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The Relation between Diabetes-Related Distress and Glycemic Control

Thesis

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in Internal Medicine**

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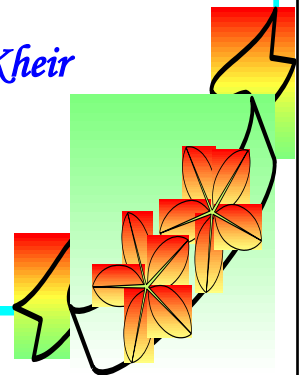


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Dedication

*I cannot give a word to fulfill my deepest love and thanks to **GOD** for lighting me the way not only throughout this piece of work but also throughout my whole life and for all the countless gifts I have been offered. Of these gifts, those people who were assigned to give me a precious hand to be able to fulfill this thesis and thanking a lot my **Parents** and my **Husband** for their great care throughout my life.*

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List of Abbreviations

<i>Abbr.</i>	<i>Full-term</i>
ADA	: American Diabetes Association
AGEs	: Advanced Glycosylation End Products
AIDS	: Acquired Immune Deficiency Syndrome
BDI-II	: Beck Depression Inventory II
BMI	: Body Mass Index
BRFSS	: Behavioral Risk Factor Surveillance System
CAD	: Coronary Artery Disease
CBT	: Cognitive Behavioral Therapy
DD	: Diabetes distress
DDS	: Diabetes distress screening scale
CHD	: Coronary Heart Disease
DALYS	: Disability Adjusted Life Years
DAN	: Diabetic Autonomic Neuropathy
DKA	: Diabetic Ketoacidosis
DM	: Diabetes Mellitus
DN	: Diabetic Neuropathy
DPN	: Diabetic Peripheral Neuropathy
DR	: Diabetic Retinopathy
DSM-IV	: Diagnostic And Statistical Manual Of Mental Disorders, Fourth Edition
ED	: Erectile Dysfunction
EPESE	: Hispanic Established Population For Epidemiologic Study Of Elderly
FBS	: Fasting Blood Sugar

FPG	: Fasting Plasma Glucose
GABA	: Gamma-Aminobutyric Acid
GADA	: Glutamic Acid Decarboxylase Auto-Antibodies
GDM	: Gestational Diabetes Mellitus
GFR	: Glomerular Filtration Rate
HbA_{1c}	: Hemoglobin A1C
HDL	: High Density Lipoprotein
HHS	: Hyperosmolar Hyperglycemic State
HIV	: Human Immune Deficiency Virus
HPA	: Hypothalamic-Pituitary-Adrenal
IADPSG	: International Association of Diabetes and Pregnancy Study Groups
ICA	: Islet Cell Auto- Antibodies
ICD-10	: International Classification Of Diseases, Tenth Revision
IDF	: International Diabetes Federation
IFG	: Impaired Fasting Glucose
IGT	: Impaired Glucose Tolerance
Kg	: Kilo Gram
LDL	: Low Density Lipoprotein
MENA	: Middle East and North Africa
MI	: Myocardial Infarction
MODY	: Maturity Onset Diabetes Of The Young
NHANES	: National Health And Nutrition Examination Survey
NHIS	: National Health Interview Survey
NO	: Nitric Oxide
OGTT	: Oral Glucose Tolerance Test

PCOS	: Polycystic Ovaries
PKC	: Protein Kinase C
PSH	: Post-Stroke Hyperglycemia
PVD	: Peripheral Vascular Disease
SPSS	: Statistical Package For Social Sciences
SU	: Sulfonylurea
T2DM	: Type 2 Diabetes Mellitus
Two-hour PGOr2hpp	: Two Hour Postprandial Plasma Glucose
U.S.	: United States
UACR	: Urinary Albumin Creatinine Ratio
UAER	: Urinary Albumin Excretion Rate
UKPDS	: United Kingdom Prospective Diabetes Study
USA	: United States Of America
UTI	: Urinary Tract Infection
VEGF	: Vascular Endothelial Growth Factor
WHO	: World Health Organizations

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ABSTRACT

Background: Diabetes Distress is the understandable sense of burden or defeat that may occasionally punctuate the diabetic patient life. Also, Diabetes distress (DD) refers to the unique, often hidden emotional burdens and worries that are part of the spectrum of patient experience when managing a severe demanding chronic disease like diabetes.

Objectives: is to assess the relationship between Diabetes-related distress (using a Diabetes Distress Screening Scale) and the glycemic control (using A1C) and inflammation (using hs-CRP) in diabetic patients.

Patients and Methods: This study is a cross sectional study which had been carried out in outpatient clinic of endocrinology department of El Agouza Police Hospital during the period between June 2017 to June 2018. The study was done on 350 Type2 Diabetic patients. BMI, Waist/Hip Ratio, Fasting blood glucose, Post prandial blood glucose, HbA1c, hs-CRP, Creatinin, BUN, SGPT and SGPT were done to the patients, also Diabetes Distress Screening Scale Questionnaire was completed by the patients.

Results: In this study we found that there is a highly significant positive relationship between HbA1c and both Fasting Blood Glucose and Post Prandial Blood Glucose. Also, There was a highly significant positive relationship between CRP and Fasting Blood Glucose while there was a non significant relationship between CRP and Post Prandial Blood Glucose. Fasting blood glucose and Post Prandial Blood Glucose showed a highly significant positive relationship with Total DDS score, Emotional burden and Physician related distress, and showed non significant relationship with Regimen related distress and interpersonal distress. As regard the relation between HbA1c and Total DDS score, there was a highly significant positive relationship between them and also highly significant positive relationship between HbA1c and Emotional burden and physician related distress, but there was non significant relation between HbA1c and Regimen related distress and interpersonal distress. There was highly significant positive relationship between CRP and Total DDS score and also emotional burden, and there was significant positive relationship between CRP and Regimen related distress, and non significant relation between CRP and physician related distress and interpersonal distress.

Conclusion: In this study 350 type 2 diabetic patients were included. 55 diabetic patients show moderate distress with a highly significant relationship with the glycemic control (HbA1c) and significant relationship with CRP. In this age and sex were non significant factors while duration of diabetes, BMI and Waist-hip ratio show significant relation with HbA1c which reflect the glycemic control.

Keywords: Diabetes Distress, Glycemic Control

Introduction

Diabetes mellitus is a syndrome of chronic hyperglycemia due to relative / absolute insulin deficiency, resistance, or both (**Gale & Anderson, 2009**).

It's a chronic disease characterized by a deficit in β -cell mass and a failure of glucose homeostasis, resulting in a variety of severe complications and an overall shortened life expectancy. Insulin deficiency leads to an increase in the level of glucose in the blood, which itself causes symptoms and may be life threatening and, in the longer term, is associated with damage to blood vessels and nerves (**Gonez & Knight, 2010**).

Type 2 diabetes accounts for 90–95% of those with diabetes, referred to as non–insulin-dependent diabetes, type 2 diabetes, or adult onset diabetes, encompasses individuals who have insulin resistance and usually have relative (rather than absolute) insulin deficiency (**American Diabetes Association, 2018**).

Patients with diabetes should maintain low levels of glycated hemoglobin A1C (HbA1c), blood pressure and low density lipoprotein (**ADA, 2007**). However, only 10% of the patients meet all those three goals simultaneously (**Saydah et al., 2004**).