at night for seven consecutive days. Every patient was given detailed instruction on the handling of the pedometer and three reminders in the form of text messages or phone calls to remind them to wear the pedometer. A text message was given on day seven to remind them to return the pedometer on the day eight. Upon receiving the pedometer, the researcher read and record the number of steps taken for each day.

The average steps/day taken is obtained by averaging all steps taken over seven days. The mean value of step counts over seven days was 4049.33 ± 1421.15 steps/day (N=250). There are almost equal average steps taken on weekdays and weekends at 4073.74 ± 1556.52 and 4012.08 ± 1490.32 respectively. A total of 55 (22%) participants are active, and a more substantial proportion of 195 (78%) participants are inactive. Among those in the active category, 49 (19.6%) are low active at 5,000-7,500 steps/day, and 6 (2.4%) are somewhat active at ≥7,500 steps/day. Being physically active is significantly associated with being employed (AOR 2.30: 95% CI=1.19, 4.42, p-value=0.013), shorter duration of T2DM (AOR 0.89: 95%

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CHAPTER ONE:
INTRODUCTION

1.1 Background of the study

Physical activity produces long-term health benefits. People of all ages, sizes and physical abilities can benefit from being physically active. The definition of physical activity is any bodily movement produced by skeletal muscles that result in energy expenditure. Physical activity may include activities undertaken while working, playing, doing household activities, recreational and travelling (Caspersen, Powell, & Christenson, 1985).

Effective regular physical activity plays a vital role in the primary and secondary prevention of chronic diseases such as cardiovascular disease, diabetes, hypertension, cancer, obesity, osteoporosis and depression as well as preventing premature death (Warburton, Nicol, & Bredin, 2006).

Furthermore, research has demonstrated that sedentary behaviour results in negative consequences for physical and mental well-being (Warburton et al., 2006). Physical inactivity is the fourth leading risk factor for global mortality, which accounted for 6% of deaths globally, with high blood pressure being the highest contributor (responsible for 13% deaths globally), followed by tobacco use (9%) and diabetes (6%). Meanwhile, overweight and obesity is the fifth leading risk factor which responsible for 5% of global deaths (WHO, 2009). Physical inactivity is estimated to cause around 21-25% of breast and colon cancer burden, 27% of diabetes and about 30% of ischaemic heart disease burden (WHO, 2009).

Despite its numerous advantages, a global study showed rising physical inactivity rates in many countries. Physical inactivity will subsequently cause significant implications for the increasing prevalence of non-communicable diseases (NCDs) and the general health of population worldwide (WHO, 2010). In 2011, data from WHO estimated that 31.1% of adults failed to meet the minimum recommendations of physical activity, which represents approximately 1.5 billion population, which is increasing from 23% in the year 2010 (Hallal,