

# Effectiveness of A Coping Style- related Instructional program on Self - Care of Patients with Diabetes Mellitus Type II at Endocrinology and Diabetes Center in Al-Basra City

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## Abstract

**Methodology:** A descriptive analytic (quasi – experimental) design. Sample composed of (60) patients were divided into two groups study and control group, (30) patients in each one.

**Results:** The study findings Shows that participants' age group at a level (46-65 years) were (67.7%) of the study group, and (56.7%) of the control group. (56.7%) of the study group were male, while (53.3%) of the control groups were female.

The study also confirms that the effectiveness of a Coping style related instructional program on Self - Care of Patients with Diabetes Mellitus Type II at Endocrinology and Diabetes Center in Al-Basra City, Iraq.

**Conclusion :** The study concludes that A coping style-related instructional program is effective to enhance diabetes patients' self-care activities, knowledge, and coping style among patients with T2DM. This conclusion is based on the result of our study that reveals significant differences between pre-intervention and post-intervention.

**Recommendations:** Improve knowledge and self-care activities of patients with T2DM, by using our study guidelines.. Encourage the health care provider to improve diabetic patients' self-care activities and focusing on all domain aspects of self-care.

**Keywords:** Coping Style, Self- Care of Patients, Diabetes Mellitus Type II.

## Introduction

Diabetes mellitus (DM) is a most common chronic metabolic disease. Result in impairment of carbohydrate, fat, and protein metabolism. Caused by the absence or deficiency of active insulin that is produced from beta cells of islets Langerhans, that's lead to raise blood glucose for a prolonged period <sup>[1]</sup>.

Complications of diabetes can be divided into vascular and non-vascular complications that can be further divided into micro-vascular (Retinopathy, Nephropathy, and Neuropathy) and macro-vascular (coronary heart disease, cerebrovascular disease, peripheral vascular disease). Besides, there is a strong association between diabetes and obesity, hypertension

and dyslipidemia<sup>[2]</sup>.

Coping with diabetes treatment has received considerable attention in the last 5 decades. Many approaches demonstrate Positive outcomes. Effectiveness comparison analysis of the different methods and how intervention barriers can be overcome is needed in various populations Dispersal and deployment <sup>[3]</sup>.

Patients today are involved in providing clinical records, working as allies, and functioning as collaborators in their care strategy, which allows clinicians to understand their patients ' expectations and viewpoints, and consider their previous expertise, abilities, and experiences <sup>[4]</sup>.

Adherence to routines healthy diet, physical activity, taking medications, affected by physical and psychological health status, some patients can perform all these demands if they are well coping strategies, while other patients are failed to adhere to these demands, due to they are having difficulty to accept their disease and have poor coping style, result in improper self-care that effect on metabolic control and impact on the quality of life [5].

### Design of the Study

Quasi-experimental design, using a pretest-posttest approach, is carried throughout the present study from the period of 17<sup>th</sup> November, 2020 to 4<sup>th</sup> April, 2021.

### Ethical Consideration

Before data collection the researchers met with the patients by face-to-face interview, taking in mind the precautions to maintain the social distance, wearing a mask, and gloves due to the time of the covid-19 pandemic. The researchers discussed the aims of the study with patients before participating and obtained oral consent from every patient before data collection.

### Setting of the Study

The study was done in the Specialized Endocrine and Diabetes Center in Basra, southern Iraq.

### Sample of the Study

The sample was a Purposive, non-probability, include (60) patients with T2DM, who were attained to the Specialized Endocrine and Diabetes Center in Basra. The Participants were composed of (31) males and (29) females and they were divided into two groups (30) patients considered as a study group, while (30) patients considered as a control group.

### Study Instrument

To achieve the study goals. The study instrument consists of three parts ( including the following:

1. Part I: Patients Socio-Demographic Characteristics
2. Part II: Clinical Characteristic of Patients With DM type II:

**3. Part III:** This part is composed of three tools that were used in the study, after getting the approval of the authors who had conducted it

**First Domain:** Assessing Patients' Knowledge.

**Second Domain:** Assessing patients' self-care activities.

**Third Domain:** Assessing Coping with diabetes

### Statistical Analysis

#### 1. Descriptive Data Analysis:

a- Tables (Frequencies, Percentages, and Mean of scores).

b- Statistical figures.

#### 2. Inferential Data Analysis:

This approach is employed to determine the effectiveness of a coping style-related instructional program among patients with diabetes mellitus type II.

#### Part I: Discussion of the Patients' Socio-Demographic Characteristics :(Table:1)

Regarding the patients' Socio-demographic characteristics, the majority of both the study and control group at an old age ranging between (46-65 years) at a percentage (67.7% and 56.7%) respectively. This result agrees with a study conducted by (Smalls et al., 2012) was indicated that T2DM occurs at an advanced age at a percentage (54%) [6].

Regarding participants' gender, the majority (56.7%) of the study group were males, while (53.3%) of the control groups were female.

The majority of the study group (23.3%) had an institute educational level, while the majority of the control group (30.0%) had a preparatory educational level.

This result was supported by the study of (Mohammed-Ali & Hamza, 2016) about "Assessment of Self-Care Activities for Patients with Diabetes Mellitus Type II". Conducted at Al-Najaf showed that the majority of participants (52.5%) were males, but disagrees with our finding in it the majority of

respondents (33%) were illiterate<sup>[7]</sup>.

Married participants are dominant in both study and control groups at a percentage (70.0% and 83.3%) respectively. This outcome is similar to (Mohammed-Ali & Hamza, 2016) study showed that most of the participants were married (84.5%)<sup>[7]</sup>.

The higher percentage level in both the study and control groups had an of low income ranging between (150,000-300,000 IQ), at a percentage of (63.3% and 53.3%), respectively, while most study group (36.7%) were housewives, and most control group (40.0%) were freelancers. This result resembles the finding of (Mohammed-Ali & Hamza, 2016) which revealed (86%) of the participants were present without adequate monthly income. While the majority of participants' occupational status (43.5%) were housewives, and (30%) were freelancers<sup>[7]</sup>.

According to the residence of the study and control group, our study results reveal that the majority of them were from urban areas (80.0% and 86.7%) respectively. This result agreed with (Mohammed-Ali & Hamza, 2016) which reveals that most of the participants were from urban areas (78%)<sup>[7]</sup>.

## **Part II: Discussion of the Patients' Clinical Information :( Table 2)**

Regarding the duration of having diabetes, the majority (60%) of the study group have diabetes for (1-5 years), while (50%) of the control group were diagnosed with diabetes mellitus for (6-10 years). This study not similar to the study conducted by (Ajibade Olapeju & Salawu Rasidi, 2020) was shown that higher percentages of the study sample were diagnosed with T2DM for (0-5 years), of both the study and control group (65% and 48.1%) respectively<sup>[8]</sup>.

The majority of the study and control group have a family history of diabetes (36.7% and 30%) respectively. According to diabetes complications, our study shows that peripheral neuropathy is dominant in (36.7%) of the study group, (70%) of the control group complain of retinopathy.

This is supported by **(Clothier's, 2019) study similar to our findings. About "Living With Diabetes In Nigeria The Care, Cure, And Prevention Inaugural**

**Lecture Series"**. was showed that the majority of participants (52.3%) had a family history of DM. while (59.2%) complain from peripheral neuropathy was a dominant diabetic complication among patients. but (35.5%) of them complain of retinopathy<sup>[9]</sup>.

The majority (76.7%) of the study group use pills, (80%) of the control group uses insulin injections. Both study and control groups use diabetic pills for 1-5 years (86.7% and 100%) respectively. **The study supported our finding conducted by (Petrović et al., 2019) about "Evaluation Of Emotional Distress In People With Diabetes Mellitus"**. Performed in the Centre of Family Medicine in Banja Luka. shows that the majority of participants used oral anti-diabetic drugs (OAD) at a percentage (61.1%). while (23.9%) injected the insulin, and (15%) used both (OAD and insulin)<sup>[11]</sup>.

Hypertension is dominant among other chronic diseases in both the study and control group at a percentage (50% and 36.7%) respectively. **This outcome was similar to what was reported by ( Berraho et al, 2012) about "Hypertension and type 2 diabetes: a cross-sectional study in Morocco (EPIDIAM Study)"**. Revealed that high blood pressure is a common problem for people with diabetes. A high prevalence rate of hypertension (70.4%) was reported in this study<sup>[10]</sup>.

## **Part III: A. Discussion of knowledge among diabetes patients :(Table:3)**

According to the average knowledge score before implementing an instructional program for the study and control group (8.8 and 5.3) respectively, while after implementing the instructional program were (13.0 and 6.4). The P-value reveals a significant statistical difference ( $p < 0.0001$ ) between pre and post-test knowledge scores. Before the implementation of an instructional program for the study and control groups, the majority of study and control group knowledge was low (63.3% and 86.7%), respectively, whereas after the instructional program, the majority of the study group had moderate knowledge (73.3%), and 20% had high knowledge. (83.3) of the control group have low knowledge, the p-value shows post-test program significant statistical differences ( $P\text{-value} < 0.0001$ ).

This indicates that participants' knowledge was enhanced due to the program that was reflected on their

answers to a post-test. The researchers explains that before the instructional program patients of the target sample don't have adequate sessions despite the diabetes center staff perform to them information but maybe don't include all patients.

This result is supported by (Khunti et al., 2012) study in which an improvement in patients' knowledge in the post-test compared with the pre-test scores among the study group in comparison with the control group [11].

### **B. Discussion of Self-care Activities among Patients with diabetes (Table:3)**

In terms of diabetes self-care activities, study findings revealed that the preprogram majority of study and control group participants had the highest mean medication scores (5.9 and 6.0, respectively). But the lowest mean scores for exercise were (0.7 and 0.4) respectively. The P-value doesn't show a significant statistical difference ( $p\text{-value} > 0.05$ ).

While post instructional program self-care activities of the study group were improved in all four domains, diet (3.3), Exercise (3.7), Blood glucose test (4.7), foot care (6.1), and Medication (7.0). While the control group does not exhibit changes in their self-care activities. p-value reveals significant statistical differences ( $p\text{-value} < 0.0001$ ).

The researcher's opinion was this result indicated that our study instructional program was effective and can be a benefit for the intervention group that leads to enhancing all domains of self-care. This can aim to reduce complications of diabetes and enhance the quality of life of diabetic patients.

This finding is supported by (Konstantinos, 2018) study agrees with our findings was showed diabetes self-care activities of the intervention group score showed an improved difference between pre and post-program exercise (3.10 to 3.23), which could be attributed to the intervention group's very high pretest mean, implying that the participants in the group were already at a very high level of medication compliance. Diet (4.2 to 4.6), foot care (2.18 to 2.33), medication (6.8 to 7.0), and blood glucose test (6.53 to 6.8) are the most important factors. while the control

group remains at the same level without effective changes [12].

### **C. Discussion of coping style among diabetes patients (Table:3)**

Concerning the study sample's coping style, the coping activities were significantly better in the study group after the implementation of the education program, whereas the control group remained unchanged with no obvious changes. The researchers explained this result was due to the effect of sessions related to coping with the disease most participants were less coping preprogram.

this outcome was not statistically significant. While (Salem AL-Khafaf, 2017) a study that supported our study finding in which study participants have fewer coping strategies. Diabetes Self-care activities are low that reflect difficulty coping with diabetes mellitus [13].

### **Discussion of Association between coping style and diabetes self-care activities:(Table:4)**

Our study reveals that before implementing the instructional program, despite the significant statistical correlation between coping and exercise on one hand and blood tests and medications on the other hand ( $p\text{ values} < 0.05$ ), the correlation coefficient was not large enough to consider strong correlations ( $R < 0.5$ ). All other parameters were not correlated. The control group showed a significant correlation between blood tests and each diet and exercise ( $P\text{-value} < 0.05$  and  $R > 0.5$ ). Other variables were not correlated.

No specific correlation was identified between the variables after the program in the control group. A strong correlation with a significant statistical level was observed between exercise and blood tests as well as exercise and diet ( $R > 0.5$  and  $P\text{-value} < 0.05$ ). Blood tests and diets exhibited a similar correlation pattern. However, other variables did not show a sizeable correlation to the level of significance ( $R < 5$  and  $p\text{-value} < 0.05$ ). Regarding medications, because all of the cases reported the highest level of adherence after the program, the correlation was not calculated.

The effect of coping programs is reflected on patients dealing with their condition lead to enhance their daily activities. This outcome agrees with the study performed by (Collins et al., 2009) showed that patients'

perceptions of their self-care varied on a spectrum, displaying differences in self-care responsibilities such as competence with dietary planning, testing blood sugar, and regular exercise. Also found that coping style affected by different self-care activities<sup>[14]</sup>.

### Conclusion

The study concludes that A coping style-related instructional program is effective to enhance diabetes patients' self-care activities, knowledge, and coping style among patients with T2DM. This conclusion is based on the result of our study that reveals significant differences between pre-intervention and post-intervention. There is

a significant correlation between self-care activities and coping style.

**Recommendations:** Improve knowledge and self-care activities of patients with T2DM, by using our study guidelines. The ministry of health should get attention to the availability of active sessions to educate diabetes patients on how to cope with their disease and improve patients' awareness about the method of healthy coping. Encourage the health care provider to improve diabetic patients' self-care activities and focusing on all domain aspects of self-care.

**Table (1) Participants Socio-demographic characteristics**

Demographic Data	Rating And Intervals	Grouping	
		study (N%)	Control (N%)
Age	25-45 years	10 (33.3%)	13(43.3%)
	46-65 years	20 (67.7%)	17 (56.7%)
Gender	Male	17 (56.7%)	14 (46.7%)
	Female	13 (43.3%)	16 (53.3%)
Level of education	Illiterate	6 (20.0%)	5 (16.7%)
	Elementary	5 (16.7%)	9 (30.0%)
	Intermediate	6 (20.0%)	6 (20.0%)
	Preparatory	6 (20.0%)	9 (30.0%)
	Institute	7 (23.3%)	1 (3.3%)
Marital status	Single	2 (6.7%)	0 (0.0%)
	Married	21 (70.0%)	25 (83.3%)
	Separated	1 (3.3%)	4 (13.3%)
	Widowed	6 (20.0%)	1 (3.3%)
Monthly Income of the Family (in Iraqi Dinar)	150-300	19 (63.3%)	16 (53.3%)
	300-600	6 (20.0%)	14 (46.7%)
	600-900	3 (10.0%)	0 (0.0%)
	More than 900	2 (6.7%)	0 (0.0%)
Profession	Employee	7 (23.3%)	8 (26.7%)
	Freelancer	10 (33.3%)	12 (40.0%)
	Housewife	11 (36.7%)	9 (30.0%)
	Retired	2 (6.7%)	1 (3.3%)
Residence	Urban	24 (80.0%)	26 (86.7%)
	Rural	6 (20.0%)	4 (13.3%)

**Table (2): Clinical information of the Study Sample.**

Clinical Information	Rating and interval	Grouping	
		study (N%)	Control (N%)
Duration of diabetes	1-5 years	18 (60%)	6 (20%)
	6-10 years	9 (30%)	15 (50%)
	>10 years	3 (10%)	9 (30%)
Medication	Insulin	7 (23.3%)	24 (80%)
	Pills	23 (76.7%)	6 (20%)
Years with insulin	Without insulin	23 (76.7%)	6 (20%)
	1-5 years	6 (20%)	16 (53.3%)
	>5 years	1 (3.3%)	8 (26.7%)
Years with pills	1-5 years	26 (86.7%)	30 (100%)
	>5 years	4 (13.3%)	0
Complication	No	0	0
	Renal failure	8 (26.7%)	5 (16.7%)
	Retinopathy	9 (30%)	21 (70%)
	Peripheral neuropathy	11 (36.7%)	1 (3.3%)
	Diabetic foot	2 (6.7%)	3 (10%)
Chronic diseases	No	9 (30%)	11 (36.7%)
	MI	5 (16.7%)	0
	Angina	1 (3.3%)	8 (26.7%)
	Hypertension	15 (50%)	11 (36.7%)

**Table(3): Knowledge score before and after a program in study group and control group**

	Before program		P value	After program		P value
	Study group	Control Group		Study group	Control group	
Average score of knowledge	8.8	5.3	0.0001	13.0	6.4	0.0001
Diabetes Self- care activities of study and control group pre and post instructional program						
Diabetes Self- care activities	Preprogram (average score)		P value	Post program (average score)		P value*
	Study group	P value Control		Study group	Control	
Diet	2.8	2.5	0.026	3.3	2.9	0.025
Exercise	0.7	0.4	0.044	3.7	0.4	0.0001
Blood test	1.0	0.9	0.454	4.7	1.3	0.0001
Foot care	2.1	2.3	0.053	2.8	6.1	0.0001
Medication	5.9	6.0	0.910	7.0	6.0	0.0001

**Cont... Table(3): Knowledge score before and after a program in study group and control group**

Diabetes Coping measure before program and post-program of both study and control group						
Diabetes Coping measure	Before program		P value	After program		P value*
	Study group	Control		Study group	Control	
	2.6 ±0.3	2.1 ±0.2	0.0001	3.6 ± 0.2	2.2 ± 0.5	0.0001

\*T-test

**Table (4) Correlation of coping to self-care activities in the study group after the program**

		Foot care	Exercise	Blood test	Diet	Medication
Coping	Correlation Coefficient*	-0.103	-0.023	-0.132	-0.160	
	P value	0.587	0.902	0.488	0.398	
Foot care	Correlation Coefficient*		-0.214	-0.233	-0.022	
	P-value		0.256	0.215	0.910	
Exercise	Correlation Coefficient*			0.628	0.583	
	P-value			0.0001	0.001	
Blood test	Correlation Coefficient*				0.616	
	P-value				0.0001	
Diet	Correlation Coefficient*					
	P-value					

\*Spearman correlation

**Ethical Clearance:** The Research Ethical Committee at scientific research by ethical approval of both environmental and health and higher education and scientific research ministries in Iraq

**Conflict of Interest:** The authors declare that they have no conflict of interest.

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