Journal of Medical and Surgical Practice (JMSP)
ISSN: 2664-1704
Vol. 07, No. 04, October-December,2021

Health Status and Patient's Satisfaction One Year and More after Bariatric Surgery in Karbala City

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Original Article

Summary

Obesity constitutes a global public health problem with significant psychological and social consequences. Bariatric surgery effectively addresses both obesity and its associated co-morbidities. Psychological and psychosocial health issues have become widely recognized as significant outcomes of bariatric surgery. Patient satisfaction following bariatric surgery is a significant concern for surgeons and clinicians. Consequently, we sought to assess the effects of bariatric surgery on the psychosocial functioning and quality of life of morbidly obese individuals, as well as to assess the satisfaction levels of patients who have undergone the procedure. A prospective study involved 77 obese adults who met the selection criteria and underwent surgery performed by the same bariatric surgery team at Imam Hussain Medical City and Al-Kafeel Surgical Hospital. Patients were evaluated prior to surgery and again one year after, with the first year being the primary focus, as most patients who have undergone bariatric surgery achieve their maximal weight loss by this time. Our findings revealed that females contributed for 84.4% of our patients. A significant improvement of hypertension, diabetes mellitus and depression symptoms was reported. The mean body mass index of participants reduced from 46.24± 6.60 kg/ m² to 29.98 ±5.71kg/ m². Proportion of bad social communication improved after surgery from 54.5% to only 13%after surgery. Percentage of patients satisfied with outcome was 84%. In conclusion, patients had better medical outcomes after bariatric surgery better quality of life and good satisfaction.

Keywords: *Obesity, Comorbidity, Bariatric Surgery, Outcome, Patients' Satisfaction*

Received : October 2021, **Published**: December, 2021

Citation: Al Hussaini S. , Al Kabbi M. Health Status and Patient's Satisfaction One Year and More after Bariatric Surgery in Karbala City. JMSP 2021; 7 (4): 360-75

1. INTRODUCTION

Obesity continue to represent a significant public health concern worldwide, resulting from an imbalance between energy intake and energy expense (1). The body mass index (BMI) serves as a fundamental metric for assessing obesity, calculated by dividing an individual's weight in kilograms by the square of their height in meters. According to the World Health Organization, an individual with a BMI of 30 or over is often classified as obese. It is a significant contributor to morbidity and mortality within a community, evidenced by elevated rates of ischaemic heart disease, stroke, type II diabetes mellitus, hypertension, osteoarthritis, cancer, as well as gastrointestinal diseases, respiratory diseases, and psychological complications (2). The WHO reports showed that the global prevalence of obesity has nearly tripled since 1975, resulting in over 650 million individuals classified as clinically obese (3). Bariatric surgery should be regarded as the preferred treatment for severe obesity when lifestyle modifications (diet, behavioural therapy, exercise, and pharmaceutical intervention) are ineffective, as established in 1950 (4). The phrase 'bariatric' surgery, originating from the Greek word 'baros' meaning "weight" and 'iatricos' meaning "the art of healing," is equivalent to weight loss surgery. The objectives of bariatric surgery initially centered on attaining significant and enduring weight reduction (5). Bariatric surgery is presently the most prevalent weight loss intervention that entails surgical modification of the gastrointestinal tract to restrict amount of food intake. It becomes the single most effective long-term treatment for obesity and its comorbidities. However, bariatrics not only treats obesity, but can also significantly improve people's quality of life. One of the main effects of bariatric surgery is weight loss, which positively affects the patient's well-being. Obesity often causes psychological problems such as depression and anxiety. After bariatric surgery, patients not only lose extra pounds, but also significantly improve their overall well-being and self-esteem (1-5). Obesity increases the risk of developing cardiovascular diseases, namely hypertension, atherosclerosis, etc. An overweight person has a 4-fold increased risk of cardiovascular mortality. Accordingly, bariatrics, which helps to get rid of excess weight, reduces this risk, thereby improving the quality of life (1,2). Despite the benefits and several advantages, complications are still reported with these procedures worldwide; nevertheless, many authors stated that bariatric complications and associated morbidity and mortality will decrease over the time. The most common complications after

bariatric complications are postoperative bleeding, nutritional deficiency , failure of anastomoses and GERD. In recent years, many surgeons adopted different approaches to reduce complications and improve the outcomes and patient's satisfaction in both laparoscopic or open operations (6-8). Bariatric surgical procedures include Roux-en-Y gastric bypass (RYGB), sleeve gastrectomy (SG), and adjustable gastric banding (AGB), these are the most frequently performed interventions globally. Currently, bariatric surgery is indicated for individuals with class III obesity (BMI equal to or greater than 40 kg/m²) and class II obesity (BMI greater than 35 kg/m²) accompanied by comorbid conditions such as hypertension and type II diabetes. Bariatric surgery is generally conducted laparoscopically, demonstrating safety and efficacy in attaining sustainable weight loss, as well as documenting the success of the procedure in facilitating significant weight reduction and ameliorating obesity-related comorbidities (7). Excess body weight refers to the surplus weight above the ideal body weight. Bariatric surgery yields an average weight reduction of 60-75% of extra body weight, with the most pronounced weight loss observed between 18 and 24 months postoperatively (8). Bariatric surgery provided enhanced glycemic control in severly obese patients with type 2 diabetes compared to medication therapy, however, preoperative BMI and loss of weight after surgery are not good predictors of improved glycemic control (9). A total of 394,431 operation records were contributed by 51 countries across 5 continents and over 550 hospitals contributed data either directly or through their national registry submissions. The majority of the database records (88.5% of the total) were from the years 2009-2018, while 220,348 (55.9%) operations were dated between 2014 and 2018 (10). The social network that encompasses patients who endure bariatric surgery is the context in which these significant lifestyle changes take place, rather than a vacuum (11). In the initial one to two years following bariatric surgery, there are improved quality of life, social functioning, body image, eating behaviour, psychopathological and personality features (12). The quality of life and psychological health were observed to be improved following bariatric surgery. Before surgery, weight loss could not be associated with any particular psychological condition; however, the existence of multiple psychiatric conditions may have an impact (13). From other point of view, morbid obesity has numerous adverse consequences for psychological health, with the severity of these psychological illnesses correlating with the extent of obesity (14). Poor weight loss or medical complications following bariatric surgery are often attributed to psychological factors (15). Nonetheless, not all bariatric

patients derive mental health advantages from weight loss surgery. This is largely attributable to patients' reactions to prevalent adverse physical outcomes following surgery, including weight regain, inadequate weight loss, and unfavorable skin alterations. Patients' anticipations that bariatric surgery will unequivocally alter their lives may render them susceptible to psychological discomfort if these expectations remain unfulfilled (16). The correlation between obesity and sexual function problems remains inadequately comprehended; a limited number of researchers have investigated the prevalence of functional sexual dysfunction and alterations in sexual quality of life post-bariatric surgery, with inconsistent results (17). On the other hand, obesity itself and rapid weight reduction post-bariatric surgery are distinct risk factors for the onset of cholelithiasis (18). The scientific community continues to express concern regarding the observation that bariatric patients are at a cumulative postoperative risk of 30–53% for gallstone formation (19). An increase in physical activity has been demonstrated to be associated with enhanced weight loss outcomes following bariatric surgery (20).

2. PATIENTS and METHODS

The original sample consisted of 100 obese patients who underwent bariatric surgery, the study excluded 13 participants fail to follow them, another 10 refused to answer the questionnaire. The study included Iraqi adult obese patients who met the eligibility criteria of the study. A total of seventy- seven patients at Imam Hussain Medical City Hospital and Al- Kafeel Surgical Hospital after one or more year of surgery. All operative procedures were performed by the same surgical team.

Inclusion criteria

1. Adult Iraqi patients aged 18-65 years
2. Have one or more indication for bariatric surgery according to standard clinical guidelines (SAGES, ASMBS and IFSO) (21).
3. Patients undergone eith gastric bypass or sleeve gastrectomy with laparoscopic approach

Exclusion Criteria:

Patient was excluded if he/she had one or more of the following

1. Any contraindication for bariatric surgery.
2. Mental disorder or psychological dysfunction
3. Hormonal disturbances for any cause.

4. Rheumatological bone diseases such as osteoarthritis, rheumatoid arthritis.

5. Operation performed less than one year.

Data collection and study approval:

The study was reviewed and approved by the medical ethics committee, all participants completed a demographic questionnaire and a health history checklist. Data were collected by using the telephone, social media ,or via patient's visit to their doctors for follow up.

Statistical analysis:

Data were inputted and examined utilizing the Statistical Package for the Social Sciences (SPSS) version 21. Qualitative data were represented as numbers and percentages, whilst quantitative data were conveyed as mean ± standard deviation (SD). A paired sample t-test was employed to analyze BMI pre- and post-surgery, whereas the Student's t-test was utilized to compare the means of excess weight reduction. The McNemar test was employed to compare the alterations in frequency of certain presentations before and after surgery. A p-value below 0.05 was deemed statistically significant.

3. RESULTS

The total number of patients is 77, their mean age is 35.88 ±SD of 8.64 and it's ranging 21-63 years. Most of our patients in this study are female 84.4% VS male participants 15.6%. The percentage of patient's working (who have income) vs. not working was 55.8% and 44.2%, respectively, (Table 1). The most common types of bariatric surgery, which performed in this study (according to the decision of the surgeon), were gastric sleeve in comparison to the bypass, (Figure1). There is a significant result regarding the improvement of hypertension, diabetes mellitus ,and depression, as demonstrated in (Figure 2). Changes in BMI and the EWL after bariatric surgery are shown in (Table 2). There is a significant reduction in BMI after bariatric surgery, (Figure 3). Three cases removed gallbladder before the surgery and two cases were removed with bariatric surgery while sixteen cases removed after bariatric surgery out 72 representing 22.2%. (Figure 4). Comparison of the physical and social state of patients before and after bariatric surgery is shown in (Figure 5). Count of intimacy is shown in (Figure 6). Patient's conviction of the operation after surgery are shown in (Figures 7) where percentage of patient's conviction of the surgery was 84% compared to only 16% not satisfied with operation.

Table 1. Gender and working status of the studied group (N = 77)

Parameters		No.	%
Gender	Female	65	84.4
	Male	12	15.6
Job/ fixed income	Yes	43	55.8
	No	34	44.2

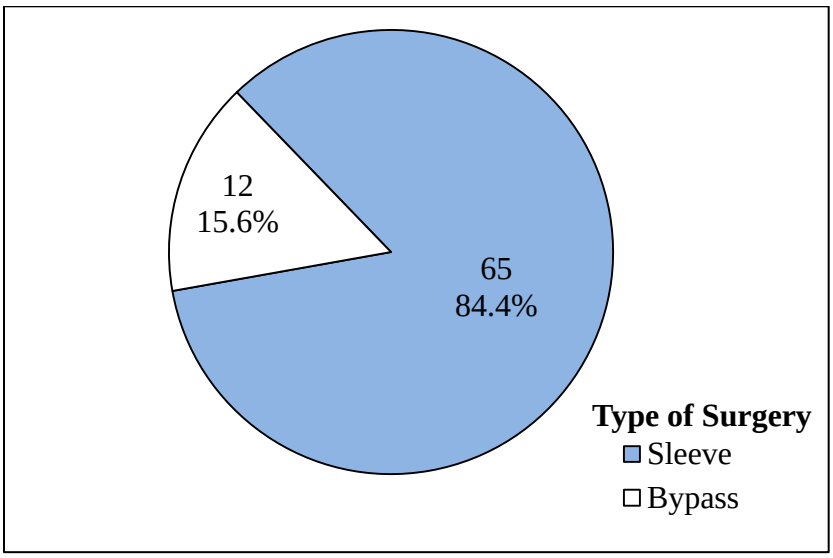

Figure 1. Types of bariatric surgery.

Table 2. Changes in the rates of diabetes, hypertension ,and depression before and after bariatric surgery.

Comorbidity	Before surgery		After surgery		P. value
	No.	%	No.	%	
Hypertension	26	33.8	4	5.2	< 0.001
Diabetes Mellitus	10	13.0	2	2.6	0.017
Depression	48	62.3	10	13.0	< 0.001
In all comparisons, P-value is significant < 0.05, using the McNemar test.					

Table 3. Body mass index (BMI) and excess weight loss(EWL)

	BMI (kg/m²)		
	Minimum	Maximum	mean + SD
Before surgery	34.7	64.3	46.24± 6.60
After surgery	20.2	46.9	29.98 ±5.71
EWL %	8	126	74.43±18
P, value < 0.001, using paired t test			

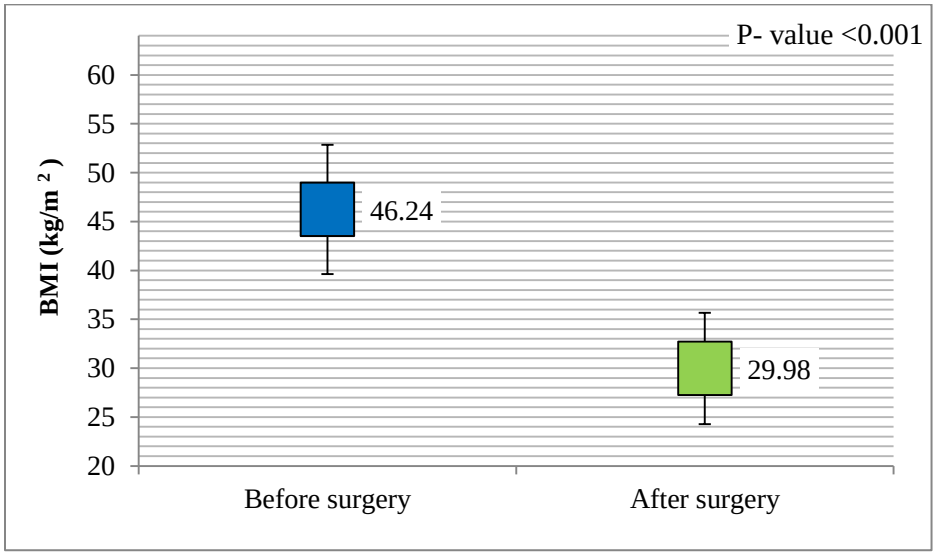

Figure 3. Changes in mean BMI after bariatric surgery

Table 4. Gall bladder state before and after bariatric surgery

Gallbladder status	**Number of gallbladders**	**%**
Present and normal	56	72.7
Removed after surgery	16	20.8
Removed before surgery	3	3.9
Removed with bariatric surgery	2	2.6
P- value < 0.001 by using the McNemar test		

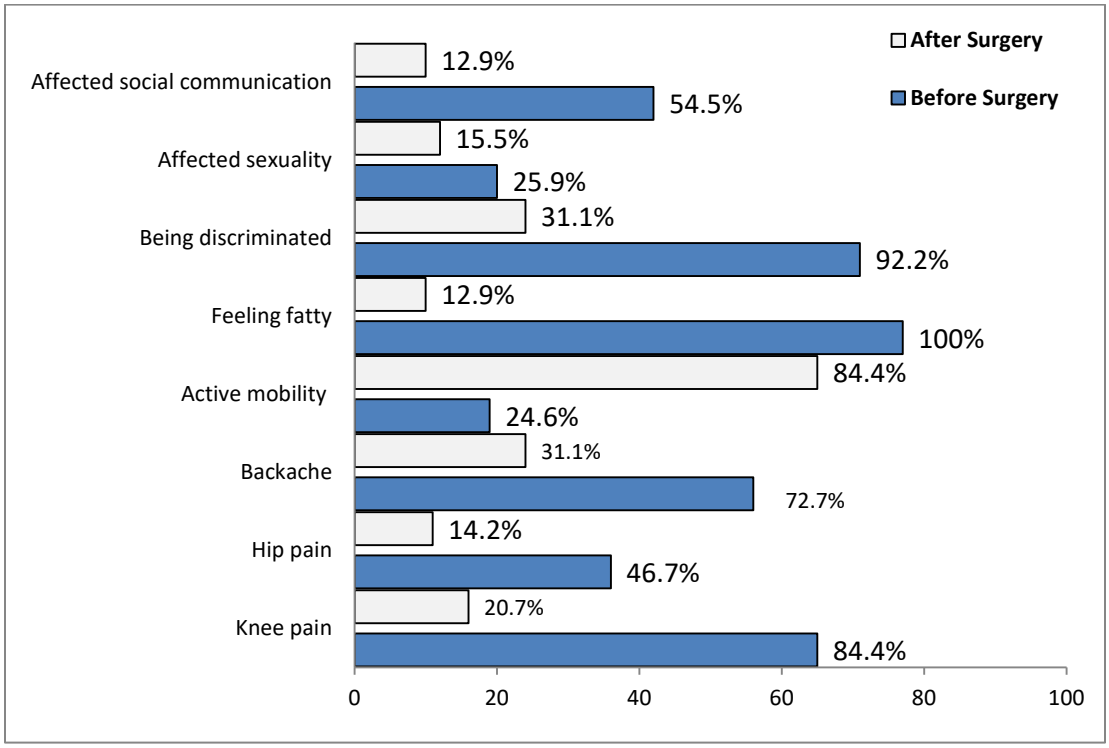

Figure 5. Comparison of the physical and social state of patients before and bariatric surgery P- value < 0.001 for all conditions using the McNemar test

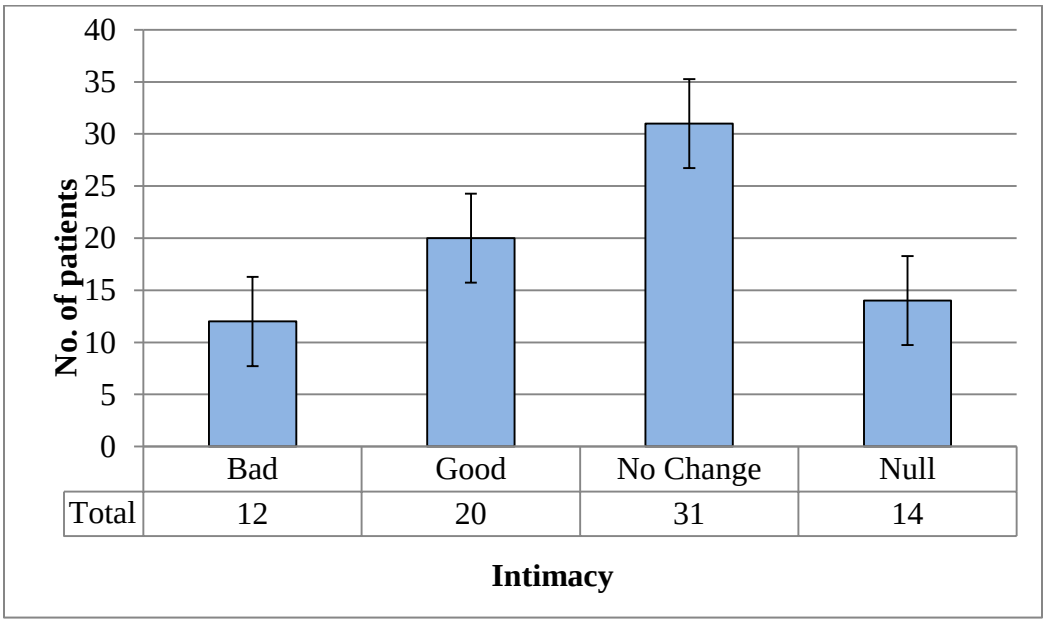

Figure 6. Intimacy after surgery

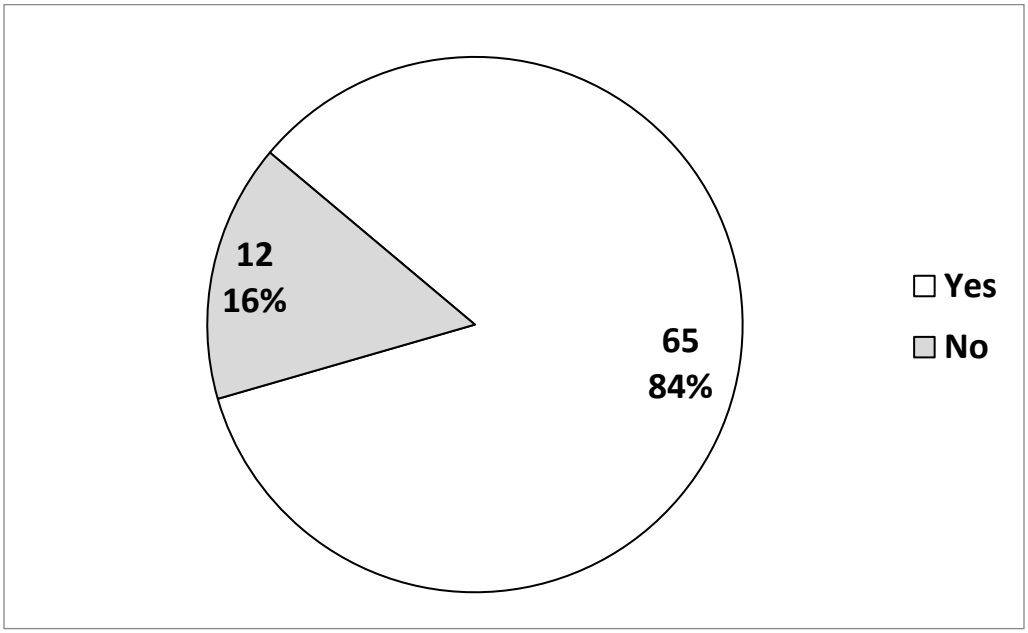

Figure 7. Patient's conviction of the operation

4. DISCUSSION

In this study we included 77 patients and this is a low number compared to other studies, this was due to the fact that this type of operation is newly accepted in our city, another cause some of the patients had complications after surgery so refused to participate in our study, and some patients were missed to follow-up. Previous studies included so large number of patients like the IFSO Worldwide Survey (22) that involved 634,897 bariatric operations in 2016.

In the present study the mean age of patients was 35.88 ± 8.64, and this age is considered the peak of their activity and efficiency, DeMaria and his colleagues found in their research a mean age of 46.65 ±11.77 years, while Capella et al. stated that early surgical intervention should be offered to a greater number of adolescents (13-17 year) to minimize the emotional and physical consequences of morbid obesity (23), Susmalian et al. have demonstrated the ability to enhance the quality of life and health of elderly patients by performing bariatric surgery (24). Sleeve gastrectomy is a safe and effective treatment for morbid obesity in patients aged 60 years or older. Bariatric surgery provides an acceptable outcome for elderly patients, as the increased complication rates in this population are due to comorbidities (25). In patients over the age of 60,

the outcomes and complication rates of bariatric surgery are comparable to those of a younger population, regardless of the procedure that is performed. Patients should not be denied bariatric surgery solely on the basis of their age (26).

Most of our study participants were women (84.4%), this may be related to attention about their shape and elegance more than men, also more likely attributable to sociocultural norms about body size that encourage women to seek bariatric surgery out of proportion. This in agreement with Durand-Moreau and his friends also Santry and his colleagues proved women more than men in their study (27). The effect of sex and age on the outcomes of bariatric-surgery is not well clarified.

In our study, sleeve gastrectomy accounts for 84.4%, whereas gastric bypass constitutes 15.6%. The choice of surgical type is contingent upon the surgeon's discretion. The relative simplicity of the sleeve gastrectomy technique compared to Roux-en-Y gastric bypass, coupled with its favorable long-term weight loss results, aligns with findings of Angrisani et al. (29) and Al kabbia et al. (30) who demonstrate that sleeve gastrectomy is presently the most commonly executed procedure. Conversely, Welbourn and his team reported that gastric bypass was the most prevalent operation, followed by sleeve gastrectomy and gastric banding (31).

Bariatric surgery has shown to be the most effective treatment for obesity and significantly improve glycemic control. Our study documented a substantial reduction in the diabetic condition of patients, corroborating findings of Koliaki et al. (32). Meanwhile, Pham et al. (33) declare that the effectiveness of surgical interventions for diabetes varies among different procedures, with sleeve gastrectomy potentially being a noteworthy option in this regard.

Regarding hypertension state, it was significantly improved in our hypertensive cases, so as recent study proved improvement in hypertensive patients state, normalized blood pressure has resulted from the control of diet, or may be due to improvement in the psychological state and this agrees with the findings of Inge et al. (34) and Puzziferri et al. (35) who proved a remission of elevated blood pressure (remission was defined as blood pressure less than 140/90 without medications).

Our study revealed a decrease in depression state of patients, this finding consistent with that reported by Strain et al. (36), who documented that depression symptoms improved after surgery and the improvement in these symptoms not have a differential effect over the wide range of weight changes (36).

The present study showed a significant reduction in the BMI from 46.24 ± 6.60 kg/ m² to 29.98 ± 5.71 kg/ m², and this finding was not unexpected when take into account the outcomes of bariatric surgery in general where these surgeries are significantly reduce weight. Similarly, our results corresponded with the findings of Inge et al. (34) who found a mean baseline BMI of 53 kg/ m² and 3 years after surgery, the final mean BMI reduced to 38 kg/ m².

The percentage of excess weight loss (EWL) is calculated according to the standard equation; where EWL% = the initial weight – current weight / initial weight - ideal weight multiplied by 100. In our study we found an EWL% of 74%, this agreed what was stated by Montero et al. (37) who calculated 12-month EWL% and found a rate of 65-82% for RYGB method, additionally, Melmer et al. (38) documented an EWL% of 87.7% in gastric bypass / gastric sleeve group. In other study conducted by Major et al. (39), the EWL% was 58.8 %. However, another study documented that the maximum weight loss is generally reached after two years of surgery and the peak may occur at 12 – 18 months (40).

With regard to the gallstones, despite the fact that obesity itself is a risk factor for gallstones and cholecystitis, rapid weight loss can increase the risk of gallstones formation. Therefore, in our study cholecystectomy is done during bariatric surgery in 2.59 %, while it is done before bariatric surgery in 3.89% of patients and after surgery in 20.77%. The ultrasound measurements of Melmer and his colleagues indicated a gallstone formation rate of approximately 20% (38). However, despite the advantageous effects, the cumulative risk of having gallstones after bariatric surgery is up to 53% (19).

Previous literatures referred that after bariatric surgery, a substantial improvement in the quality of life of patients, where patients experience a significant decrease in knee, hip, and back pain, as well as an increase in their level of activity that improve their quality of life. One of the primary objectives of bariatric treatment is to enhance the quality of life, in addition to treating obesity and its associated diseases (39). Furthermore, it had been widely postulated that weight loss surgery have an ameliorating effect on the marital relationships of patients. Among our patients, 14 patients were single, 31 had no change in their relationship while 20 patients stated that their marital relationship had improved but 12 patients claimed that they got worse, and they did not give an explanation for this worsening. In our study, the majority of patients had no change in their relation, which may be related to the stability of their marital life. About those with bad relations it may may not be related to the surgery per se but may be due to a previous bad

relations or related to the result of operation with regard to the body image or skin fold.

Hafner found that the patients' wives perception about their spouses as they were less engaging and less sociable after surgery, while the husband viewed the wife as overly sociable (41). Hafner and Rogers found that spouses exhibited highly unsatisfied following their wives' procedures, especially when the wife became more unreceptive (42). Kinzl found that most patients have more enjoyed sexual intercourse (43). Camps and his colleagues observed an increase in the frequency of intercourse and a higher attraction to their partners (44). Huang et al. (45) found that the mental quality of life post-surgery was significantly improved among married. Post-surgery, there is a significant enhancement in health-related quality of life and a reduction in depressed symptoms (36).

In our study, we found 42 of 77 patients had bad social communication before surgery while after surgery the number reduced to only 10 patients i.e. there is an improvement in social communication due to improvements in the general health of the patient, this result corresponded with the study of Major et al. (39).

Our results revealed that 84% of patients were satisfied with their operation, this is may be due to the fact that their major problem was with their heavy weight which was significantly reduced after surgery. Therefore we proved that bariatric surgery is crucial in the management of suitably chosen, severely obese individuals, and this finding aligns with Garrido et al. (46), who stated that the score of satisfaction ranged from satisfied to very satisfied across all evaluated parameters, despite harboring unreasonable expectations (46), Arman et al. (47) found that patient satisfaction score remains good despite the incident unfavorable complications.

5. CONCLUSIONS

The impact of patient age, gender, insurance status, and functional level on surgical decisions was moderated by BMI and comorbidities. Patient satisfaction following bariatric surgery was elevated. Bariatric surgery is essential for the treatment of suitably chosen, severely obese individuals. Post-surgery, there is a considerable enhancement in health-related quality of life and a reduction in depressed symptoms. A substantial reduction in BMI occurs with bariatric surgery. We recommend to follow up the patients at 1 month, 6 months and 1 year to demonstrate the psychological state and changes which will be occur, and the long-term complications if occurred and how to manage them. It will be possible to plan effective post-surgical exercise guidelines and interventions to improve weight loss outcomes by examining the

physical activity behaviour of individuals who undergo bariatric surgery. Before undergoing bariatric surgery, it is essential to conduct a psychological evaluation of patients. This evaluation is not only necessary to identify contraindications for surgery, but also to gain a better understanding of their motivation, readiness, behavioural challenges, and emotional factors that may affect their coping and adjustment processes during the surgery and the resulting lifestyle changes. Furthermore, the government health agencies should help the patients financially and operations are not considered as plastic surgery, but rather necessary

Ethical Clearance:

Ethical issues were taken from the research ethics committee. Informed consent was obtained from each participant. Data collection was in accordance with the World Medical Association (WMA) declaration of Helsinki for the Ethical Principles for Medical Research Involving Human Subjects, 2013 and all information and privacy of participants were kept confidentially.

Conflict of interest: Authors declared none

Funding: None, self-funded by the authors

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