Effect of Lifestyle Modification Module on Patients' Compliance Postoperative Bariatric Surgery

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Abstract

Background: Obesity is a grave public health threat, more serious even than the opioid epidemic. It is associated with increased risk of several chronic diseases. Bariatric surgery is an effective and safe technique for the treatment of morbid obesity and co-morbidities related to obesity.

Objective: This study aimed to evaluate the effect of lifestyle modification module on patients' compliance postoperative bariatric surgery.

Method: A quasi experimental design was utilized for the study. A purposive sample of 104 patients with postoperative bariatric surgery who are selected according to certain inclusion criteria.

Results: There was significant improvement in patients' compliance post implementation of lifestyle modification module where the pre compliance mean score was 21.04 ± 8.07 and the post mean score was 33.59 ± 8.34 .

Conclusions: Lifestyle modification module has positive effect on improving patients' compliance post-operative bariatric surgery. This demonstrates that the module is an effective intervention for postoperative counseling to improve bariatric surgery outcomes.

Keywords: Postoperative bariatric surgery, lifestyle modification, patient's compliance.

Introduction

Obesity has been recognized as a universal global health problem, described as an epidemic by the World Health Organization (WHO). It is a chronic, life-limiting disease, which is associated with a number of serious health conditions such as type 2 diabetes mellitus, cardiovascular disease, high blood pressure, obstructive sleep apnea, asthma, osteoarthritis, and some types of cancer^[1,2]. Bariatric surgery is increasingly recognized as the most effective treatment for individuals who

are severely obese. Bariatric surgery not only helps in weight reduction, but also improves obesity-related medical conditions and consequently increases the quality of life^[3].

Worldwide, the total number of bariatric surgery performed in 2014 consisted of 579,517 surgical operations. Compared with 2017, the total number of metabolic and bariatric procedures performed in the united states in 2018 increased from approximately 228,000 to 252,000^[4,5].

Patients undergoing bariatric surgery are required to adhere to the postsurgical behavioral recommendations that includes; following specific eating and drinking behaviors; exercise regularly; take medication/supplements daily; and attend follow-up medical appointments for regular monitor and evaluation of health status^[6, 7].

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It is recommended that patients receive lifestyle modification instructions in the form of a discussion or seminar, booklet or through support groups, educational sessions and one-to-one discussions that provides information of recovery and lifestyle behaviors change^[8,9].

Method

In the present study, quantitative and evaluative approach was used. Research design was quasi experimental: one group pre test - post test. Study was conducted in bariatric surgery outpatient clinic and bariatric surgery department at El-Demerdash Hospital which affiliated to Ain Shams University, Cairo, Egypt.

The sample of 104 postoperative patients with bariatric surgery. Type I error with significant level alpha (α) = 0.05 (confidence level 95%). The inclusion criteria were: patients' one month postoperative bariatric surgery, age over 18 years, from both sexes, obesity related co-morbidity.

The structured questionnaire was administered.

1. Demographic characteristics and patients' clinical data.
2. (A) Postoperative compliance assessment tool, developed by the researcher using the related literatures (American Society for Metabolic and Bariatric Surgery Surgery^[10]; still et al^[11] and Kumar and Gomes^[12]). (B) Medication Adherence Rating Scale (MARS): adopted from (Thompson et al, 2000^[13]). (C) Perceived Stress Scale (PSS): adopted from (Cohen et al., 1983^[14]). (D) Bariatric Analysis and Reporting Outcome System (BARO) and quality of life questionnaire: adopted from (Moorehead et al., 2003^[15]).

Data collection started by selecting patients who are met the inclusion criteria, informed consent was taken followed by the pretest and distribution of lifestyle modification module. Patients' tools were filled in by the researchers or by the patients according to patients' educational level.

Patients followed and evaluated after six months post sessions. Data collection process starting at December 2018 until the end of September 2019.

Statistical analysis was performed with SPSS for window, version 20.0 Armonk, NY: IBM Crop. Data analysis was done using A chi-square test χ^2 and the

values were considered statistically significant when p-value < 0.05.

Results

Patients' Characteristics: Table (1) shows the mean age of all patients was 32.57 ± 6.18 years. The study participants include 78 female (75%), 75 urban (72.1%), 51 diploma education (49%), 81 not working (77.9%) and 67 married (64.4%).

Regarding clinical data: Table (2) illustrates that 96 suffered from chronic disease (92.3%), 85 were obese (81.7%), 56 were between $40 \text{ kg}^2 < 50 \text{ kg}^2$ (53.8%) of body mass index, 100 patients followed program before to lose weight (96.2%), 52 diet regimen only (50%) and 101 gain weight (97.1%).

Table(3) demonstrates significance difference in total compliance post implementation of lifestyle modification module where mean score pre module implementation was (9.51 ± 3.32 , 3.53 ± 3.27 , 3.95 ± 1.27 , 3.50 ± 1.51 , 21.04 ± 8.07) and post implementation of lifestyle modification module was (13.82 ± 3.28 , 9.06 ± 3.19 , 5.58 ± 1.24 , 4.48 ± 0.85 , 33.59 ± 8.34) respectively.

Table (4) illustrates significant differences in total mean scores of patients' compliance with medication, perceiving stress and Bariatric Analysis and Reporting Outcome System (BARO): quality of life post implementation of lifestyle modification module with 95% confidence interval 1.542-2.164, 2.063-2.349, 2.133-2.867 respectively.

Table (1): Percentage distribution of the studied patients according to their demographic characteristics (n=104).

Items	Studied Patients	
	N	%
Age		
18 < 30	17	16.3
30 < 40	64	61.5
40 < 50	17	16.3
≥ 50	6	5.9
Mean ±SD	32.57±6.18	
Gender		
Male	26	25.0
Female	78	75.0

Items	Studied Patients	
	N	%
Residence		
Rural	29	27.9
Urban	75	72.1
Educational level		
Can't read and write	22	21.2
Diploma education	51	49.0
Higher education	31	29.8
Occupational state		
Free work	7	6.7
Governmental work	14	13.5
Not working	81	77.9
Others	2	1.9
Marital status		
Single	27	26.0
Married	67	64.4
Widow/Divorced	10	9.6

Table (2): Percentage distribution of the studied patients regarding clinical data (n=104).

Present history	N	%
Suffers from chronic diseases		
Yes	96	92.3
No	8	7.7

Present history	N	%
Chronic diseases (*)		
Obesity	85	81.7
Hypertension	27	26.0
Diabetes Mellitus	34	32.7
Others (ex. thyroid problems)	14	13.5
Body Mass Index (BMI)		
30 kg2 < 35 kg2	0	0
35 kg2 < 40 kg2	14	13.5
40 kg2 < 50 kg2	56	53.8
≥ 50 kg2	34	32.7
Follow program before to lose weight		
Yes	100	96.2
No	4	3.8
The program followed before consist of:		
Diet only.	52	50.0
Diet and physical exercise.	47	45.2
Body slimming medicines and herbals.	5	4.8
Outcomes of the previous programs:		
Weight loss	3	2.9
Weight gain	101	97.1

* Patients may have more than one disease or take more than one medications.

Table (3): Differences in total compliance among studied patients pre and post implementation of lifestyle modification module (n=104)

Items of compliance	Good		Fair		Poor		Mean ±SD	Chi-square		95% CI
	N	%	N	%	N	%		X ²	P-value	
Compliance to diet after bariatric surgery										
Pre	11	10.6	28	26.9	65	62.5	9.51±3.32	69.076	0.001	1.409-1.944
Post	58	55.8	34	32.7	12	11.5	13.82±3.28			
Compliance to physical exercise										
Pre	0	0.0	7	6.7	97	93.3	3.53±3.27	80.004	0.001	2.383-2.735
Post	8	7.7	61	58.7	35	33.7	9.06±3.19			
Compliance to sleep and rest instructions										
Pre	40	38.5	30	28.8	34	32.7	3.95±1.27	40.735	0.001	1.195-1.687
Post	85	81.7	10	9.6	9	8.7	5.58±1.24			
Compliance to stop smoking activities										
Pre	0	0.0	4	23.5	13	76.5	3.53±1.70	0.151	0.697	2.579-2.892
Post	0	0.0	5	29.4	12	70.6	5.06±1.82			

Items of compliance	Good		Fair		Poor		Mean ±SD	Chi-square		95% CI
	N	%	N	%	N	%		X²	P-value	
Compliance to follow-up										
Pre	51	49.0	34	32.7	19	18.3	3.50±1.51	26.752	0.001	1.075-1.514
Post	84	80.8	18	17.3	2	1.9	4.48±0.85			
Total compliance										
Pre	1	1.0	19	18.3	84	80.8	21.04±8.07	62.514	0.001	1.614-2.151
Post	16	15.4	60	57.7	28	26.9	33.59±8.34			

Table (4): Differences in mean score regarding medication compliance, perceiving stress and Bariatric analysis and reporting outcome system (BARO) and Quality of life questionnaire among studied patients pre and post implementation of lifestyle modification module (n=104).

Items	Pre (1 month) Mean $\pm$ SD	Post (6 months) Mean $\pm$ SD	Chi-square		95% CI
			X ²	P-value	
Total medication adherence.	4.11 $\pm$ 2.36	6.61 $\pm$ 1.84	55.548	0.001	1.542-2.164
Total perceived stress	21.90 $\pm$ 6.27	16.22 $\pm$ 5.19	32.385	0.001	2.063-2.349
Bariatric analysis and reporting outcome system (BARO): Quality of life questionnaire.	1.57 $\pm$ 0.89	5.00 $\pm$ 1.47	41.568	0.001	2.133-2.867

Discussion

This study evaluates the effect of lifestyle modification module on patients' compliance postoperative bariatric surgery and found that it produced a significant improvement in patients' compliance. The hypothesis of the study demonstrated that the module is an effective tool to help this group of bariatric surgery patients to modify their lifestyle.

The study findings illustrates that, more than half of patients achieved good level of compliance with diet instructions post implementation of lifestyle modification module. This result may be due to the motivation and support provided by researchers and the desire of patients to achieve good outcomes of operation and appropriate weight loss. In addition to improved patients' skills in preparing foods, selecting types and eliminating prohibited diet.

This result agree with Kalarchian *et al.* who found that there was statistically significance difference in weight change of the studied patients at 4 months and 6 months after surgery post eating guidelines interventions^[16]. While Toussi, Fujioka and Coleman stated that the non compliance was higher after the surgery regarding diet recommendations^[17].

There was statistically significance difference in

patients' compliance post implementation of lifestyle modification module. This may be due to that the researchers ensured that the successful outcomes of bariatric surgery didn't depend only on compliance with diet or medication but it also includes physical exercises that help to achieve the desirable weight loss. This result is agreed with Coen *et al.* who reported that two thirds of the studied patients successfully completed the recommended physical exercise interventions at the first six months after bariatric surgery^[18].

The majorities of the studied patients have good level of compliance with sleep and rest instructions after bariatric surgery. This is because patients stated that the recommended instructions about sleep and rest after bariatric surgery in the module was easy and simple to applied and followed. This enhances quality, duration of sleep and improves obstructive sleep apnea, and body posture. This result is consistent with Mello *et al.* who stated that bariatric surgery have demonstrated improvement in sleep disorders in people after surgery due to the impact of weight reduction^[19].

The majority of the studied patients have good level of compliance with follow up after bariatric surgery. This due to that patient recognized the importance of follow up visits during the educational session of lifestyle modification where it promote health and reduce the

risk of weight regain. This finding agree with Dagan *et al.* who reported that most of studied people attend to follow-up visit at the first 3 months and 6 months and more than three quarters of them attend to follow-up after 12 month of bariatric surgery^[20].

There was statistically significant improvement post implementation of lifestyle modification module where, more than half of the studied people achieve fair level of total compliance. This study is agree with Dagan *et al.* who revealed that all of the studied patients have medium to high adherence to the major lifestyle recommendations during the first year following bariatric surgery^[20].

There was statistically significant improvement in patients' compliance with medication post implementation of lifestyle modification module. This could be attributed to patients' believes about the importance of prescribed medications and increased their awareness regarding benefits of compliance with vitamins and minerals supplements long life after surgery as a mean to compensate the essential element that have been lost due to small dietary meals intake as a result of surgery mechanism.

This result is consistent with Hood *et al.* who reported that medication adherence tends to be good in the early post-surgery period, 90% of patients taking supplements daily or every other day 5 months post-surgery^[21].

The perceiving of stress was improved among individuals with bariatric surgery because they convinced about the bad effect of stress on health and surgery outcomes, so that they practice and adhere to the stress relieving measures that explained by the researchers. This result go in the same line with Boniecka *et al.* who reported that, near half of the studied individuals had a moderate level of stress^[22].

Regarding Bariatric Analysis and Reporting Outcome System (BARO) and quality of life, therewas a statistically significant improvement post implementation of lifestyle modification module among studied people where (pre mean score= 1.57 ± 0.89 and post mean score= 5.00 ± 1.47). This finding is supported by Alkassis *et al.* who found that there was a statistically significant improvement in people quality of life domains after surgery and no one had a very poor or poor quality of life score, where (pre mean= -0.33 ± 0.93 and post mean= 1.68 ± 0.62)^[23].

Conclusion

Implementation of lifestyle modification module has positive effect on improving patients' compliance post-operative bariatric surgery regarding diet, physical exercise, sleep and rest instructions, follow up visits, medication adherence, stress perceiving, and quality of life.

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