

**University of Baghdad**

**College of Nursing**

**Nurses' Knowledge toward Bariatric Surgery at Surgical Wards at Teaching Hospitals in Al-Basra City.**

**Thesis Submitted**

**By**

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**To**

**The Department of Adult Nursing/College of Nursing**

**University of Baghdad**

**In**

**Partial Fulfillment of the Requirements for Degree of Master in Nursing Sciences**

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بِسْمِ اللَّـهِ الرَّحْمَـٰنِ الرَّحِيمِ

( ***قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا ۖ إِنَّكَ أَنتَ الْعَلِيمُ الْحَكِيمُ)***

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سورة البقرة الآية (32)

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I certify that this thesis, which is entitled (**Nurses' Knowledge toward Bariatric Surgery at Surgical Wards at Teaching Hospitals in Al-Basra City**) submitted by **(Ali Malik Tiryag)**, is prepared under my supervision at the College of Nursing / University of Baghdad in partial fulfillment of the requirements for the Degree of Master in Nursing Sciences with a specialty of (Adult Nursing).

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**Dedications**

To  
My father, and my mother with all love and respect forever

To

My brothers, sisters, and with all love

To

My support and the source of my strength (My dear wife)

To

My sweet and beautiful daughter

To

My beautiful twin

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**Abstract**

Background: Bariatric surgery is considered the most effective method for the treatment of morbid obesity and obesity-related comorbidities. Bariatric surgery is considered a modern technique for nurses despite the rapid increase in the number of these surgeries in the world and also in Iraq. The knowledge of nurses is important to provide quality nursing care to patients, reduce complications and assist surgeons.

Objectives: This study aimed to assess the level of nurses' knowledge toward bariatric surgery, and to find the relationship between nurses' knowledge toward bariatric surgery and their demographic and occupational characteristics such as (age, gender, level of education, and years of experience).

Methodology: A descriptive study was conducted on nurses’ knowledge toward bariatric surgery at surgical wards at teaching hospitals (Al-Sader, Al-Faiha, and Al-Mawana) in Al-Basra City. The period of the study was extended from the 15th of September 2020 to the 25th of May 2021. Purposive (non-probability) sample of (100) nurses who work in the surgical wards, a pilot study was carried out on (10) nurses that work in Al-Sader Teaching Hospital from 6th to 20th of December 2020. To determine the content validity of the study, (12) experts were selected to review the questionnaire, and the reliability of the questionnaire is determined through the use of the Cronbach's Alpha test.

Results: The results of this study showed that 85% of studied nurses had poor knowledge about bariatric surgery, 14% of nurses had moderate knowledge and only 1% of nurses had good knowledge.

Conclusions: The present study concluded that the nurses have poor knowledge about bariatric surgery.

Recommendations: The researcher recommends special training courses to all nursing staff who work in surgical wards about bariatric surgery, pre and postoperative nursing care about patients with bariatric surgery.

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|  | List of Abbreviations |
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| ALT | Alanine aminotransferase |
| AST | Aspartate aminotransferase |
| ASMBS | American Society for Metabolic and Bariatric Surgery |
| BMI | Body Mass Index |
| BPD | Biliopancreatic Diversion |
| BPD/DS | Biliopancreatic Diversion with Duodenal Switch |
| BUN | Blood Urea Nitrogen |
| CBC | Complete Blood Count |
| CKD | Chronic Kidney Disease |
| CRP | C-reactive Protein |
| CVD | Cardiovascular Disease |
| ECG | Electrocardiogram |
| Et. al. | And Others |
| EWL | Excess Weight Loss |
| FDA | Food and Drug Administration |
| FTO | Fat Mass and Obesity-associated Gene |
| GERD | Gastro-oesophageal Reflux Disease |
| HDL | High-Density Lipoprotein |
| 5-HT2C | 5-hydroxytryptamine |
| IFSO | International Federation for the Surgery of Obesity and Metabolic Disorders |
| ICU | Intensive Care Unit |
| IV | Intravenous |
| JIB | Jejunoileal bypass |
| LAGB | Laparoscopic Adjustable Gastric Banding |
| LDL | Low-density Lipoproteins |
| LDL-C | Low-density Lipoprotein Cholesterol |
| LRYGB | Laparoscopic Roux-en-Y gastric bypass |
| LSG | Laparoscopic Sleeve Gastrectomy |
| α-MSH | Melanocyte Stimulating Hormone |
| NHANES | National Center for Health Statistics' National Health and Nutrition Examination Survey |
| NAFLD | Non-Alcoholic Fatty Liver Disease |
| NSAIDs | Non-steroidal anti-inflammatory drugs |
| OAC | Obesity Action Coalition |
| OSA | Obstructive Sleep Apnea |
| PCA | Patient Controlled Analgesia |
| QOL | Quality of Life |
| SPSS | Statistical Package for Social Science Program |
| TFAs | TransFatty Acids |
| US | United States |
| VTE | Venous Thromboembolism |
| WHO | World Health Organization |

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**Chapter one**

**Introduction**

**Chapter One**

**1.1. Introduction**

Obesity refers to body fat accumulation and abnormal distribution caused by several causes such as heredity, high-calorie, high-fat diet, and absence of physical activity (Nimptsch et al., 2019).

When the body mass index (BMI) of an individual is 30 kg/m2 or higher, the term obesity is used. This number is obtained by dividing body weight in kilograms by height in meters squared (Linton, 2016).

High BMI is linked with coronary artery disease, hyperlipidemia, hypertension, sleep apnea, non-alcoholic fatty liver disease, abnormal glucose tolerance or diabetes, kidney disease, musculoskeletal disorders, and some cancers, including renal cell, pancreatic, esophageal, postmenopausal breast, cervical, endometrial, and prostate cancers (Global Burden of Disease Obesity Collaborators, 2017).

Obesity has a genetic origin and is often attributed to lifestyle, with central and environmental variables. The increased prevalence of this complication in recent years is caused by lifestyle-related variables such as diet, socio-cultural issues, and physical activity (Makhdoumi et al., 2013).

The treatment of obesity involves exercise, diet, drugs, and surgery (Guraya and Strate, 2019).

Bariatric surgery is an effective treatment for extreme obesity that leads to the improvement and remission of multiple comorbidities associated with obesity, sustained weight loss over time, quality of life improvement, and prolonged survival (Mingrone et al., 2015).

Bariatric surgery, stomach and/or intestinal surgery to help an individual with severe obesity lose weight, has become a viable option for treating obesity (Gadde et al., 2018).

In the case of extreme obesity, bariatric surgery is the gold standard technique when all other treatments are unsuccessful (Ryan and Kahan, 2018).

There are three forms of surgical procedures: gastric restrictive, malabsorption, or both. Restrictive surgeries reduce the volume capacity of the stomach to reduce the amount of food that can be eaten at one time. As the name implies, malabsorption procedures interfere with the gastrointestinal tract's absorption of food and nutrients (Ignatavicius et al., 2018).

Four bariatric procedures are currently widely performed. One of the first bariatric procedures developed was the Roux-en-Y gastric bypass (RYGB) which has been performed the largest number of times (Nguyen and Varela, 2017). At present, both in the United States (US) and internationally, sleeve gastrectomy is the most commonly performed bariatric surgery. Adjustable gastric banding was approved in the United States in 2001, but following the development of sleeve gastrectomy, its use has gradually decreased (Valera and Nguyen, 2015). Finally, biliopancreatic diversion with duodenal switch (BPD-DS) is conducted in only a small number of patients and accounts for less than one percent of the United States bariatrics’ procedures (Ponce et al., 2015).

Laparoscopic bariatric surgery is commonly performed with five minimal incisions and is associated with less postoperative pain, lower wound-related infection incidence, and quicker recovery (by 9 days) than traditional open procedures (Nguyen and Varela, 2017).

The mortality rate for bariatric operations is low, but the possibility of postoperative complications is high; potential postoperative complications include anastomosis leak with peritonitis, wound infections, abdominal wall hernia, deep venous thrombosis, gallstones, hemorrhage, gastrointestinal symptoms, and the dietary deficiency (Lemone et al., 2017).

**1.2. Importance of the Study**

In both economically stable and emerging areas of the world, obesity has been one of the most critical public health issues. About 1.9 billion people were overweight globally in 2016, and of these, more than 650 million were obese, a figure that has tripled since the 1970s. If the rate continues to grow, it is projected that by 2025, about one-third of the world's adult population will be overweight and over 1 billion will be obese (World Health Organization [WHO], 2019), and up to 57.8% of the adult population of the planet (3.3 billion people) will be either overweight or obese by 2030 (Forse et al., 2020).

In 2015-2016, according to the National Center for Health Statistics' National Health and Nutrition Examination Survey (NHANES), the prevalence of obesity in the United States was 39.8 percent, affecting about 93.3 million people. From 1999 to 2016, the number of obese Americans has significantly increased (Hales et al., 2018).

Every second, an extra 2.5 individuals are added to the global population, and one of them would be obese or overweight. In the US, 39.8 percent of the adult population is estimated to be obese (Hales et al., 2017).

In the Eastern Mediterranean region, the prevalence of overweight and obesity ranges from 74% to 86% in women and 69% to 77% in men (Al-Daydamouni, 2019), in Iraq alone about 23.6 million are obese, accounting for 65.6% of the adult population (Chooi et al., 2019).

Obesity is a worldwide problem because it is an important risk factor for major causes of death, including heart disease, type 2 diabetes, and some cancers (Harding et al., 2020).

Obesity in the United States and globally is a rising epidemic. Obesity is associated with increased all-cause deaths and obesity is linked to over 300,000 deaths every year in the United States (Sun et al., 2020).

Obesity accounts for up to 90,000 cancer deaths worldwide each year (American Society for Metabolic and Bariatric Surgery [ASMBS], 2015b).

Mortality increases from 44% for Class I obesity (BMI 30 to 35 kg/m2) to 88% for Class II obesity (BMI 35 to 40 kg/m2) and 150% for Class III obesity (BMI > 40 kg/m2) (Ladhani et al., 2017). Obesity is considered the second leading cause among cancer risk factors, after smoking (Gallagher and Roith, 2015).

Mobility, quality of life, and productivity are all affected by obesity; and extreme obesity also can shorten life expectancy by an average of 5 to 20 years (Varban and Dimick, 2019).

In the United States, the annual medical cost of obesity is estimated $147 billion (Kang and Le, 2017). According to the American Heart Association, total medical costs could reach up to $957 billion by 2030. The medical costs of obesity could rise from $147 billion to $210 billion annually (Bariatric Surgery Statistics, 2020).

The most effective approaches were bariatric surgical procedures to ensure weight loss and control of obesity-related diseases in morbidly obese patients (Douglas et al., 2019).

Bariatric operations for extreme obesity complicated by type 2 diabetes are the most effective long-term therapies (Lopez et al., 2020).

Surgery leads to significant weight loss and helps prevent, improve or resolve more than 40 obesity-related diseases or disorders, including heart disease, type 2 diabetes, obstructive sleep apnea, and some cancers (ASMBS, 2013).

Over the past two decades, surgical therapy for obesity has shown rising importance for weight loss and decreases in morbidity and mortality rates (Colquitt et al., 2014).

There were nearly 252,000 bariatric operations performed in the United States each year as of 2018. About 61% of primary bariatric operations are sleeve gastrectomy, and 17% are Roux-en-Y gastric bypass procedures, 15.4% are revision surgeries, and 4.3% others. Less than 2 percent of adjustable gastric banding and biliopancreatic diversion procedures (Arterburn et al., 2020).

The number of surgeries like this has now rapidly increased worldwide, including in Asia (Lomanto et al., 2012). In 2016 alone, approximately 700,000 surgeries were performed worldwide (Angrisani, 2018).

Usually, bariatric surgery leads to a weight loss of 10% to 35% of total body weight within 2 to 3 years after surgery (Obesity Action Coalition [OAC], 2015b), with the majority of weight loss happening in the first year (Courcoulas et al., 2013).

The specialized bariatric nurse is an important member of the multidisciplinary bariatric team, supplying patients with assistance and education and caring for them before and after the operation (Graham et al., 2019).

The task of bariatric nurses is to guarantee the patient's organized treatment whilst in the hospital. It is important for the safe and efficient care of the bariatric patient and the avoidance of caregiver accidents to coordinate with the supporting personnel, ensure the provision of suitable services and qualified staff to care for bariatric surgical patients (Puplampu and Simpson, 2016).

A nurse plays a vital role in the treatment and care of patients, in their preparation for surgery, in teaching patients about possible complications after surgery, and in preparing for discharge (Akkayaoğlu and Çelik, 2020). This increase in bariatric surgery requires that nurses have a sufficient level of knowledge to provide high-quality nursing care that is essential to achieving good patient outcomes and reduce complications.

**1.3. Statement of the problem**

Nurses' Knowledge toward Bariatric Surgery at Surgical Wards at Teaching Hospitals in Al-Basra City

**1.4. Objectives of the Study**

1- To assess the level of nurses' knowledge about bariatric surgery.

2- To find the relationship between nurses' knowledge about bariatric surgery and their demographic and occupational characteristics (age, gender, level of education, and years of experience).

**1.5. Definitions of Terms**

**1.5.1. Nurse**

**1.5.1. a. Theoretical Definition:**

A qualified individual with advanced information and skills promoting wellness and giving services for persons in each health and disease in several places for practice (Abdel-Hakeim and Hamza, 2018).

**1.5.1. b. Operational Definition:**

A professional and trained person who provides care for bariatric surgery patients.

**1.5.2. Knowledge**

**1.5.2. a. Theoretical Definition:**

Knowledge, comprehension, or abilities gained by experience or schooling. The truth or conditions of facts familiarly attained accomplished under the framework of practice (Al-Asadi and Al-Taee, 2016).

**1.5.2. b. Operational Definition:**

Information of nurses about bariatric surgery, its complications, and pre and post-operative nursing care.

**1.5.3. Bariatric Surgery**

**1.5.3. a. Theoretical Definition:**

A collective group of procedures that include digestive system modifications that promote weight loss (Washington State Health Care Authority, 2015).

**1.5.3. a. Operational Definition:**

Procedures for people with obesity involve changes to the stomach and/or intestine aim to reduce weight and improve obesity-related disease.

**Chapter Two**

**Review of Literature**

**Contents of Chapter Two**

**2.1. History of Bariatric Surgery**

**2.2. Obesity**

**2.3. Causes of Obesity**

**2.4. Assessment and Diagnostic Findings**

**2.5. Obesity Comorbidities (Obesity-Related Diseases or Conditions)**

**2.6. Medical Management**

**2.7. Medical Devices**

**2.8. Surgical Management (Bariatric Surgery)**

**2.9. Indications (Criteria) of Bariatric Surgery**

**2.10. Classification of Bariatric surgery**

**2.11. Revision Surgeries**

**2.12. Effects (Outcomes) of Bariatric Surgery**

**2.13. Preoperative Nursing Care**

**2.14. Contraindications of Bariatric Surgery**

**2.15. Complications of Bariatric Surgery**

**2.16. Postoperative Nursing Care and Patient Education**

**2.17. Previous Studies**

**Chapter Two**

**Review of Literature**

**2.1. History of Bariatric Surgery**

The history of bariatric surgery may be traced back to the 1950s, but its practice remained unknown until obesity became a recognized epidemic condition of life-threatening comorbidities such as diabetes, sleep apnea, hypertension, asthma, venous stasis, and dyslipidemia resulting in an increased risk of premature death (Sjöström et al., 2007).

In a 1952 case report, Dr. Viktor Henrikson from Sweden is credited with being the first to perform surgery to cause weight loss and improve comorbidity by removing 105 cm of the small intestine (Henrikson, 1994). The first Jejunoileal bypass (JIB) was carried out by Dr. Richard Varco from Minnesota in 1952 (Buchwald and Rucker, 1987). Payne et al. later published a series in 1963 where the small intestine and part of the colon were bypassed. This resulted in fast loss of weight, liver damage, electrolyte imbalance, and diarrhea, and the anatomy had to be returned to normal after that (Payne et al., 1963).

The standard jejunoileal technique was developed in 1969 after many intermediary procedure attempts (Lewis et al., 1966), where 35 cm of proximal jejunum was connected to the terminal ileum 10 cm from the ileocecal valve (Payne et al., 1969). Jejunoileal bypass surgery is linked with metabolic disorders causing kidney stones, migratory arthralgia, abdominal bloating, and liver complications in particular, up to liver failure (Scott et al., 1971; Brown et al., 1974).

In the mid-1970s, Prof. Scopinaro et al. from Genoa developed the biliopancreatic diversion (BPD) technique due to morbidity after jejunoileal.

Partial distal gastrectomy with the closure of the duodenal stump was used in this operation. The jejunum, 250 cm proximal to the ileocecal valve, was divided. The distal limb (Roux limb) was then anastomized to the proximal stomach, while the ileum was anastomized to the proximal limb (biliopancreatic limb) 50 cm proximal to the ileocecal valve. A Roux-en-Y version of the Jejunoileal bypass was the result (Scopinaro et al., 1979). In terms of initial and maintained weight loss, their outcomes are the highest recorded in the bariatric surgical literature to date, achieving excellent glycemic control in patients with diabetes, with a 98 percent cure rate at 10 years (Scopinaro et al., 1996).

In the late 1980s, Hess and Marceau created a variant of the operation to minimize some of the morbidity associated with BPD by preserving the pylorus and proximal duodenum to neutralizing gastric acid and to reduce dumping syndrome (Hess et al., 1998; Marceu et al., 1993).

Dr. Edward E. Mason from the University of Iowa created gastric bypass in response to a need for a weight-loss procedure without the harmful side effects of JIB by introducing gastric restriction as an essential factor in weight loss (Mason and Ito, 1967). Mason and Ito conducted the first gastric bypass surgery on a 50-year-old woman with a BMI of 43 kg/m2 in 1966. The operation consisted of horizontally separating the stomach and attaching a gastrojejunostomy loop to the proximal gastric pouch of 100-150 ml. she was 27 kilograms lighter, after 9 months (Mason and Ito, 1967).

Then, to improve the outcomes and reduce stomach ulcers, the volume of the proximal pouch was reduced to 50 ml. The proximal pouch was developed in the Alder technique (1977) by stapling the stomach transversely and attaching a Roux-en-Y anastomosis to it, decreasing tension and preventing bile reflux (Alder et al., 1977). Several improvements to this procedure weredeveloped until 1994 when bariatric surgery first implemented laparoscopic techniques (Wittgrove et al., 1994).

In the 1970s, Mason and Printen split the stomach horizontally into two parts, leaving a small connective section between the parts, resulting in only temporary benefits (Printen and Mason, 1973). A vertical gastroplasty was developed by Fabito (Fabito 1981), and a silastic ring was added by Laws to facilitate the opening (Laws and Piantadosi, 1981). The new variation of gastroplasty was later created by Mason in 1980, with vertical banded gastroplasty almost abandoned in recent years (Mason, 1982; Marsk et al 2009).

In various centers, with multiple devices and many modifications, the laparoscopic banding technique was developed until Professor Dag Hallberg implemented an adjustable band, the Swedish Band, in 1985, which gained large popularity (Hallberg 1985; Forsell et al., 1993). The Kuzmak band has the same basic principle of modification, also known as the Lap-Band, but the Swedish band has lower pressure, is soft, and can be adjusted to a greater degree (Hallberg, 1985). To achieve optimum outcomes, closer follow-up for adjustments is necessary; however, re-operation rates are very high in the long term (Victorzon and Tolonen, 2013).

Marceau first introduced sleeve gastrectomy (SG) as a restrictive portion of the biliopancreatic diversion with or without duodenal switch in the early 1990s (Marceau et al., 1993). A 40-French bougie was first used, but due to unsatisfactory weight loss, the size was reduced to a 32-French bougie, leading to a larger loss of excess weight at 5.9 years (Sieber et al., 2014). A narrow sleeve can raise the risk of serious complications, and one of the controversial issues leading to the low standardization of the technique is the chosen bougie size (Victorzon, 2012). The ghrelin hormone level is decreasedand appetite is reduced when the fundus region of the stomach is eliminated. Its popularity is currently growing, especially in Europe and the US (Buchwald and Oien, 2013).

**2.2. Obesity**

Obesity is not merely a condition; rather, it is a metabolic disease that is characterized by fat accumulation to the extent where wellbeing is compromised (ASMBS, 2012).

**2.3. Causes of Obesity**

**2.3.1. Lifestyle**

**2.3.1.1. Diet**

Consuming a high-fat and high-cholesterol diet is one of the most common causes of being overweight or obese. Obesity is related to a high-saturated-fat diet, which increases low-density lipoproteins (LDL, or LDL-C for low-density lipoprotein cholesterol). Heart disease is related to trans fatty acids (TFAs), saturated fats, and cholesterol (American Heart Association, 2017).

**2.3.1.2. Physical Activity**

The most important factor related to obesity is undoubtedly physical inactivity. Inactive people can eat fewer kilojoules than active people, but due to a lack of energy expenditure, they continue to gain weight. Increased work and time pressures, as well as other current societal and environmental influences, promote the use of labor-saving devices and transportation dependence on cars. Sedentary time such as watching television or using the computer results in reduced energy expenditure (Dunstan et al., 2012).

**2.3.2. Psychological**

Low self-esteem may contribute to harmful eating patterns such as seeking comfort foods (such as chocolate), and the resulting weight gain can in turn diminish self-image even further. As a result of anxiety, depression, guilt, or boredom, or as a means of getting attention, a person may overeat. Some researchers define overeating as food addiction and a coping mechanism for stressful life events (Fraser, 2013).

**2.3.3. Genetic**

In up to 70% of people who are obese, a hereditary predisposition to obesity can be present (Albuquerque et al., 2017). Obesity has been related to a variety of genes discovered. It seems that genes affect how calories are stored and energy released. In communities where food available is no longer an issue, 'energy-thrifty' genes, previously protective against long periods where food was not available, are now maladaptive. Genes could responsible for why two people who live in the same environment would have such differences in body size (Harding et al., 2020).

There is a strong link between a gene known as FTO (fat mass and obesity-associated gene) and the body mass index (BMI). Variants of this gene may explain why certain individuals become overweight whereas others don't. People with a certain FTO gene allele tend to have an increased appetite, reduced satiety, and increased calorie consumption (Albuquerque et al., 2017).

**2.3.4. Environmental**

Obesity occurrence is well known to be affected by the workplace environment. Because of the lack of time for exercise and physical activity, long

working hours will contribute to a rise in BMI. It can also lead to a move to ready-made meals and fast food instead of homemade meals (Omer, 2020).

**2.3.5. Others**

Obesity may result from diseases such as Cushing's disease and hypothyroidism. Insulin resistance caused by polycystic ovary syndrome can also play a role in obesity. Certain medications, including steroids and antidepressants, may also result in rapid weight gain (Omer, 2020).

**2.4. Assessment and Diagnostic Findings**

**2.4.1. Body Mass Index**

The height and weight of patients are measured to determine the body mass index. The BMI, which is based on a ratio of body weight in kilograms to height in meters, is the gold standard for assessing whether or not a patient is overweight or obese. Patients are classified as overweight or pre-obese when BMI is 25 to 29.9 kg/m2 and also when BMI exceeding 30 kg/m2 in those with obesity. Obesity is graded as severe or extreme when the BMI exceeding 40 kg/m2 (WHO, 2015).

**Table (2.1): Body Mass Index (BMI) Classification for Overweight and Obesity**

|  |  |
| --- | --- |
| Classification | BMI Range (kg/m2) |
| Underweight | < 18.5 |
| Normal weight | 18.5 - 24.9 |
| Overweight | 25.0 - 29.9 |
| Class I: obesity | 30.0 - 34.9 |
| Class II: serious obesity | 35.0 - 39.9 |
| Class III: severe obesity | 40.0 - 49.9 |
| Super obesity | ≥ 50.0 |

(ASMBS, 2015; Brethauer, 2013)

**2.4.2. Waist Circumference**

The waist circumferences of obese patients can also be assessed. Women with waist circumferences greater than 35 inches and men with waist circumferences greater than 40 inches have a higher incidence of obesity-related morbidity than people with lower waistlines (Fitch et al., 2013).

**2.4.3. Waist-to-Hip Ratio**

It is also possible to measure the hip and waist-to-hip ratio assessed. It is thought that women with waist-to-hip ratios greater than 0.80 and men with waist-to-hip ratios greater than 0.90 have proportionally more visceral (i.e. abdominal) fat stores. Android obesity is the term for this morphological appearance, which is also known as an "apple-shaped" appearance. Patients with android obesity are more likely to developing type 2 diabetes, coronary artery disease, and stroke than patients with gynoid obesity, commonly known as the "pear-shaped" body (Weber and Kelley, 2014).

**2.5. Obesity Comorbidities (Obesity-Related Diseases or Conditions)**

Obesity-related comorbidity is defined as conditions either directly caused by overweight/obesity or known to contribute to the presence or severity of the condition (Wolfe et al., 2016).

**Table (2.2): Obesity Comorbidities**

|  |  |
| --- | --- |
| Obesity | Obesity-related problems |
| Cardiovascular | -Hyperlipidemia  -Sudden cardiac death  -Right-sided heart failure  -Left ventricular hypertrophy  -Coronary artery disease  -Deep venous thrombosis  -Arterial fibrillation  -Hypertension  -Cardiomyopathy  -Venous stasis  -Varicose veins |
| Respiratory | -Obesity hypoventilation syndrome  -Sleep apnea  -Asthma  -Pulmonary hypertension  -Exercise intolerance |
| Gastrointestinal | -Nonalcoholic steatohepatitis(NASH)  -Gallstones  -Gastroesophageal reflux disease (GERD) |
| Cancer | -Esophagus, pancreas, thyroid, colorectal, and gallbladder cancer (both genders)  -Endometrial, breast, and ovarian cancer (women) |
| Endocrine/Metabolic | -Type 2 diabetes mellitus  -Metabolic Syndrome  -Polycystic ovary syndrome |
| Genitourinary | -Kidney cancer  -Chronic kidney disease  -Stress incontinence |
| Musculoskeletal | -Osteoarthritis  -Impaired mobility and flexibility  -Gout  -Lumbar disk disease  -Chronic low back pain |
| Psychological | -Depression  -Low self-esteem  -Risk of suicide  -Discrimination  -Social isolation |
| Reproductive (Men) | -Hypogonadism  -Gynecomastia  -Sexual dysfunction |
| Reproductive (Women) | -Menstrual irregularities  -Infertility  -Gestational diabetes |

(Harding et al., 2020)

**2.6. Medical Management**

**2.6.1. Lifestyle Modification**

**2.6.1.1. Diet Therapy**

For weight loss, there are no magical diets. There isn't a single weight-loss diet that is preferable. Any diet can be beneficial if it reduces caloric consumption compared to expenditure and is implemented by the patient (Bray et al., 2016).

Dietary recommendations should encourage healthier eating habits by emphasizing the need for an increased intake of vegetables, legumes, beans, grain, unsweetened cereals, lentils, and fiber, as well as substituting low-fat dairy products and meats for high-fat alternatives. It also needs to increasing seafood consumption. Foods with artificial sugars and solid fats, as well as sugary drinking and alcoholic beverages, can all be avoided (Aktar et al., 2017).

A patient with obesity should be recommended to plan a caloric decrease of 500 to 1000 calories per day from baseline to lose 5 to 10% of their body weight in around 6 months. This can be done by increasing physical exercise while lowering caloric dietary consumption (Orringer et al., 2016).

**2.6.1.2. Exercise**

Exercising is important for weight loss and maintenance. Physical exercise increases fitness, lowers appetite, enhances self-esteem, and raises the basal metabolic rate. A person's physical health, interest, lifestyle, and abilities can all be reflected in an exercise or activity program (National Health and Medical Research Council, 2013b).

The type of exercise (e.g., high intensity versus low intensity) seems to have little effect on total weight loss. For certain people, more intense exercise can result in weight loss with a shorter time commitment, making it preferable. Exercise is highly important for supporting weight loss. To maintain weight loss or reduce weight regain over time, higher levels of physical exercise (200 to 300 minutes a week) are recommended (Bray et al., 2016).

Increasing physical activity by encouraging an exercise regimen is a vital recommendation that will help people burn calories and lose weight. Both adults (obese and non-obese) should participate in at least 150 minutes of moderate-intensity aerobic exercise or 75 minutes of vigorous-intensity aerobic exercise each week. Muscle-strengthening exercises that engage all main muscle classes should be done at least twice a week as well (Fitch et al., 2013).

Exercise induces lipolysis, which causes the release of free fatty acids from triglycerides stored in fat for use as an energy source by muscle, increasing energy expenditure. While some studies suggest that exercise alone can decrease BMI by 2% to 3%, it is a more successful weight-loss strategy when in conjunction with dietary modification. Physical exercise alone, according to the majority of research, is unsuccessful in achieving initial weight loss or only results in a few kilograms of weight loss. Physical exercise, on the other hand, may aid in maintaining long-term weight loss (Bray et al., 2016).

**2.6.1.3. Sleep**

In addition to encouraging healthy exercise and dietary behaviors, ensuring healthy sleeping habits is another lifestyle plan related to weight loss and healthy weight maintenance. Sleep deficiency is believed to induce changes in cortisol levels, which promote weight gain. Planning to be in bed with lights out at least 7 hours before wake-up time, maintaining a quiet, dark bedroom atmosphere, minimizing behaviors that can induce arousal around bedtime (e.g., texting), and avoiding caffeine-containing drinks after lunchtime can all be effective strategies for achieving a restful night's sleep that is compatible with weight loss (Orringer et al., 2016).

**2.7. Medical Devices**

**2.7.1. Intragastric Balloon**

Patients with a BMI of 30 to 40 kg/m2 can use three intragastric balloons for up to 6 months to help them lose weight. Orbera is a single balloon that is inserted into the stomach through an endoscopic procedure. The balloon is then filled with 400-700 ml of saline to expand it once it is in place. ReShape is similar, but it uses two balloons. Obalon is a swallowable capsule that opens once inside the stomach and is inflated with air using an inflation catheter. The three gastric balloons are only intended to be used for a maximum of six months. During the months after the devices are removed, some weight is regained (Gadde et al., 2018).

Nausea and vomiting are common side effects, but they're usually short-lived and don't necessitate balloon elimination. Balloon rupture, on the other hand, may happen over time and cause intestinal obstruction in rare cases. To prevent this dangerous complication, it is advised that the balloons be impregnated with methylene blue pre-insertion so that patients with silent ruptures can report the presence of green urine to their primary care providers and receive prompt intervention to eliminate the deflated balloons before they cause obstruction. Intragastric balloons should not be used on patients who are unable to visit for follow-up appointments. Balloons should be removed after six months of insertion; prolonged placement periods are linked to an increased risk of rupture and intestinal obstruction (Ali et al., 2015).

**2.7.2. Vagal Blocking Therapy (e.g., Maestro Rechargeable** **System)**

Vagal blocking therapy involve laparoscopically implanting a pacemaker-like device with two leads at the gastroesophageal junction, where the vagus nerve truncates, into the subcutaneous tissue of the lateral thoracic cavity. Every day for 12 hours, a pre-programmed pulsating signal is delivered. The vagus nerve is intermittently “blocked” by this signal. This blocking reduced gastric contraction and emptying, limited ghrelin secretion, and reduced pancreatic enzyme secretion results in increased satiety, reduced cravings, and reduced-calorie absorption, all of which lead to weight loss (Papasavas et al., 2016). In a randomized clinical trial, patients with obesity who received vagal blocking versus a control sham system implantation experienced greater initial and 18-month maintaining weight loss (Ikramuddin et al., 2014; Shikora et al., 2015).

**2.7.3. AspirateAssist**

The AspireAssist is a gastrostomy tube that attaches to a skin port outside the abdomen. After each meal, the patient connects an external connector and tubing to the skin port, opens the port valve, and flushes out the food for 20-30 minutes. The food must be thoroughly chewed to avoid obstruction in the tube. Electrolytes in the blood should be tested. Potassium supplementation may be required in some cases (Lee and Dixon, 2017).

**2.8. Surgical Management (Bariatric Surgery)**

Bariatric surgery, surgery on the stomach and/or intestines to help a person with severe obesity lose weight, has become a viable option for treating obesity. For people with severe obesity, surgery is the only procedure that has an effective and long-term sustained weight loss (Gadde et al., 2018).

Bariatric surgery, also known as obesity surgery, is commonly used after all non-surgical weight loss attempts have failed (Obesity Action Coalition, 2015a).

Bariatric surgery with a small incision has become a common procedure. As compared to open surgery, several studies have shown that laparoscopic bariatric surgery results in lower absolute mortality risk, an earlier decline in postoperative morbidity, less immediate and late postoperative complications, faster recovery, less postoperative pain, and a return of patients’ functionalities. The most common surgical operations are laparoscopic sleeve gastrectomy, laparoscopic Roux-en-Y gastric bypass, laparoscopic adjustable banding, and biliopancreatic diversion, with or without duodenal switch (BPD and BPD/DS) (Coupaye et al., 2015).

The choice of operation depends largely on the severity of obesity, the presence of comorbid disorders, the experience of the surgeon, and the patient’s individual preferences or other contraindications (Colquitt, 2014).

**2.9. Indications (Criteria) of Bariatric Surgery**

1. A BMI of more than or equal to 40 kg/m2 without high surgical risk.

2. Patients with a BMI of more than or equal to 35 kg/m2 and at least one extreme obesity-related condition.

3. Obesity-related condition (obstructive sleep apnea, asthma, obesity hypoventilation syndrome, non-alcoholic fatty liver disease, hyperlipidemia, hypertension, diabetes, debilitating arthritis, or a significantly impaired quality of life).

4. Patients with type 2 diabetes or metabolic syndrome who have a BMI of more than or equal to 30 kg/m2.

5. Ability to carry out activities of daily living and self-care.

6. The presence of a family and friend support system.

7. Previous failure non-surgical weight loss attempts, including nonprofessional programs.

8. Expected patient compliance with postoperative care, follow-up appointments, and medical management recommendations, including the use of dietary supplements (Honan, 2019).

**2.10. Classification of Bariatric surgery**

According to the associated anatomical modifications by the elimination of portions of the gastrointestinal tract, bariatric operations are categorized as restrictive, malabsorptive, or both (Wolfe et al., 2016).

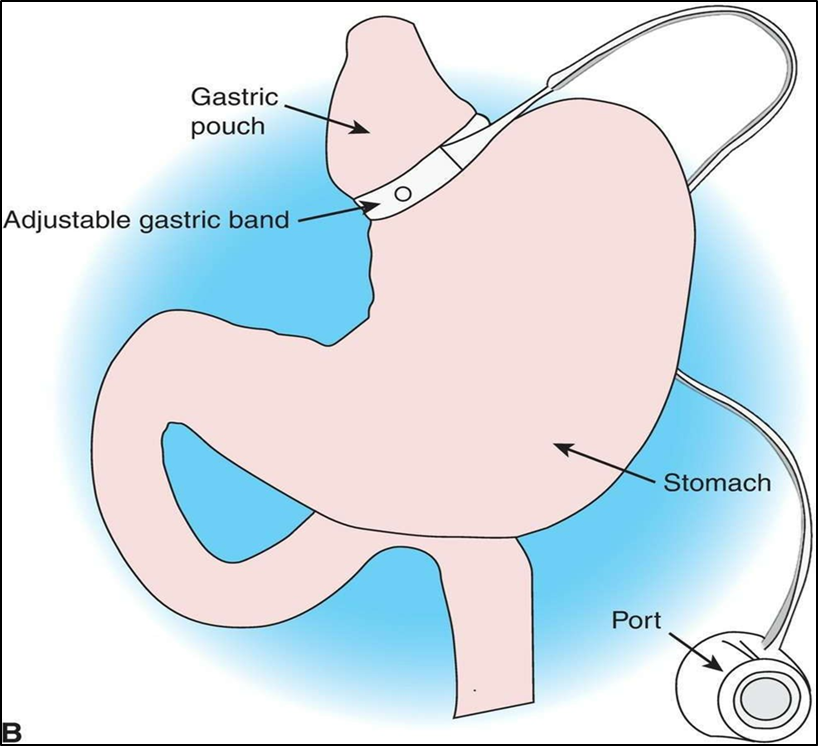
**2.10.1. Restrictive Surgeries**

Restrictive bariatric surgery decreases the size of the stomach, making the patient feel full faster, or the amount of food allowed to enter into the stomach. Absorption is not affected during these procedures, so the chance of anemia or vitamin B12 deficiency is minimal. Adjustable gastric banding and sleeve gastrectomy are two of the most common restrictive surgeries (Harding et al., 2020).

**2.10.1.1. Laparoscopic Adjustable Gastric Banding (LAGB)**

The laparoscopic adjustable gastric band procedure is purely restrictive. In the United States, the use of LAGB is less common. The procedure includes placing a synthetic band with an expandable silastic balloon distal to the gastroesophageal junction, resulting in a 20 to 30 ml gastric pouch at the cardia (ASMBS, 2015). The band is inflated with saline solution to form a small stomach pouch with a limited passageway leading to the remainder of the stomach, limiting the amount of food that can be ingested. A port placed underneath the skin can be used to alter the amount of band inflation (Lemone et al., 2017). The restrictive technique of LAGB reduces the gastric volume in the proximal portion of the stomach, causing a delay in gastric emptying, Despite having a lower morbidity ratio and fewer peri- and postoperative complications, LAGB has a high reoperation rate (ASMBS, 2015).

According to reports, device-related complications can affect up to 48% of morbidly obese people. Band obstruction, wound infection, gastric perforation, and bleeding are among the most often recorded early (within one month of the operation) complications after LAGB. Patients performing LAGB are at risk for band slippage/migration, pouch enlargement, esophageal dilation, gastric erosion, gastric necrosis, port-site infection, port breakage, and tubing complications, in addition to the early postoperative complications of this surgery. Late postoperative complications such as those mentioned above have resulted in inadequate weight loss, secondary weight gain, and revision or conversion to another bariatric procedure i.e., laparoscopic Roux-en-Y gastric bypass, LSG, and BPD (Manatakis et al., 2014). Adjustable gastric banding is on the decline, due to a marked rise in sleeve gastrectomy procedures performed around the world (Buchwald et al., 2013).



**Figure (2.1): Adjustable Gastric Banding (Nettina, 2019)**

**2.10.1.2. Laparoscopic Sleeve Gastrectomy (LSG)**

Laparoscopic sleeve gastrectomy, a restrictive bariatric operation, includes resection of a greater part of the body and fundus of the stomach alongside the greater curvature. In high-risk patients, laparoscopic sleeve gastrectomy is the most common stand-alone bariatric operation (Todkar and Gomes, 2017).

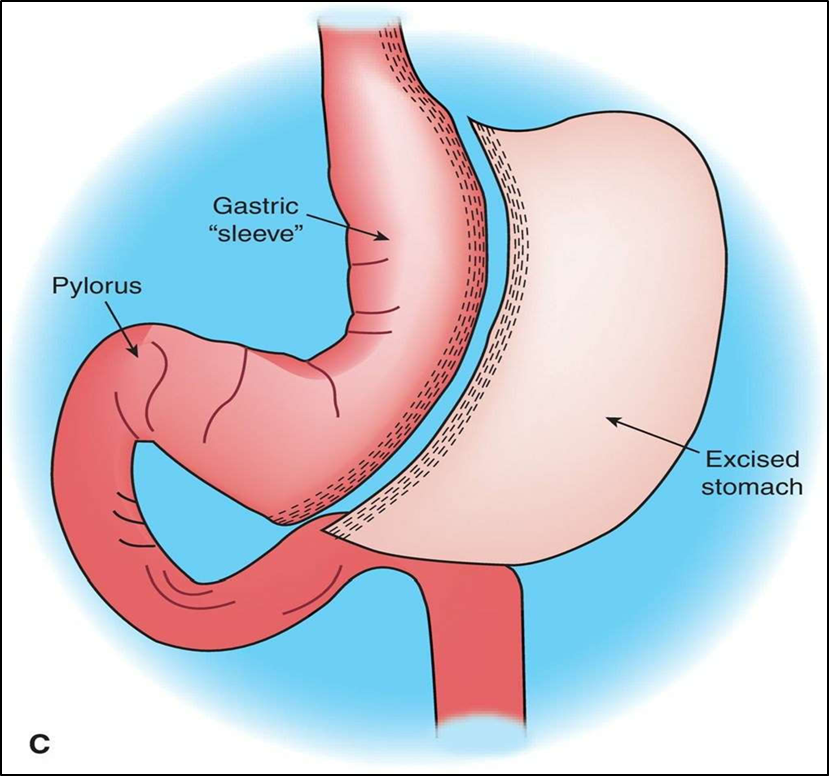
Sleeve gastrectomy involves cutting about 80% of the stomach along its greater curvature, leaving a tube-like stomach residue and leaving the remainder of the intestine intact (Ponce et al., 2016).

Sleeve gastrectomy reduces the stomach by 75%-80% to banana form by stacking down the stomach and removing the rest of the stomach. The new stomach will contain up to 200 ml of fluid at any one time, which causes limiting the amount of food the individual can consume. The individual feels full more quickly; the smaller stomach functions the same way to optimize weight loss. It's important to make long-term nutritional and lifestyle modifications to maximize weight loss. It's pointless to pursue this procedure until you're 100% committed to following the dietary and lifestyle recommendations (Gagner and Buchwald, 2014).

The combination of a smaller stomach and gastric tissue resection results in not only earlier satiety but also a lower level of the ghrelin hormone, which contributes to the procedure's effectiveness (Abdemur et al., 2014).

Laparoscopic sleeve gastrectomy was first identified as the restrictive component of BPD/DS (Marceau et al., 2014).

A primary reason for its popularity rising among surgeons and patients is the laparoscopic sleeve gastrectomy technically simpler than gastric bypass or biliopancreatic diversion. It does, however, have the potential for long-term complications, which can range from 0.7 percent to 6 percent in different series, as with any other surgical operation (Noel et al., 2017).



**Figure (2.2): Sleeve Gastrectomy (Nettina, 2019)**

**2.10.2. Malabsorption Surgeries**

The absorption of food and nutrients from the gastrointestinal tract is hampered by malabsorption procedures (Ignativacius et al., 2018).

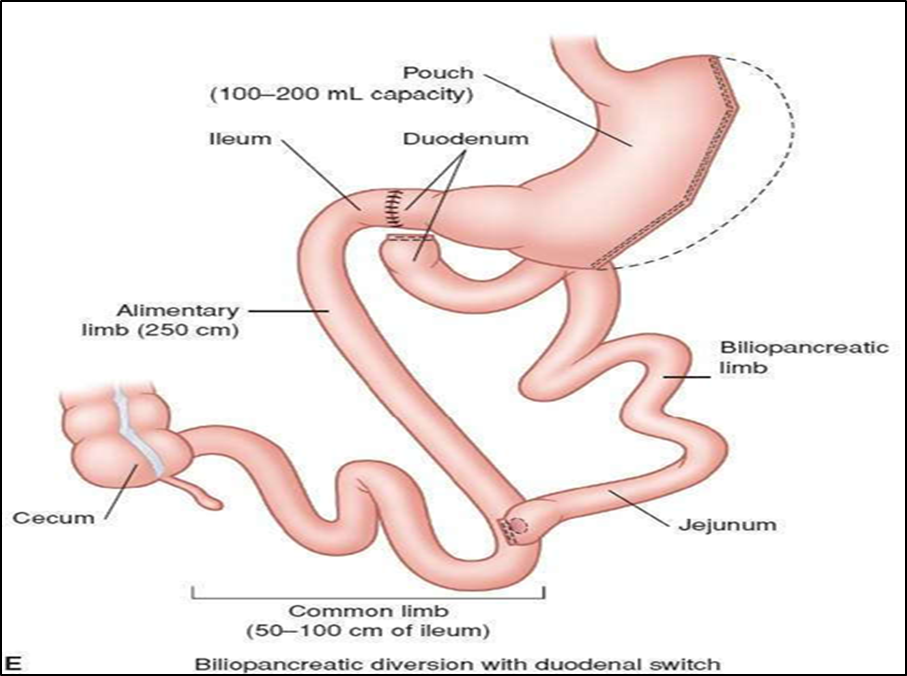
**2.10.2.1. Biliopancreatic Diversion/Duodenal Switch (BPD/DS)**

Scopinaro identified biliopancreatic diversion as an alternative to Jejuno-Ileal Bypass for patients with morbid obesity in 1979. In the BPD, the distal end of the duodenum (duodenal stump) is closed with a partial distal gastrectomy. The initial division of the small bowel (small intestine) is a distal transaction between the Treitz ligament and the ileocecal valve about 250 cm from the disconnected Roux limb, resulting in a gastric pouch (volume of gastric residual 200 to 500 ml) (Ballsmider et al., 2015).

The small bowel is bypassed biliopancreatic limb (duodenum), and the alimentary limb (gastric remnant) is anastomosed to the ileum 50 cm from the ileocecal valve, creating a 50 cm common duct. In 1986, Dr. Douglas Sterling Hess changed the procedure with a duodenal switch. The modified procedure includes (1) “preservation of the lesser curvature, antrum, pylorus, and [initial section of duodenum]”. (2) duodenal-ileal anastomosis with vertical, subtotal sleeve gastrectomy accompanied by the creation of alimentary limb, and (3) small bowel reconstruction with a common channel length of 100 cm BPD/DS are successful operations (Ballsmider et al., 2015).

Biliopancreatic Diversion/Duodenal switch is performed less often by surgeons than other operations because the risk of postoperative complications is comparatively high. The complexity of the surgery and specialist surgical experience and knowledge may also play a role in declining trends in the use of these procedures (Salehi and D’Alessio, 2014).

For patients with extreme obesity, a biliopancreatic diversion/duodenal switch is usually considered. This irreversible surgery is a variation on the biliopancreatic diversion procedure (the original surgery is now rarely performed). The biliopancreatic diversion/duodenal switch procedure consists of cutting 65–70% of the stomach while leaving the pyloric valve unchanged. The proximal part of the ileum is then attached to the remaining portion of the stomach. Because digestive enzymes cannot mix with food before it meets the distal ileum, the surgery both limits consumption and delays digestion and absorption (Gagnon and Sheff, 2012).



**Figure (2.4): Biliopancreatic Diversion/Duodenal Switch (Farrell, 2017)**

**2.10.3. Combined Surgeries (Restrictive and Malabsorption)**

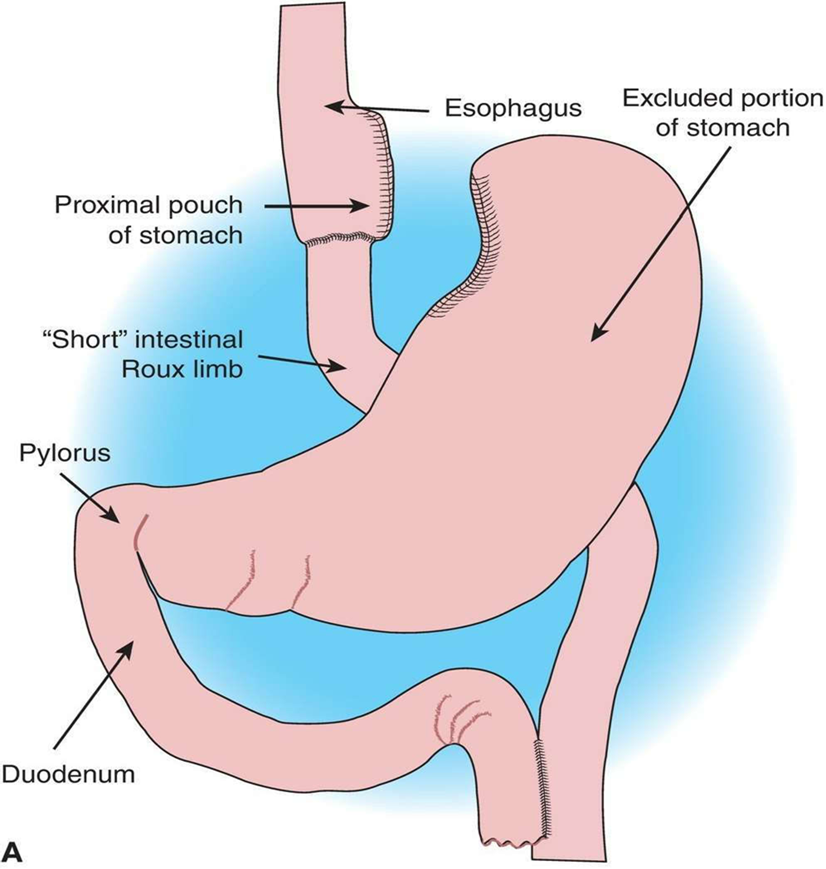
**2.10.3.1. Laparoscopic Roux-en-Y gastric bypass (LRYGB)**

The Roux-en-Y gastric bypass, which has a dual restrictive and malabsorptive mode of action, is now the “gold standard” form of weight loss (Coupaye et al., 2015).

Through forming a narrow gastric pouch anatomized to the distal section of the small intestine, the duodenum is added farther down the distal section of the intestines, providing a "Y"-shaped food that bypasses the stomach and also the proximal small intestine, the Roux-en-Y gastric bypass is an irreversible procedure that requires the combination of restricting and malabsorptive mechanisms (Colquitt et al., 2014).

The RYGB involves the creation of a small stomach pouch of 30 ml, which is then anastomosed to the jejunum, to restrict the food intake, with a Roux-en-Y alimentary limb of 100 to 150 cm and a biliopancreatic limb of 50 to 75 cm, whilst bypassing the distal part of the stomach, duodenum, and the proximal jejunum (Giordano, 2014).

The LRYGB is an irreversible operation and is effective in achieving significant, long-term weight loss in morbidly obese people with BMIs ranging from 40.0 kg/m2 to 50.0 kg/m2 (Verger et al., 2016).

****

**Figure (2.5): Roux-en-Y gastric bypass (Nettina, 2019)**

**2.11. Revision Surgeries**

Revisional surgery is the most rapidly expanding group of bariatric operations, having increased from 6% of all procedures in 2013 to 13.5 percent in 2015 and 15.4% in 2018 (ASMBS, 2020).

Even though bariatric surgery is generally safe, some patients develop complications, weight regain or have their diabetes relapse. But to a lesser degree than primary bariatric surgery, the impact of revisional bariatric surgery on weight reduction is effective (Aleassa et al., 2019).

As a result, revisional bariatric surgery to remove the gastric band and convert it to another bariatric operation, most commonly RYGB or SG, is becoming more widespread. Revisional bariatric surgery has been seen to be both safe and effective in previous systemic reviews (Mahawar et al., 2015).

Revisional surgery is becoming more common as a result of insufficient weight loss or weight regain. Certain procedure-specific complications, on the other hand, may serve as a red flag for a revision. After LAGB, complications including band erosion and slippage, oesophageal dilatation and dysmotility, and tube/port dysfunction are possible. Complications specific to LSG include persistent staple-line leak, dysphagia due to stricture development, and GERD (Chowbey et al., 2018).

**2.12. Effects (Outcomes) of Bariatric Surgery**

The only intervention that causes significant weight loss in obese people is bariatric surgery, which reduces the total mortality from critical comorbidities by 45 percent (Pontiroli et al., 2011; Brethauer et al., 2013).

**2.12.1. Weight Loss Improvement**

The results of bariatric surgery vary depending on the surgical techniques used. Excess Weight Loss (EWL) is considered excellent if more than 75 percent of excess weight is lost, good if between 50 and 75 percent is lost, and fair if between 25 and 50 percent of excess weight is lost, according to Reinhold's guidelines. As a result, where an EWL of over 50% is obtained, bariatric surgery is considered successful. Weight loss normally peaks at 12 months after surgery, but some weight regaining is common after that (Giordano, 2014).

Within two to three years after bariatric surgery, patients typically lose 10% to 35% of their total body weight (OAC, 2015b), the majority of weight loss happens in the first year (Courcoulas et al., 2013).

Certain operations resulted in greater weight loss and improvements in comorbidities as compared to others. Laparoscopic Roux-en-Y gastric bypass and sleeve gastrectomy had similar results, and both of these operations were had better outcomes than adjustable gastric banding. Biliopancreatic diversion with duodenal switch resulted in greater weight loss than LRYGB in persons with a very high BMI (Colquitt et al., 2014).

**2.12.2. Type2 Diabetes Mellitus Improvement or Remission**

Obesity is the leading cause of type 2 diabetes mellitus, a condition marked by insulin resistance and beta-cell damage in the pancreas (Centers for Disease Control and Prevention, 2014).

According to the latest Global Registry Report from the International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO), 22% of patients who underwent bariatric surgery were on type 2 diabetes drugs before surgery (inter-country variation 7.4-63.2 percent ) (Welbourn et al., 2016). In patients with diabetes, bariatric surgery has been shown to improve metabolic status, decrease micro-and macrovascular complications, and cardiovascular deaths (Sjostrom, 2013).

A hemoglobin A1c (HbA1c) concentration of ≤6.5 percent and a fasting blood glucose of ≤5.6 mmol/L without pharmacological therapy for one year are described as diabetes mellitus remission after two years (Wolfe et al., 2016).

There appears to be some variation in the rate of diabetes mellitus improvement or remission between the different forms of bariatric surgery, with BPD–DS having the greatest effectiveness, followed by RYGB, and LAGB having the lowest (Nguyen and Valera, 2017). A higher postoperative remission rate is associated with a shorter period of diabetes, lower HbA1c levels, and insulin independence (Hayes et al., 2011).

**2.12.3. Cardiovascular Disease Improvement**

Cardiovascular disease (CVD) is a heart and blood vessel disorder that affects an estimated 85.6 million adults in the United States, with 43.7 million of them being over 60 years old. These people have one or more types of CVD, with hypertension, coronary artery disease, stroke, heart failure, and congenital heart defects being among the most common. Even though CVD has decreased in the United States in recent decades, it remains the leading cause of death in the country, with approximately 800,000 deaths per year (Mozaffarian et al., 2016).

Sixty-four percent of people undergoing bariatric surgery have dyslipidemia, which involves high levels of LDL, high triglycerides, and low levels of HDL (Courcoulas et al., 2018).

A decline in cardiovascular mortality and morbidity has been identified as a greater benefit of bariatric surgery (Sjostrom et al., 2012), Compared to nonsurgical controls, bariatric surgery has a lower risk of myocardial infarction, stroke, cardiovascular problems, and death (Kwok et al., 2014).

**2.12.4. Hypertension Improvement**

The term "hypertension" refers to an increase in arterial pressure. Hypertension is described as a patient that has a systolic blood pressure of more than 140 mm Hg, a diastolic blood pressure of more than 90 mm Hg, or both. Hypertension is a widespread medical condition in the United States, affecting approximately 29 percent of the population. Elevated levels of arterial blood pressure often coexist with obesity (Lopaschuk, 2014).

Sixty-eight percent of people undergoing bariatric surgery have high blood pressure (Courcoulas et al., 2018). According to systematic reviews, bariatric surgery is linked to a remission rate of hypertension of 43 percent to 83 percent after one year (Climent et al., 2020). Patients undergoing RYGB tend to have a greater rate of hypertension recovery than those undergoing sleeve gastrectomy, but 5-year changes in systolic and diastolic blood pressure can be identical (Climent et al., 2020). Studies comparing bariatric surgery to intensive medical/lifestyle intervention have found comparable results: rates of hypertension recovery are higher and antihypertensive drug usage is lower in surgical patients compared to nonsurgical patients (Pareek et al., 2019).

**2.12.5. Reduce Incidence of Cancer**

Obesity has been linked to an elevated incidence of postmenopausal breast, endometrial, ovarian, liver, colon, and pancreatic cancers (Wiggins et al., 2019; Feigelson et al., 2020). According to data from eight observational studies affecting 635,642 patients, bariatric surgery is linked to a lower risk of all forms of cancer as well as obesity-related cancers including breast cancer (Wiggins et al., 2019; Feigelson et al., 2020).

**2.12.6. Reduce the Risk of COVID 19**

The immune system, cytokines, and inflammatory markers have all been found to be positively affected by bariatric surgery. Obese and metabolic condition patients who undergo bariatric surgery become better and will be able to combat SARS-CoV-2 infection more efficiently (Aminian and Tu, 2021).

**2.12.7. Nonalcoholic Fatty Liver Disease Improvement**

Non-alcoholic fatty liver disease (NAFLD) is characterized by triglyceride deposition in hepatocytes in the absence of alcohol intake. Obesity is a high-risk factor for NAFLD. Non-alcoholic fatty liver disease is a category of illness that ranges from basic steatosis to non-alcoholic steatohepatitis, and can progress to cirrhosis or hepatocellular carcinoma over time and is linked to increased mortality. Non-alcoholic fatty liver disease affects 20% to 30% of the population of Western countries, and 63 percent to 95 percent of morbidly obese people (De la Cruz et al., 2014).

Bariatric surgery improves the histological presentation of the liver and may help non-alcoholic steatohepatitis regress (Chavez-Tapia et al., 2010).

The Swedish Obesity Survey, a nonrandomized study of 3570 obese participants that linked various types of bariatric procedures, including RYGB and gastric banding, to medical management over ten years, found a decrease in alanine aminotransferase (ALT) at two years that was maintained at ten years compared to the nonsurgical control group (Burza et al., 2013).

**2.12.8. Obstructive Sleep Apnea (OSA) and Joint Pain Improvement**

Obstructive sleep apnea is a common sleep-related breathing condition that results in arterial hypoxia and sleeps fragmentation due to nocturnal upper airway obstruction. Obesity, advanced age, and male gender are all significant risk factors for OSA (Busetto et al., 2017).

Obstructive sleep apnea is improved by weight loss, and it should be indicated to any people who are overweight or obese (Gottlieb and Punjabi, 2020). In obese people, joint pain, including lower back pain, is very common, and it can lead to a lack of autonomy. Bariatric surgery can increase mobility, improve functional status and the performance of everyday activities, reducing back pain, and enhancing independence (Ponta et al., 2014).

**2.12.9. Quality of Life and Psychological Problems Improvement**

Patient's quality of life refers to their ability to live a healthier lifestyle that includes being able to exercise easily without being fatigue, eating well, doing better at work, and participating in more active social activities (Ali, 2019).

Many studies have shown that following bariatric surgery, the quality of life (QOL) improves significantly for people of all ages, ethnicities, and genders, over a wide variety of BMIs and weight changes (Helmiö et al., 2014; Mohos et al., 2011; Strain et al., 2014). Physical and sexual function, as well as general health and the physical component, all improve after surgery (Strain et al., 2014).

Bariatric surgery can help people with depression, aggression, eating disorders, and low self-esteem (De Zwaan et al., 2011). Following bariatric surgery, patients' body image improves by at least two years (Sarwer et al., 2010, Zeller et al., 2011).

**2.12.10. Economic Impact of Bariatric Surgery**

Glycemic, lipid, and antihypertensive treatment costs are significantly reduced after bariatric surgery (Sussenbach et al., 2012). In the short term, it is more expensive than non-surgical obesity management, but a return on investment will be reached in four years, even without accounting for higher productivity and decreased sick leave (Cremieux et al., 2008). One year after surgery, overall postoperative medication costs were significantly reduced, especially for diabetes mellitus type 2 and OSA (Gesquiere et al., 2014). Because of the reduction in obesity-related comorbidities, cost-effectiveness can also be accomplished by decreased access to healthcare system utilities (Neovius et al., 2012). Morbid obesity surgery improves health-related QOL while further lowering the demand for further treatments and overall hospital costs. According to a cost-utility study conducted in Finland, non-operative treatment will be more expensive for the Finnish healthcare system five years after surgery (Mäklin et al. 2011).

**2.13. Preoperative Nursing Care**

Any patient having abdominal surgery or laparoscopy receives similar preoperative care. The nurse's main responsibility is to reinforce patient education in the preparation for surgery (Ignatavicius et al., 2013).

The nurse ensures the collection of preoperative screening procedures and reviews the results. A complete blood cell count (CBC), electrolytes, blood urea nitrogen (BUN), and creatinine are examples of common laboratory studies. Other screening tests that can be obtained in obese patients include a sleep study, upper endoscopy, electrocardiogram (ECG), lipid panel, aspartate aminotransferase (AST), alanine aminotransferase (ALT), glucose, and HbA1c, as well as iron, vitamin B12, thiamine, and folate (Hinkle and Cheever, 2018).

**2.14. Contraindications of Bariatric Surgery**

1. Obesity may be caused by reversible endocrine or other diseases.

2. Currently abusing drugs or drink alcohol.

3. Extreme psychiatric disorder that is uncontrollable.

4. Inadequate understanding of the complications, advantages, anticipated outcomes, alternatives, and lifestyle changes that bariatric surgery needed (Honan, 2019).

**2.15. Complications of Bariatric Surgery**

Surgical complications are classified as either early or late based on whether they occur during the first thirty days after surgery or later (Giordano, 2014).

The Clavien-Dindo Classification, which is commonly used, divides complications into four severity grades (Dindo et al., 2004). Minor risk cases that did not need treatment are classified as Grade 1 (with exceptions of analgesic, antipyretic, antiemetic, and antidiarrheal drugs or drugs required for lower urinary tract infection). Grade 2 complications are described as potentially life-threatening complications requiring intervention or requiring a hospital stay that was more than twice the median hospitalization time for the same operation. Complications of grade 3 were classified as those that resulted in long-term impairment or organ resection, Grade 4 complications are considered life-threatening, while Grade 5 complications result in a patient's death as a result of a complication (Dindo et al., 2004).

**Table (2.3): Clavien-Dindo Classification of Surgical Complications**

|  |  |
| --- | --- |
| **Grade** | **Definition** |
| Grade I | Any deviation from the normal postoperative path does not require pharmacological therapy or surgical, endoscopic, or radiological intervention.  Antiemetics, antipyretics, analgesics, diuretics, electrolytes, and physiotherapy are examples of therapeutic regimens that are permitted. Wound infections that are opened at the bedside are also included in this category. |
| Grade II | Requiring pharmacological therapy with medications is not permitted for grade I complications.  Total parenteral feeding and blood transfusions are also covered. |
| Grade III  Grade IIIa  Grade IIIb | Surgical, endoscopic, or radiological procedure is needed.  No general anesthesia is used in this procedure.  General anesthesia is used for the procedure. |
| Grade IV  Grade IVa  Grade IVb | Life-threatening complications needed ICU management  Failure of a single organ (including dialysis)  Failure in multiple organs |
| Grade V | A patient's death |

(Dindo et al., 2004)

**2.15.1. Mortality**

Bariatric surgery has a low mortality rate (0.1 percent for the entire bariatric surgery and 0.15 percent after RYGB). Early complications of bariatric surgery include pulmonary and venous thromboembolism, which affects less than 0.5 percent of patients (Benotti et al., 2014; Kruger et al., 2014). High body mass index, age, male gender, pulmonary hypertension, congestive heart failure, and liver disease are all risk factors for thirty days mortality following LRYGB (Benotti et al., 2014).

**2.15.2. Venous Thromboembolism (VTE)**

Venous Thromboembolism like pulmonary embolism and deep venous thrombosis is a moderate to high risk for bariatric surgery patients. Older patients, have a higher BMI and have had a previous VTE or coagulation defect are at a higher risk (Brethauer, 2013).

**2.15.3. Anastomotic Leak**

Anastomosis disruption (i.e., surgically resected site) may lead to leakage of gastric contents into the peritoneal cavity, resulting in infection and possibly sepsis. Patients who are more likely to develop this type of complication are elderly, male, and have a higher body mass index. Fever, abdominal pain, tachycardia, and leukocytosis are nonspecific signs and symptoms of anastomotic leaks. If not detected and treated quickly, this will lead to sepsis and potentially septic shock (Dunham, 2013). In RYGB, SG, or BPD/BPD-DS, it may happen at either an anastomotic junction or stapler line, leading to severe peritonitis, sepsis, and multiorgan failure. In RYGB, anastomotic leakage most frequently occurs at the gastrojejunostomy, with a 0.1 percent mortality rate. Leakage affects 1.6-3.6 percent of SG patients, 0.5 percent of RYGB patients, and up to 5% of BPD-DS patients (Kruger et al., 2014).

**2.15.4. Hemorrhage**

Following bariatric surgery, postoperative hemorrhage is a possible complication. Frank, bright red oral or rectal bleeding, tarry melena, the bloody output from the wound or drains, if present, as well as common clinical symptoms of severe bleeding and hemorrhagic shock (e.g., tachycardia, hypotension, syncope), can all indicate intra-abdominal hemorrhage. Disruption of a staple or suture is most often the source of bleeding within the first 72 hours of surgery. Bleeding that occurs 72 hours to 30 days after surgery is almost always due to the development of a gastric or duodenal ulcer (Patil and Melander, 2015).

**2.15.5. Dysphagia**

Patients who have undergone any form of restrictive bariatric operation may experience dysphagia, or difficulty swallowing. If it happens, it is usually more serious 4 to 6 weeks after surgery and can last up to 6 months (Mechanick et al., 2013).

**2.15.6. Internal and Incisional Hernias**

Internal hernias can cause bowel obstruction which can happen after surgery at any time. After LRYGB, intestinal obstruction occurs between 1.6-5 percent of the time, and internal hernia occurs 0.3-6 percent of the time (Ortega et al., 2013). With laparoscopic procedures, incisional hernias are very rare (Reoch et al., 2011).

**2.15.7. Dumping Syndrome**

Dumping syndrome is a set of unpleasant vasomotor and gastrointestinal symptoms that often affects people that have undergone bariatric surgery. For several years, it was theorized that hypertonic gastric food boluses that rapid transit into the intestines pulled extracellular fluid from the circulating blood volume into the small intestines to dilute the high concentration of electrolytes and sugars, causing symptoms. This rapid transit of the food bolus from the stomach into the small intestines is now believed to induce a rapid and exuberant release of metabolic peptides, which are responsible for the dumping syndrome symptoms (Patil and Melander, 2015).

After bariatric surgery, the dumping syndrome has been documented in variable incidence (Banerjee et al., 2013). After eating a high-glycemic-index meal, you can experience early abdominal pain, diarrhea, nausea, bloating, fatigue, facial flushing, palpitations, hypotension, and syncope. It's caused by rapid gastric emptying or rapid nutrients exposure in the small intestine (Tack and Deloose, 2014).

**2.15.8. Nutritional Deficiencies**

Iron, vitamin B12, folic acid, and hypovitaminosis D deficiencies can lead to the development of metabolic bone diseases following bariatric surgery and are most often associated with RYGB, BPD, and BPD-DS procedures, with SG procedures being less common (Bal et al., 2012). The likelihood of dietary deficiency depends on the surgical technique used and patient compliance during the follow-up period (Bal et al., 2012; Vidal et al., 2013).

**2.15.9. Changes of Bowel Habits**

Following surgery, patients can experience either diarrhea or constipation. Diarrhea is more frequent after bariatric surgery, particularly when malabsorptive procedures are performed. Both of these conditions can be avoided if the patient eats a diet that is high in fiber. Steatorrhea may also be caused by a lack of adequate mixing of pancreatic and biliary secretions due to rapid gastric emptying. Persistent diarrhea or steatorrhea can necessitate further diagnostic tests, such as an upper endoscopy or colonoscopy with biopsies, to rule out the presence of other pathologies including celiac disease or Clostridium difficile infection (Mechanick et al., 2013).

**2.15.10. Others**

Other postoperative complications include GERD after sleeve gastrectomy (up to 50%), alopecia (up to 4.5%), cholelithiasis (about 2%), and postprandial hypoglycemia (around 2%). (0.04 percent , 0.2 percent) after RYGB) (Foster-Schubert 2011; Botros et al., 2014; Tack et al., 2014). Because of an early and higher peak level of glucose and a lower nadir glucose level after food consumption, postprandial glycemia excursions increase after LRYGB and can appear years after bariatric surgery (Salehi et al., 2014).

**2.16. Postoperative Nursing Care and Patient Education**

Cardiopulmonary problems, thrombus forming, anastomosis leaks, and electrolyte imbalances are all treated in the initial postoperative care. The transfer from surgery could necessitate the participation of a large number of staff members. Maintain the patient's airway stability during the transfer and focus on pain management. Reduce abdominal pressure and maximize lung expansion by keeping the patient's head at a 45-degree angle (Thorell, 2016).

**2.16.1. Prevent Venous Thromboembolism (VTE)**

The risk of venous thromboembolism (VTE) is elevated following surgery. Low-dose heparin with compression stockings or intermittent pneumatic compression devices reduces the risk of VTE. Range-of-motion exercises, both active and passive, are a common part of everyday care (Thorell, 2016).

**2.16.2. Ensuring Adequate Nutritional Status**

The nurse advises the patient to eat slowly and stop when feeling full. Vomiting or painful esophageal distention can occur if you eat too much or too fast, or if you eat high-calorie liquids and soft foods (Mechanick et al., 2013).

Due to Nutritional deficiency, patients may need oral or parenteral iron supplementation, as well as a low serum amount of vitamin B12; patients may be given monthly vitamin B12 intramuscular injections to avoid pernicious anemia (Dunham, 2013; Isom et al., 2014). For the rest of their lives, patients should take multivitamins containing folate, calcium, vitamin D, iron, and vitamin B 12 (Cooley, 2017).

**2.16.3. Relieving Pain**

Analgesics can be given as prescribed after surgery to relieve pain and discomfort. Patients are usually administered opioids through patient-controlled analgesia (PCA) pumps, which the nurse can educate them on its use and monitor for its effectiveness. It is important to provide sufficient pain relief so that the patient can perform pulmonary care activities (deep breathing and coughing) as well as leg movements, move from side to side after 2 hours, and ambulate. If pain is not properly managed, the nurse evaluates the efficacy of the analgesic intervention and consults with other members of the health care team (Patil and Melander, 2015).

**2.16.4. Ensuring Fluid Volume Balance**

Intravenous (IV) fluids are usually given to bariatric surgery patients for the first few hours after surgery. They are advised to start drinking sugar-free oral fluids when they are awake and conscious on the surgical unit. Small amounts of these liquids are thought to promote gastrointestinal peristalsis and perfusion and preventing gastric reflux. Sugar-free fluids are favored because they haven't been linked to the development of dumping syndrome (Hinkle and Cheever, 2018).

**2.16.5. Dietary Guidelines for the Patient Who Has Had Bariatric Surgery**

In most cases, the patient is discharged in four days (24 to 72 hours for laparoscopic procedures) with specific nutritional recommendations (Honan, 2019).

The nurse instructs the patient to:

1. Smaller, more regular meals with protein and fiber should be eaten; each food should not be more than 1 cup in size.

2. Consume only nutrient-rich ingredients (e.g., peanut butter, cheese, chicken, fish, and beans).

3. To prevent dumping syndrome, avoid consuming concentrated sweets.

4. Do not drink fluid with meals, drink fluid up to 30 minutes before the meal and up to 60 minutes after mealtime.

5. Drink lots of water and avoid consuming liquid calories (e.g., alcoholic beverages, fruit drinks, nondiet sodas).

6. Every day, walk for at least 30 minutes.

7. Eating slowly and chew the food properly (Bosnic, 2014).

**2.16.6. Continuing and Transitional Care**

Because they are at risk of malnutrition or weight gain after bariatric surgery, all patients' weight, comorbidities, metabolic and nutritional status, and dietary and exercise behaviors are monitored for the rest of their lives. Women of childbearing age who have bariatric surgery should use contraceptives for at least 18 months after the procedure to prevent pregnancy until their weight stabilizes. Following weight loss, the patient may want to have additional surgical procedures for body contouring. Breast reductions, lipoplasty to remove fat layers, or a panniculectomy or abdominoplasty to remove excess abdominal skin folds (OAC, 2015; Wykowski and Krouse, 2013). Nonsteroidal anti-inflammatory medications (NSAIDs) (e.g., ibuprofen [Motrin]) should be avoided by patients after discharge because they have been linked to the formation of stomach ulcers (Mechanick et al., 2013).

**2.17. Previous Studies**

**First Study:** Al-Azawi and Hameed (2021) in their study (Assessment of Nurses' Knowledge toward Sleeve Gastrectomy in Surgical Wards at Al-Najaf Al-Ashraf Hospitals).

**Objectives:**

To assess nurses' knowledge toward sleeve gastrectomy in surgical

unit and to identify the relationship between nurses' knowledge about sleeve gastrectomy and their sociodemographic data in surgical unit.

**Methods:**

A quantitative descriptive design is used in the present study to perform objectives. A purposive sampling method; 40 nurses distributed on hospitals in surgical units, the data collection used through constructed questions  
divided into demographic data and nurses’ knowledge, and data analyzed by descriptive analysis and an Inferential analysis.

**Results:**

The age mean of nurses was (29.78) years and ranging from (28-34) years are (70%), most of them were female, half of the nurses were married, more than one-third of them graduated from the nursing institute, most of the sample had (1-10) years employment in nursing, and most of the sample study with no training sessions. According to the nurses' knowledge assessment about sleeve gastrectomy, it shows that about (92.5%) of the nurses have poor knowledge while (7.5%) of them have moderate knowledge and as general the total score of nurses' knowledge was poor in all domains a mean of score (1.43). At the same time, there is no significant association between nurses’ knowledge and their demographic data (P ≤ 0.05).

**Conclusion:**

Nurses’ knowledge about sleeve gastrostomy was ranging from poor to moderate, and as general the total score of nurses’ knowledge was poor and no significant association between nurses’ knowledge and their demographic characteristics.

**Second Study**: Fan et al., (2020) in their study(Knowledge and Attitudes towards Obesity and Bariatric Surgery in Chinese Nurses).

**Objectives:**

To investigate the knowledge of Chinese nurses about obesity and metabolic diseases, as well as their attitudes about bariatric surgery, to enhance their ability to work in this new field.

**Methods:**

This is a multicenter study, with the questionnaire distributed to cooperative hospitals in April 2018 as an electronic questionnaire by Jinan University's First Affiliated Hospital. A questionnaire was created to investigate nurses' demographics, knowledge, and attitudes of nurses towards obesity, weight loss, and bariatric surgery.

**Results:**

A total of 5311 questionnaires were received, with a response rate of 91.8 percent (4878 questionnaires) and a normal BMI of 65.2 percent for nurses. Obesity and associated cardiovascular disorders were well-understood by nurses (98.6%), as was type 2 diabetes mellitus (90.2 percent ). However, there was a shortage of understanding of some similar areas, such as its links to carcinoma (49.5%), GERD (40.1%), and psychological conditions (49.1%), which are contentious concerns of bariatric surgery. Education (P < 0.05) was shown to have a significant impact on nurses' knowledge of obesity comorbidities. Female nurses were more likely than male nurses to prefer weight loss, but male nurses exercised more often than female nurses (P < 0.05). Their acceptance of bariatric surgery's safety (25.1%) and effectiveness (22.9%) is limited, with concerns predominantly mostly regarding postoperative complications and adverse effects. Surgical nurses have a more positive attitude toward surgery (P < 0.05).

**Conclusion:**

Chinese nurses have poor knowledge of obesity-related metabolic disorders, who also have a low acceptance of surgical care options. Our results indicate that continuing education for Chinese nurses in the areas of obesity, metabolic diseases, and bariatric surgery is important.

**Third Study:** Lopez et al., (2020) in their study(Primary care providers’ attitudes and knowledge of bariatric surgery).

**Objectives:**

This study aims to assess the referral and procedure patterns of Primary care providers that treating obese patients. Our goal is to better identify treatment challenges so that we can implement targeted interventions to improve patient quality of care.

**Methods:**

Primary care providers at a single academic institution with community doctors were emailed a 39-question electronic survey. Providers’ demographics, referral patterns, knowledge of pathophysiologic obesity processes, and bariatric surgery qualifications were all investigated. The researchers used frequency and univariate comparisons to compare the providers’ demographics, positions, and BMIs of referring and non-referring providers.

**Results:**

We had a 33.9 percent response rate (n = 41) out of 121 surveys distributed. More than 15% of their patients were obese in the previous year, which represents 78.0 percent of respondents. For 48.8% of patients, Primary care providers said they started weight loss management conservations < 50% of the time. Barriers to discussing weight loss surgery that providers found included not knowing whether the operation would be covered by the patient's insurance or whether the patient would be qualify (24.4 percent vs. 19.5 percent). Also, 43.9 percent of PCPs believe that the complications of bariatric surgery outweigh the benefits.

**Conclusion:**

Even though a vast percentage of a patient cared by Primary care providers' patients are obese, few providers conduct weight-loss option discussions with surgical applicants who may be qualified. The challenges found suggest that better patient education, methods for streamlining conversations and referrals, and affirmation of the safety of surgical weight loss are all possible solutions. The need for this knowledge by providers indicates an opportunity to reduce the referral gap by increasing patient discussions on these topics.

**Fourth Study:** Mansour et al., (2019) in their study (Nurses' Performance for Patient Undergoing Bariatric Surgery).

**Objectives:**

The study aimed to assess nurses’ performance for a patient undergoing bariatric surgery.

**Methods:**

To achieve the study's aim, a descriptive exploratory design was used. The study was carried out in surgical units at Ain Shams University Hospital Cairo Egypt. A random group of 30 nurses from Ain Shams University Hospital's bariatric surgery units participated in this study. The data for this study were collected using a structured self-administered knowledge assessment questionnaire and an evaluation practice checklist.

**Results:**

According to the findings, 73.3 percent of the nurses surveyed had insufficient knowledge and 70.0 percent had bad practice when it came to managing patients undergoing bariatric surgery. Furthermore, there was a statistically significant connection between the nurses' overall knowledge and total practice.

**Conclusion:**

According to the findings, more than two-thirds of the studied nurses had a low degree of knowledge and practice. The importance of introducing an educational training program to improving nurses' performance regarding caring for a patient undergoing bariatric surgery was examined in this study.

**Fifth Study:** Ponstein, (2012) in his study(Assessing the Nurses’ Knowledge of Bariatric Surgery: A Performance Improvement Project)

**Objectives:**

This study aimed to assess nurses' knowledge and attitudes towards bariatric surgery in a hospital that is a bariatric surgery Center of Excellence.

**Methods:**

To assess the nurses' present knowledge of bariatric surgical techniques and attitudes toward patients undergoing bariatric surgery, a voluntary survey was performed using Survey Monkey.

**Results:**

According to the survey's findings, 66.7 percent of respondents had no prior experience caring for bariatric surgical patients, 3.3 percent didn't understand gastric bypass surgery, 6.7 percent didn't understand the sleeve, and 26.7 percent didn't understand the duodenal switch surgery. Furthermore, 43.3percent of nurses believe that bariatric surgery increases the quality of life for certain obese patients who follow diet and postoperative orders, but 6.7 percent disagree with bariatric surgery as a way of improving quality of life.

**Conclusion:**

Because bariatric surgery has become more common in recent years as a means of treating obesity, it is essential that nurses understand the surgical techniques and how to care for these patients’ people. This survey's findings were used to further teach the nurses at this hospital about bariatric surgery and the duodenal switch technique.

**Chapter Three**

**Methodology**

**Chapter Three**

**Methodology**

The research design used in the thesis is explained in this chapter. It involves the design of the study, the administrative arrangements, ethical considerations, setting of the study, the sample of the study, criteria of the sample, study instruments, the validity of the questionnaire, performing a pilot study, instrument reliability, data collection, and data analysis.

**3.1. Design of the Study**

A descriptive study was conducted on nurses’ knowledge toward bariatric surgery at surgical wards at Teaching Hospitals (Al-Sader, Al-Faiha, and Al-Mawana) in Al-Basra City. The period of the study was extended from the 15th of September 2020 to the 25th of May 2021.

**3.2. Administrative Arrangement**

Official approval from the appropriate authority was received before data collection for the following:

* University of Baghdad/College of Nursing Council has given its approval. The research design protocol was then set up as a pre-request in the research phase.
* Ministry of Planning/Central Statistical Organization gave its official approval (Appendices: **A1**).
* A Formal Administrative Request Submitted by College of Nursing, University of Baghdad to Al-Basra Health Directorate (Appendices: **A2**).
* Permission of Ministry of Health and Environment **/** Al-Basra  
  Health Directorate **/** Department of Human Development and Training Center) to carry out the study at Teaching Hospitals ( Al-Sader, Al-Faiha, and Al-Mawana) in Al-Basra City (Appendices: **A3**).
* Permission for the sample collection is also sought from the intended settings at teaching hospitals (Al-Sader, Al-Faiha, and Al-Mawana), where an agreement from the responsible for the research in each hospital above.

**3.3. Ethical Considerations**

This is an important part of the thesis because it dealt with ethical issues for scientific research at the start of the sample selection period, as seen below:

1. Ethical committee at the Faculty of Nursing/ University of Baghdad (Appendix-**B1**).

2. Anonymity was maintained by not obtaining the identities of the nurses.  
3. Separate meetings were held with the nurses on the wards to educate them about the study and its goals.  
4. All nurses received complete details about their role in this study. 5. All nurses had been told the findings of this questionnaire will only be used for the study and its purposes.  
6. Notification of all nurses that they are considered independent individuals and is having the right to refuse participation (Appendix-**B2**).

**3.4. Setting of the Study**

The study was conducted in surgical wards at Teaching Hospitals (Al-Sader, Al-Faiha, and Al-Mawana) in Al-Basra City; Al-Basra City is a center of Al-Basra Province that contains four main hospitals in the City center. Al-Basra teaching hospital is excluded from the study because converted it to an epidemic hospital to receive patients infected with the coronavirus. These three hospitals are the only hospitals that carry out bariatric surgery and provides care for patients.

**3.5. Sample of the Study**

Purposive (non-probability) sample covers (100) nurses who work  
in the surgical wards.

**3.5.1. Inclusion Criteria**

1. Nurses should have a minimum of one year of surgical experience.

2. Nurses who work in the surgical wards.

**3.5.2. Exclusion Criteria**

1. Experience less than one year.

2. Nurses who haven’t work in surgical work.

**3.6. Construction of the Instrument Structure**

To accomplish the objectives, the researcher created a questionnaire based on reading and analysis of related literature and previous studies, which was then used to gather data for the study project related to bariatric surgery at (Al-Sader, Al-Faiha, and Al-Mawana). It consists of five parts: (Appendices: **B3** and **B4**).

**Part (I): Questionnaire Related to the Demographic and   
Characteristics of the Nurses Staff**

This part is concerned with the collection of basic demographic  
data was obtained from the nurses through direct interviews. which consists of the following items including age, gender, educational level, marital status, total years of experience, participation in a training course on bariatric surgery, numbers of training courses, duration, place of course (inside Iraq, outside Iraq).

**Part (II): Questionnaire Related to Nurses**’ **Knowledge**  
**toward Obesity**

This part was constructed to assess the nurses’ knowledge concerning obesity. It consisted of (6) items.

**Part (III): Questionnaire Related to Nurses’ Knowledge  
toward Bariatric surgery**

This part was constructed to assess the nurses’ knowledge  
concerning bariatric surgery. It consisted of (17) items.

**Part (IV): Questionnaire Related to Nurses’ Knowledge  
toward Complications of Bariatric surgery**

This part was constructed to assess the nurses’ knowledge  
concerning complications of bariatric surgery. It consisted of (10) items.

**Part (V): Questionnaire Related to Nurses’ Knowledge  
toward Postoperative Nursing Care and Patient Education**

This part was constructed to assess the nurses’ knowledge  
concerning postoperative nursing care and patient education. It consisted of (18) items.

**3.7. Validity of the Instrument**

Content validity has been determined for assessment of the questionnaire through a panel of twelve experts, these experts are (six) College of Nursing / University of Baghdad, (three) experts from College of Nursing / University of Basra, (one) expert from College of Nursing / University of Kirkuk, (one) expert from Al-Diwaniyah Teaching Hospital, (one) expert from Al-Faw General Hospital. The experts had at least (10) years of experience in their field where the mean for their years of experience in the field was (19.16). These experts were given a copy of the research instrument and asked to review and test it for material clarity and adequacy to investigate the content of the questionnaire. All expert suggestions were applied by the researcher. Some items were left out after considering all the recommendations and comments. After making the necessary changes based on their answers, the questionnaire was deemed valid.

**3.8. Pilot Study**

To determine the reliability of the study instrument, a pilot study was carried out on (10) nurses that work in Al-Sader Teaching Hospital from 6th to 20th December 2020. The criteria for the nurses in the pilot study were the same as for the original study group. The pilot study sample was not included in the original study sample.

**3.8.1. The Purposes of Pilot Study**

1. To determine if the questionnaire contents are simple and understandable to the study's participants.

2. Calculate the average time spent collecting data.

3. Calculate how much time each person would have to fill the questionnaire.

4. To recognize any possible problems that can arise during this study.

5. To determine the questionnaire's reliability.

**3.8.2. The Result of Pilot Study**

According to the findings of the pilot study, the questionnaire was easy to understand for the participants. The amount of time it takes to complete the questionnaire was 20-30 minutes.

**3.9. Reliability of the Instrument**

The Cronbach's Alpha test was used to assess the testing instrument's reliability using the Statistical Package for Social Science Program (SPSS) for (51) items.

**Table (3-3) Reliability of research instrument**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Methods of Reliability** | **Criteria of the Study** | **Actual Values** | **No.of Items** | **Assessment** |
| **Cronbach's Alpha** | **Nurses Knowledge** | **0.81** | **51** | **Very good** |

**3.10. Data Collection Methods**

The data was collected by the researcher using a constructive knowledge questionnaire and was then answered in a direct interview. The period of the data collection was extended from the 27th of December 2020 to the 28th of March 2021.

**3.11. Ranging and Scoring**

We use three (3) Points Likert Scale which ranged from 1 up to (3). This scale is composed of (51) items, these items were measured on a three-point Likert scale, which ranged from 1 (Don't know), 2 (Uncertain), and 3 (Know). Total scores range from 51 to 153, with higher scores indicating greater nurses' knowledge. About (20**–**30) Minutes were given to each nurse for test completion. The level of assessment for each item in knowledge scales was estimated by calculating the cutoff point for the mean of the score and scored as follows: The researcher determined (1**–**1.66) for the poor knowledge, (1.67**–**2.33) for the moderate knowledge, and (2.34**–**3) for the high knowledge.

|  |  |  |  |
| --- | --- | --- | --- |
| Table (3.2): Three (3) Points Likert Scale | | | |
| Assessment | | | |
| Assessment | **Difference (Cut-off Point)** | **Interval** | **Likert Scale** |
| Poor | **0.66** | **1 – 1.66** | **1** |
| Fair | **0.66** | **1.67 – 2.33** | **2** |
| Good | **0.66** | **2.34 – 3** | **3** |

**3.11.1. Questionnaire Score**

The level of knowledge was estimated by calculating the mean of the score and the cut-off point for the total score. The study questionnaire includes four parts they are: Knowledge about Obesity domain, Knowledge about Bariatric Surgery domain, Complications of Bariatric Surgery domain, and Postoperative Care and Patient Education domain where each part has scored as the following:

**3.12. Data Analysis**

The current study's data were analyzed with the Statistical Package for Social Sciences (SPSS) version (26). The study's findings are analyzed and evaluated using the statistical data analysis methods mentioned below.

**3.12.1. Descriptive Statistical Tests**

**3.12.1.a. Frequency (F)**

The probability of an occurrence in statistics refers to the number of times it occurs in an experiment or sample (Kenney and Keeping, 2016).

**3.12.1.b. Percentage**

Is a fraction of 100 expressed as a number or percentage. The percent symbol is sometimes used to represent it (Bennett, 2008).

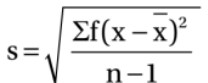
**3.12.1.c. Mean of Score (M.S)**

Is the distribution's arithmetic average. The formula for calculating the Mean is:

(Plichta and Kelvin, 2013).

**3.12.1.d. Standard deviation (Sd.)**

The basic formula for the sample standard deviation is:



(Rentala, 2019)

**3.12.2. Inferential Analysis**

The following criteria are used to support or deny the statistical hypothesis:

**3.12.2.1. Cronbach’s Alpha**

It was used to estimate the internal consistency of the study instrument (Polit and Hungler, 2013) and calculated as the following:

Where:

r = the estimation reliability.

K = the total number of items in the test.

Q1² = the variance of each item.

Qy² = the variance of the total test score.

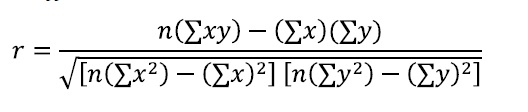
∑ = the sum of

**3.12.2.3. T-test for Independent Samples**

(Rentala, 2019).

**3.12.2.4. Pearson Correlation**

Used to describe the reliability of instrument data. The equation used to compute Pearson’s Correlation Coefficient (r) is:



(Plichta and Kelvin, 2013).

**3.12.2.5. One-way analysis of variance (abbreviated one-way ANOVA)**

**MS** between

**MS** within =

MS is Mean Squares, SS is the sum of the square, df is the degree of freedom

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table (3.3): One-Way ANOVA** | | | | |
| **Source** | **Degrees of Freedom DF** | **Sum of Squares SS** | **Mean Square MS** | **F-Stat** |
| **Between Groups** | k – 1 | SSB | MSB = SSB / (k − 1) | F = MSB / MSW |
| **Within Groups** | N – k | SSW | MSW = SSW / (N − k) |
| **Total** | N – 1 | SST = SSB+SSW |  |  |

**Chapter Four**

**Results of the Study**

**Chapter Four**

**Results of the Study**

**(4-1): Distribution of the Variables Related Demographics and Occupational Characteristics N=100 nursing staff**

|  |  |  |  |
| --- | --- | --- | --- |
| Table 4.1.1 Descriptive Statistics of Demographic and Occupational Variables | | | |
| Percent | **F** | **Variables Classes** | **Demographic Variables** |
| 48 % | **48** | **Male** | **Gender** |
| 52 % | **52** | **Female** |
| 100 % | **100** | **Total** |
| 17 % | **17** | **20-24** | **Age** |
| 30 % | **30** | **25-29** |
| 12 % | **12** | **30-34** |
| 11 % | **11** | **35-39** |
| 10 % | **10** | **40-44** |
| 20 % | **20** | **45 and more** |
| 100 % | **100** | **Total** |
| 21 % | **21** | **Single** | **Marrital Status** |
| 79 % | **79** | **Married** |
| 100 % | **100** | **Total** |
| 48 % | **48** | **Secondary School** | **Education Level** |
| 39 % | **39** | **Institute** |
| 13 % | **13** | **College** |
| 100 % | **100** | **Total** |
| 34 % | **34** | **1-5** | **Years of Experience** |
| 28 % | **28** | **6-10** |
| 11 % | **11** | **11-15** |
| 8 % | **8** | **16-20** |
| 19 % | **19** | **20 and more** |
| 100 % | **100** | **Total** |

**F = frequency**

This table shows the demographics and occupational characteristics of the nurses in the present study 52% were female (more than half), age group were (25-29) years (30%). Most of them married (79%). Regarding educational levels, the highest percentageis seen with the secondary school of nursing (48%). Approximately one-third of the sample (34%) with 1-5 years of experience.

**(4-2): Nurses Knowledge toward Bariatric Surgery**

**Table (4.2.1.):** Knowledge related to **Obesity**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Assessment of Obesity Domain Questions | | | | | | |
| Ass. | **Sd** | **Mean Score** | **N = 100** | | **Answer** | **Items** |
| **%** | **F** |
| Fair | **0.895** | **1.69** | **60 %** | **60** | **Don't know** | **1. Obesity is an increase in body fat.** |
| **11 %** | **11** | **Uncertain** |
| **29 %** | **29** | **Know** |
| Poor | **0.783** | **1.44** | **74 %** | **74** | **Don't know** | **2. Obesity is mainly related to genetic.** |
| **8 %** | **8** | **Uncertain** |
| **18 %** | **18** | **Know** |
| Poor | **0.741** | **1.42** | **73 %** | **73** | **Don't know** | **3. Obesity is mainly related to diet and lifestyle.** |
| **12 %** | **12** | **Uncertain** |
| **15 %** | **15** | **Know** |
| Fair | **0.856** | **1.71** | **55 %** | **55** | **Don't know** | **4. Obesity can cause many diseases and conditions (ex., Diabetes Mellitus, Hypertension, Heart disease, obstructive sleep apnea, certain cancers, etc.).** |
| **19 %** | **19** | **Uncertain** |
| **26 %** | **26** | **Know** |
| Poor | **0.624** | **1.29** | **80 %** | **80** | **Don't know** | **5. Body Mass Index (BMI) is an important indicator for evaluating the level of obesity.** |
| **11%** | **11** | **Uncertain** |
| **9 %** | **9** | **Know** |
| Poor | **0.737** | **1.39** | **76 %** | **76** | **Don't know** | **6. BMI is a weight-to-height ratio, calculated by dividing weight in kilograms by height in meters squared.** |
| **9 %** | **9** | **Uncertain** |
| **15 %** | **15** | **Know** |

**\* N =Number, F = frequency, % = Percent, Ass. = Assessment, Sd=Standard Deviation.**

This table shows the most of the nurses (67%) have weak knowledge about obesity (mean score= 1-1.66), 30% of them was fair (mean score= 1.67-2.33), and a small percentage of them (3%) was good (mean score= 2.34-3).

**Table (4.2.2): Knowledge related to Bariatric Surgery Domain**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Assessment of Bariatric Surgery Domain Questions | | | | | | |
| Ass. | **Sd** | **Mean Score** | **N = 100** | | **Answer** | **Items** |
| **%** | **F** |
| Poor | **0.822** | **1.48** | **73 %** | **73** | **Don't know** | **1. The term ''bariatric surgery'' refers to a collective group of procedures that involve modification to the digestive system that promotes weight loss.** |
| **6 %** | **6** | **Uncertain** |
| **21 %** | **21** | **Know** |
| Fair | **0.842** | **1.67** | **57 %** | **57** | **Don't know** | **2. When diet, exercise, psychotherapy, and pharmacotherapy have failed, bariatric surgery is an effective treatment for obesity and obesity-related comorbidities.** |
| **19 %** | **19** | **Uncertain** |
| **24 %** | **24** | **Know** |
| Poor | **0.640** | **1.29** | **81 %** | **81** | **Don't know** | **3. The benefits of surgery include major weight loss, improved blood pressure, and improved blood lipid profile, remission of type 2 diabetes mellitus, and reduced risk of sleep apnea, angina, and heart failure.** |
| **9 %** | **9** | **Uncertain** |
| **10 %** | **10** | **Know** |
| Poor | **0.671** | **1.29** | **83 %** | **83** | **Don't know** | **4. Surgery is currently the only treatment that has a successful and lasting impact for sustained weight loss for those with extreme obesity.** |
| **5 %** | **5** | **Uncertain** |
| **12 %** | **12** | **Know** |
| Fair | **0.458** | **1.76** | **51 %** | **51** | **Don't know** | **5. Most people who undergo bariatric surgery successfully improve their overall quality of life.** |
| **22 %** | **22** | **Uncertain** |
| **27 %** | **27** | **Know** |
| Poor | **0.665** | **1.32** | **79 %** | **79** | **Don't know** | **6. Bariatric surgeries fall into 1 of 3 broad categories: restrictive, malabsorptive, or a combination of malabsorptive and restrictive.** |
| **10%** | **10** | **Uncertain** |
| **11 %** | **11** | **Know** |
| Poor | **0.747** | **1.37** | **79 %** | **79** | **Don't know** | **7. In restrictive procedures, the stomach is reduced in size (less food is eaten).** |
| **5 %** | **5** | **Uncertain** |
| **16 %** | **16** | **Know** |
| Fair | **0.768** | **1.67** | **52 %** | **52** | **Don't know** | **8. The most common restrictive surgeries include adjustable gastric banding (AGB) and sleeve gastrectomy (SG).** |
| **29 %** | **29** | **Uncertain** |
| **19 %** | **19** | **Know** |
| Poor | **0.795** | **1.44** | **75 %** | **75** | **Don't know** | **9. Laparoscopic adjustable gastric banding (LAGB) involves the placement of an adjustable silicone band around the upper portion of the stomach, thereby creating a small gastric pouch above the gastric band.** |
| **6 %** | **6** | **Uncertain** |
| **19 %** | **19** | **Know** |
| Fair | **0.825** | **1.69** | **54 %** | **54** | **Don't know** | **10. LAGB is currently declining.** |
| **23 %** | **23** | **Uncertain** |
| **23 %** | **23** | **Know** |
| Poor | **0.571** | **1.24** | **83 %** | **83** | **Don't know** | **11. In the sleeve gastrectomy (gastric sleeve), about 80% of the stomach is removed, leaving a tube (banana)-shaped stomach.** |
| **10 %** | **10** | **Uncertain** |
| **7 %** | **7** | **Know** |
| Poor | **0.613** | **1.26** | **83 %** | **83** | **Don't know** | **12. Removing most of the stomach results in the elimination of hormones made in the stomach that stimulates hunger, such as ghrelin.** |
| **8 %** | **8** | **Uncertain** |
| **9 %** | **9** | **Know** |
| Poor | **0.561** | **1.22** | **85 %** | **85** | **Don't know** | **13. Laparoscopic sleeve gastrectomy can be used as the initial staged operation before Roux-en-Y gastric bypass or biliopancreatic diversion-duodenal switch.** |
| **8 %** | **8** | **Uncertain** |
| **7 %** | **7** | **Know** |
| Poor | **0.692** | **1.31** | **82 %** | **82** | **Don't know** | **14. In malabsorptive procedures, the small intestine is shortened or bypassed (less food absorbed).** |
| **5 %** | **5** | **Uncertain** |
| **13 %** | **13** | **Know** |
| Poor | **0.767** | **1.41** | **76 %** | **76** | **Don't know** | **15. Malabsorptive procedures, such as biliopancreatic diversion with or without duodenal switch (BPD/DS), rely on bypassing various lengths of the small intestine, reducing nutrient absorption.** |
| **7 %** | **7** | **Uncertain** |
| **17 %** | **17** | **Know** |
| Poor | **0.633** | **1.27** | **83 %** | **83** | **Don't know** | **16. Mixed procedures (restrictive and malabsorptive) such as the Roux-en-Y gastric bypass (RYGB) combine gastric restriction with bypass of a short segment of the small intestine.** |
| **7 %** | **7** | **Uncertain** |
| **10 %** | **10** | **Know** |
| Poor | **0.539** | **1.18** | **83 %** | **83** | **Don't know** | **17. RYGB is considered the gold standard because of its greater weight loss and lower weight regain compared to purely restrictive interventions.** |
| **7 %** | **7** | **Uncertain** |
| **10 %** | **10** | **Know** |

**N =number, F = frequency, % = Percent, Ass.= Assessment, Sd=Standard Deviation.**

This table shows the majority of the nurses (84%) have weak knowledge about bariatric surgery (mean score= 1-1.66), 15% of them was fair (mean score= 1.67-2.33), and only 1% of them was good (mean score= 2.34-3).

**Table (4.2.3): Knowledge related to Complications of Bariatric Surgery Domain**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Assessment of Complications of Bariatric Surgery Domain Questions | | | | | | |
| Ass. | **Sd** | **Mean Score** | **N = 100** | | **Answer** | **Items** |
| **%** | **F** |
| Fair | **0.837** | **1.81** | **46 %** | **46** | **Don't know** | **1. Surgical complications can be defined as early or late, depending on whether they occur within the first thirty days postoperatively or afterward.** |
| **27 %** | **27** | **Uncertain** |
| **27 %** | **27** | **Know** |
| Poor | **0.574** | **1.21** | **87 %** | **87** | **Don't know** | **2. Pulmonary and venous thromboembolisms are early complications and occur in less than 0.5% of bariatric surgery patients.** |
| **5 %** | **5** | **Uncertain** |
| **8 %** | **8** | **Know** |
| Poor | **0.686** | **1.29** | **84 %** | **84** | **Don't know** | **3. Anastomotic leak is the most common serious early complication.** |
| **3 %** | **3** | **Uncertain** |
| **13 %** | **13** | **Know** |
| Fair | **0.777** | **1.73** | **47 %** | **47** | **Don't know** | **4. Internal hernias can cause bowel obstruction and can occur at any time postoperatively.** |
| **33 %** | **33** | **Uncertain** |
| **20 %** | **20** | **Know** |
| Poor | **0.584** | **1.23** | **85 %** | **85** | **Don't know** | **5. Bleeding within the first 72 hours postoperatively is most common likely caused by a disruption in a staple or suture.** |
| **7 %** | **7** | **Uncertain** |
| **8 %** | **8** | **Know** |
| Poor | **0.697** | **1.33** | **80 %** | **80** | **Don't know** | **6. Dysphagia or difficulty swallowing, may occur in patients who have had any type of restrictive bariatric procedure.** |
| **7 %** | **7** | **Uncertain** |
| **13 %** | **13** | **Know** |
| Fair | **0.866** | **1.91** | **42 %** | **42** | **Don't know** | **7. The development of gallstones is a long-term complication.** |
| **25 %** | **25** | **Uncertain** |
| **33 %** | **33** | **Know** |
| Poor | **0.601** | **1.27** | **81 %** | **81** | **Don't know** | **8. Micronutrient deficiency occurs commonly after bariatric surgery (long-term), for example, iron, vitamin D, calcium, vitamin B12, and folate.** |
| **11 %** | **11** | **Uncertain** |
| **8 %** | **8** | **Know** |
| Fair | **0.838** | **1.84** | **44 %** | **44** | **Don't know** | **9. Bowel changes are common after surgery, including constipation.** |
| **28 %** | **28** | **Uncertain** |
| **28 %** | **28** | **Know** |
| Poor | **0.664** | **1.27** | **85 %** | **85** | **Don't know** | **10. Diarrhea is a more common occurrence post-bariatric surgery, particularly after malabsorptive procedures.** |
| **3 %** | **3** | **Uncertain** |
| **12 %** | **12** | **Know** |

**N =number, F = frequency, % = Percent, Ass.= Assessment, Sd=Standard Deviation.**

This table shows the majority of the nurses (86%) have weak knowledge about complications of bariatric surgery (mean score= 1-1.66), 13% of them was fair (mean score= 1.67-2.33), and only 1% of them was good (mean score= 2.34-3).

**Table (4.2.4): Knowledge related to Postoperative Care and Patient Education** **Domain**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Assessment of Postoperative Care and Patient Education Domain Questions | | | | | | |
| Ass. | **Sd** | **Mean Score** | **N = 100** | | **Answer** | **Items** |
| **%** | **%** |
| Poor | **0.617** | **1.23** | **87 %** | **87** | **Don't know** | **1. The priority for immediate care of postoperative bariatric surgery patients is airway management.** |
| **3 %** | **3** | **Uncertain** |
| **10 %** | **10** | **Know** |
| Poor | **0.686** | **1.29** | **84 %** | **84** | **Don't know** | **2. Apply sequential compression stockings and administer prophylactic anticoagulant (usually heparin) therapy as prescribed to help prevent thromboembolitic complications, including pulmonary embolism (PE).** |
| **3 %** | **3** | **Uncertain** |
| **13 %** | **13** | **Know** |
| Fair | **0.847** | **1.99** | **36 %** | **36** | **Don't know** | **3. Ambulate the patient as soon as possible to prevent postoperative complications, such as deep vein thrombosis and pulmonary embolus.** |
| **29 %** | **29** | **Uncertain** |
| **35 %** | **35** | **Know** |
| Fair | **0.833** | **2.11** | **33 %** | **33** | **Don't know** | **4. After surgery, analgesic agents may be given as prescribed to relieve pain and discomfort.** |
| **23 %** | **23** | **Uncertain** |
| **44 %** | **44** | **Know** |
| Fair | **0.875** | **2.11** | **29 %** | **29** | **Don't know** | **5. Patients who have had bariatric surgery usually receive intravenous fluids for the first several hours postoperatively.** |
| **31 %** | **31** | **Uncertain** |
| **40 %** | **40** | **Know** |
| Fair | **0.989** | **1.95** | **51 %** | **51** | **Don't know** | **6. Change position frequently to prevent pressure ulcers.** |
| **3 %** | **3** | **Uncertain** |
| **46 %** | **46** | **Know** |
| Poor | **0.433** | **1.12** | **92 %** | **92** | **Don't know** | **7. In mild cases of diarrhea, reducing the intake of fat and administering an antimotility medication (e.g., loperamide [Imodium]).** |
| **4 %** | **4** | **Uncertain** |
| **4 %** | **4** | **Know** |
| Poor | **0.533** | **1.17** | **90 %** | **90** | **Don't know** | **8. Observe for signs and symptoms of dumping syndrome such as tachycardia, nausea, diarrhea, dizziness, sweating, vomiting, bloating, and abdominal cramps.** |
| **3 %** | **3** | **Uncertain** |
| **7 %** | **7** | **Know** |
| Poor | **0.671** | **1.29** | **83 %** | **83** | **Don't know** | **9. Maintain the patient's head at a 45-degree angle to reduce abdominal pressure and increase lung expansion.** |
| **5 %** | **5** | **Uncertain** |
| **12 %** | **12** | **Know** |
| Fair | **0.853** | **1.83** | **46 %** | **46** | **Don't know** | **10. The patient is usually discharged in 4 days (24 to 72 hours for patients who have had laparoscopic procedures) with detailed dietary instructions.** |
| **25 %** | **25** | **Uncertain** |
| **29 %** | **29** | **Know** |
| Poor | **0.759** | **1.36** | **81 %** | **81** | **Don't know** | **11. Instruct the patient to take vitamin and mineral supplements after surgery, especially vitamin D, B-complex vitamins, iron, and calcium.** |
| **2 %** | **2** | **Uncertain** |
| **17 %** | **17** | **Know** |
| Poor | **0.638** | **1.24** | **87 %** | **87** | **Don't know** | **12. The usual diet after surgery is high in protein and low in carbohydrates, fat.** |
| **2 %** | **2** | **Uncertain** |
| **11 %** | **11** | **Know** |
| Fair | **0.797** | **2.03** | **30 %** | **30** | **Don't know** | **13. After bariatric surgery, the patient eats slowly and stops when feeling full.** |
| **37 %** | **37** | **Uncertain** |
| **33 %** | **33** | **Know** |
| Poor | **0.609** | **1.25** | **84 %** | **84** | **Don't know** | **14. Eating too much or too fast or eating high-calorie liquids and soft foods can result in vomiting or painful esophageal distension.** |
| **7 %** | **7** | **Uncertain** |
| **9 %** | **9** | **Know** |
| Poor | **0.613** | **1.26** | **83 %** | **83** | **Don't know** | **15. Patients are discouraged from eating sugary foods after surgery to avoid dumping syndrome.** |
| **8 %** | **8** | **Uncertain** |
| **9 %** | **9** | **Know** |
| Poor | **0.732** | **1.36** | **79 %** | **79** | **Don't know** | **16. Eat smaller but more frequent meals that contain protein and fiber; each meal size should not exceed 1 cup.** |
| **6 %** | **6** | **Uncertain** |
| **15 %** | **15** | **Know** |
| Fair | **0.825** | **2.08** | **30 %** | **30** | **Don't know** | **17. Do not drink fluid with meals; instead, consume fluids up to 30 minutes before a meal and 30-60 minutes after mealtime.** |
| **32 %** | **32** | **Uncertain** |
| **38 %** | **38** | **Know** |
| Poor | **0.856** | **1.57** | **67 %** | **67** | **Don't know** | **18. Instruct the patients to avoid taking nonsteroidal anti-inflammatory drugs (e.g., ibuprofen) post-discharge, as they have been implicated in the development of stomach ulcers.** |
| **9 %** | **9** | **Uncertain** |
| **24 %** | **24** | **Know** |

**N =number, F = frequency, % = Percent, Ass. = Assessment, Sd=Standard Deviation.**

This table shows the most of the nurses (81%) have weak knowledge about postoperative care and patient education (mean score= 1-1.66), 19% of them was fair (mean score= 1.67-2.33), and no nurse has good knowledge (mean score= 2.34-3).

**(4-3): Results Assessment of knowledge about Bariatric Surgery (N=100 Nursing Staff)**

**Table (4.3.1): Nursing Staff's Knowledge toward Bariatric Surgery**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Nursing Staff's Knowledge | | | | | | |
| Total | | | **Scale** | **%** | **F** | **Assessment levels** |
| Ass. | **Sd** | **MS** |
| Poor | **0.311** | **1.36** | **1 – 1.66** | **85 %** | **85** | **Poor** |
| **1.67 – 2.33** | **14 %** | **14** | **Fair** |
| **2.34 – 3** | **1 %** | **1** | **Good** |
|  | | | | **100 %** | **100** | **Total** |

**F = frequency, % = Percent, MS = Mean Score, Ass. = Assessment, Sd=Standard Deviation.**

The findings of this table indicate that the majority of the nurses (85%) has weak knowledge about bariatric surgery (all domains), 14% of them has Fairknowledge, and only 1% of them has good knowledge at the level of the mean score and standard deviation= (1.36+0.311).

**(4 – 4): Results the Demographic and Occupational Relationships with Knowledge of Bariatric Surgery related to Domains (Obesity, Bariatric Surgery, Complications, and Postoperative Care and Patient Education) N=100 nursing staff**

**Table (4.4.1): Relationships of Demographic Variables with Obesity Domain**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Relationships of Demographic and Occupational Variables with obesity domain | | | | | | | | | | | |
| Significant | | | | | **df** | **Ass.** | **Sd** | **MS** | **N** | **Variables Classes** | **Demographic Variables** |
| Sig. | **P-value** | **Tabular** | | **Calculated** |
| NS | **0.067** | **T-test =1.98** | | **T-test =1.85** | **98** | **Poor** | **0.370** | **1.36** | **48** | **Male** | **Gender** |
| **Poor** | **0.439** | **1.51** | **52** | **Female** |
|  | | | | | | | | | | |
| NS | **0.866** | **Anova = 2.31** | | **Anova = 0.37** | **94,5** | **Poor** | **0.291** | **1.49** | **17** | **20-24** | **Age** |
| **Poor** | **0.511** | **1.48** | **30** | **25-29** |
| **Poor** | **0.296** | **1.31** | **12** | **30-34** |
| **Poor** | **0.479** | **1.42** | **11** | **35-39** |
| **Poor** | **0.437** | **1.38** | **10** | **40-44** |
| **Poor** | **0.371** | **1.47** | **20** | **45 and more** |
|  | | | | | | | | | | |
| NS | **0.093** | **T-test =1.98** | | **T-test =2.08** | **98** | **Poor** | **0.445** | **1.61** | **21** | **Single** | **Marrital Status** |
| **Poor** | **0.395** | **1.40** | **79** | **Married** |
|  |  |  |  | | | | | | | |
| HS | **0.000** | **Anova = 3.09** | | **Anova = 61.93** | **97,2** | **Poor** | **0.259** | **1.25** | **48** | **Secondary school** | **Education Level** |
| **Poor** | **0.300** | **1.40** | **39** | **Institute** |
| **Fair** | **0.260** | **2.19** | **13** | **College** |
|  | | | | | | | | | | |
| NS | **0.519** | **Anova = 2.47** | | **Anova = 0.814** | **95,4** | **Poor** | **0.438** | **1.52** | **34** | **1-5** | **Years of Experience** |
| **Poor** | **0.359** | **1.35** | **28** | **6-10** |
| **Poor** | **0.481** | **1.48** | **11** | **11-15** |
| **Poor** | **0.333** | **1.33** | **8** | **16-20** |
| **Poor** | **0.420** | **1.47** | **19** | **20 and more** |

**MS = Mean Score, N= Number, Ass= Assessment, Sd= Standard Deviation, Sig = Significant S=Significant, if (P-value) < 0.05 is significant (S), NS = Non Significant, if (P-value) > 0.05 is nonsignificant (NS), HS = High Significant, if (P-value) < 0.01 is high significant. P-value using T-test for independent samples when it is two groups, P-value using one-way ANOVA (Analysis of Variance) when it is three or more group, df: degree of freedom, T-test (n – 2), ANOVA (n – groups).**

The findings of this table show there is no significant relationship between nurses (gender, age, marital status, and years of experience) and their knowledge about obesity at a P-value > 0.05.

There is a significant relationship between nurses’ education level and their knowledge about obesity at a P-value ≤ 0.05.

**Table (4.4.2): Relationships of Demographic Variables with Bariatric Surgery Domain**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Relationships of Demographic Variables with bariatric surgery domain | | | | | | | | | | |
| Significant | | | | **df** | **Ass.** | **Sd** | **MS** | **N** | **Variables Classes** | **Demographic Variables** |
| Sig. | **P-value** | **Tabular** | **Calculated** |
| NS | **0.783** | **T-test =1.98** | **T-test =0.276** | **98** | **Poor** | **0.347** | **1.30** | **48** | **Male** | **Gender** |
| **Poor** | **0.317** | **1.32** | **52** | **Female** |
|  | | | | | | | | | |
| NS | **0.875** | **Anova = 2.31** | **Anova =0.386** | **94,5** | **Poor** | **0.263** | **1.27** | **17** | **20-24** | **Age** |
| **Poor** | **0.350** | **1.33** | **30** | **25-29** |
| **Poor** | **0.339** | **1.21** | **12** | **30-34** |
| **Poor** | **0.360** | **1.33** | **11** | **35-39** |
| **Poor** | **0.473** | **1.38** | **10** | **40-44** |
| **Poor** | **0.268** | **1.34** | **20** | **45 and More** |
|  | | | | | | | | | |
| NS | **0.247** | **T-test =1.98** | **T-test =1.16** | **98** | **Poor** | **0.390** | **1.38** | **21** | **Single** | **Marrital Status** |
| **Poor** | **0.312** | **1.29** | **79** | **Married** |
|  | | | | | | | | | |
| HS | **0.000** | **Anova = 3.09** | **Anova =100.34** | **97,2** | **Poor** | **0.119** | **1.10** | **48** | **Secondary School** | **Education Level** |
| **Poor** | **0.215** | **1.35** | **39** | **Institute** |
| **Fair** | **0.291** | **1.92** | **13** | **College** |
|  | | | | | | | | | |
| NS | **0.398** | **Anova = 2.47** | **Anova =1.02** | **95,4** | **Poor** | **0.374** | **1.34** | **34** | **1-5** | **Years of Experience** |
| **Poor** | **0.243** | **1.24** | **28** | **6-10** |
| **Poor** | **0.319** | **1.32** | **11** | **11-15** |
| **Poor** | **0.229** | **1.18** | **8** | **16-20** |
| **Poor** | **0.396** | **1.40** | **19** | **20 and More** |

**MS = Mean Score, N= Number, Ass= Assessment, Sd= Standard Deviation, Sig = Significant S=Significant, if (P-value) < 0.05 is significant (S), NS = Non Significant, if (P-value) > 0.05 is nonsignificant (NS), HS = High Significant, if (P-value) < 0.01 is high significant. P-value using T-test for independent samples when it is two groups, P-value using one-way ANOVA (Analysis of Variance) when it is three or more group, df: degree of freedom, T-test (n – 2), ANOVA (n – groups).**

The results of this table show there is a significant relationship between nurses' education level and their knowledge about bariatric surgery at a P-value ≤ 0.05.

Also, the findings of this table show there is no significant relationship between nurses' (gender, age, marital status, and years of experience) and their knowledge about bariatric surgery at a P-value > 0.05.

**Table (4.4.3): Relationships of Demographic Variables with Complications Domain**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Relationships of Demographic Variables with Complications Domain | | | | | | | | | | |
| Significant | | | | **df** | **Ass.** | **Sd** | **MS** | **N** | **Variables Classes** | **Demographic Variables** |
| Sig. | **P-value** | **Tabular** | **Calculated** |
| NS | **0.287** | **T-test =1.98** | **T-test =1.01** | **98** | **Poor** | **0.298** | **1.27** | **48** | **Male** | **Gender** |
| **Poor** | **0.331** | **1.33** | **52** | **Female** |
|  | | | | | | | | | |
| NS | **0.747** | **Anova = 2.31** | **Anova =0.538** | **94,5** | **Poor** | **0.305** | **1.30** | **17** | **20-24** | **Age** |
| **Poor** | **0.296** | **1.35** | **30** | **25-29** |
| **Poor** | **0.336** | **1.22** | **12** | **30-34** |
| **Poor** | **0.377** | **1.35** | **11** | **35-39** |
| **Poor** | **0.380** | **1.34** | **10** | **40-44** |
| **Poor** | **0.288** | **1.23** | **20** | **45 and more** |
|  | | | | | | | | | |
| NS | **0.081** | **T-test =1.98** | **T-test =1.499** | **98** | **Poor** | **0.399** | **1.39** | **21** | **Single** | **Marrital Status** |
| **Poor** | **0.287** | **1.27** | **79** | **Married** |
|  | | | | | | | | | |
| HS | **0.000** | **Anova = 3.09** | **Anova =97.93** | **97,2** | **Poor** | **0.105** | **1.10** | **48** | **Secondary School** | **Education Level** |
| **Poor** | **0.199** | **1.33** | **39** | **Institute** |
| **Fair** | **0.310** | **1.88** | **13** | **College** |
|  | | | | | | | | | |
| NS | **0. 385** | **Anova = 2.47** | **Anova =1.05** | **95,4** | **Poor** | **0.374** | **1.37** | **34** | **1-5** | **Years of Experience** |
| **Poor** | **0.190** | **1.25** | **28** | **6-10** |
| **Poor** | **0.303** | **1.33** | **11** | **11-15** |
| **Poor** | **0.141** | **1.15** | **8** | **16-20** |
| **Poor** | **0.400** | **1.30** | **19** | **20 and more** |

**MS = Mean Score, N= Number, Ass= Assessment, Sd= Standard Deviation, Sig = Significant S=Significant, if (P-value) < 0.05 is significant (S), NS = Non Significant, if (P-value) > 0.05 is nonsignificant (NS), HS = High Significant, if (P-value) < 0.01 is high significant. P-value using T-test for independent samples when it is two groups, P-value using one-way ANOVA (Analysis of Variance) when it is three or more group, df: degree of freedom, T-test (n – 2), ANOVA (n – groups).**

The results of this table show there is no significant relationship between nurses' (gender, age, marital status, and years of experience) and their knowledge about complications of bariatric surgery at a P-value > 0.05.

Also, the findings of this table show there is a significant relationship between nurses' education level and their knowledge about complications of bariatric surgery at a P-value ≤ 0.05.

**Table (4.4.4): Relationships of Demographic Variables with Postoperative Care domain**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Relationships of Demographic Variables with Postoperative Care Domain | | | | | | | | | | |
| Significant | | | | **df** | **Ass.** | **Sd** | **MS** | **N** | **Variables Classes** | **Demographic Variables** |
| Sig. | **P-value** | **Tabular** | **Calculated** |
| NS | **0.522** | **T-test =1.98** | **T-test =0.642** | **98** | **Poor** | **0.287** | **1.36** | **48** | **male** | **Gender** |
| **Poor** | **0.354** | **1.40** | **52** | **female** |
|  | | | | | | | | | |
| NS | **0.621** | **Anova = 2.31** | **Anova =0. 706** | **94,5** | **Poor** | **0.326** | **1.33** | **17** | **20-24** | **Age** |
| **Poor** | **0.373** | **1.47** | **30** | **25-29** |
| **Poor** | **0.298** | **1.35** | **12** | **30-34** |
| **Poor** | **0.351** | **1.35** | **11** | **35-39** |
| **Poor** | **0.324** | **1.38** | **10** | **40-44** |
| **Poor** | **0.236** | **1.31** | **20** | **45 and more** |
|  | | | | | | | | | |
| NS | **0.174** | **T-test =1.98** | **T-test =1.36** | **98** | **Poor** | **0.444** | **1.46** | **21** | **single** | **Marrital Status** |
| **Poor** | **0.282** | **1.36** | **79** | **married** |
|  | | | | | | | | | |
| HS | **0.000** | **Anova = 3.09** | **Anova =308.6** | **97,2** | **Poor** | **0.096** | **1.16** | **48** | **Secondary school** | **Education Level** |
| **Poor** | **0.137** | **1.40** | **39** | **Institute** |
| **Fair** | **0.140** | **2.07** | **13** | **College** |
|  | | | | | | | | | |
| NS | **0.199** | **Anova = 2.47** | **Anova =1.53** | **95,4** | **Poor** | **0.377** | **1.38** | **34** | **1-5** | **Years of Experience** |
| **Poor** | **0.246** | **1.37** | **28** | **6-10** |
| **Poor** | **0.380** | **1.54** | **11** | **11-15** |
| **Poor** | **0.145** | **1.24** | **8** | **16-20** |
| **Poor** | **0.307** | **1.31** | **19** | **20 and more** |

**MS = Mean Score, N= Number, Ass= Assessment, Sd= Standard Deviation, Sig = Significant S=Significant, if (P-value) < 0.05 is significant (S), NS = Non Significant, if (P-value) > 0.05 is nonsignificant (NS), HS = High Significant, if (P-value) < 0.01 is high significant. P-value using T-test for independent samples when it is two groups, P-value using one-way ANOVA (Analysis of Variance) when it is three or more group, df: degree of freedom, T-test (n – 2), ANOVA (n – groups).**

The findings of this table show there is no significant relationship between nurses' (gender, age, marital status, and years of experience) and their knowledge about postoperative care and patient education at a P-value > 0.05.

Also, the results of this table show there is a significant relationship between nurses' education level and their knowledge about postoperative care and patient education at a P-value ≤ 0.05.

**Table (4.4.4): Relationships of Demographic Variables with Nurses' Knowledge (all domains)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Relationships of Demographic Variables with Nurses' Knowledge (all domains) | | | | | | | | | | |
| Significant | | | | **df** | **Ass.** | **Sd** | **MS** | **N** | **Variables Classes** | **Demographic Variables** |
| Sig. | **P-value** | **Tabular** | **Calculated** |
| NS | **0.272** | **T-test =1.98** | **T-test =1.10** | **98** | **Poor** | **0.295** | **1.32** | **48** | **Male** | **Gender** |
| **Poor** | **0.324** | **1.39** | **52** | **Female** |
|  | | | | | | | | | |
| NS | **0.999** | **Anova = 2.31** | **Anova =0.323** | **94,5** | **Poor** | **0.253** | **1.35** | **17** | **20-24** | **Age** |
| **Poor** | **0.351** | **1.40** | **30** | **25-29** |
| **Poor** | **0.295** | **1.27** | **12** | **30-34** |
| **Poor** | **0.378** | **1.36** | **11** | **35-39** |
| **Poor** | **0.375** | **1.37** | **10** | **40-44** |
| **Poor** | **0.248** | **1.34** | **20** | **45 and more** |
|  |  |  |  | | | | | | |
| NS | **0.085** | **T-test =1.98** | **T-test =1.73** | **98** | **Poor** | **0.389** | **1.26** | **21** | **single** | **Marrital Status** |
| **Poor** | **0.283** | **1.18** | **79** | **married** |
|  | | | | | | | | | |
| HS | **0.00** | **Anova = 3.09** | **Anova =238.2** | **97,2** | **Poor** | **0.099** | **1.15** | **48** | **Secondary school** | **Education Level** |
| **Poor** | **0.148** | **1.37** | **39** | **Institute** |
| **Fair** | **0.159** | **2.02** | **13** | **College** |
|  | | |  | | | | | | |
| NS | **0.472** | **Anova = 2.47** | **Anova =0. 892** | **95,4** | **Poor** | **0.359** | **1.40** | **34** | **1-5** | **Years of Experience** |
| **Poor** | **0.220** | **1.30** | **28** | **6-10** |
| **Poor** | **0.349** | **1.42** | **11** | **11-15** |
| **Poor** | **0.186** | **1.22** | **8** | **16-20** |
| **Poor** | **0.345** | **1.37** | **19** | **20 and more** |

**MS = Mean Score, N= Number, Ass= Assessment, Sd= Standard Deviation, Sig = Significant S=Significant, if (P-value) < 0.05 is significant (S), NS = Non Significant, if (P-value) > 0.05 is nonsignificant (NS), HS = High Significant, if (P-value) < 0.01 is high significant. P-value using T-test for independent samples when it is two groups, P-value using one-way ANOVA (Analysis of Variance) when it is three or more group, df: degree of freedom, T-test (n – 2), ANOVA (n – groups).**

The results of this table show there is a significant relationship between nurses' education level and their knowledge about bariatric surgery (all domains) at a P-value ≤ 0.05.

Also, the findings of this table show there is no significant relationship between nurses' (gender, age, marital status, and years of experience) and their knowledge about bariatric surgery at a P-value > 0.05.

**(4 – 5): Results Relationships between domains of the questionnaire**

**Table (4.5.1): Pearson Correlation for the Relationships between Domains**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Pearson Correlation for the Relationships between Domains | | | | | | | |
| Obesity Domain with Bariatric Surgery Domain | | | | | | | |
| Sig. | **P-value** | **R** | **Sd** | **df** | **MS** | **N** | **Domains** |
| **N – 2** |
| HS | **0.000** | **0.721\*\*** | **0.412** | **98** | **1.44** | **100** | **Obesity Domain** |
| **0.330** | **1.31** | **100** | **Bariatric Surgery Domain** |
| Obesity Domain with Complications Domain | | | | | | | |
| HS | **0.000** | **0.647\*\*** | **0.412** | **98** | **1.44** | **100** | **Obesity Domain** |
| **0.315** | **1.30** | **100** | **Complications Domain** |
| Obesity Domain with Postoperative Care Domain | | | | | | | |
| HS | **0.000** | **0.687\*\*** | **0.412** | **98** | **1.44** | **100** | **Obesity Domain** |
| **0.323** | **1.38** | **100** | **Postoperative Care Domain** |
| Bariatric Surgery Domain with Complications Domain | | | | | | | |
| HS | **0.000** | **0.851\*\*** | **0.330** | **98** | **1.31** | **100** | **Bariatric Surgery Domain** |
| **0.315** | **1.30** | **100** | **Complications Domain** |
| Bariatric Surgery Domain with Postoperative Care Domain | | | | | | | |
| HS | **0.000** | **0.824\*\*** | **0.330** | **98** | **1.31** | **100** | **Bariatric Surgery Domain** |
| **0.323** | **1.38** | **100** | **Postoperative Care Domain** |
| Complications Domain with Postoperative Care Domain | | | | | | | |
| HS | **0.000** | **0.802\*\*** | **0.315** | **98** | **1.30** | **100** | **Complications Domain** |
| **0.323** | **1.38** | **100** | **Postoperative Care Domain** |

**R= Pearson Correlation, \*\*. Correlation is high significant at the 0.01 level and df = (n – 2) = 98**

The findings of this table show there is a significant relationship between all domains of the study questionnaire at a P-value ≤ 0.01, therefore the knowledge in one domain will affect the remaining domains because all domains are linked with each other.

**Chapter Five**

**Discussion of the Results**

**Chapter Five**

**Discussion of the Results**

The findings of this study are discussed in this chapter that is presented through tables in chapter four with organized support from available articles such as the ones mentioned below:

**5.1. Discussion of Socio-Demographic Characteristics**

**5.1.1. Age**

The characteristics of the present sample included in this study at age group (25-29) years old (30%).

These results agreed with (Gouda et al., 2019) which stated the age of the nurses was between (25-29) years old (20%).

These results disagree with (El-Feqi, 2013) who conducted a study about assessment of nurses' performance caring of surgical patients connected with oxygen therapy, and found that more than half of his study age group were above 30 years.

These results also disagree with (Tanaka and Peniche, 2009) who conducted a study about perioperative care for morbidly obese patients undergoing bariatric surgery, and found that mean age of 37.0 years (SD = 8.25 years), ranging from 31 to 40 years (37%).

In the researcher's opinion, nurses that working in the surgical wards were young and this indicated a positive point because they have a greater desire to develop their information than older nurses.

**5.1.2. Gender**

Regarding gender, this study shows that more than half of the samples are female and they were accounted for (52%).

This study agreed with (Lopez et al., 2020) which reveals that the majority of respondents were female (58.5%).

These findings are also consistent with (Zhu et al., 2013)who conducted a study about nurses' self-efficacy and practices relating to weight management using surgical methods, and found that most of the nurses were females, confirming the majority of females in the profession.

In the researcher's opinion, the majority of the nurses worldwide are female. In Iraq, the college of nursing and nursing institute accepts the female more than male.

**5.1.3 Educational Level**

Regarding educational levels, in the present study the highest percentage is seen with the secondary school of nursing (48%).

The findings of this study agreed with (Mansour et al., 2019) which stated that (56.7%) of studied nurses were secondary school nurses.

Also, these results agreed with (Gouda et al., 2019) which stated that (50.7%) of studied nurses were secondary school nurses.

In the researcher's opinion, in Iraq, we have a nursing secondary school, nursing institute, and college of nursing. Hospital wards depend on nurses who graduated from nursing secondary school and nursing institute while nurses who graduated from a college of nursing work in special units (critical wards) and their numbers are small compared to other nurses.

**5.1.4. Marrital Status**

Regarding marital status, this study reveals that the majority of nurses who work in the surgical wards were married (79%).

The results of this study agreed (Al-Azawi and Hameed, 2021) which stated that the (50%) nurses were married.

The researcher's opinion, most nurses are married because all  
nurses in the surgical wards are 20 years and above and employed in young  
ages.

**5.1.5. Years of Experience**

This study reveals that the majority of nurses who work in the surgical wards were between (1-5) years of experience with a percentage (34%).

These results are agreed with (Ak et al., 2021) which shows that more than half of the sample has (1-5) years of experience.

These findings disagree with (Phillips et al., 2013) who conducted a study about the challenge of obesity management for practice nurses in primary care after bariatric surgery and found that 61% of the studied nurses had10-20 years of experience.

In the researcher's opinion, most of the nurses that work in surgical words are young because this work requires more effort muscle.

**5.2. Discussion of Nurses Knowledge about Bariatric Surgery**

The results of the present study in a table (4-2) explored the statistics of nurses’ knowledge toward bariatric surgery at surgical wards. Nurses’ knowledge statistics are classified into four main domains: Nurses’ knowledge about obesity, nurses’ knowledge about bariatric surgery, nurses’ knowledge about complications of bariatric surgery, nurses’ knowledge concerning postoperative nursing care, and patient education.

The results of the present study indicated that the majority of the  
study samples (85%) have poor knowledge about bariatric surgery.

The results of this study agreed with (Mansour et al., 2019) in their study the results showed that more than two-thirds of studied nurses (73.3%) had poor knowledge and practice.

The findings of this study agreed with (Fan et al., 2020) in their study “Knowledge and Attitudes Towards Obesity and Bariatric Surgery in Chinese Nurses” they concluded that the Chinese Nurses have poor knowledge of obesity-related metabolic disorders and also have poor acceptance of surgical treatment modalities.

The results of this study also agreed with (Ponstein, 2012) in his study “Assessing the Nurses’ Knowledge of Bariatric surgery: A Performance Improvement Project” his results showed that 66.7% had no previous experience of caring for bariatric surgical patients.

In the researcher's opinion, nurses’ knowledge deficit regarding bariatric surgery might be due to many causes; This surgery is a new technique for the treatment of obesity, nurses not studied obesity and bariatric surgery in all levels of education for nursing, the nurses do not have any training courses about bariatric surgery, the nurses do not develop and update their knowledge continuously.

**5.3. Discussion of Relationship between Nurses' Knowledge and their Socio-Demographic and Occupational Data**

Concerning the result related to associations between nurses knowledge  
and demographical data in (Table 4.4.5). The present study reveals that  
there is no significant association between nurses' knowledge and demographic data of the study group concerning (age, gender, marrital status, and years of experience) except the level of education. The results of the present study are supported by other studies that indicated no significant difference between demographic data and nurses' knowledge (Al-Azawi and Hameed, 2021) who mentioned in their results that the nurses' demographic data did not affect the results.

In the researcher's opinion, most of the sample was secondary school nurses and institute nurses and few percentages from college of nursing, this large number of secondary school nurses and institute nurses leads to a significant relationship between nurses’ level of education and their knowledge that was poor in most of the nurses.

**Chapter Six**

**Conclusions and Recommendations**

**Chapter Six**

**Conclusions and Recommendations**

**6.1. Conclusions**

In the light of the results obtained, the study concluded the following:

**6.1.1.** The majority of the nurses who participate in the present study had a poor knowledge toward bariatric surgery in all domains (knowledge about obesity, knowledge about bariatric surgery, complications of bariatric surgery, and postoperative care and patient education).

**6.1.2.** There is a significant relationship between nurses' education level and their knowledge about bariatric surgery.

**6.1.3.** There are no significant differences between demographic data (age, gender, marrital status, and years of experience) and nurses’ knowledge.

**6.1.4.** The majority of the nurses in the present study were female, age group was (25-29) years, graduated from secondary school of nursing, married, and with 1-5 years of experience.

**6.2. Recommendations**

The researcher recommends the following based on the findings of the present study:

**6.2.1.** Providing education programs for nurses to improve their knowledge about bariatric surgery.

**6.2.2.** Training courses should be provided to these nurses to increase their knowledge about bariatric surgery, complications of bariatric surgery, and pre and postoperative nursing care.

**6.2.3.** Providing booklets and increasing means of media to improve knowledge of the nurses toward obesity, bariatric surgery, and provide pre and postoperative nursing care, and patient education.

**6.2.4.** The researcher recommended more studies about bariatric surgery because of the deficit studies about this topic in Iraq.

**6.2.5.** Because this topic is new, providing continuing courses for nurses related to bariatric surgery, reduces its complications, and provides good pre and postoperative nursing care.

**6.2.6.** Nurses with more years of experience should be working in surgical wards.

**6.2.7.** Nurses who graduated from secondary school of nursing are the main reason for poor knowledge therefore nurses who graduated from college of nursing should be working in surgical wards.

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Appendices

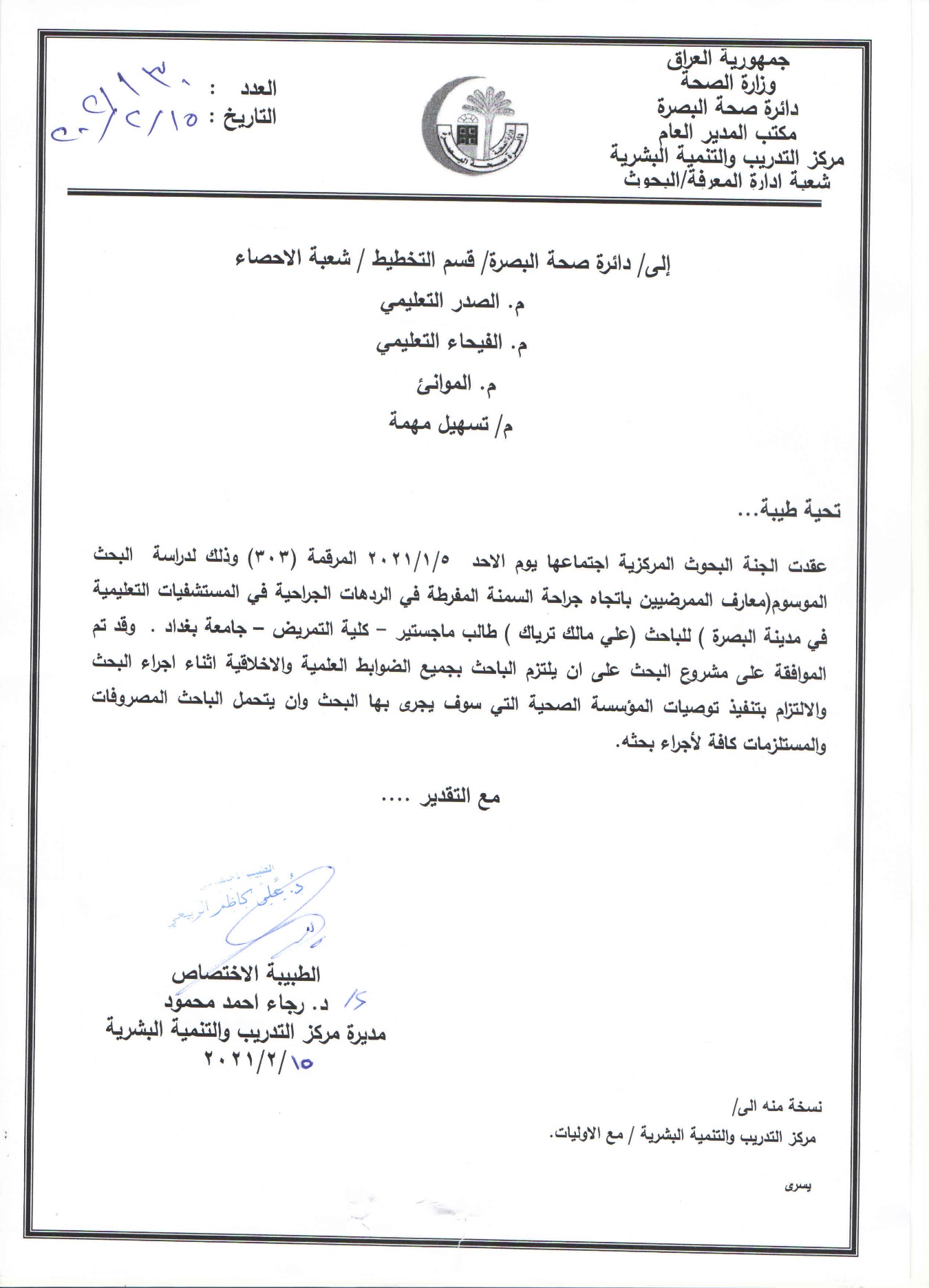
Appendix-A1



Appendix-A2



Appendix-A3



**Appendix-B1**

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**Appendix-B2**

****

**Appendix-B3**

**English Questionnaire**

**Part 1: Nurses' Demographic Information**

**1-Gender**

Male Female

**2-Age (years old)**

20-24 25-29 30-34 35-39 40-44 45 and more

**3-Mariatal Status**

Married Single Widowed Divorced

**4-Educational Level**

secondary school nursing graduate nursing institute graduate college of nursing graduate

**5-Years of Experience**

1-5 years 6-10 11-15 16-20 Over 20 years

**6-Participated in a training course on bariatric surgery**

Yes No

**7-Number of courses**

1-2 3-4 5-6 7 and more

**8-Duration of course**

Week 2 weeks 3 weeks 4 weeks

**9-Location of course**

Inside Iraq outside Iraq

**Part 2: Knowledge about obesity**

|  |  |  |  |
| --- | --- | --- | --- |
| Uncertain | Don’t Know | Know | Items |
|  |  |  | 1. Obesity is an increase in body fat. |
|  |  |  | 2. Obesity is mainly related to genetic. |
|  |  |  | 3. Obesity is mainly related to diet and lifestyle. |
|  |  |  | 4. Obesity can cause many diseases and conditions (ex., Diabetes Mellitus, Hypertension, Heart disease, obstructive sleep apnea, certain cancers, etc.). |
|  |  |  | 5. Body Mass Index (BMI) is an important indicator for evaluating the level of obesity. |
|  |  |  | 6. BMI is a weight-to-height ratio, calculated by dividing weight in kilograms by height in meters squared. |

**Part 3: Knowledge about bariatric surgery**

|  |  |  |  |
| --- | --- | --- | --- |
| Uncertain | Don’t know | Know | Items |
|  |  |  | 1. The term ''bariatric surgery'' refers to a collective group of procedures that involve modification to the digestive system that promotes weight loss. |
|  |  |  | 2. When diet, exercise, psychotherapy, and pharmacotherapy have failed, bariatric surgery is an effective treatment for obesity and obesity-related comorbidities. |
|  |  |  | 3. The benefits of surgery include major weight loss, improved blood pressure, and improved blood lipid profile, remission of type 2 diabetes mellitus, and reduced risk of sleep apnea, angina, and heart failure. |
|  |  |  | 4. Surgery is currently the only treatment that has a successful and lasting impact for sustained weight loss for those with extreme obesity. |
|  |  |  | 5. Most people who undergo bariatric surgery successfully improve their overall quality of life. |
|  |  |  | 6. Bariatric surgeries fall into 1 of 3 broad categories: restrictive, malabsorptive, or a combination of malabsorptive and restrictive. |
|  |  |  | 7. In restrictive procedures, the stomach is reduced in size (less food is eaten). |
|  |  |  | 8. The most common restrictive surgeries include adjustable gastric banding (AGB) and sleeve gastrectomy (SG). |
|  |  |  | 9. Laparoscopic adjustable gastric banding (LAGB) involves the placement of an adjustable silicone band around the upper portion of the stomach, thereby creating a small gastric pouch above the gastric band? |
|  |  |  | 10. LAGB is currently declining. |
|  |  |  | 11. In the sleeve gastrectomy (gastric sleeve), about 80% of the stomach is removed, leaving a tube (banana)-shaped stomach. |
|  |  |  | 12. Removing most of the stomach results in the elimination of hormones made in the stomach that stimulates hunger, such as ghrelin. |
|  |  |  | 13. Laparoscopic sleeve gastrectomy can be used as the initial staged operation before Roux-en-Y gastric bypass or biliopancreatic diversion-duodenal switch. |
|  |  |  | 14. In malabsorptive procedures, the small intestine is shortened or bypassed (less food absorbed). |
|  |  |  | 15. Malabsorptive procedures, such as biliopancreatic diversion with or without duodenal switch (BPD/DS), rely on bypassing various lengths of the small intestine, reducing nutrient absorption. |
|  |  |  | 16. Mixed procedures (restrictive and malabsorptive) such as the Roux-en-Y gastric bypass (RYGB) combine gastric restriction with bypass of a short segment of the small intestine. |
|  |  |  | 17. RYGB is considered the gold standard because of its greater weight loss and lower weight regain compared to purely restrictive interventions. |

**Part 4: Complications of Bariatric surgery**

|  |  |  |  |
| --- | --- | --- | --- |
| Uncertain | Don’t know | Know | Items |
|  |  |  | 1. Surgical complications can be defined as early or late, depending on whether they occur within the first thirty days postoperatively or afterward. |
|  |  |  | 2. Pulmonary and venous thromboembolisms are early complications and occur in less than 0.5% of bariatric surgery patients. |
|  |  |  | 3. Anastomotic leak is the most common serious early complication. |
|  |  |  | 4. Internal hernias can cause bowel obstruction and can occur at any time postoperatively. |
|  |  |  | 5. Bleeding within the first 72 hours postoperatively is most common likely caused by a disruption in a staple or suture. |
|  |  |  | 6. Dysphagia or difficulty swallowing, may occur in patients who have had any type of restrictive bariatric procedure. |
|  |  |  | 7. The development of gallstones is a long-term complication. |
|  |  |  | 8. Micronutrient deficiency occurs commonly after bariatric surgery (long-term), for example, iron, vitamin D, calcium, vitamin B12, and folate. |
|  |  |  | 9. Bowel changes are common after surgery, including constipation. |
|  |  |  | 10. Diarrhea is a more common occurrence post-bariatric surgery, particularly after malabsorptive procedures. |

**Part 5: Postoperative Care and Patient Education**

|  |  |  |  |
| --- | --- | --- | --- |
| Uncertain | Don’t know | Know | Items |
|  |  |  | 1. The priority for immediate care of postoperative bariatric surgery patients is airway management. |
|  |  |  | 2. Apply sequential compression stockings and administer prophylactic anticoagulant (usually heparin) therapy as prescribed to help prevent thromboembolitic complications, including pulmonary embolism (PE). |
|  |  |  | 3. Ambulate the patient as soon as possible to prevent postoperative complications, such as deep vein thrombosis and pulmonary embolus. |
|  |  |  | 4. After surgery, analgesic agents may be given as prescribed to relieve pain and discomfort. |
|  |  |  | 5. Patients who have had bariatric surgery usually receive intravenous fluids for the first several hours postoperatively. |
|  |  |  | 6. Change position frequently to prevent pressure ulcers. |
|  |  |  | 7. In mild cases of diarrhea, reducing the intake of fat and administering an antimotility medication (e.g., loperamide [Imodium]). |
|  |  |  | 8. Observe for signs and symptoms of dumping syndrome such as tachycardia, nausea, diarrhea, dizziness, sweating, vomiting, bloating, and abdominal cramps. |
|  |  |  | 9. Maintain the patient's head at a 45-degree angle to reduce abdominal pressure and increase lung expansion. |
|  |  |  | 10. The patient is usually discharged in 4 days (24 to 72 hours for patients who have had laparoscopic procedures) with detailed dietary instructions. |
|  |  |  | 11. Instruct the patient to take vitamin and mineral supplements after surgery, especially vitamin D, B-complex vitamins, iron, and calcium. |
|  |  |  | 12. The usual diet after surgery is high in protein and low in carbohydrates, fat. |
|  |  |  | 13. After bariatric surgery, the patient eats slowly and stops when feeling full. |
|  |  |  | 14. Eating too much or too fast or eating high-calorie liquids and soft foods can result in vomiting or painful esophageal distension. |
|  |  |  | 15. Patients are discouraged from eating sugary foods after surgery to avoid dumping syndrome. |
|  |  |  | 16. Eat smaller but more frequent meals that contain protein and fiber; each meal size should not exceed 1 cup. |
|  |  |  | 17. Do not drink fluid with meals; instead, consume fluids up to 30 minutes before a meal and 30-60 minutes after mealtime. |
|  |  |  | 18. Instruct the patients to avoid taking nonsteroidal anti-inflammatory drugs (e.g., ibuprofen) post-discharge, as they have been implicated in the development of stomach ulcers. |

Appendix-B4استمارة الاستبيانة باللغة العربية

**الجزء الأول: المعلومات الديموغرافية للممرض**

1. **الجنس**

ذكر أنثى

1. **العمر(بالسنوات)**

٢٠-٢٤ ٢٥-٢٩ ٣٠-٣٤

٣٥-٣٩ ٤٠-٤٤ ٤٥وأكثر

1. **الحالة الزوجية**

متزوج أعزب أرمل مطلق

1. **المستوى التعليمي**

اعدادية التمريض معهد التمريض كلية التمريض

دراسات عليا

1. **سنوات الخبرة**

١-٥ سنوات ٦-١٠ ١١-١٥

١٦-٢٠ أكثر من ٢٠ سنة

1. **شاركت في دورة تدريبية عن جراحة السمنة المفرطة**

نعم لا

1. **اذا كانت الإجابة بنعم عدد الدورات؟**

١-٢٣-٤٥-٦ **٧** فأكثر

1. **مدة الدورة**

اسبوع أسبوعان ٣أسابيع ٤ أسابيع

**٩- مكان الدورة**

داخل العراق خارج العراق

**الجزء الثاني: المعرفة بالسمنة**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ت | الفقرة | أعرف | لا أعرف | غير متأكد |
| 1 | **السمنة هي زيادة في دهون الجسم؟** |  |  |  |
| 2 | **السمنة مرتبطة بشكل أساسي بالوراثة؟** |  |  |  |
| 3 | **السمنة مرتبطة بشكل أساسي بالنظام الغذائي ونمط الحياة؟** |  |  |  |
| 4 | **السمنة يمكن أن تسبب العديد من الأمراض والحالات ( كداء السكري، ارتفاع ضغط الدم، أمراض القلب، توقف التنفس الانسدادي أثناء النوم ، بعض السرطانات الخ)؟** |  |  |  |
| 5 | **مؤشر كتلة الجسم (BMI) هو مؤشر مهم لتقييم مستوى السمنة؟** |  |  |  |
| 6 | **مؤشر كتلة الجسم هو نسبة الوزن إلى الطول، وتحسب بقسمة الوزن بالكيلوغرام على الطول في متر مربع؟** |  |  |  |

**الجزء الثالث: المعرفة حول جراحة السمنة**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ت | الفقرة | أعرف | لا أعرف | غير متأكد |
| 1 | **يشير مصطلح "جراحة السمنة" إلى مجموعة من الإجراءات التي تتضمن تعديل الجهاز الهضمي الذي يعزز فقدان الوزن؟** |  |  |  |
| 2 | **عند فشل كل من النظام الغذائي، ممارسة الرياضة ،العلاج النفسي والعلاج الدوائي ، فقد ثبت أن جراحة السمنة هي علاج فعال للسمنة و الحالات المرضية المرتبطة بالسمنة؟** |  |  |  |
| 3 | **تشمل فوائد الجراحة فقدان الوزن بشكل كبير، تحسين ضغط الدم، تحسين مستوى الدهون في الدم، التخفيف من داء السكري من النوع الثاني، الحد من خطر توقف التنفس أثناء النوم، الذبحة الصدرية، وفشل القلب؟** |  |  |  |
| 4 | **الجراحة هي حاليا العلاج الوحيد الذي له تأثير ناجح ودائم لفقدان الوزن المستمر لأولئك الذين يعانون من السمنة المفرطة؟** |  |  |  |
| 5 | **معظم الأشخاص الذين يخضعون لجراحة لعلاج السمنة تتحسن بنجاح جودة حياتهم بشكل عام؟** |  |  |  |
| 6 | **تقع جراحات السمنة في واحدة من ثلاثة فئات واسعة: تقييدية، سوء الامتصاص، أو مزيج من سوء الامتصاص وتقييدية؟** |  |  |  |
| 7 | **في الإجراءات التقييدية ، يتم تقليل حجم المعدة (أقل طعام يؤكل)؟** |  |  |  |
| 8 | **تشمل العمليات الجراحية التقييدية الأكثر شيوعًا ربط المعدة برباط قابل للتعديل واستئصال المعدة (تكميم المعدة)؟** |  |  |  |
| 9 | **تتضمن عملية ربط المعدة برباط قابل للتعديل بالمنظار وضع شريط سيليكون قابل للتعديل حول الجزء العلوي من المعدة، وبالتالي إنشاء كيس معدي صغير فوق رباط المعدة؟** |  |  |  |
| 10 | **عملية ربط المعدة برباط قابل للتعديل بالمنظار في تراجع حاليا؟** |  |  |  |
| 11 | **في استئصال المعدة الكمي (تكميم المعدة، قص المعدة)، تتم إزالة حوالي 80٪ من المعدة، وترك معدة على شكل أنبوب (موزة)؟** |  |  |  |
| 12 | **إزالة معظم المعدة تنتج في ازالة الهرمونات التي تصنع في المعدة التي تحفز الجوع، مثل غريلين؟** |  |  |  |
| 13 | **عملية تكميم المعدة بالمنظار يمكن أستخدامها كعملية أولية قبل عملية تحويل المسار (المجازة المعدية) أو عملية التحويلة البنكرياسية الصفراوية؟** |  |  |  |
| 14 | **في إجراءات سوء الامتصاص، يتم تقصير الأمعاء الدقيقة أو تجاوزها ( تمتص كميات أقل من طعام)؟** |  |  |  |
| 15 | **إجراءات سوء الامتصاص، مثل التحويلة البنكرياسية الصفراوية مع أو بدون تبديل الاثني عشر، تعتمد على تجاوز أطوال مختلفة من الأمعاء الدقيقة، والحد من امتصاص المواد الغذائية؟** |  |  |  |
| 16 | **الإجراءات المختلطة (تقييدية وسوء الامتصاص) مثل تحويل المسار( تجاوز المعدة) تجمع بين تقييد المعدة مع تجاوز جزء قصير من الأمعاء الدقيقة؟** |  |  |  |
| 17 | **يعتبر تحويل المسار المعيار القياسي بسبب أكبر فقدان للوزن وانخفاض استعادة الوزن بالمقارنة مع التدخلات التقييدية البحتة؟** |  |  |  |

**الجزء 4: مضاعفات جراحة السمنة**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ت | الفقرة | أعرف | لا أعرف | غير متأكد |
| 1 | **يمكن تعريف المضاعفات الجراحية بأنها مبكرة أو متأخرة، اعتمادا على ما إذا كانت تحدث في غضون الأيام الثلاثين الأولى بعد العملية أو بعدها.** |  |  |  |
| 2 | **الجلطات الدموية الرئوية والوعائية هي مضاعفات مبكرة وتحدث في أقل من 0.5٪ من مرضى جراحة السمنة.** |  |  |  |
| 3 | **تسرب منطقة الالتحام (الخياطة أو التدبيس) هومن المضاعفات المبكرة الخطيرة الأكثر شيوعا.** |  |  |  |
| 4 | **الفتوق الداخلية ممكن أن تسبب انسداد الأمعاء، ويمكن أن تحدث في أي وقت بعد الجراحة.** |  |  |  |
| 5 | **النزيف خلال أول ٧٢ ساعة بعد الجراحة هو الأكثر شيوعاً ويحدث بسبب خلل في التدبيس أو خياطة.** |  |  |  |
| 6 | **عسر البلع أو صعوبة البلع, قد تحدث في المرضى الذين لديهم أي نوع من إجراءات السمنة التقييدية.** |  |  |  |
| 7 | **تطور حصى المرارة هو من المضاعفات طويلة الأمد.** |  |  |  |
| 8 | **يحدث نقص المغذيات الدقيقة عادة بعد جراحة السمنة (على المدى الطويل)، على سبيل المثال الحديد وفيتامين دي والكالسيوم وفيتامين ب١٢ وحمض الفوليك.** |  |  |  |
| 9 | **تغيرات الأمعاء تكون شائعة بعد الجراحة، بما في ذلك الإمساك.** |  |  |  |
| 10 | **الإسهال هو أكثر شيوعا ليحدث بعد جراحة السمنة، لا سيما بعد إجراءات سوء الامتصاص.** |  |  |  |

**الجزء الخامس: العناية التمريضية بعد الجراحة وتثقيف المرضى**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ت | الفقرة | أعرف | لا أعرف | غير متأكد |
| 1 | **الأولوية للرعاية الفورية لمرضى جراحة السمنة بعد الجراحة هي معالجة مجرى الهواء.** |  |  |  |
| 2 | **ﺇستخدام جوارب الضغط المتتالية وﺇعطاء علاج مضادات التخثر الوقائية (عادة الهيبارين) كما هو موصوف للمساعدة في منع مضاعفات الجلطات الدموية، بما في ذلك الانسداد الرئوي.** |  |  |  |
| 3 | **تحريك المريض في أقرب وقت ممكن لمنع مضاعفات ما بعد الجراحة، مثل تجلط الأوردة العميقة والانسداد الرئوي.** |  |  |  |
| 4 | **بعد الجراحة ، يمكن إعطاء مسكنات الألم كما هو موصوف لتخفيف الألم وعدم الارتياح.** |  |  |  |
| 5 | **المرضى الذين خضعوا لجراحة السمنة عادة ما يتلقون السوائل الوريدية خلال الساعات الأولى بعد العملية.** |  |  |  |
| 6 | **تقليب المريض كل ساعتين لمنع قرحة الفراش.** |  |  |  |
| 7 | **في حالات الإسهال الخفيفة، يتم علاجها عن طريق التقليل من تناول الدهون واعطاء دواء مضاد لحركة الأمعاء (على سبيل المثال، لوبيراميد [الاموديوم]).** |  |  |  |
| 8 | **مراقبة لعلامات وأعراض متلازمة الإغراق مثل تسارع دقات القلب ,الغثيان ,الإسهال ,الدوخة ,التعرق ,التقيؤ ,الانتفاخ, وتشنجات البطن.** |  |  |  |
| 9 | **الحفاظ على رأس المريض في زاوية ٤٥ درجة لتقليل ضغط البطن وزيادة توسع الرئة.** |  |  |  |
| 10 | **عادة ما يخرج المريض في ٤ أيام (٢٤ إلى ٧٢ ساعة للمرضى الذين لديهم إجراءات بالمنظار) مع تعليمات غذائية مفصلة.** |  |  |  |
| 11 | **توجيه المريض إلى تناول الفيتامينات والمكملات المعدنية بعد الجراحة، خاصة فيتامين دي ،فيتامينات ب المركبة ،الحديد ،والكالسيوم.** |  |  |  |
| 12 | **النظام الغذائي المعتاد بعد الجراحة هو نسبة عالية من البروتين ومنخفضة في الكربوهيدرات والدهون.** |  |  |  |
| 13 | **بعد جراحة السمنة المريض يأكل ببطء ويتوقف عند الشعور بالشبع.** |  |  |  |
| 14 | **الأكل الكثير أو السريع جدا أو تناول السوائل عالية السعرات الحرارية والأطعمة اللينة يمكن أن يؤدي إلى التقيؤ أو انتفاخ المريء المؤلم.** |  |  |  |
| 15 | **عدم تشجيع المرضى على تناول الأطعمة السكرية بعد الجراحة لتجنب متلازمة الإغراق.** |  |  |  |
| 16 | **تناول وجبات أصغر ولكن أكثر تكرارًا وتحتوي على البروتين والألياف؛ يجب أن لا يتجاوز حجم كل وجبة كوب واحد.** |  |  |  |
| 17 | **عدم شرب تشرب السوائل مع وجبات الطعام; بدلاً من ذلك، اشرب السوائل حتى ٣٠ دقيقة قبل وجبة الطعام و ٣٠-٦٠ دقيقة بعد وقت الوجبة.** |  |  |  |
| 18 | **توجيه المرضى لتجنب تناول العقاقير المضادة للالتهابات غير الستيرويدية (على سبيل المثال / البروفين) بعد الخروج من المستشفى، لأنها تساعد على تطور قرحة المعدة.** |  |  |  |

Appendix-C

Experts List

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ت | اسم الخبير | اللقب العلمي | مكان العمل | الاختصاص الدقيق | سنوات الخبرة |
| 1 | د. صباح عباس احمد | استاذ | جامعة بغداد/ كلية التمريض | تمريض بالغين | 34 سنة |
| 2 | د. حكيمة شاكر حسن | استاذ | جامعة بغداد/ كلية التمريض | تمريض بالغين | 34 سنة |
| 3 | د. خالدة محمد خضر | استاذ | جامعة بغداد/ كلية التمريض | تمريض بالغين | 19 سنة |
| 4 | د. محفوظ فالح حسن | استاذ | جامعة البصرة/ كلية التمريض | فسلجة مرضية | 21 سنة |
| 5 | د. عبد صالح كميت | استاذ مساعد | جامعة كركوك/ كلية التمريض | تمريض بالغين | 13 سنة |
| 6 | د. صادق عبد الحسين حسن | استاذ مساعد | جامعة بغداد/ كلية التمريض | تمريض بالغين | 10 سنة |
| 7 | د. رجاء ابراهيم عبد | استاذ مساعد | جامعة بغداد/ كلية التمريض | تمريض بالغين | 18 سنة |
| 8 | د. سميرة محمد ابراهيم | استاذ مساعد | جامعة البصرة/ كلية التمريض | طب الاسرة | 35 سنة |
| 9 | د. سعاد جاسم محمد | استاذ مساعد | جامعة بغداد/ كلية التمريض | تمريض بالغين | 24 سنة |
| 10 | عبدالكريم سلمان خضير | استاذ مساعد | جامعة البصرة/ كلية التمريض | تمريض بالغين | 11 سنة |
| 11 | د.قاسم جبر محمد | أخصائي جراحة عام | مستشفى الديوانية التعليمي | جراحة عامة | 10 سنة |
| 12 | د. عادل عطية محمد | أخصائي جراحة عام | مستشفى الفاو العام | جراحة عامة | 17 سنة |

**Appendix-D**



**Appendix-E**

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**Appendix-F**

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**المستخلص**

**خلفية الدراسة:** تعتبر جراحة السمنة الطريقة الأكثر فعالية لعلاج السمنة المفرطة والأمراض المرتبطة بالسمنة. تعتبر جراحة السمنة تقنية حديثة للممرضين على الرغم من الزيادة السريعة في عدد هذه العمليات الجراحية في العالم وكذلك في العراق. معارف الممرضين مهمة لتوفير رعاية تمريضية عالية الجودة للمرضى، وتقليل المضاعفات ومساعدة الجراحين.

**أهداف الدراسة:** تهدف هذه الدراسة إلى تقييم مستوى معارف الممرضين حول جراحة السمنة، وايجاد العلاقة بين معارف الممرضين حول جراحة السمنة وخصائصهم الديموغرافية والمهنية مثل (العمر، الجنس، مستوى التعليم، وسنوات الخبرة).

**المنهجية:** أجريت دراسة وصفية تحليلية حول معارف الممرضين بجراحة السمنة في الردهات الجراحية في المستشفيات التعليمية (الصدر، الفيحاء، والموانئ) في مدينة البصرة. امتدت مدة الدراسة من الخامس عشر من أيلول ٢٠٢٠ إلى الخامس والعشرين من أيار ٢٠٢١. تتكون العينة القصدية (غير الاحتمالية) من (١٠٠) ممرض يعمل في الردهات الجراحية، وأجريت دراسة مصغرة من (١٠) ممرضين يعملون في مستشفى الصدر التعليمي في الفترة من ٦ إلى ٢٠ كانون الأول. ولتحديد مصداقية الاستبانة، تم اختيار (١٢) خبيرا لمراجعة الاستبانة، وتم تحديد ثبات الاستبانة من خلال استخدام اختبار ألفا كرونباخ.

**النتائج:** أظهرت نتائج هذه الدراسة أن٨٥٪ من الممرضين لديهم معارف ضعيفة حول جراحة السمنة، ١٤٪ من الممرضين لديهم معارف متوسطة، و١٪ فقط من الممرضين لديهم معارف جيدة.

**الاستنتاجات:** خلصت هذه الدراسة إلى أن الممرضين لديهم معارف ضعيفة عن جراحة السمنة.

**التوصيات:** يوصي الباحث بإقامة دورات تدريبية لجميع الملاكات التمريضية العاملة في الردهات الجراحية حول العناية التمريضية قبل وبعد العملية لمرضى جراحة السمنة.

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**جامعة بغداد**

**كلية التمريض**

**معارف الممرضين باتجاه جراحة السمنة المفرطة في الردهات الجراحية في المستشفيات التعليمية في مدينة البصرة**

**رسالة تقدم بها**

**علي مالك ترياك**

**لفرع**

**تمريض البالغين − كلية التمريض/جامعة بغداد**

**كجزء من متطلبات نيل درجة الماجستير في علوم التمريض**

**بإشراف**

1. **د. حسين هادي عطية**

**شوال ١٤٤٢ هجرية أيار ٢٠٢١ ميلادية**