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Perception of Knowledge, Attitude, Practice of Safety, Effectiveness, Consequences and Management of Bariatric Surgery among Community in Jeddah City

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ABSTRACT

Background: obesity is associated with increased mortality and morbidity. The use of bariatric surgery has recently increased dramatically in order to lose weight fast; however, the heavy consequences and the long-term weight loss induced by bariatric surgery has favorable effects on life span remains unclear. **Aim of Study:** this study was aimed to explore knowledge and beliefs about safety, effectiveness and consequences of bariatric surgeries among community population in Jeddah city and to evaluate the role of demographic factors in shaping those beliefs, and assess possible associations between demographic characteristics with lose weight preventive behavior.

Patients and methods: this study was done in 2016 and carried out among a sample of 474 citizens, of them 70.1% women and 29.9% men. The mean age of citizens was 35.77. To assess citizens' demographic factors, risk factors of obesity and beliefs about bariatric surgeries, consenting citizens responded to an anonymous online questionnaire. The data was entered and analyzed using SPSS version 20. Data were entered into the Statistical Package for Social Sciences (SPSS, version 20) and descriptive analysis conducted.

Results: the results of the current study show that among the respondents, (24.5%) were obese, (13.7%) severely obese and (9.3%) were morbid obese. The majority of them believed that the lack of exercise is the cause of their obesity (45.7%), (71%) of the respondents think that genetics play a role in obesity, (69.3%) of respondents have someone in their family who suffers from obesity and (61.6%) were not keen to exercise. The majority of respondents (77.4%) think that weight loss procedures contribute to weight loss, however (69.8%) are not of favor towards weight loss procedures to get rid of obesity, (63.4%) of them have not undergone any surgery, and (86.6%) of the respondents do not think of surgeries as their first choice to lose weight without exercise or diet, also (71.0%) think that weight loss procedures and its complications may lead to death.The majority of the respondents (74%) have inadequate beliefs about bariatric surgery and (50.8%) of the respondents have good knowledge on prevention behavior of obesity.

Keywords: Bariatric surgery, Obesity prevention, weight loss.

INTRODUCTION

Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health. Obesity represents a rapidly growing threat to the health of populations in an increasing number of countries. At least 2.8 million adults die each year as a result of being overweight or obese. In addition, 44% of the diabetes burden, 23% of the ischemic heart disease burden, and between 7% and 41% of certain cancer burdens are attributable to overweight and obesity[1] .The prevalence of obesity is increasing worldwide at an alarming rate in both developing and developed countries. It has become a serious epidemic health problem, estimated to be the fifth leading cause of mortality at global level[2]. Obesity is not a single disease but is instead a syndrome with multifactorial etiology that includes metabolic, genetic, environmental, social, and cultural interaction [3]. Obesity is a complex condition in which excess of body fat may put the person at risk of hypertension, diabetes, metabolic syndrome, stroke, certain types of cancer (endometrial, breast, prostate and colon), dyslipidemia, gall bladder disease, sleep apnea, osteoarthritis, increase in all causes of mortality, emotional distress, discrimination, and social stigmatization[4].

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Obesity is preventable. At an individual level, a combination of excessive food energy intake and a lack of physical activity are thought to explain most cases of obesity[5]. A limited number of cases are due primarily to genetics, medical reasons, or psychiatric illness [6-7]. The rapid cultural and social changes that have occurred in the Arabian Gulf region, since the discovery of oil and the economic boom during the 1970's and 1980's, were associated with an alarming increase in obesity [8-13]. One of the major causes of obesity is the changes in the diet, in terms of quantity and quality, which has become more "Westernized" [14]. In the Kingdom of Saudi Arabia (KSA), recent studies revealed increasing consumption of animal products and refined foods in the diet at the expense of vegetables and fruits[15-16]. Obese individuals gain body mass index (BMI) more than 30 Kg/m2 with different physical changes based weight and height. In 2013, the prevalence of overweight (BMI: 25 Kg/m2 – 30 Kg/m2), obesity and MO (BMI >40 Kg/ m2) increased in children and adolescents in developing countries from 8.1% to 12.9% for boys and from 8.4% to 13.4% in girls [17]. Innovative doing well control programs require careful understanding the prevalence and the biochemical bases of obesity and associated co-morbidity in different age groups. Several studies reported that, medical and surgical treatment programs are occasionally applied to treat morbidly obese patients and surgery seems to have the successful and the longest period of sustained weight loss [18]. Agency for Healthcare Research and Quality (AHRQ) and recent clinical studies report significant improvements in metabolic and bariatric surgery safety [19]. Primary reasons for improved safety include the increased use of laparoscopy, advancements in surgical techniques, [20] and ASMBS and American College of Surgeons (ACS) accreditation program (Laparoscopic bariatric operations increased from 20.1% in 2003 to 90.2% in 2008) [21] .Overall mortality rate is about 0.1%13 - less than gallbladder (0.7%)14 and hip replacement (0.93%) surgery15 - and overall likelihood of major complications is about 4.3%16[22-25] .Patients may lose as much as 60% of excess weight ,six months after surgery, and 77% of excess weight as early as 12 months after surgery[26]. On average, five years after surgery, patients maintain 50% of their excess weight loss [27]. Helps to improve or resolve more than 40 obesity-related diseases and conditions, including type 2 diabetes, heart disease, certain cancers, sleep apnea, GERD, high blood pressure, high cholesterol, sleep apnea and joint problems [28-29-30].

Methodology:

Setting and data collection:

This survey analysis was conducted among community population in Jeddah city. An online questionnaire was answered by the community population.

Study population:

The study population included was both male and female in Jeddah City.

Consists of community population of Jeddah city aged 16 years and above.

Case Study Sample:

The total sample obtained was 474, number of refusals: 4

Study tool:

Online questionnaire that requires information about:

1- Demographic characteristics: age, gender, education level, income, marital status, and employment status.
2- Anthropometric characteristics: length (cm), weight (kg)
3- BMI was calculated according to the formula: BMI= weight/length² (kg/m²)
4- Respondents were classified according to the BMI

BMI classification	
Underweight	<18.5
Normal	18.5-24.
Overweight	25-29.9
Obese	30-34.9
Severely Obese	35-39.9
Morbid Obese	40+

5- Beliefs about bariatric surgery(BS) assessment including 6 questions about safety, effectiveness and consequences of bariatric surgeries among community population. A score of 1 was given to answers for bariatric surgery and 0 otherwise. For each subject, a maximum score of 6 was calculated. A scoring system was applied to measure the respondents' beliefs towards bariatric surgery. The bariatric surgery score was categorized into two levels indicated by non-favorable

beliefs (0–2) and favorable (3-6).

6- Knowledge about weight loss preventive behavior assessment including 8 questions. A score of 1 was given to Answers for preventive behavior and 0 otherwise. For each subject, a maximum score of 8 was calculated. A scoring system was applied to measure the respondents' knowledge about preventive behavior towards obesity. The prevention behavior score was categorized into 3 levels indicated by poor knowledge (0–2), average knowledge (3-5) and good knowledge (6-8).
7- Knowledge about bariatric surgery assessment including 3 questions. A score of 1 was given to answers for Yes and 0 for No. For each subject, a maximum score of 3 was calculated.A scoring system was applied to measure the respondents' knowledge about bariatric surgery. The knowledge score was categorized into 3 levels indicated by non-informed (0), poorly informed (1) and well informed (2-3).

Ethical considerations:

An informed consent was obtained from the participants included in this research before filling the questionnaire.

Statistical analysis:

Data were entered into the Statistical Package for Social Sciences (SPSS, version 20) and descriptive analysis conducted.

Association of respondents' characteristics with beliefs about bariatric surgery and knowledge about preventive behavior towards obesity was evaluated using:

1- Frequencies and percentages.
2- Chi-squared test.
3- Independent Samples Test (T-test).
4- ANOVA onewaytest.

Statistical significance was accepted at $p < 0.05$.

RESULTS

A-Descriptive statistics:

1-Demographics of the studied subjects:

The socio-demographic characteristics are shown in the table 1 below

Table (1) related to the distribution of respondents according to demographic factors: the mean age of population was: 35.77 years. The gender was 70.1% females, and 29.9% males, 301 of them have a university degree (64.5%), 128 of them had an income of <3000 S.R./ month (28.7%), 310 of them were married (66.2%) and 283 of the respondents were unemployed (60.3%).

2-Anthropometric characteristic

Table (2) related to the distribution of respondents according to anthropometric characteristics: The mean length was 163.3 cm, the mean weight was 81 kg, the mean BMI was 30.3 kg/m².

About one subject out of four was overweight or obese (24.5% and 26.9% respectively).We see that (59) of the respondents were severely obese(13.7%), then (40) of the respondents are morbid obese with a percentage of (9.3%).

3-Perception of Bariatric Surgery:

Responses to questions on perception of Bariatric Surgery

Table (3)shows that:

-The majority of respondents (69.8%) do not think that surgeries are of the best way to get rid of obesity.

- The majority of respondents (77.4%) think that surgeries contribute to weight loss.

-The majority of respondents (86.6%) do not think of surgeries as their first choice to lose weight without exercise or diet.

-Almost half of the respondents (50.8%) do not think that surgeries are of easiest and quickest solution to obesity.

-The majority of respondents (71.0%) think that the surgeries for obesity and their complications may lead to death.

4-Perceptions related to obesity

The results of table (4) show that the majority of respondents found that the Lack of exercise is the cause of their obesity (45.7%), followed by (29.8%) of the respondents who answered by Excessive eating, then (9.8%)of the respondents answered by repeated pregnancy and delivery, (7.5%)of the respondents answered by disease or use of a treatment and(6.1%) of the respondents think that heredity is the cause of their obesity.

II-<u>First objective</u>: Evaluate the role of demographic factors in shaping community beliefs about safety, effectiveness and consequences of bariatric surgeries (BS)

Table 5: Respondents' beliefs about Bariatric surgeries

The results of table (5) show that the majority of the respondents (74%) have non favorable beliefs about bariatric surgery and (26%) of the respondents have favorable beliefs about BS.

Association between beliefs and demographics of included participants:

1-Age:

The oldest respondents (38.84 years) have the highest score of knowledge

The group means are statistically significantly different (p=0.10 <0.05).

The variable age has an influence on respondents' beliefs about BS.

2-Gender

a. 0 cells (0,0%) have expected count less th
5. The minimum expected count is 36,46.
b. Computed only for a 2x2 table

3-Education level

a. 8 cells (57.1%) have expected count l
than 5. The minimum expected count is ,78.

4-Income

a. 0 cells (0,0%) have expected count less th
5. The minimum expected count is 13.77.

5-Marital status

a. 0 cells (0.0%) have expected count less th
5. The minimum expected count is 40,20.
b. Computed only for a 2x2 table

Table 6: Respondents' knowledge about prevention's behavior of obesity

The results of table (6) show that (3.2%) of the respondents have a poor knowledge about prevention of obesity, while (46%) of respondents' knowledge is average and (50.8%) of the respondents have a good knowledge about prevention behavior towards obesity

Prevention Behavio score	Frequency	Valid Percent (%)
0-2 : Poor knowledge	15	3,2
3-5 :Average knowledge	214	46,0
6-8 : Good knowledge	236	50,8
Total	465	100,0

DISCUSSION

Our study was designed to examine health beliefs about knowledge, attitude and practice of safety, effectiveness and consequences bariatric surgery as a weight loss option and applies the Health Belief Model to explain why patients are choosing this option and to determine barriers of surgical treatment.

The response of participants to the questions showed that the majority had non favorable beliefs about bariatric surgery, with no significant influence of gender, educational level, income, marital status and employment status on beliefs about BS.

While the association between knowledge towards preventive behavior about obesity and demographics of the respondents ,there was no statistical significant association between gender, educational level, income, marital status and employment status and knowledge about weight loss preventive behavior.

Generally only half of the respondent were well informed with information regarding bariatric surgery, with no significant influence of gender, education level, income, marital status and employment status.

Association between knowledge towards preventive behavior about obesity and demographics of the respondents:

1-Age

The respondents with a mean age of 36.17 have the highest score.

There is no statistical significant association between age and the level of knowledge about prevention of obesity, p=0,085 >0,05.

2-Gender

a. 1 cells (16.7%) have expected count l
than 5. The minimum expected count is 4,2(

3-Educational level

a. 13 cells (61,9%) have expected count l
than 5. The minimum expected count is ,10.

4-Income

a. 5 cells (33,3%) have expected count l
than 5. The minimum expected count is 1,92

5-Marital status

a. 0 cells (0,0%) have expected count less th
5. The minimum expected count is 5,03.

6-Employment status

a. 0 cells (0,0%) have expected count less th
5. The minimum expected count is 5,99.

There is no statistical significant association between gender, educational level, income, marital status and employment status and knowledge about weight loss preventive behavior, (p> 0,05).

Table 7: Knowledge about bariatric surgery

The table showed that about the third of the respondents were not informed at all about bariatric surgery (31,7%), that (21,5%) of the subjects were poorly informed and that (46,7%) of the respondents were well informed.

CONCLUSION

- The response of participants to the questions showed that the majority had non favorable beliefs about bariatric surgery.
- The majority of the respondents have a good knowledge about prevention behavior towards obesity.
- On the other hand, about the half of the studied subjects were not informed at all or poorly informed about BS.
- Doctors must improve the ideas about long-term effectiveness of surgery and reduce the occurrence of complications of surgery and obesity:
- Doctors should inform and provide patients with the necessary information to increase their obesity and bariatric surgery knowledge as it is a part of the responsibility of healthcare providers.
- Doctors must adopt a multidisciplinary approach (psychiatric, nutritional, medical) in order to prevent and cure obesity or even when the decision of bariatric surgery is taking in order to prepare the patient to the surgery or to follow up the subject after surgery.
- Reduce the severity of complications of obesity and BS through early detection and management of excessive weight.

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Table 1: socio-demographic characteristics

	Frequency	Percentage (%)
Age (Years)		
Mean age: 35,77		
Gender		
Female	**331**	**70.1**
Male	**141**	**29.9**
Educational level		
Primary	**3**	**0.6**
Elementary	**19**	**4.1**
High school	**127**	**27.2**
University	**301**	**64.5**
Master	**10**	**2.1**
Diploma	**4**	**0.9**
Ph.D	**3**	**0.6**
Income/month (S.R.)		
<3000	**128**	**28.7**
3000-5000	**76**	**17.0**
5000-7000	**56**	**12.6**
7000-10 000	**79**	**17.7**
>10 000	**107**	**24.0**
Marital status		
Not married	**158**	**33.8**
Married	**310**	**66.2**
Employment status		
Unemployed	**283**	**60.3**
Employed	**186**	**39.7**

Table 2 : Anthropometric characteristic

Length (cm)	
Mean	**163.3**
Minimum	**120**
Maximum	**190**
Weight (kg)	
Mean	**81.02**
Minimum	**40**
Maximum	**210**
Body Mass Index (BMI) (kg/m²)	
Mean	**30.3**
Minimum	**16.4**
Maximum	**77.2**

BMI classifications	Frequency	Percent (%)
Underweight	11	2.5
Normal	100	23.1
Overweight	116	26.9
Obese	106	24.5
Severely obese	59	13.7
Morbid obese	40	9.3
Total	432	100.0

Table 3: Responses to questions on perception of Bariatric Surgery

	No	Yes	Don't Know
Q16: Surgeries are of the best ways to get rid of obesity	331 (69.8%)	92 (19.4%)	51 (10.8%)
Q18: Do you think that surgeries contribute to weight loss?	53 (11.2%)	367 (77.4%)	54 (11.4%)
Q19: There are no risks or complications from weight-loss surgeries	284 (60%)	71 (15%)	118 (24.9%)
Q20: Do you think that surgeries are your first choice to lose weight without exercise or diet?	408 (86.6%)	63 (13.4%)	0 (0.0%)
Q24: Do you think that surgeries are easiest and quickest solution to obesity?	236 (50.8%)	229 (49.2%)	0 (0.0%)
Q25: Do you think that the surgeries for obesity and their complications may lead to death?	33 (7%)	333 (71%)	103 (22%)

Table 4: Perceptions related to obesity

	No	Yes	Don't Know
Q1: Do you believe that obesity is a disease?	**37 (7.9%)**	**433 (92.1%)**	**0 (0.0%)**
Q3: Obesity is an increase in body fat	**11 (2.3%)**	**428 (90.9%)**	**32 (6.8%)**
Q4: Sleeping too much and lack of exercise lead to obesity	**31 (6.5%)**	**421 (88.8%)**	**22 (4.6%)**
Q5: Genetics play a role in obesity	**58 (12.3%)**	**336 (71%)**	**79 (16.7%)**
Q6: There is in my family who suffers from obesity	**145 (30.7%)**	**328 (69.3%)**	**0 (0.0%)**
Q8: Eating fruits reduces obesity	**52 (11%)**	**326 (68.9%)**	**95 (20.1%)**
Q9: Eating too much lead to obesity	**36 (7.6%)**	**426 (90.1%)**	**11 (2.3%)**
Q10: Mental illnesses like thinking and anxiety lead to obesity	**67 (14.1%)**	**313 (66%)**	**94 (19.8%)**
Q11: Development and progress in age affects human health thus lead to obesity	**103 (21.8%)**	**279 (59%)**	**91 (19.2%)**
Q12: Drink water continuously reduces obesity	**28 (5.9%)**	**395 (83.5%)**	**50 (10.6%)**
Q13: Exercise does not reduce obesity	**404 (85.6%)**	**47 (10%)**	**21 (4.4%)**
Q15: People who are overweight are more susceptible to diabetes and high blood pressure than others?	**14 (3%)**	**437 (92.2%)**	**23 (4.9%)**

Q2: The cause of your obesity	Frequency	Percent (%)
Hereditary	26	6.1
Disease or use of a treatment	32	7.5
Excessive eating	128	29.8
Lack of exercise	196	45.7
Repeat pregnancy and delevery	42	9.8
Some or All of them	5	1.2
Total	429	100.0

Table 5 :

Respondents' beliefs about Bariatric surgeries	Frequency	Valid Percent (%)
0-2 : Non favorable beliefs	339	74.0
3-6 : Favorable beliefs	119	26.0
Total	458	100.0

1-Age

Descriptives

Age (years)

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
0-2	12	42,33	12,492	3,606	34,40	50,27	25	65
3-5	206	34,85	12,265	,855	33,16	36,53	16	64
6-8	228	36,17	11,933	,790	34,61	37,72	16	65
Total	446	35,72	12,142	,575	34,59	36,85	16	65

ANOVA

Age (years)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	726,410	2	363,205	2,480	,085
Within Groups	64876,668	443	146,448		
Total	65603,078	445			

2-Gender

Chi-Square Tests

Gender * Prevention score	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	,033[a]	2	,984
Likelihood Ratio	,033	2	,984
Linear-by-Linear Association	,004	1	,950
N of Valid Cases	463		

3-Educational level

Chi-Square Tests

Educational level * Prevention score	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15,099[a]	12	,236
Likelihood Ratio	12,342	12	,419
Linear-by-Linear Association	,497	1	,481
N of Valid Cases	458		

Employment Status * Bariatric surgery score	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	,303[a]	1	**,582**		
Continuity Correction[b]	,194	1	,659		
Likelihood Ratio	,302	1	,583		
Fisher's Exact Test				,585	,329
inear-by-Linear Association	,302	1	,582		
N of Valid Cases	453				

4-Marital status

Chi-Square Tests

Marital status * Prevention score	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1,807[a]	2	,405
Likelihood Ratio	1,814	2	,404
Linear-by-Linear Association	,620	1	,431
N of Valid Cases	459		

Chi-Square Tests

Employment Status * Prevention score	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	,151[a]	2	,927
Likelihood Ratio	,151	2	,927
Linear-by-Linear Association	,114	1	,736
N of Valid Cases	461		