

## Effects of Nursing Guidelines on Postoperative Complications and Quality of Life in Patients Undergoing Bariatric Surgeries

Ghona Abd El-Nasser Ali, Medical-Surgical Nursing Dep.  
Faculty of Nursing, Sohag University

**Abstract:** Bariatric surgeries refer to a group of surgical interventions and are considered the safest and most effective methods of common management of obesity and obesity-related diseases, that lead ultimately to an improvement in the quality of life, as compared to the ways of traditional treatment. **Aim:** To evaluate the effects of nursing guidelines on postoperative complications and quality of life in patients undergoing bariatric surgeries. **Subject and methods:** **Design:** A quasi-experimental design was used. **Setting:** The study was carried out at the Plastic Surgical Department at Assiut University Hospitals. **Sample:** A convenient sample of fifty adult male and female patients. The sample was divided into two equal groups (study and control) (25 patients each). **Tools:** Four tools were used for data collection; patient assessment tool, World Health Organization Quality of Life (WHOQL), and the nursing guidelines for bariatric surgery and complications assessment sheet. **Results:** There is a good improvement in the overall-knowledge scores of the group of study after implementing nursing guidelines as compared to the control group as well as before guidelines application in both groups. Also, there is a significant reduction in the early and late complications in the study group after applying the guidelines as compared to the other group. In addition, there was a significant improvement in the quality of life of the study group after the intervention of nursing guidelines as compared to the control group with a statistically significant difference was found. While there was no relation between demographic data and health-related quality of life in both groups except for the aged and marital status of the study group. **Conclusion:** The intervention of nursing guidelines for bariatric surgery patients was effective in improving knowledge, quality of life and reducing the early and late complications postoperative for bariatric surgery patients **Recommendation:** A printed copy of nursing guidelines is being distributed among patients' with bariatric surgery, with workshops for nurses being organized for providing them with recent guidelines related to bariatric surgery.

**Keywords:** Obesity, bariatric surgery, nursing guidelines, quality of life, complications.

## **Introduction:**

Obesity is a curable illness that is a global health concern related to having an excess amount of body fats. It is caused by hereditary and environmental factors and can be difficult to control by dieting alone. Obesity is diagnosed by healthcare providers and it is categorized as a body mass index (BMI) of 30 or over, and are potent risk factors for type II DM, cardiometabolic diseases and are major contributors to premature deaths<sup>(1)</sup>. In addition, morbid obesity carries substantial, psychological and social overload, especially the associated physiological consequences on patients<sup>(2)</sup>. According to recent estimates of the (WHO)<sup>(3)</sup>, prevalence of overweight and obesity in the Eastern Mediterranean Region ranges from 74% to 86% in females and 69% to 77% in males, in Egypt alone about nineteen million are obese, accounting for 35% of the adult population, the highest in the world<sup>(4)</sup>.

There is a multi-factorial relation between obesity and the declined health-related quality of life perhaps are caused by many reasons, of which musculoskeletal discomfort in persons with morbid obesity, and many other diseases associated<sup>(5)</sup>. According to Barros et al.,<sup>(6)</sup> patients defined QoL as an ability to enjoy a healthy life with the possibility

to exercise easily without fatigue, the ability to eat properly, perform their work well and have more active social lives. Also, a wish for improving the quality of life is often seen as a significant factor for seeking bariatric surgery<sup>(7)</sup>

Bariatric or weight loss surgery refers to a range of surgical interventions and is the safest, most effective method and common management of obesity and obesity-related comorbidities<sup>(8)</sup>; there are various types of bariatric surgery that can be performed some of which are restrictive methods, like adjustable gastric band and vertical gastrostomy or combination of both gastric restriction and malabsorption method such as gastric bypass that leads to early satiety and calories reduction and is considered the most effective methods for long-term weight loss, control, and most of them are done using minimally invasive techniques called laparoscopic surgery<sup>(9)</sup>, well prepared the patients for surgery through quality of care and guidelines for pre-and postoperative minimize risks<sup>(10)</sup>.

Nursing guidelines are defined according to the University of California San Francisco<sup>(11)</sup>; it is the information intended to advise patients on how to do things or which things should be improved concerning knowledge, self-care practice and clinical outcomes. It is very

essential to bariatric surgery patients to follow these recommended guidelines after undergoing bariatric surgery to ensure long-term postoperative success. These guidelines aim at limiting the amount of calories a patient takes while providing balanced meals, with multi-vitamins and additional supplementary that help inhibits nutrient deficiencies and maintain muscle tissue. The guidelines also include an exercising plan to attain long-term success in the lost weight and healthy lifestyle, and also strengthen bones and heart, as well as they develop muscles, increase metabolic rate, and improve mood and alleviate stress. Physical activity after bariatric surgery can also improve blood sugar control, help recover more quickly and wound curing, and improve circulation, as well as, the guidelines include the patient's discharge instructions related to the follow-up visit schedule.

Several studies have been done all over the world regarding the quality of life in bariatric surgery patients. However, the studies done on the impact of nursing guidelines on postoperative complications and quality of life in patients with bariatric surgery are not enough. One of these is a study conducted in Taiwan by **Chang et al.**,<sup>(12)</sup> to assess the HRQoL in patients with morbid obesity they coming for weight loss surgery, who reported that the

HRQoL for patients with obesity was low. Another study was done in Brazil by **Moraes et al.**,<sup>(13)</sup> to assess the QoL before and after bariatric surgery and pointed that the QoL, feelings, satisfaction, and capability to do things has enhanced after weight loss surgery. Within a study carried out in Jeddah, Saudi Arabian by **Aljohani et al.**,<sup>(14)</sup> who studied the impact of the gastric sleeve on QoL in obese adult patients and found that bariatric surgery is associated with the enhancement of all dimensions of QoL except, the physical and emotional health domains.

**Significance of the study:** Obesity has become a major health problem not only in the West but also in the East, especially in Egypt. Obesity affects not only the aesthetic side, but also increases the risk of diseases and health problems like cardiovascular disease, type2 diabetes, and hypertension and can substantially interfere with QoL. Bariatric surgery is considered one of the effective and increasingly available treatments for obesity and related comorbidities. This procedure is associated with several complications like bleeding, deep vein thrombosis, splenic injury, pulmonary embolism, hernia, and recurrence of obesity; these complications have a negative impact on the patient's functional status and consequently QoL. Hence, the

present study is conducted to evaluate the effects of nursing guidelines on postoperative complications and quality of life in patients undergoing bariatric surgeries. Hopefully, these guidelines for bariatric surgery will help in minimizing the post-operative complications and improve the quality of life of these patients.

### **Research hypothesis:**

H1: The post mean knowledge scores will be higher in the first group of the study (called the study group) than the second group of the study (named the control group) after the application of the nursing guidelines.

H2: The incidence of postoperative patients' complications after the application of the nursing guidelines will be lesser in the study group than the control group.

H3: The quality of life will be improved in the study group who will receive the nursing guidelines than those in the control group.

### **Subjects and methods:**

**Aim:** To evaluate the effects of nursing guidelines on postoperative complications and quality of life in patients undergoing bariatric surgeries.

**Research design:** A quasi-experimental research design was adopted to accomplish this study.

**Setting:** The study was conducted at the Plastic Surgical Unit of Assiut University Hospitals.

### **Subjects:**

A convenience sample of available patients (50), who are scheduled for bariatric surgery. The sample was divided into two equal groups (study and control) (25 patients each), the inclusion criteria were as follows: both genders, aged between (18-65 years old), patients with BMI >40 kg/m<sup>2</sup> and for patients with BMI=35 kg/m<sup>2</sup> with serious coexisting medical conditions related to obesity.

### **Tools: Four different tools were used for data collection in the current study:**

**Tool 1: Patient assessment tool:** This tool was developed by the current researcher; it includes two parts:

**Part 1: Demographic data and patient physical assessment:** This part includes two main sections: the first one is related to demographic data such as; the patient's age, gender, level of education, marital status, occupation, type of operation and surgical technique. The second one covers the patient's physical data related to the height, weight, body mass index and chronic diseases. This part consists of 12 items.

**Part II: Pre/postoperative patient knowledge assessment sheet:** This part was developed by the researcher to assess

patients' knowledge regarding bariatric surgery. It included 15 closed /open-ended questions about the meaning of bariatric surgery, indications, contraindications, preoperative instructions and preparation, radiological and laboratory investigations, pre/post-operative care, postoperative complications, postoperative diet and exercise and the instructions on discharge.

**Scoring system:** Each question was revised, categorized, and scored. Each correct and complete answer was given 2 grades, correct and incomplete was given 1 grade while an incorrect answer was given zero. The score of each part of knowledge was added and converted into a percentage score. The total score was 30 was categorized as: score less than 50% were considered having a low level, from 50% - 70% were considered having a moderate level score whereas, the score more than 70% were considered having a high level of knowledge.

### **Tool II: World Health Organization**

**Quality of Life (WHOQoL):** The English <sup>(15)</sup> and the Arabic <sup>(16)</sup> versions of tools were used. It consists of 54 questions clustered into 5 separate domains within which 18 facets are covered to the quality of life. The five domains are:

#### **First domain: Physical health domain:**

This domain includes 7 facets every facet contains (3) items about activities of daily

living, movement, pain and discomfort, energy and fatigue, sleep and rest, work capacity, mobility and dependence on medication. **Second domain:**

**Psychological domain:** This domain contains (4) facets focused on negative and positive feelings, self-esteem, spiritual, religious, and personal beliefs. **Third**

**domain: Social relationships domain:** This domain contains (3) facets of personal relationships, social support, and sexual activity. **Forth domain: Environment**

**domain:** Contains of (3) facets about physical environmental, safety and security health and social care. **Fifth domain:** Perceived quality of life domain and contain (1) facet.

**Scoring system:** The response of all items of this tool was on a three-point Likert scale, which ranged from (1) never, (2) moderate, and (3) high for all quality of life facets except, pain and discomfort, sleep and comfort, negative feeling and movement, the ranges in these facets were: never (1), sometimes (2), always (3). For the last facet which inquired about life quality in general, the range in this facet was: not satisfy (1), satisfy (2) and completely satisfy (3). The highest score for every facet was 0-9, the moderate QoL 4-6, while the lowest 0-3, with the total score for all items, was 162.

**Validity and Reliability:** According to the validity and reliability of this tool, Hableh,<sup>(16)</sup> in a study revised this questionnaire and determined its validity and reliability and found that this questionnaire had internal consistency, and the value of Cronbach  $\alpha$  ranged from 0.64 - 0.76, and that after modified and translated the questionnaire into Arabic.

**Tool III: Nursing guidelines:** It was designed by the researcher in a simple Arabic language with illustrations and based on a review of the relevant literature<sup>(17-21)</sup> and available resource. It included three main parts:

**First part:** It included information about the meaning of bariatric surgery, indications, contraindications, pre-operative preparation and instructions, radiological and laboratory investigations, postoperative complications, postoperative diet and exercise, and post-operative care.

**Second part:** It contains knowledge about eat balanced meals with small portions, follow a diet low in calories, fats and sweets, eat slowly and chew of food thoroughly, as well as the vitamins and minerals supplementary that will likely be required throughout the patient's lifetime, with the necessary of keep a daily record for calories and protein intake. **Third part:** Patients discharge instructions related to follow-up visits schedule and physical

activity recommended as (walking, aerobic exercise and strength training) to success in achieving and maintaining weight loss, to strengthen heart and bones, develop muscles, increase metabolic rate and burn calories, improve mood and relieve stress and also blood sugar control.

**Tool IV: Complications assessment sheet:** It was developed by the researcher to assess the early and late complications after surgery, and it included 15 selected complications such as internal and external bleeding, pulmonary embolism, postoperative leakage, deep venous thrombosis, splenic injury, bowel obstruction, impaired skin integrity, wound infection, vitamins, and minerals deficiency and dumping syndrome.

**Scoring system:** (one score) was given for the presence of complications and (zero) for the absence of postoperative complications.

**Validity and reliability:** According to the tools (I&IV) the face and content validity were ascertained by a panel of five experts in fields of Plastic Surgical Department and Medical-Surgical Nursing, and the correction was carried out accordingly after reviewing the tools to test clarity, relevance, comprehensiveness, applicability, and easiness for administrative. Minor modifications were done based on the expert's opinion and

then the final forms were developed. The reliability of these tools was tested using test re-test methods to ascertain consistency: patient knowledge related to bariatric surgery tool I ( $r = 0.72$ ), and the patients' complications tool IV ( $r = 0.89$ ).

**Pilot Study:** A pilot study was carried out on a group of 5 patients (10%) of the sample to test the clarity, applicability of the tools, time and find out any problem that may interfere with the process of data collection. The data obtained from the pilot study were analyzed no radical change was done in the assessment tools, so the five patients shared in the pilot study were included in the actual study sample.

**Ethical Consideration:** Official permission was obtained from the manager of Assiut University Hospitals. Also, written consent was obtained from each patient after explaining the nature and purpose of the study. The researcher informed each participant to have the right to refuse to participate or withdraw from the study without any rationale at any time.

**Fieldwork:** The fieldwork included three phases (preparatory phase, implementation phase, and evaluation phase).

**1- The Preparatory phase:** During this phase, the researcher designed tools I & IV and nursing guidelines after reviewing the

recent and related literature. And to facilitate the implementation of the nursing guidelines, teaching aids and media such as (images, posters, and videos), educational places, and Arabic guidelines booklets were prepared. This phase ended with a pilot study and content validity and reliability, and took about two months started from the first of April 2016 till the end of July of the same year.

### **2-Implementation phase:**

- The patients were equally enrolled in the study as control and study group sequentially and informed consent was obtained for voluntary participation, after that, asked from the all studied patients answer the following tools I, II and tool IV.
- At the initial interview, the researcher simply explained the aim & purpose of nursing guidelines.
- The study group was exposed to the content of the nursing guidelines, on an individual basis alongside usual hospital care in the form of small teaching sessions. The nursing guidelines sessions aimed to; elaborate to identify the effect of nursing guidelines on minimizing the incidence of early and late complications and improving quality of life for patients who underwent to bariatric surgery. There

was a total of three sessions were implemented individually for each patient in addition to the initial interview session, these sessions were repeated to each patient, every session take duration ranged from (thirty to forty- five ) minutes, including 10 minutes for discussion and feedback, except for the session of discharge instructions, which took about twenty minutes only. The first session started during the first 24 hours post-patients admission pre-operatively and after the initial interview session, and during the first session the patient received information about the meaning of bariatric surgery, radiological and laboratory, investigations, pre-operative preparation and instructions, its benefits and hazards and post-operative care. In the second session and during 24 hours post-operatively, patients were provided by information about the dietary guidelines after bariatric surgery such as eating balanced meals with small portions, follow a diet low in calories, fats and sweets, eat slowly and chew small bites of food thoroughly, as well as the vitamins and minerals supplementary with the keep a daily record for calories and protein intake.

In the third session which carried out after the 2<sup>nd</sup> session after taking a ten minutes break between the two sessions, patients received the discharge instructions related to follow-up and the recommended exercise after bariatric surgery such as walking, aerobic exercise and strength training to maintain the weight loss, strengthen heart and bones, burn calories, develop muscles, increase metabolic rate, improve mood, relieve stress, and also increase the control of blood sugar, and late postoperative complications. Every session usually started with a summary of what had been given during the preceding session and the goals of the new session. After every session, there were five minutes for discussion and give feedback. The underpinning of nursing guidelines was achieved according to the patient's needs to ensure their understanding.

- The researcher used the teaching aids and media for illustration, besides discussion as a teaching method, and every person within the study group obtained an Arabic copy of the nursing guidelines booklet.
- For the control group, they received the routine hospital care and



instructions only, without interference from the researcher.

- Before discharge, the researcher emphasized on the significance of follow-up for all patients (control and study) and arranged with study group the place and time for follow-up after the first, second weeks and six months post-operatively at the out-patient bariatric surgery clinic at Assiut University Hospitals and their phone numbers were taken. The researcher collected data 3 days/week, at the morning and afternoon shifts for each group, started by a control group during morning and afternoon shifts for all available patients. This phase started in August 2016 till the end of February 2017

**3-Evaluation phase:** Evaluation was carried out three times used tool I (part II), tools II and IV for all the studied sample(study and control group) to distinguish between the control and study group, and between the initial assessment of the studied group and their assessment at the time of follow-up after two week, then after six months of application of nursing guidelines. A line of contact (Phone-based follow-up) was established between the researcher and all subjects of both groups for monitoring, feedback, and provision of needed consultation and help.

Telephone follow-up was performed twice weekly and the average length of these contacts was about 15 mins per call. The calls of the phone contacts were based on the nursing guidelines booklet.

**Administrative and ethical considerations:** An official permission to conduct the study was obtained by the researcher from the head of the plastic surgical department to collect the essential data after explaining the nature and purpose of the study and nursing guidelines to obtain their cooperation. Also, oral consent was obtained from patients voluntary after explaining the aims of the study and they informed that they have the right to participate or retreat in the study without any negative effects on them.

**Statistical design:**

Data were analyzed using SPSS version (21). The following tests for significance were used, frequency, percentage, mean and standard deviation. Mann-Whitney test was used to determine the significance of numeric variables, and Chi-Square was used to determine the significance of categorical variables. Also, Pearson correlation was used to determine the correlation between groups, ANOVA and t-test for comparison of means. P-values less than 0.05 were considered statistically significant.

## Results:

**Table (1);** shows the demographic characteristics of the studied patients. It was found the mean age of the study and control group were ( $35.6\pm 9.5$ ;  $32.6\pm 6.9$ ) with mean BMI was ( $51.5\pm 6.5$  &  $49.4\pm 7.5$ ), and the majority of the sample (88% & 92%, respectively) of both study and control groups were female. As regarded the marital status, the current study revealed that more than half of the study and control groups were married (64.0 % & 52.0 % respectively), and the majority in both group (92.0 % & 100 % respectively) were fluent in reading and writing, and nearly half of the study and control groups had work. The present study also revealed that nearly half of the study and control groups ( $52.0\%$  &  $36.0\%$  respectively) suffered from hypertension, and nearly one-quarter of them suffer from DM( type I & II). There was no statistically significant difference in all of the demographic data between the two studied groups.

**Table (2);** this table shows the total mean score of knowledge for both groups pre/post-guidelines. It was found that, the mean score of knowledge for study and control groups before guidelines had unsatisfactory where the average knowledge score was ( $9.1\pm 3.9$  &  $7.4\pm 3.5$  respectively) as compared to mean score of

knowledge post-implementation of guidelines in study group where the mean score was became ( $29.8\pm 6.2$ ) after application, while the average score of control group knowledge that did not undergo to guidelines remained low ( $8.4\pm 3.5$ ), with statistically significant differences between the two groups with regard to the level of knowledge about bariatric surgery (P. value =0.001).

**Fig (1);** this figure shows the level of knowledge for the study and control groups before and after the implementation of nursing guidelines. It was found that nearly eighty percent ( $80.0\%$  &  $84.0\%$ , respectively) of both study and control groups were a low level of knowledge before guidelines, while after the implementation of the nursing guidelines more than two thirds of the study groups ( $76.0\%$ ) had improved, with statistically significant difference in level of knowledge as compared to pre-implementation of nursing guidelines (P. value=0.001).

**Fig (2);** demonstrates the comparison between the study and control groups as regarded the early complications after implemented of nursing guidelines. It was found that the external bleeding was ( $8.0\%$ ) in the study group, while in the control group was ( $36.0\%$ ). As for the post-operative leakage, the present study

revealed the majority of the control group (88%) was suffered from postoperative leakage, while about one quarter (24%) of the study group suffered from postoperative leakage. As regarded the internal bleeding, splenic injury, pulmonary embolism, and deep venous thrombosis, it was found that all of the study and control groups were not suffering from those complications.

**Fig (3);** illustrates the comparison between the study and control group as regarded to late complications. It was found that there was a statistically significant difference between the study and control groups in all late complications after implemented of nursing guidelines.

**Table (3);** presents the comparison between the study and control groups as regarded quality of life. It was found that the vast majority of the study group had a moderate and good level of QOL after application of nursing guidelines as compared to pre-test for the same group and control group, with a statistically significant difference was found between the two groups after implementation of nursing guidelines.

**Table (4);** illustrates the relationship between the quality of life and demographic data in the study group. It was found that a statistically significant relationship between the total level of QoL

of the patients after guidelines implementation, and age of patients and marital status only, where the young and married patients were better than other groups.

**Table (5);** shows the relation between the quality of life and demographic data in the control group. It was found that there were no statistically significant differences between the QOL and demographic characteristics in the control group although the apparent improvement in the quality of life level in the age group between 30 to < 40 and in females after bariatric surgery.

**Table (1): Distribution of demographic patients' characteristics in study and control groups subjects (n=50):**

Variables	Study n=(25)		Control n=(25)		P-value
<b>Age</b> (Mean ± SD)	35.6+9.5		32.6+6.9		0.221 <sup>ns</sup>
<b>BMI</b> (Mean ±SD)	51.5+6.5		49.4+7.5		0.295 <sup>ns</sup>
	<b>No.</b>	<b>%</b>	<b>No.</b>	<b>%</b>	
<b>Sex</b>					
Male	3	12.0	2	8.0	0.637 <sup>ns</sup>
Female	22	88.0	23	92.0	
<b>Marital status</b>					
Single	6	24.0	10	40.0	0.346 <sup>ns</sup>
Married	16	64.0	13	52.0	
Divorced	3	12.0	1	4.0	
Widow	0	0.0	1	4.0	
<b>Educational level</b>					
Illiterate	0	0.0	2	8.0	0.149 <sup>ns</sup>
Read & write	25	100.0	23	92.0	
<b>Occupation</b>					
Work	12	48.0	16	64.0	0.254 <sup>ns</sup>
Not work	13	52.0	9	36.0	
<b>Chronic diseases</b>					
HIN	13	52.0	9	36.0	0.062 <sup>ns</sup>
DM typeI&II	3	12.0	4	16.0	
DM& HIN	3	12.0	0	0.0	
COPD	1	4.0	1	4.0	

\* HIN= hypertension, DM= diabetes militias, \*COPD= chronic obstructive pulmonary disease

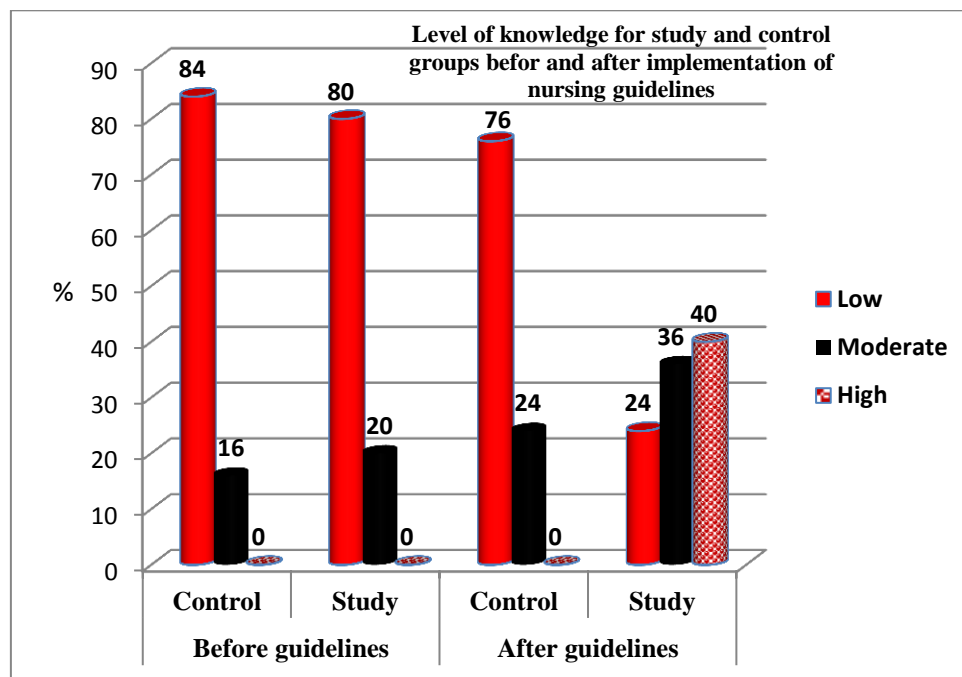


Figure (1); Distribution of the sample according to level of knowledge for study and control groups before and after implementation of nursing guidelines (n=50)

Table(2); the differences in level of knowledge among control and study groups pre and post nursing guidelines (n=50)

	Knowledge score (mean ±SD)		P-value
	Pre	Post	
Control	7.4+3.5	8.4+3.5	0.334 ns
Study	9.1+3.9	29.8+6.2	0.001*
P. value	0.112 ns	0.001*	

\*Unpaired t-test used for comparison between means

\*\*Ns= not Significant, \* = Significant

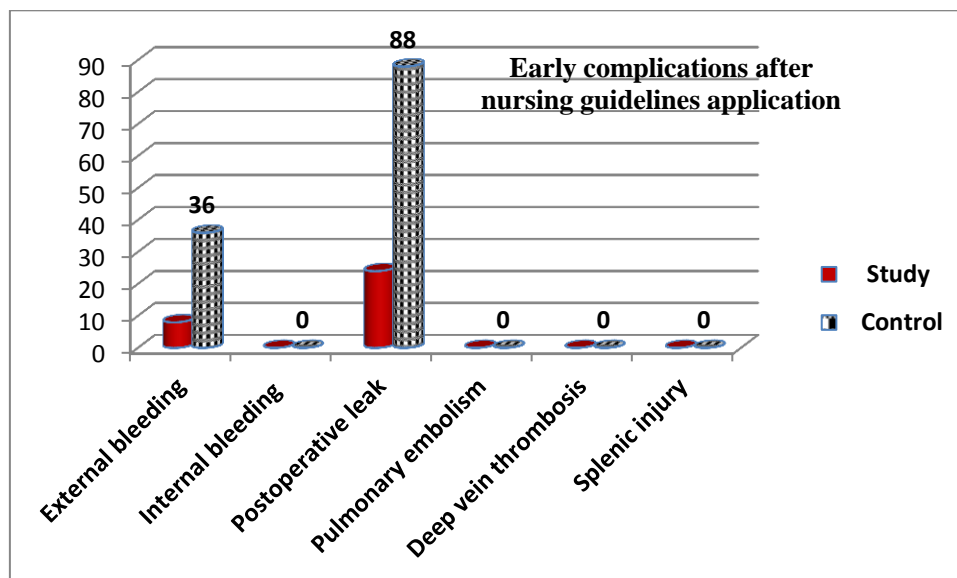


Fig (2): Comparison between study and control groups as regarded early complications after implementation of nursing guidelines

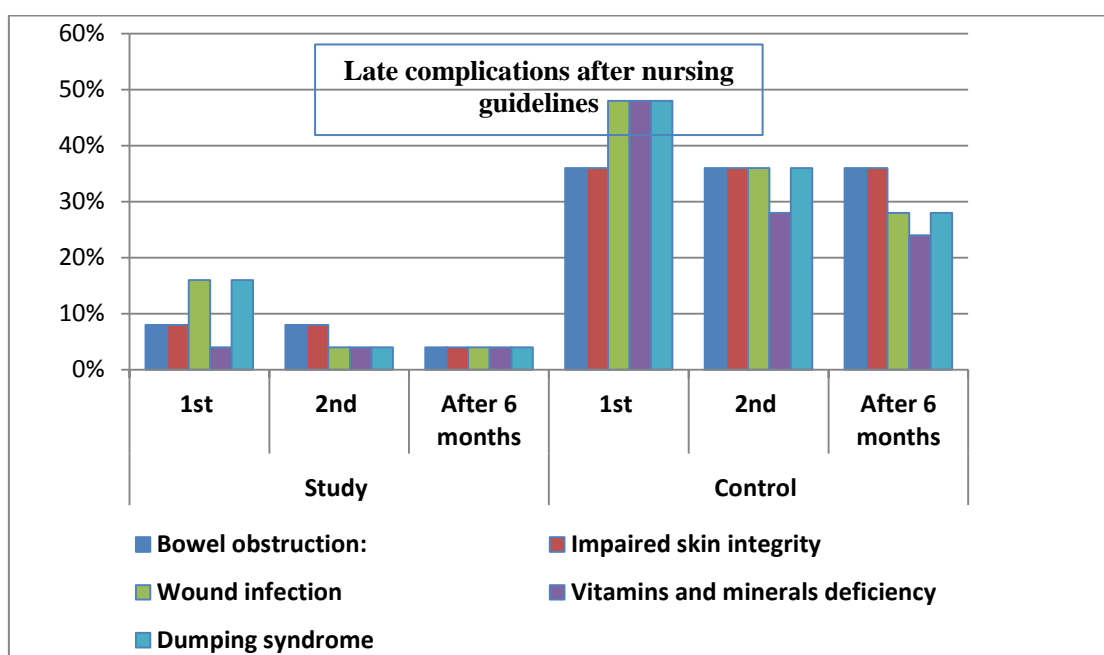


Fig (3): Comparison between study and control groups regarding late complications after implementation of nursing guidelines

**Table (3): Comparison between study and control groups after implementation of nursing guidelines regarding to quality of life (n=50)**

Variables	Before guidelines					After guidelines				
	Study		Control		P-value	Study		Control		P-value
	No.	%	No.	%		No.	%	No.	%	
<b>Total quality of life</b>										
Poor	19	76.0	17	68.0	0.480 ns	0	0.0	1	4.0	0.001 *
Moderate	6	24.0	8	32.0		4	16.0	11	44.0	
Good	0	0.0	0	0.0		21	84.0	13	52.0	

**Table (4): Relation between quality of life and demographic data in study group (n=25)**

Variables	Quality of life						P-value	Quality of life						P-value
	Poor		Moderate		Good			Poor		Moderate		Good		
	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%	
<b>Age groups</b>							0.381							0.005*
20- <30 yrs.	6	31.6	1	16.7	0	0.0		0	0.0	3	75.0	4	19.0	
30-<40 yrs.	9	47.4	2	33.3	0	0.0		0	0.0	1	25.0	10	47.6	
≥ 40 yrs.	4	21.1	3	50.0	0	0.0		0	0.0	0	0.0	7	33.3	
<b>Sex</b>							0.687							0.420
Male	2	10.5	1	16.7	0	0.0		0	0.0	0	0.0	3	14.3	
Female	17	89.5	5	83.3	0	0.0		0	0.0	4	100.0	18	85.7	
<b>Marital status</b>							0.182							0.031*
Single	5	26.3	1	16.7	0	0.0		0	0.0	2	50.0	4	19.0	
Married	13	68.4	3	50.0	0	0.0		0	0.0	2	50.0	14	66.7	
Divorced	1	5.3	2	33.3	0	0.0		0	0.0	0	0.0	3	14.3	
<b>Occupation</b>							0.876							0.102
Work	12	63.2	4	66.7	0	0.0		0	0.0	4	100.0	12	57.1	
Not work	7	36.8	2	33.3	0	0.0		0	0.0	0	0.0	9	42.9	

**Table (5): Relation between QOL and socio-demographic data in control group (n=25)**

Variables	Quality of life before						P. value	Quality of life after						P- value
	Poor		Moderate		Good			Poor		Moderate		Good		
	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%	
<b>Age groups</b>							0.124							0.242
20- <30 yrs.	5	23.8	3	75.0	0	0.0		0	0.0	7	43.8	1	11.1	
30-<40 yrs.	12	57.1	1	25.0	0	0.0		0	0.0	7	43.8	6	66.7	
≥ 40 yrs.	4	19.0	0	0.0	0	0.0		0	0.0	2	12.5	2	22.2	
<b>Sex</b>							0.520							0.667
Male	2	9.5	0	0.0	0	0.0		0	0.0	1	6.3	1	11.1	
Female	19	90.5	4	100.0	0	0.0		0	0.0	15	93.8	8	88.9	
<b>Marital status</b>							0.474							0.258
Single	7	33.3	3	75.0	0	0.0		0	0.0	8	50.0	2	22.2	
Married	12	57.1	1	25.0	0	0.0		0	0.0	6	37.5	7	77.8	
Divorced	1	4.8	0	0.0	0	0.0		0	0.0	1	6.3	0	0.0	
Widow	1	4.8	0	0.0	0	0.0		0	0.0	1	6.3	0	0.0	
<b>Occupation</b>							0.930							0.161
Work	10	47.6	2	50.0	0	0.0		0	0.0	6	37.5	6	66.7	
Not work	11	52.4	2	50.0	0	0.0		0	0.0	10	62.5	3	33.3	



### Discussion:

The negative effects of obesity on the quality of life and associated diseases like cardio-metabolic disease and other diseases especially in female can be avoided through nursing guidelines which are offered before and after bariatric surgeries for morbid obesity patients.

As regards to demographic characteristics of the study and control groups subjects. The current study revealed that the mean age of the study and control groups were (35.6±9.5; 32.6±6.9), with the mean of BMI was (51.5± 6.5; 49.4 ±7.5) respectively, and the vast majority of the study and control groups were females. With regard to marital status, the current study found that more than half of the sample in both study and control groups were married. Concerning the educational level, the present study revealed that almost the entire sample in the study and control groups can read and write, and nearly half of the study and control groups had work. There was no statistically significant difference in all of the demographic data between the groups. These results were in accordance with a study done in Ethiopia by **Darebo** et al.,<sup>(22)</sup> who found that the majority of the studied sample was about at the age of thirty-five years, the females were more

representative than the males and about half of them were married. Also, more than half of the respondents were fluent in reading and writing.

Regarding the obesity-related comorbidity, the current study showed that nearly half of the study and control groups were suffering from hypertension and nearly one-quarter of them were suffering from DM (type I & II), while there was no statistically significant difference between the two groups. These results were consistent with **Alkassis** et al.,<sup>(23)</sup> who conducted a study to assess the QOL pre and post weight loss surgery among the Lebanese population, and reported that a large proportion of the participants were hypertensive, diabetic and dyslipidemic. Also, **Csige** et al.,<sup>(24)</sup> found that there was a relationship between increased risk of cardiovascular disease with obesity itself, and on other hand with the other medical conditions such as hypertension, diabetes, insulin resistance, and sleep apnea syndrome.

In relation to the total knowledge score of both groups pre and post-nursing guidelines application, the present study revealed that the majority of the sample in study and control groups had low level of knowledge pre-implementing of the nursing guidelines; while there was a

significant improvement in the level of knowledge in the study group post-applied of nursing guidelines as compared to the control group and the initial assessment in study group. These results come in agreement with a study done by **Goldstein & Hadid**<sup>(25)</sup> about the impact of bariatric preoperative education on patient knowledge and satisfaction with overall hospital experience, who revealed that the majority of the patients who attended preoperative education about bariatric surgery and follow-up, obtained high scores in knowledge and high levels of satisfaction. On the other side, the current study also revealed that, although the level of knowledge improved in two-thirds of the study group after application of nursing guidelines, about one-third of this group remained at a low level of knowledge. From the researcher's point of view, the low level of knowledge is due to the age of patients and their preoccupation with a lot of details in matters of life or the lack of organization of their priorities, which led to the inability of the brain to retain a large volume of knowledge.

With regard to the comparison between the study and control groups with regard to the early complications after application of nursing guidelines. The current study revealed that the study group which

undergoes nursing guidelines, their complications were less than the control group as about one eighth only from them suffered from external bleeding, while about one-third of the control group suffered from the external bleeding. In the same context, the present study also showed that more than two-thirds of the control group suffered from postoperative leakage, while one-quarter of the study group only suffered from post-operative leakage, with statistically significant differences were found between the two groups after application of nursing guidelines. These findings were consistent with a study done in Germany by **Klaiber et al.**,<sup>(26)</sup> about the impact of preoperative patient education on the prevention of postoperative complications after major visceral surgery, reporting that the numerous postoperative complications like bleeding, pneumonia, DVT, pulmonary embolism and burst abdomen following major abdominal surgery can be avoided by professional patient care and patient education before surgery, and this should be offered to patients who have scheduled for abdominal surgeries. In the same line, and in the systematic review by **Cheng et al.**,<sup>( 27 )</sup> about the effect of operative duration on the postoperative complications, and reporting that there was

a positive relationship between the surgical procedures duration and postoperative complications such as wound infection, bleeding, hematoma and VTE.

In the same context noticeable results of the study as regard to the late complications after application of the nursing guidelines, the present study showed that there were statistically significant differences between the study and control groups who were exposed to routine hospital care only with regard to late complications. In accordance with these results **Mohamed & Bahgat**,<sup>(28)</sup> stated that the best patient outcomes after surgery depend heavily on appropriate preoperative patients' education, shortage of instructions might have an effect on achieving the aim of the surgery and undesirable outcomes. In line with these present study findings, **Chang et al.**,<sup>(29)</sup> reported that failure to follow dietary guidelines and a lack of physical activity can be the reasons for restoration weight or not losing enough weight after surgery. Also, with a change in lifestyle and successful weight loss after surgery patients can reduce obesity-associated diseases and increase their overall energy and confidence.

As regards to the effect of nursing guidelines on the quality of life in the

study and control groups who underwent to bariatric surgery, the present study found that there was a statistically significant improvement after the application of nursing guidelines as regarded to the quality of life in the study group as compared to the control group. This was also found by others **Mohamed & Bahgat**,<sup>(28)</sup> who mentioned that improving the level of knowledge in patients had a significant impact on reducing or preventing postoperative complications, improving the quality of life, and improve health. These findings were supported by another study held by **Alkassis et al.**,<sup>(23)</sup> who reported that the weight loss surgery improves QOL and allows the reduction of concomitant diseases.

Regarding the relation between the demographic characteristics and quality of life of the studied groups, the current study found that there was a statistically significant relationship between the total level of quality of life of the patient after guidelines implementation and the age of patients and marital status, where the young and married patients were having a better quality of life than other groups. These results were in agreement with the study conducted by **Salazar-Maya et al.**,<sup>(30)</sup> about the perception of QOL of a group of patients undergo to bariatric surgery, who

reported that there was an inversely proportional relationship noticed between the QoL and the age groups. Also, in the study done by **Janik et al.**,<sup>(31)</sup> about quality of life and bariatric surgery: cross-sectional study and analysis of factors influencing outcome, who stated that among the nine variables studied such as gender, age and marital status and had an impact on the QOL, and should be taken into account in further studies about QOL and bariatric surgery. While, these results go in contrast with **Twells et al.**,<sup>(32)</sup> in a research study entitled the morbidity and health-related quality of life of patients accessing laparoscopic sleeve gastrectomy: a single centre cross-sectional study in one province of Canada, reported that the health-related quality of life was meaningful impaired in males and females.

**Gondal et al.**,<sup>(33)</sup> recommended that the use of nursing guidelines should be encouraged as a standard of care in weight loss surgery programs to reduce the length of hospital stay and complications after surgery.

**Conclusion:** the concluded of this study is that the nursing guidelines were effective on the improvement of the patients' knowledge related to bariatric surgeries and continued to the time of follow up compared to the level of knowledge of

control group who didn't receive the nursing guideline and pretest for study groups. This was reflected in the low incidence of early and late complications postoperative and quality of life, where most of the study group patients became had a good QoL.

### **Recommendations:**

- Based on these results it is recommended to apply these guidelines as hospital routine care in the study place and likes ones.
- A printed copy of the nursing guidelines is to be distributed among patients with bariatric surgeries.
- A workshop for nurses working in the operating room and a plastic surgical department is being organized for enriching nurses with recent guidelines related to bariatric surgery.
- Replication of the current study on a larger sample for generalization of results.

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