# Evaluation of Diabetes Self-Management among Patients in Baghdad City: A Comparative Study

# تقويم التدبير الذاتي لداء السكري بين المرضى في مدينة بغداد: دراسة مقارنة

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**المستخلص**

**الأهداف**: تقويم التدبير الذاتي لداء السكري بين المرضى في مدينة بغداد والمقارنة مابين هؤلاء المرضى حسب التدبير الذاتي بالنسبة لنوع المرض.

**المنهجية**: تم إجراء تصميم وصفي يعتمد التقويم في مدينة بغداد ، بدأ من ١٦ نوفمبر ٢٠١٧ حتى نهاية ١٧ مايو ٢٠١٨ من أجل تقويم التدبير الذاتي لداء السكري. أختيرت عينة عرضية (غير إحتمالية) مكونة من(120) مريضا تم تشخيصهم بداء السكري. تتكون العينة من (٦٠) مريض من النوع الأول (60) مريض من النوع الثاني منقسمين إلى (٦٠) ذكور و (٦٠) إناث. تم بناء إستبيان لغرض الدراسة مكون من (42) فقرة. جمعت البيانات من خلال إستخدام الاستبيان والمقابلة المنظمة كوسيلة لجمع البيانات. حدد الصدق والثبات للإستبيان من خلال الدراسة الإستقرائية. تم تحليل البيانات من خلال إعتماد إسلوب تحليل البيانات الإحصائية الوصفي كالتكرارات والنسبة المئوية والوسط الحسابي والمدى وإجمالي الدرجات وإسلوب تحليل البيانات الإحصائية الإستنتاجي كالإختبار التائي.

**النتائج**: أظهرت النتائج أن أكثر من نصف العينة كانوا ضعاف المستوى في التدبير الذاتي لداء السكري (عدد = ٦٤ ؛ ٥٣,٣ ٪) ونسبة أقل من الذين لديهم مثل هذا التدبير الجيد. معظم المشاركين في الدراسة كانوا طلاباً ومتزوجين ويعودون إلى أسر ذات دخل منخفض. لا يوجد فرق كبير بين المشاركين في الدراسة مقارنة بالتدبير الذاتي لداء السكري.

**التوصيات**: يمكن إجراء دراسة إضافية حول مواضيع ذات حجم عينة كبير وتنفيذ برنامج تعليمي لتحسين معرفة المريض عن التدبير الذاتي لداء السكري تتوجيه إنتباه أفضل للمرضى الذين كانوا طلاباً ومتزوجين وذوي دخل منخفض.

**Abstract**

**Objective(s):** To Evaluate Diabetes self –management among patients in Baghdad City and to compare between these patients self-management relative to the type of the disease.

**Methodology:** A descriptive design was conducted in Baghdad city, started from November 16th 2017 to the end of May 17 th 2018 in order to evaluate Diabetes self-management. **P**urposive (non-probability) sample, which was consisted of (120) patients who were diagnosed with D.M. The sample is comprised of (60) patient with diabetes type I and (60) patient with diabetes type II. It is consisted of (60) male and (60) female. A questionnaire is constructed for the purpose of the study. It is composed of (42) items. Reliability and validity of the questionnaire is determined through pilot study. Data are collected through the use of the questionnaire and the structured interview as means of data collection. Data are analyzed through the application of descriptive statistical data analysis approach of frequency, percentage, mean, range and total scores and inferential statistical data analysis approach of t-test.

**Results:** The results show that more than a half have a poor level of diabetes self-management (n = 64; 53.3%) and a lesser proportion who have a good level of such management.

**Recommendations:** Further study can be conducted on subjects with a large sample size. An education program can be done to improve patient knowledge about the diabetes self-management. Better attention can be directed for patients who were students, married and low income ones.

**Key word**: Evaluation, Diabetes, Self-management, Patients, Comparative study

## Introduction

Diabetes mellitus (DM) is a complex metabolic disorder arising from lack of insulin production or insulin resistance DM is a leading cause of morbidity and mortality in the developed world, particularly from vascular complications such as atherothrombosis in the coronary vessels. It is a disease that occurs when the blood glucose, also called blood sugar, is too high. Blood glucose is the main source of energy and comes from the food that we eat. Insulin, a hormone made by the pancreas, helps glucose from food get into the cells to be used for energy. Sometimes the body doesn't make enough—or any—insulin or doesn't use insulin well. Glucose then stays in the blood and doesn't reach the cells [1,2].

To prevent diabetes related morbidity and mortality, there is an immense need of dedicated self-care behaviors in multiple domains, including food choices, physical activity, proper medications intake and blood glucose monitoring from the patients. Though multiple demographic, socio-economic and social support factors can be considered as positive contributors in facilitating self-care activities in diabetic patients, role of clinicians in promoting self-care is vital and has to be emphasized. Realizing the multi-faceted nature of the problem, a systematic, multi-pronged and an integrated approach is required for promoting self-care practices among diabetic patients to avert any long-term complications [3].

There has been increasing interest in the idea of people with chronic disease becoming more active partners in their own care. Chronic disease self-management refers to the actions people take themselves to manage their own conditions. Self-management does not mean dispensing with health professional advice or taking over the role of the doctor. Rather it means working effectively in partnership with health care providers. Everyone self-manages in that they make decisions about things like diet and exercise, expose themselves to risks like tobacco smoking and excessive alcohol and the extent to which they comply with treatments for illness such as taking medication. The question is how well they do it and whether education and support can help them to do it better [4].

Key issues are not only diet and exercise but also medicines adherence, and regular attendance for management and assessment for development of complications. Chronic disease self-

management support has been defined as "the systematic provision of education and supportive interventions to increase patients' skills and confidence in managing their health problems, including regular assessment of progress and problems, goal setting, and problem solving support [5].

Diabetes Mellitus, the commonest endocrine disorder affects developed, as well as developing country. In 2011, 336 million population have diabetes and estimated to reach 552 million by 2030 globally. Low and middle-income countries have 80% diabetes burden. Diabetes will be the seventh leading cause of death in 2030 [6].

Prevalence of diabetes in Iraq was estimated to be 10.2 per cent in 2010. This estimate exceeded total prevalence in the Middle East and North Africa region (9.3%) and is (nearly) equivalent to that of the USA (10.3%) [7].

Diabetes is a complex and chronic condition that requires effective self-management by the individual in partnership with healthcare professionals to prevent both acute and chronic complications. Patient education and self-care practices are also important aspects of disease management that help people with diabetes live normal lives. It is now accepted that the correct place for routine management of the person with diabetes is in primary care with supporting services from specialists [8].

Based on the early stated facts, the present study ought to evaluate diabetes self-management for patients in Baghdad City and to compare between these patients relative to such management.

**Methodology**

A descriptive design, using the evaluation approach, is carried out in Baghdad City in order to evaluate Diabetes Self-management from November 16th 2017 to the end of May 17 th 2018. Agreement is obtained from each diabetic patient for being participant in the present study. The study is conducted in Diabetes and Endocrinology Centers at Al kindy Teaching Hospital and Al Yarmouk Teaching Hospital in Baghdad City. Purposive (non-probability) sample, which is consisted 0f 120 (male and females) patients who were diagnosed with D.M. A questionnaire is designed and constructed for the purpose of the study. The questionnaire is comprised of two parts:

Part I: Demographic information sheet

It is consisted of (6) items that include age, gender, educational level, employment, marital status.

Part II: Evaluation of Diabetes Self-management.

It is consisted of (4) domains which include:

1. Glucose management (5) items.
2. Dietary control (10) items.
3. Physical activity (7) items.
4. Health care follow up (14) items.

A pilot study is carried out for the determination of the study instrument's validity and reliability:

1. Validity of the instrument

The content validity of the constructed questionnaire is determined through the use of panel of (12) experts. They are provided with copies of the questionnaire and they are asked to review it for the determination of its clarity and content adequacy. Their responses have indicated that the questionnaire is clear and adequate.

**2.** Reliability of the instrument

Internal consistency reliability for the instrument was determined through the use of split-half technique and the computation of Cronbach a;pha correlation coefficient for (10) diabetic patients. The finding reveal that cronbach alpha correlation coefficient is r=0.87 which indicates that the instrument is adequately reliable measure.

Data are collected through the use of the questionnaire and the structured interview as means of data collection.

Data are analyzed through the application of descriptive statistical data analysis approach of frequency, percentage, mean, range and total scores and inferential statistical data analysis approach of t-test.

**Results**

**Table (1): Participants' Socio-demographic Characteristics (N =120)**

| List | Variables | Frequency | Percent |
|---|---|---|---|
| **1** | *Age: Mean 46.8 ± 23.9 | | |
| | < 25 | 40 | 33.3 |
| | 25-64 | 40 | 33.3 |
| | ≥ 65 | 40 | 33.3 |
| **2** | **Gender** | | |
| | Male | 60 | 50.0 |
| | Female | 60 | 50.0 |
| **3** | **Level of education** | | |
| | Illiterate | 27 | 22.5 |

| | | | |
|---|---|---|---|
| | Primary school graduate | 41 | 34.2 |
| | Intermediate school graduate | 14 | 11.7 |
| | Secondary school graduate | 17 | 14.2 |
| | Institute graduate | 4 | 3.3 |
| | College graduate | 6 | 5.0 |
| | Postgraduate | 11 | 9.2 |
| **4** | **Occupation** | | |
| | Governmental Employee | 7 | 5.8 |
| | Retired | 27 | 22.5 |
| | Out of work | 13 | 10.8 |
| | Housewife | 34 | 28.3 |
| | Student | 39 | 32.5 |
| **5** | **Marital status** | | |
| | Single | 41 | 34.2 |
| | Married | 69 | 57.5 |
| | Widowed | 10 | 8.3 |
| **6** | **Monthly Income** | | |
| | Less than 300.000 | 13 | 10.8 |
| | 301.000-600.000 | 67 | 55.8 |
| | 601.000-900.000 | 23 | 19.2 |
| | 901.000-1.200.000 | 7 | 5.8 |
| | 1.201.000-1.500.000 | 10 | 8.3 |
| **7** | **Type of diabetes** | | |
| | Type I | 60 | 50.0 |
| | Type II | 60 | 50.0 |

*** The percentage is not precisely 100.0%**

The age mean is 46.8 ± 23.9; a third age less than 25-years-old (*n = 40*; 33.3%), a third age 25-64 years-old (*n = 40*; 33.3%), and a third age 65 years and older (*n= 40*; 33.3%). Participants are equally distributed in terms of gender (*n = 60*; 50.0%).

More than a third are primary school graduates (*n = 41*; 34.2%), followed by those who are illiterate (*n = 27*; 22.5%), those who are secondary school graduates (*n = 17*; 14.2%), those who are intermediate school graduates (*n = 14*; 11.7%), those who are postgraduates (*n = 11*;

9.2%), those who are college graduates (*n = 6*; 5.0%), and those who are institute graduates (*n = 4*; 3.3%).

Less than a third are students (*n = 39*; 32.5%), followed by those who are housewives (*n = 34*; 28.3%), those who are retired (*n = 27*; 22.5%), those who are out of work (*n= 13i; 10.8%*), and those who are governmental employees (*n = 7*; 5.8%).

More than a half are married (*n = 69*; 57.5%), followed by those who are single (*n = 41*; 34.2%), and those who are widowed (*n = 10*; 8.3%). Concerning monthly income, more than a half have an income of (301.000-600.000) I.D., followed by those who have an income of (601.000-900.000) I.D. (*n = 23*; 19.2%), those who have an income of less than 300.000 I.D. (*n = 13*; 10.8%), those who have an income of (1.201.000-1.200.000) I.D. (*n =10*; 8.3%), and those who have an income of (901.000-1.200.000) I.D. (*n = 7*; 5.8%). Lastly, participants are equally distributed in terms of type of DM (*n = 60*; 50.0%).

**Table (2): Level of Self-Management**

| Level of Self-Management | Frequency | Percent |
|---|---|---|
| Poor (36-71) | 64 | 53.3 |
| Good (72-108) | 56 | 46.7 |

More than a half have poor level of self-management of DM (*n = 64*; 53.3%) and a lesser proportion who have a good such management (*n = 56*; 46.7%).

**Table (3): Comparative Difference in Patients' Self-Management Relative to the Types of Diabetes**

| Independent Samples Test | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
| | | F | Sig. | t | Df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| **Self-Management** | Equal variances assumed | 0.206 | 0.651 | 0.938 | 118 | 0.350 | 1.300 | 1.386 | -1.445 | 4.045 |
| | Equal variances not assumed | | | 0.938 | 117.714 | 0.350 | 1.300 | 1.386 | -1.445 | 4.045 |

There is no statistically significant difference in the self-management between the types of DM.

## Discussion

**Part I: Discussion of Diabetic Patients' Socio-demographic Characteristics**

Analysis of such characteristics indicated that the participant were equally distributed as age groups of young, middle age and old age, as well as to their gender. Most of the participants were students; married and coming of low income families. Participants were equally distributed relative to the type of the disease for the purpose of their comparison (Table 1). Such findings present evidence about the nature and the reality of the study participants.

**Part II: Discussion of the Study Results According to Self-Management**

The results showed that more than a half have a poor level of self-management of DM (n = 64; 53.3%) and a lesser proportion who have a good of such management (Table 2).

Throughout the course of data analysis, the study findings depict that there is no significant difference between type I and type II diabetic patients relative to their self-management of diabetes (Table 3). Such findings present empirical evidence that most of these patients are well-oriented toward the disease management.

It is documented in the literature that Diabetes self-management is a complex phenomenon which refers to patients' attending checkups regularly and adhering to a physician-prescribed regimen including following a strict diet, exercise, self-monitoring of blood glucose (SMBG), and medication [(9)].

A cross-sectional study is conducted among samples from four randomly selected diabetes clinics in Sarawak, Malaysia. The aim of the study is to determine the predictors for DSM. Face-to-face interview using questionnaire is used to collect data. Four hundred respondents with type 2 diabetes mellitus (T2DM) are recruited. Majority of the respondents are Sarawak Bumiputra (Iban and Bidayuh, 48.6%) and female (68.6%). The mean age is 58.77 years (SD = 11.46) and approximately half of the respondents (50.6%) have T2DM for six years (SD = 4.46). The mean fasting blood glucose (FBG) is (8.06) mmol/L (SD = 2.94), with majority (76.1%) having the level higher than (6.1) mmol/L. Multiple logistic regression tests shows significant linear relationship between DSM and belief in treatment effectiveness, family support, and

self-efficacy. The study recommends that health care personnel must convince patients with T2DM of the effectiveness of the treatment, empower and enhance their self-efficacy, and enlist the family support so as to ensure patients sustain their DSM efforts [10].

Effective self-management is crucial to both metabolic and macro-vascular risk factor control in type II diabetes. Self-management involves the person with diabetes working in partnership with their careproviders and health professionals [11].

**Recommendations**

1. A further study can be conducted on subjects with a large sample size.
2. An education program can be done to improve patient knowledge about the diabetes self-management.
3. Better attention can be directed for patients who were students, married and low income ones.

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