

## Effect of Nutritional Status and Life Style on Type 2 Diabetes Mellitus Patients in Western Libya

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### ABSTRACT

This study was descriptive cross-sectional study, aimed to study the effect of nutritional status, and lifestyle habit among type 2 DM patients in Surman, Western-Libya. A total of 130 type 2 DM patients were enrolled in this study, which was carried out in the period from March to (July 2017). The results were showed that, from 130 type 2 DM patients were recruited for this study, 53 (40.8%) were males, while 77 (59.2%) were females. Out of 130 participants, 47 was normal BMI (36.2%), while 81 was overweight (62.3%) and only 2 was underweight (1.5%). This study was revealed that from 130 participants of type 2 DM patients 88 have taken an ideal diet (67.6%), while 42 were not (32.4%). Moreover, only 37 patients were done physical activities (28.5%), while 93 patients were not (71.5%). Also, the study was shown that 81 patients were exposed to mental stress (62.3%), whereas 49 their life was normal (37.7%). The conclusion, the nutritional status, and lifestyle habit have a great advised effect among type 2 DM patients in Western Libya. It can be concluded that the majorities of individuals with type 2 diabetes were overweight, due to lack of physical activity, and did not follow dietary guidelines for fats, fruits and vegetable consumption. Additional measures are needed to encourage regular physical activity and improve dietary habits in this population.

**Keywords:** Type II Diabetes Mellitus, Nutritional Status, Life Style habit, Western Libya;

### INTRODUCTION

Diabetes mellitus (DM) is defined as a heterogeneous group of diseases, characterized by a state of chronic hyperglycemia, resulting from a diversity of etiologies, environmental and genetic, acting jointly. The underlying cause of diabetes is the defective production or action of insulin, a hormone that controls glucose, fat, and amino acid metabolism [1]. DM is a significant health problem affecting major population worldwide. A recent study by the World Health Organization (WHO) estimated that the worldwide prevalence of diabetes in (2002) was 170 million, with the number predicted to grow to 366 million or more by (2030). The major underlying causes of the epidemic are thought to be due to the adoption of a sedentary lifestyle, the consumption of non-traditional foods, and a genetic predisposition to

the disease. India has the dubious distinction of being home to the largest number of people suffering from diabetes in any country. Despite great strides made in understanding and for management of diabetes, the disease and its related complications are increasing unabated [2].

DM on the long term is associated with vascular complications that are responsible for increased morbidity and mortality among diabetic subjects [3, 4]. A new addition to these complications is the thyroid dysfunction, which is evidenced by the recent studies [4-6]. The present study was carried out to assess the effect of nutritional status and lifestyle habit among type 2 DM patients in Western - Libya.

### SUBJECTS AND METHODS

#### Study Design

This was descriptive cross-sectional study, aimed

to study the effect of nutritional status and lifestyle on type 2 DM patients in Western Libya. Which was carried out at Clinics and Hospitals in Surman-Western Libya, during the period from March to July 2017?

**Study Population**

A total of 130 type 2 DM patients were enrolled in this study, 53 were males (40.8%) and 77 were females (59.2%) (Table 1 & Figure 1).

**Methodology**

The sampling technique used according to the method of fasting blood glucose and HbA1 C using spectrophotometer machine, and Body mass index (BMI) was calculated by measuring the weight of the patients and divided by the height:  $BMI = w / H^2$  (kg/m<sup>2</sup>).

**Data Collection**

Anthropometric measurement like height, weight,

BMI, physical activities, ideal diet intake, type of treatment, mental stress and demographic data from the participants were collected using structured questionnaire

**Ethical Consideration**

The approval of this study was obtained from the administration of the faculty of medical technology, Surman, Sabratha University. And verbal informed consent from each participant was taken.

**Data Analysis**

Data were analyzed by frequency count and percentage by using Microsoft Excel and SPSS program, version 21. BMI, physical activities, ideal diet intake, type of treatment, and mental stress are reported as frequencies and percentages. Qualitative variables were compared using the chi-square and Fisher test. P < 0.05 was considered statistically significant.

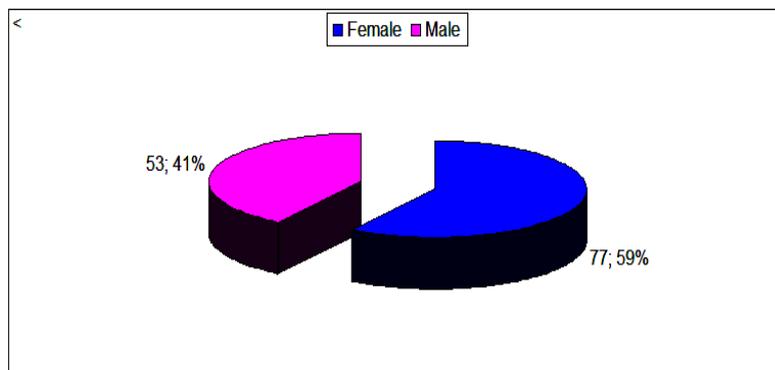


Figure1. Distribution of patients according to gender

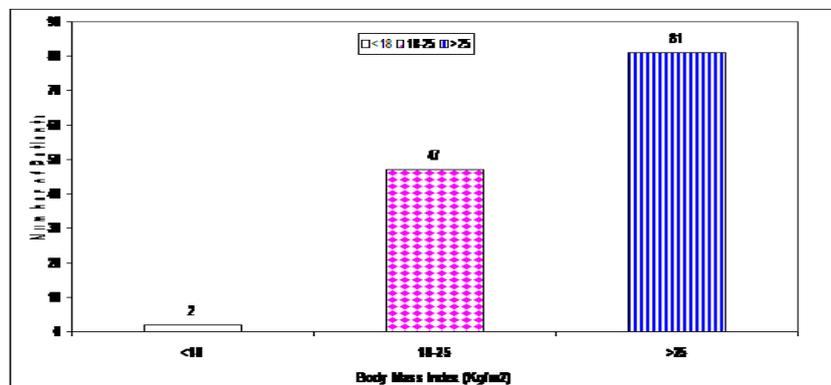


Figure2. Distribution of patients according to body mass index (BMI)

**RESULTS**

Data in the table1 and figures (1-7) show a total of 130 types 2 diabetes mellitus patients were included in the study to assess having ideal diet, physical activities, mental stress and types of treatments. Out of which 130 patients were selected, 47 was normal BMI (36.2%), while 81

was overweight (62.3%) and only 2 was underweight (1.5%) (Table 1 & Figure 2). This Study was revealed that from 130 participants of type 2 DM patients 88 have taken an ideal diet (67.6%), while 42 were not (32.4%) (Table 1 & Figure 4). Moreover, only 37 patients were done physical activities (28.5%), while 93 patients

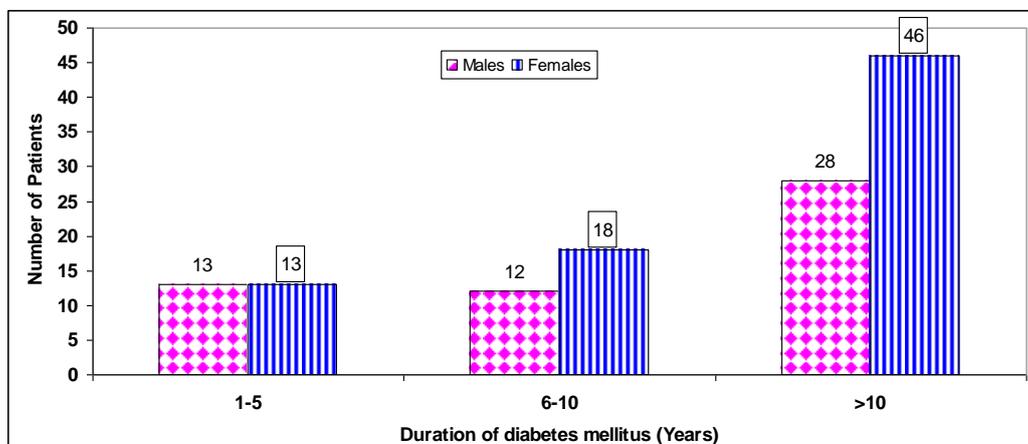
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were not (71.5%) (Table 1 & Figure 5). Also, the study was shown that 81 patients were exposed

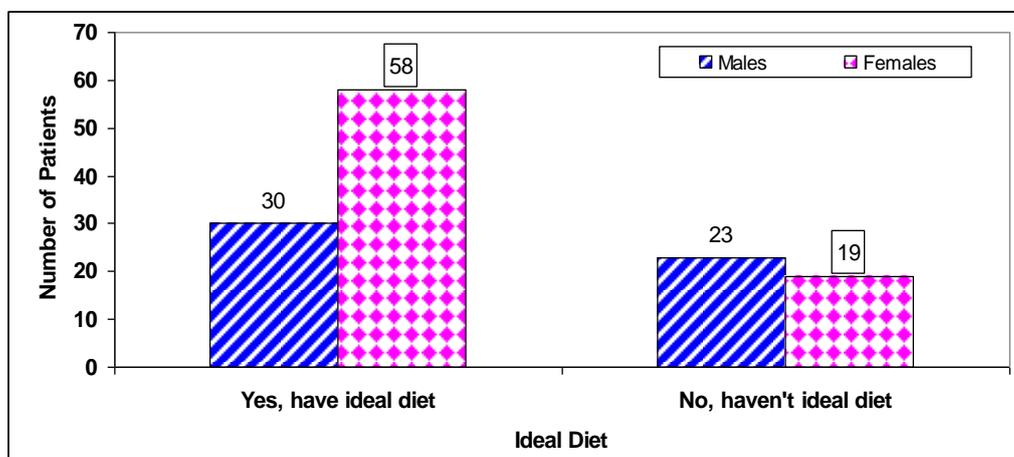
to mental stress (62.3%), whereas 49 their life was normal (37.7%) (Table 1 & Figure 6).

**Table 1.** Distribution of diabetic patients according to personal characteristics

Personal Characteristics	Male		Female		Total	
	Number (%)	P Value	Number (%)	P Value	Number (%)	P Value
Type 2 Diabetes Patients	53 (40.8%)		77 (59.2%)	0.035	130	
Body Mass Index (Kg/m <sup>2</sup> )	<18	-	-	-	2 (1.5%)	0.000
	(18 – 25)	-	-	-	47 (36.2%)	
	>25	-	-	-	81 (62.3%)	
Duration of Diabetes Mellitus (Years)	(1- 5)	13 (10%)	0.011	13 (10%)	0.000	0.000
	(6-10)	12 (9.2%)		18 (13.9%)		
	>10	28 (21.5%)		46 (35.4%)		
Ideal Diet	Yes	30 (23.1%)	0.336	58 (44.6%)	0.000	0.000
	No	23 (17.7%)		19 (14.6%)		
Physical Activities	Yes	19 (14.6%)	0.039	18 (13.8%)	0.000	0.000
	No	34 (26.2%)		59 (45.4%)		
Mental Stress	Yes	33 (25.4%)	0.074	48 (36.9%)	0.022	0.004
	No	20 (15.4%)		29 (22.3%)		
Type of Treatment	Tablet	39 (30%)	0.001	52 (40%)	0.001	0.000
	Insulin	14 (10.8%)		25 (19.2%)		



**Figure 3.** Distribution of patients according to the duration of Diabetes Mellitus



**Figure 4.** Distribution of patients according to nutritional status

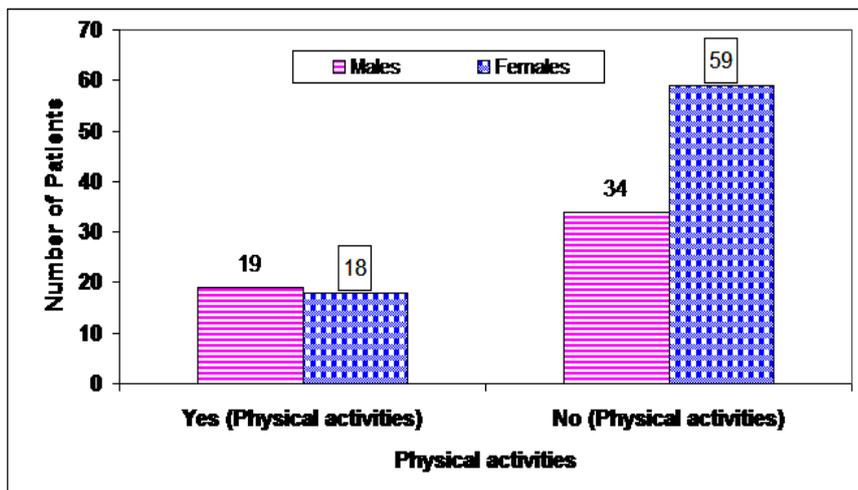


Figure5. Distribution of patients according to physical activities

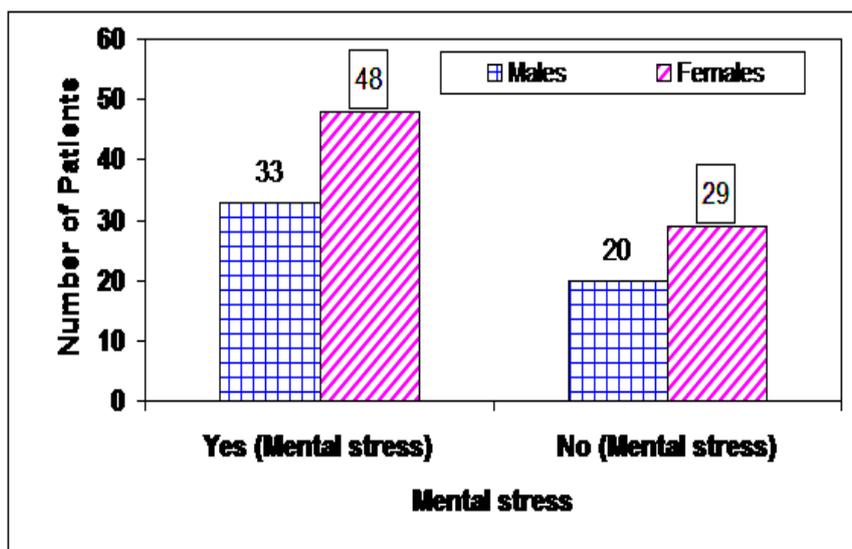


Figure6. Distribution of patients according to mental stress

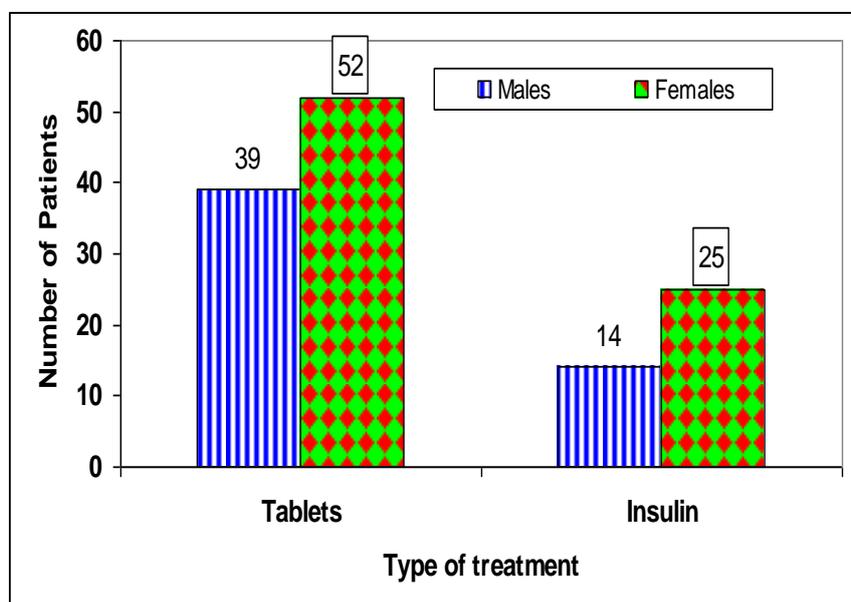


Figure7. Distribution of patients according to the type of treatment.

## DISCUSSION

The management of Diabetes Mellitus not only requires the prescription of the appropriate nutritional and pharmacological regimen by the physician but also intensive education and counseling of the patient. Diabetes is a chronic disease with altered carbohydrate, lipid and protein metabolism. Various factors like understanding of the patients about their disease, dietary regulation, self-monitoring of blood glucose are known to play a vital role in diabetes management [7].

The present study was carried out to assess the effect of nutritional status and lifestyle habit among type 2 DM patients in western - Libya. Total of 130 patients was included in the study to assess having ideal diet, physical activities, types of treatments and mental stress. Out of which 130 patients were selected, 47 was normal BMI (36.2%), while 81 was overweight (62.3%) and only 2 was underweight (1.5%). This Study was revealed that from 130 participants of type 2 DM patients 88 have taken an ideal diet (67.6%), while 42 were not (32.4%). Moreover, only 37 patients were done physical activities (28.5%), while 93 patients were not (71.5%). Also, the study was shown that 81 patients were exposed to mental stress (62.3%), whereas 49 their life was normal (37.7%). There is no awareness about Diabetes disease, self-monitoring of glucose, diet, and exercise and mental stress. Also, there was less awareness in patients about lifestyle modification. In the present study according to lifestyle habit, the mental stress has great advice effect of type 2 DM patients in Western Libya. According to WHO (1994), the risk of Type 2 Diabetes mellitus increases continuously with BMI and decreases with weight loss. People in the Indian subcontinent have faced under nutrition for many generations, and Indian babies are among the smallest in the world. However, the diabetes is more common on among urban than rural Indians despite the higher birth weight of urban babies for a given BMI, Indians have higher percentages of the body fat and more visceral fat than members of other population [8, 9]. Bhati and Goyal, [10] assessed that the nutritional and health status of diabetics, nutritional and health status of 80 subjects (40-60 years) suffering from type 2 diabetes mellitus was determined using standard techniques. A questionnaire was designed to collect background information, anthropometric

measurements, biochemical estimations and diet history. Data revealed that overweight/ obesity, hypertension, and eye problems were the health disorders associated with the subjects. Body mass index of subjects revealed that a higher number of female subjects were obese compared to their male counterparts. Diet survey of the subjects indicated high intake of fats, carbohydrates and energy and inadequate intake of proteins, fibers, and iron as compared to their recommended values. Wide prevalence of associated health problems among the hyperglycemic subjects clearly emphasized the need for their diet and lifestyle modifications.

## CONCLUSION

It can be concluded that, the majorities of individuals with type 2 diabetes were overweight, due to lack of physical activity, and did not follow dietary guidelines for fats, fruits, and vegetable consumption. Additional measures are needed to encourage regular physical activity and improve dietary habits in this population. Type II diabetic patients advise to Consume of an ideal diet, avoidance of obesity by regular physical activity and exercises of at least 1 hr/day, avoid a mental stress as much as possible. It must be awareness of the complication and risk of uncontrolled DM through a massive media as TV, Symposium, lectures, group discussion, posters... etc in West Libya.

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