

IR – PERPUSTAKAAN UNIVERSITAS AIRLANGGA

THESIS

THE CORRELATION OF VARIOUS TREATMENT AND ADHERENCE
IN TYPE 2 DIABETES MELLITUS PATIENT



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INTERNATIONAL CLASS MEDICAL PROGRAM

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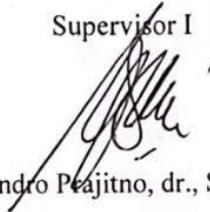
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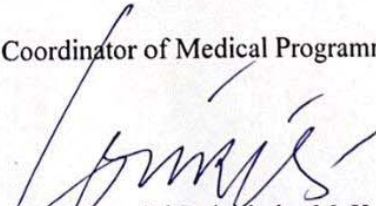
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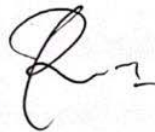
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NOTE OF GRATITUDE

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Surabaya, 6 November 2022

Alya Dwi Oktaliani

SUMMARY

**THE CORRELATION OF VARIOUS TREATMENT AND ADHERENCE
IN TYPE 2 DIABETES MELLITUS PATIENT**

Alya Dwi Oktaliani

Type 2 diabetes mellitus (T2DM) is a complex metabolic disease with etiologies that rooted from a complex multifactorial process. The pathophysiology of T2DM involves interaction between genetic predisposition and triggers from the environment (DeFronzo, 2009). According to International Diabetes Federation, Indonesia was ranked amongst the top ten countries with the highest number of people with diabetes in 2019. Not only that, the prevalence of it among the population aged ≥ 15 years old by diagnosis of doctor also show an increase between 2013 (1.5%) and 2018 (2%). One of the main targets of T2DM treatment is achieving regulated blood glucose level that that is obtained with individualized glycemic control (Perkumpulan Endokrinologi Indonesia, 2011). One of the pillars in T2DM treatment resorted to when initial effort of lifestyle changes does not work is pharmlological treatment. Pharmlological treatment itself is started with a therapy of OAD (American Diabetes Association, 2015).

Despite the existing concerns, various literature often reports low adherence to OAD medication among T2DM patient. There are several factors that could affect adherence to OAD medication, namely treatment and disease characteristics, intra-personal factors, inter-personal factors, and environmental factors (World Health Organization, 2003). These factors could be further differentiated as modifiable and unmodifiable factor. Elements of treatment and disease

characteristic namely medication complexity is one example of modifiable factor that is often highlighted in T2DM treatment since T2DM patient often have a complex medication burden that resulted from several associated condition that accompanied the diagnosis of T2DM (Polonsky and Henry, 2016). The complex medication from various treatment in T2DM often led to a high daily pill burden for the patient, being a challenge to treatment adherence.

This study aims to study the correlation between total daily pill burden of various treatment and adherence in T2DM patients. This is a study of observational analytic with a cross-sectional design. The data used is obtained from the questionnaire and medical record. This research was conducted starting from September of 2021 until November of 2022. This study included 58 subjects from endocrine outpatient clinic of Dr. Soetomo General Academic Hospital. The variables studied were the correlation between adherence to OAD medication and total daily pill burden of T2DM patients. The data analysis will use the Chi-Square test.

The result of the study obtained from 58 subjects are dominated by female (55.2%), aged >35 years old (100%), and complete Junior High School (43.1%). For the medication the majority of subjects use Metformin for OAD (74.13%), use 2 types of OAD (60.3%), use >2 and ≤4 tablets of OAD (46.6%), and have total daily pill burden of >8 tablet (50.0%). There are 15 subjects who were adherent to their OAD medication (25.9%) and 43 subjects who were non-adherent (74.1%). The reasons that causes non-adherence the most for non-adherent subjects is sometimes forgot to take the OAD (74.4%).

The analysis using Chi-Square test for the correlation between adherence to OAD medication and total daily pill burden shows no meaningful correlation (p-value=0.866). However, the analysis using Chi-Square test for the correlation between adherence to OAD medication and educational level shows there is a meaningful correlation (p-value=<0,001) and the correlation between educational level and adherence to OAD medication is moderate (contingency coefficient = 0.576). This study shows that there is no correlation between total daily bill burden of various treatment and adherence in T2DM patient. However, reducing the high total daily pill burden and careful approach during treatment counselling to the patient and their caregiver of T2DM patient medication might help to solve non-adherence in this study that was majorly caused by forgetfulness.

ABSTRACT

**THE CORRELATION OF VARIOUS TREATMENT AND ADHERENCE
IN TYPE 2 DIABETES MELLITUS PATIENT**

Alya Dwi Oktaliani

Background: Diabetes Mellitus (DM) is a group chronic metabolic disease that is characterised with elevated levels of blood glucose. T2DM is caused by defects in insulin secretion, insulin action, or both. One of the treatments for T2DM is consuming antidiabetic medication that usually referred as Oral Antihyperglycemic Drug (OAD). The classic target of T2DM treatment is adequate glycemic control that is mainly affected by adherence to antidiabetic medication. There are various factor that might affect adherence to OAD, one of them is total daily pill burden.

Objectives: To investigate the correlation between total daily pill burden of various treatment and adherence in type 2 diabetes mellitus patients.

Method: This study used observational analysis with a cross-sectional approach using questionnaires and medical records to identify the correlation between adherence to OAD medication and total daily pill burden.

Results: The result of the study obtained from 58 subjects are dominated by female (55.2%), aged >35 years old (100%), and complete Junior High School (43.1%). For the medication, the most used OAD is Metformin (74.13%), the majority use 2 types of OAD (60.3%), and use >2 and ≤4 tablets of OAD (46.6%). The majority of the subjects have total daily pill burden of >8 tablets (50.0%). There are 15 subjects who were adherent to their OAD medication (25.9%) and 43 subjects who were non-adherent (74.1%). The reasons that causes non-adherence the most for

non-adherent subjects is sometimes forgot to take the OAD/forgetfulness (74.4%). The analysis using Chi-Square test for the correlation between total daily pill burden and adherence to OAD medication shows no meaningful correlation (p-value=0.866). However, the analysis using Chi-Square test for the correlation between educational level and adherence to OAD medication shows there is a meaningful correlation (p-value=<0,001) and the correlation between educational level and adherence to OAD medication have moderate relationship (contingency coefficient = 0.576).

Conclusion: This study shows that there is no meaningful correlation between total daily pill burden of various treatment and adherence.

Keyword: T2DM, treatment adherence, OAD, total daily pill burden, medication complexity

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LIST OF ABBREVIATION

ACS	: Acute Coronary Syndrome
ADA	: American Diabetes Association
BMI	: Body Mass Index
BP	: Blood Pressure
DM	: Diabetes Mellitus
DPP-4	: Dipeptidyl Peptidase-4
DSME	: Diabetes Self-Management Education
FFA	: Free Fatty Acid
FPG	: Fasting Plasma Glucose
GDM	: Gestational Diabetes Mellitus
GIP	: Glucose-dependent Insulinotropic Polypeptide
GLP-1	: Glucagon-Like Peptide 1
HbA1C	: Hemoglobin A1c
HDL	: High-Density Lipoprotein
HGP	: Hepatic Glucose Production
IDF	: International Diabetes Federation
IGT	: Impaired Glucose Tolerance
LDL	: Low-Density Lipoprotein
MARS	: Medication Adherence Report Scale
MAQ	: Medication Adherence Questionnaire
MMAS-8	: Morisky Medication Adherence Scale 8
MNT	: Medical Nutrition Therapy
MPR	: Medication Possession Ratio

NGSP	: National Glycohemoglobin Standardization Program
OAD	: Oral Antihyperglycemic Drug
PKRS	: Promosi Kesehatan Rumah Sakit
SEAMS	: Self-Efficacy for Appropriate Medication Use Scale
T1DM	: Type 1 Diabetes Mellitus
T2DM	: Type 2 Diabetes Mellitus
WHO	: World Health Organization
2hPG	: 2-hour plasma glucose