UNIVERSITI TEKNOLOGI MARA

AN EVALUATION OF MOBILE MEDICAL APPLICATIONS FOR DIABETES MELLITUS

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TABLE OF CONTENTS

APPROVAL
TITLE PAGE
ACKNOWLEDGEMENTS ii
TABLE OF CONTENTS iii
LIST OF TABLES v
LIST OF FIGURES vi
LIST OF PLATES vii
ABSTRACT viii

CHAPTER ONE: INTRODUCTION 1
1.1 Overview 1
1.2 Background of study 2
1.3 Problem Statements 3
1.4 Objectives of study 3
1.5 Research Questions 3
1.6 Significance of the study 4
1.7 Scope of study 4
1.8 Expected Outcome 4

CHAPTER TWO: LITERATURE REVIEW 5
2.1 Introduction 5
2.1.1 Diabetes Mellitus 5
2.2 Source of Literature 6
2.3 Review of Literature 6
2.3.1 Overview 6
2.3.2 Discussion 7

CHAPTER THREE: METHODOLOGY 11
3.1 Systematic review of previous literature about mobile medical applications for self-management of diabetes mellitus. 12
3.1.1 Search strategy 12
3.2 Review & quality assessment of selected mobile medical applications for diabetes self-management. 13
3.2.1 Inclusion criteria 13

ABSTRACT

Background: The concept of diabetes mellitus patient self-care, such as the use of mobile applications or "apps," has proved to be beneficial for patients. The concept of self-care is regarding the active involvement of patients in their own care and modifying their lifestyle behaviours. Recent evidence shows that the smartphone interventions may support diabetes self-management. However, the awareness among diabetic patients about the beneficial uses of mobile apps in diabetes mellitus self-management is still lacking and selecting the most appropriate apps for oneself would be challenging for patients, as there are numerous choices of apps available in the apps' store.

Objective: To evaluate the contents and features of mobile medical applications for diabetes self-management.

Methods: Two approaches of study design used were systematic review of previous literature about mobile medical applications for self-management of diabetes mellitus and quality assessment of the selected mobile medical applications.

Results: Previous literatures about mobile medical applications for self-management of diabetes mellitus were reviewed systematically according to the eight common contents provided in diabetes self-management mobile medical applications. From the eight common contents, there were seven self-monitoring contents provided by the mobile apps, which are self-monitoring blood glucose, self-monitoring weight, self-monitoring physical activity, self-monitoring diet, self-monitoring insulin, self-monitoring medication, and self-monitoring blood pressure. Another content is the education for diabetes self-management. There were 16% of the total diabetes apps found in Apple Apps Store and 7.72% of the total diabetes apps found in Google Play selected and scored according to eight features. The highest score obtained was five and the lowest was three.

Conclusion: The study has shown that there was a multitude of literatures proposed that the contents of diabetes mobile applications such as self-monitoring blood glucose and others are generally useful to both patients and health-care professionals. The interventions of smartphone in supporting self-care and monitoring blood glucose are found to be more beneficial than other computer-based tools. There were numerous choices of mobile applications for diabetes self-management in Apple Apps Store and Google Play, which offer variety of features for managing diabetes. Patients' choices of mobile applications as a platform in managing their diabetes condition can be narrowed down by considering the evaluated features of the mobile applications according to their personal preferences.

CHAPTER ONE

INTRODUCTION

1.1 Overview

The rising of smartphone users leads to the increase in diabetes mellitus management through mobile apps (applications). The smartphones' technology has brought the management of diabetes to the next level (Elea Carey, 2015). Based on an online survey with a time period from January to March 2014 and from January to March 2015, with 2,682 Respondents of 18 years and older, smartphone activities in Malaysia shows that 9 per cents of Malaysian smartphone users utilized their device as a health tracker. Despite the fact that there is broad literature body on the use of smartphone or mobile devices in diabetes self-management, current knowledge about good and useful contents and features in the diabetes mobile applications seems rather limited.

It has been shown that self-management in maintaining good control of diabetes mellitus can be improved with mobile phone interventions (Goh et al., 2015). The mobile apps utilization in the management of diabetes offer great potential to support therapy management, increasing the therapy adherence, as well as reducing the occurrence of accompanying and secondary diseases probability (Scheibe, Reichelt, Bellmann, & Kirch, 2015). Features of mobile applications for diabetes management which are simple to use, provides specific instructions for a better management, and