An Intervention Health Education Program for Type 2 Diabetic Patients at Ain Shams University Diabetes Out patient's clinic

Thesis

Submitted for Partial Fulfillment of M.D Degree in

Family Medicine

By

Asmaa Fathy Gebrel

M.B.,B.Ch

Master Degree in Family Medicine - Ain Shams University

Under Supervision of

Dr. Hoda Ibrahim Fahim

Professor of Community, Environmental
and Occupational Medicine
Faculty of Medicine-Ain Shams University

Dr. Mohamed Yehia El Awady

Professor of Community, Environmental
and Occupational Medicine
Faculty of Medicine-Ain Shams University

Dr. Essam Mohamed Bayomy

Professor of Internal Medicine, Gastroenterology and Hepatology
Faculty of Medicine-Ain Shams University

Dr. Amany Mohammed Sayed

Lecturer of Community, Environmental
and Occupational Medicine
Faculty of Medicine-Ain Shams University

Dr. Bassem Mourad Mostafa

Lecturer of Endocrinology at Endocrinology and Diabetes
Faculty of Medicine-Ain Shams University

Faculty of Medicine
Ain Shams University
2018

Curriculum Vita of the Researcher

Mastere Degree in Family Medicine, Ain Shams University MSc, and Grade: (B) Very Good, in May 2013

Bachelor's Degree, Faculty of Medicine, MUST University M.B.B.Ch, Grade: excellent, 2007

Internship as **House officer**, in Ain Shams University Hospitals from March 2007 till March 2008 in Surgery Hospital, Internal Medicine, Obstetrics & Gynecology, Pediatrics Hospital, and Accidents & Emergency Unit.

Demonstrator of family medicine at family and community medicine department, MUST university from November 2009 till September 2013.

Assistant lecturer of family medicine at family and community medicine department, MUST university from September 2013 till current date.

Acknowledgement

First of all, *thanks to* **Allah** *whose magnificent help was the main factor in completing this work.*

Words cannot express my deepest gratitude to ***Prof. Hoda Ibrahim Fahim,*** *Professor of community, Environmental, and Occupational medicine,Faculty of Medicine, Ain Shams University, who helped me throughout this work by training, precious instructions, valuable advices and scientific knowledge to accomplish such work.*

It has been a great honor for me to work under his generous supervision Great words really needed to express my gratitude, sincere appreciation and respect to ***Prof. Mohamed Yehia El Awady,*** *Professor of community, Environmental and Occupational medicine, Ain Shams University, for his great help, continuous support, and sincere advice during this work.*

I would also like to thank ***Prof. Essam Mohamed Bayomy,*** *Professor of Internal Medicine, Gastroenterology and Hepatology, Ain Shams University for his continuous encouragement, guidance and support.*

I would also like to thank ***Dr. Amany Mohammed Sayed,*** *Lecturer of community, Environmental, and Occupational Medicine, Faculty of Medicine, Ain Shams University for her kind supervision and support.*

I would also like to thank ***Dr. Bassem Mourad Mostafa,*** *Lecturer of Endocrinology at Endocrinology and Diabetes, Faculty of Medicine, Ain Shams University, for his help and support.*

I would also like to thank Prof. Mohsen Abdelhamid gadallah, Professor of community, Environmental, and Occupational Medicine, and Dr. Dina Nabeh Kamel, Assistant Professor Community, Environmental, and Occupational Medicine Dr. Rasha Saad Hossien, Lecturer of Community, Environmental, and Occupational Medicine Faculty of Medicine, Ain Shams University for their continuous encouragement.

I would also like to thank ***Dr. Diaa Marzouk*** *, the head of family medicine department Faculty of Medicine, Ain Shams University, for her great effort with all demestrators of family medicine.*

My sincere thanks to ***Dr. Caroline kamel*** *medical representative and* ***Dr. Bebawy Boulos*** *district manager at servier pharmaceutical company for their time and effort throughout all research*

I would also like to thank ***my dear patients*** *wishing them a good quality of life.*

Dedication

I would like to extend my deepest thanks to people who inspired me and supported me through out my entire life,

My Parents

To Everyone of You, My Life is Dedicated.

Contents

List of Abbreviations

Abbrev.	Meaning
A1C	: Haemoglobin A1c
ADA	: American Diabetes Association
CKD	: Chronic Kidney Disease
CrCl	: Creatinine Clearance
CVD	: Cardiovascular Disease
DCCT	: Diabetes Control and Complications Trial
DFU	: Diabetic Foot Ulcer
DKA	: Diabetic ketoacidosis
DM	: Diabetes Mellitus
DR	: Diabetic Retinopathy
FFA	: Free Fatty Acid
FPG	: Fasting Blood Glucose
GHB	: Gamma Hydroxybutyrate
GIP	: Glucose-Dependent Insulinotropic Peptide
GLP-1	: Glucagon-Like Peptide-1
HbA_{1c}	: Hemoglobin A1c
HCV	: Hepatitis C Virus
HHS	: Hyperglycemic Hyperosmolar Coma
IDF	: International Diabetes Federation
IFG	: Impaired Fasting Glucose
IGT	: Impaired Glucose Tolerance
JDS	: Japanese Diabetes Society
LA	: Lactic Acidosis
LEA	: Lower Extremity Amputation
LEAD	: Lower Extremity Arterial Disease
MENA	: Middle East and North Africa
MI	: Myocardial Infarction
MODY	:Maturity Onset Diabetes of the Young
NGSP	:National Glycohemoglobin Standardization
NICE	:National Institute for health and Care Excellence.

OGTT : Oral Glucose Tolerance Test
OHA : Oral Hypoglycemic Agents
PKC : Protein Kinase C
PN : Peripheral Neuropathy
PVD : Peripheral Vascular Disease
ROS : Reactive Oxygen Species
SDSCA : Summary of Diabetes Self-Care Activities
T2D : Type 2 Diabetes
T2DM : Type 2 Diabetes Mellitus
TZDs : Thiazolidinediones
UACR : Urine Albumin-to-Creatinine Ratio
WHO : World Health Organization

Introduction

Diabetes mellitus is a chronic disease caused by inherited and/or acquired deficiency in production of insulin by the pancreas, or by the ineffectiveness of the insulin produced. Such a deficiency results in increased concentrations of glucose in the blood, which in turn damage many of the body's systems or tissues, in particular the blood vessels and nerves **(WHO, 2018).**

The prevalence of DM worldwide is estimated to be 425 million and 8.8% of adults aged between 20-79 years, are estimated to have diabetes. By year 2045, 693 million people aged between 18-99 years, or 629 million of people aged between 20-79 years, are expected to have diabetes. In the middle East and North Africa region the prevalence of diabetes is estimated to be 9.6% and is expected to rise to 12.1% by 2045. In EGYPT about 8.2 milion people have DM and this is expected to be raised to 16.1 million by year 2045 **(IDF, 2017).**

In Northen Africa the prevalence of chronic diabetes complications ranged from 8.1% to 41.5% for retinopathy, 21% to 22% for albuminuria, 6.7% to 46.3% for nephropathy and 21.9% to 60% for neuropathy **(Bos and Agyemang, 2013).** In EGYPT about 42% of people with

diabetes experience early-stage eye disease and 5% of people diabetes are classified as blind **(IDF, 2015).**

Health education play an essential role in diabetes management, failure of attending education is held responsible for frequent re-hospitalizations, disease complications and poor life quality. Not surprisingly, these patients do not follow lifestyle modifications suggested by health care professionals or are reluctant to comply with the recommended medical guidelines and be actively engaged in self-managing their diabetes **(Kirkman et al., 2002).**

There are seven essential self-care behaviors in people with diabetes which predict good outcomes namely healthy eating, being physically active, monitoring of blood sugar, compliant with medications, good problem-solving skills, healthy coping skills and risk-reduction behaviors. All these seven behaviors have been found to be positively correlated with good glycemic control, reduction of complications and improvement in quality of life. Despite this fact, compliance or adherence to these activities has been found to be low, especially when looking at long-term changes **(Shrivastava et al., 2013).**

A patient centred approach focused on patients' needs, resources, values and coping strategies is a prerequisite for starting therapeutic patient education. This approach allows patients to improve their knowledge and skills not only concerning their illness but also their treatment. It is a commonly held view that varies according to several demographic and clinical parameters, such as age, socio-economic status, cultural background, personality, severity of disease, complications, prior experiences, level of understanding of instructions and acceptance of the disease **(Polikandrioti et al., 2011).**

Adherence which is defined as the extent to which a person's behavior in taking medication, following diet, and/or executing lifestyle changes corresponds with agreed recommendations from a health care provider **(WHO, 2003)**. Adherence plays an important role in glycemic control as it has been demonstrated that there is an inverse relationship between taking a prescribed OHA and HbA1c level, with each 10% increase in OHA adherence associated with a decrease of 0.1% in HbA1c **(Rozenfeld et al., 2008).**