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Pattern of the Use of Anti-Obesity Drugs among Obese Population and their Adherence to Better Lifestyle

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Abstract **Background**: Cardiovascular disease, type-2 diabetes, cancer are long-term complications due to obesity. By 2035, the prevalence of overweight and obesity is expected to rise from 38% in 2020 to over 50% globally. It is challenging to reach the best weight or manage the process of long-term weight loss. Therefore, for patients who are overweight, the obesity control guidelines strongly suggest lifestyle changes in addition to medical treatment. **Aim**: Assessment of anti-obesity medications usage among Saudis and Egyptian obese population and their adherence to better lifestyle (Physical activity & eating healthy foods). **Methods:** A cross-sectional survey was done among Saudi and Egyptian population for three months (1st November 2024 to the end of January 2025). Obese and overweight population were interviewed either in obesity clinics, gyms and universities according to a well-designed questionnaire (Face to Face), some participants were online. Data was collected and statistically analyzed using SPSS software (Inc, Chicago, IL, USA, version 25). **Results**: The total number of participants were 550; 254 (Saudis) and 296 (Egyptians). The mean of age (35±0.74 Saudis vs. 44.5±2.07 Egyptians). About one-third of participants their age ranges from 18-24 years (Saudis) and from 35-44 years (Egyptians). BMI was significantly different at *p*-value<0.05; obese class-1 was more among Saudis (25.6%) more than Egyptians (14.5%). About 40.9% of Saudi participants used anti-obesity medications vs. 27.4% of Egyptians, while half of Egyptians doing physical activities, eating low diet carbs or Keto (39.2%) and healthy foods (31.1%) more than Saudis (*p*-value=0.009) to lose weight. Liraglutide or semaglutide was used by Saudis (36.6%) vs. Egyptians (25.9%), while orlistat was used more by Egyptians (44.4%) vs. Saudis (28.8%) (*p*-value<0.005). The rate of doing exercise from 4-5 days/week, the duration time of exercise among Egyptians (40 or 60 min/day and high intense of exercises was more among Egyptian than Saudi participants which is significantly different at p<0.05. High percentages of Saudi participants did not eat healthy food (low carbs and balanced diets) compared to Egyptians more than Saudis (*p*-value<0.05). One third of Saudi participants followed eating healthy foods for 1-2months only, while 38.9% (Egyptians) follow ≥12 months (*p*-value<0.05). Long sleeping period (8-10 hours) was more among Saudis vs. Egyptians (*p*-value<0.05). **Conclusion:** This study compared the differences between two Arab nations (Saudi Arabia & Egypt). They have some similarities in their culture and habits, causes, and treatment of obesity. According to the results, among Saudi participants, obesity is mostly due to bad adherence to better lifestyle as sedentary, low levels of physical activities among younger populations, and bad eating habits in both school & college-aged, and adolescents, so, high percentages used anti-obesity medications to lose their weight. While in Egyptian participants, obesity is mostly prevalent among adults than children that was observed through doing more activities during going to their works and schools by walking, cycling, wheeling. Also, most people don't own cars, no sedentary lifestyle and doing many exercises in clubs and they trying to lose their weight by adherence to better lifestyle or by using medications. So, by highlighting the benefit of leading a healthy lifestyle, Saudi government must take this issue seriously to improve physical activity levels, eating healthy food and avoid sedentary behaviour.

Key Words Overweight, Obesity, Anti-Obesity Medications, Saudia Arabia, Egypt, Physical Activities, Lifestyle, Healthy Foods

INTRODUCTION

According to WHO (2016) statistics, 13% of adults worldwide were obese (11% of men and 15% of women), showing that overweight and obesity are growing more prevalent worldwide. [1]. By 2035, the prevalence of overweight and obesity is expected to rise from 38% in 2020 to over 50% globally [2]. It accounted for 8.4% of fatalities globally in 2017 [3] and was listed sixth among the top avoidable causes of death [4]. Sociocultural, economic, technological, and environmental, considered as primary categories that have great impact on lifestyle and habits related to health [5].

Overweight and obese people are named by their Body Mass Index (BMI). Overweight is defined as having a BMI of 25 to 29.9, while obesity is defined as having a BMI of 30 or higher [6]. The prevalence of obesity among 13 regions in Saudia Arabia (BMI ≥ 30) was 24.7% in 2020 [7]. A recent study in Makkah (KSA) revealed that due to the intake of dates, fast food, and soft drinks, the prevalence of overweight was approximately 32% and obesity was 23% [8]. According to a 2017 study, overweight and obesity in the United Arab Emirates was 32.3% and 43.0%, respectively [9]. Furthermore, obesity was 17.0% in Yemen, 28.3% in Oman, & 31.2% in Bahrain [10]. Egypt has the high rate of obesity in the world, ranking 18th [11]. Cardiovascular disease, diabetes mellitus, chronic kidney disease [12], numerous cancers [13], and a variety of musculoskeletal disorders, have been linked to high body-mass index (BMI) [14,15].

REVIEW OF LITERATURE

Many obese patients used some medications to reduce their weights. Example of these anti-obesity drugs are Orlistat; it was seen to reduce weight by 2.2-5.0% (three months) and 4.6-10.7% (six months) [16]. Other study was achieving ≥5% weight loss [17]. Semaglutide was injected once weekly and showed good efficacy and safety among patients with type 2 diabetes [18,19]. Liraglutide, revealed world effectiveness across North America, East Asia, Europe, and the Middle East [20,21], percentage weight loss ranged from 4.8-9.2% at 4-6 months [18], achieving ≥5% weight loss at three months [22] and more after six months [20]. Using of Phentermine for only three months reduce weight by 2.1-12.8% [16,23]. Treatment with combination of Naltrexone-bupropion combination caused ≥5% weight loss [24].

Some anti-obesity drugs that approved by the FDA for the treatment of chronic weight loss are expensive, with bad side effects, so, they should be reviewing the risks and benefits, before using them [25]. Orlistat showed oily stools, faecal urgency & incontinence and vitamin deficiency. While Liraglutide showed vomiting, diarrhoea and constipation. Drug combination (Phentermine/topiramate) showed paraesthesia, insomnia, anxiety, depression and constipation. Also, Naltrexon/bupropion showed vomiting, constipation, dizziness and headache [26].

On the other hand, the main factor in reducing overweight and obesity is changing their lifestyle. Regular or random alterations to eating habits, such as a Mediterranean diet, low-calorie, low-carb diet, helped in weight loss. Physical activity and exercise were found to be the second-best weight-management strategies. Cognitive and behavioural therapy [27], doing exercises and eating heathy food [28] are considered as added intervention. So, this study was done between two Arabic nations (Egypt & KSA) that having some similarities and some variabilities in their sociocultural, eating habits and lifestyle to compare the age of becoming overweight or obese, the methods used for losing weight.

Objectives

Primary Objective: This study aims to assess the usage of anti-obesity medications among the obese population and their adherence to better lifestyle (Physical activity & eating healthy foods).

Specific Objectives

- To assess the prevalence of overweight and obesity among Saudi and Egyptian population and the age of obese people
- To assess the use of anti-obesity medications among Saudi and Egyptian population
- To assess the degree of adherence for anti-obesity medications and better lifestyle including physical activities, eating low diet carbs or Keto and healthy food among Saudi and Egyptian population

METHODS

Study Design and Population

A cross-sectional survey was distributed throughout Saudi and Egyptian population between the first of November 2024 to the end of January 2025 from different regions. An online survey was conducted among the obese and overweight population and others were interviewed (Face to Face) either in obesity clinics, gyms, universities, and asked questions from well-designed questionnaire. The questions about the sociodemographic data, anti-obesity medications and their side effects, and the extent for adherence to better lifestyle including healthy foods, doing physical activities.

Sample Size Calculation

The Raosoft sample size calculator was used to calculate the sample size, providing a 5% margin of error and a 95% confidence level. To reach statistical significance, a sample size of at least 200 participants was required.

Data Collection Tool

A well-structure questionnaire was used for data collection. The questionnaire was designed in Arabic for Egyptian and Saudi participants and in English for the research manuscript. participants. The questionnaire was divided into five different sections.

- **Sociodemographic Information:** Age, gender and education level
- **Obesity and health problems:** BMI (kg/m^2), duration to lose weight, types of Health Problem, duration of Health Problem

- **Anti-obesity Medications:** Uses of Anti-obesity Medications, types of Anti-obesity Medication, duration of medications, medication Efficacy and medication side effects
- **Physical activities:** Number of exercise/ weeks, duration time of exercises (min), intense of exercises, rate of physical activities
- **Healthy foods:** Types of healthy foods, number of meals/days, number of water cups/day, eating healthy foods

Table 1 showed the total number of patients with obesity and overweight were 640 (297 Saudis and 343 Egyptians). Due to their ages (less than 20 years old) and/or incomplete data, 90 (43 Saudis and 47 Egyptians) participants were excluded, as shown in the flow chart of study participants.

Inclusion Criteria

All obese or overweight participants from the two countries (Saudi Arabia and Egypt), their ages 18 years-old and above of both genders were 550; 254 Saudis and 296 Egyptians.

Exclusion Criteria

People under 18 years of age and nonobese.

Data Management and Statistical Analysis

An online questionnaire was distributed among obese and overweight population and others were interviewed (Face to Face) and asked questions from well-designed questionnaire. The informed consent was received from each participant starting after complete explanation of the questions and clarifies that their participation was optional not mandatory, and they can withdraw at any time without any problem. Then after explanation we asked them if they agree to complete answering the questions or no. Also, we explained that all their personal and historical data will be securely stored and will not use at anything except for this research, also it is the responsibility of the principal investigator on his personal computer and will be deleted after publishing the paper. The questions about the sociodemographic data, anti-obesity medications, lifestyle, physical activities and healthy foods. Any response that does not fulfill inclusion criteria nor missing data was deleted. The total number of participants were 550 who are meeting all inclusion criteria; 254 from Saudis Arabia and 296 from Egypt.

Statistical Analysis

Statistical analysis was done using Statistical Package for Social Sciences (version 25 SPSS Inc, Chicago, IL, USA). Continuous variables were expressed as mean ± SD and descriptive statistics such as frequencies (n) and percentages (%) were employed for categorical variables. *P*-value ≤ 0.05 was considered statistically significant according to Pearson Chi-Square test.

Table 1: Flow chart of study participants.

Total participants with overweight: 640 (297 Saudis and 343 Egyptians)		
Criteria	Saudis	Egyptians
Exclusion for age less than 20 years-old	23	21
Exclusion for incomplete data	20	26
Total Exclusion	43	47
Number of patients that met inclusion criteria	254	296

RESULTS

The total number of participants were 550; 254 (Saudis) and 296 (Egyptians). Table 2 displayed the demographic features and duration of adherence to lose weight loss and types of health problems among patients from Saudi Arabia and Egypt. Female participants were more in both nations than males (>55%) (Figure 1). The mean of age in years (35±0.74 Saudis vs 44.5±2.07 Egyptians) which was significantly different from each other (*p*-value =0.001). About one third of participants their age ranges from 18-24 years (Saudis) and from 35-44 years (Egyptians) and most of them with middle and secondary education levels. Most of Saudi participants having middle or secondary level of education (66.9%) vs. 57.7% Egyptians, while Egyptians having university & above (39.2% more than Saudis 18.1%) which was significantly different at *p*-value =0.000.

Table 2 and Figure 2 showed that BMI was significantly different at *p*-value= 0.035; overweight patients was more among Egyptians (52.0%) vs. 33.5% (Saudis), while Obese

Table 2: The Socio-demographic characteristics of Egyptian and Saudi population

Characteristics	Saudis	Egyptians	Total	*P*-value
Gender	n (%)	n (%)	n	
Male	107(42.1)	115(38.9)	222	0.435
Female	147(57.9)	181(55.2.)	328	
Age (Years)				
(Mean ± SE)	35.0 ± 0.74	44.5 ± 2.07	550	0.001*
Age (Years)				
18-24	79(31.1)	40(13.5)	119	0.000*
25-34	49(19.3)	55(18.6)	104	
35-44	62(24.4)	92(31.1)	154	
45-54	51(20.1)	60(20.3)	111	
55-65	13(5.1)	35(11.8)	48	
>65	00(0.0)	14(4.7)	14	
Level of Education				
Primary	38(15.0)	12(4.1)	50	0.000*
Middel & Secondary	170(66.9)	168(57.7)	338	
University & above	46(18.1)	116(39.2)	162	
BMI (kg/m^2)				
Normal	47(18.5)	41(13.9)	88	0.035*
Overweight	85(33.5)	154(52.0)	239	
Obese Class 1	65(25.6)	43(14.5)	108	
Obese Class 2	40(15.7)	31(10.5)	71	
Obese Class 3	17(6.7)	27(9.1)	44	
Duration of adherence to lose weight				
<1 years	141(55.5)	95(32.1)	236	0.000*
1-5 years	76(29.9)	87(24.4)	163	
6-10 years	23(9.1)	48(16.2)	71	
>10 years	14(5.5)	66(22.3)	80	
Types of Health Problem				
Diabetes	36(14.2)	34(11.5)	70	0.044*
Hypertension	4(1.6)	33(11.1)	37	
Endocrine disorders	31(12.2)	40(13.5)	71	
Back pain	10(3.9)	24(8.2)	34	
None	173(68.1)	165(55.7)	338	
Duration of Health Problem				
<5 years	70(27.6)	74(25.0)	144	0.008*
5-10 years	11(4.3)	57(19.3)	68	
None	173(68.1)	165(55.7)	338	

*Significant difference at p≤0.05

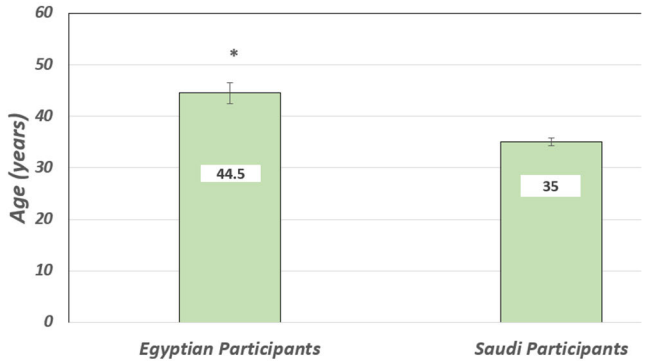

Figure 1: Age of Saudi and Egyptian obese population

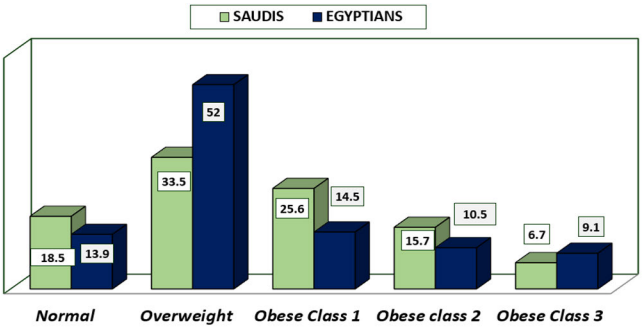

Figure 2: BMI (kg/m2) of Saudi and Egyptian obese population

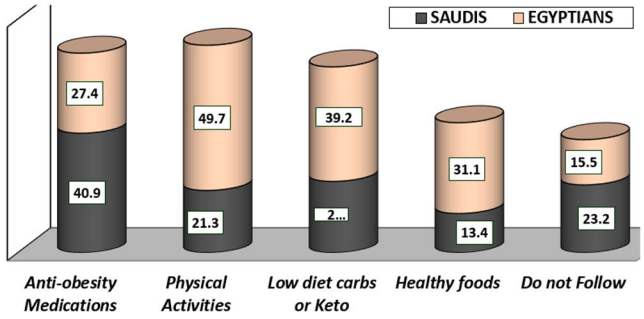

Figure 3: Methods to lose weight among Saudi and Egyptian obese participants (%)

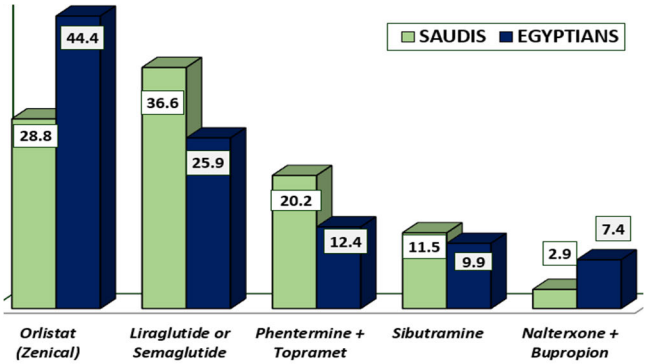

Figure 4: Types of Anti-obesity Medication used among Saudi and Egyptian obese participants (%)

Table 3: The number and the percentage of Egyptian and Saudi population who are using anti-obesity Medications

Characteristics	Saudis	Egyptians	Total	*P*-value
Methods to lose weight	n (%)	n (%)	n	
Anti-obesity Medications	104(40.9)	81(27.4)	185	0.009*
Physical Activities	54(21.3)	147(49.7)	191	
Low diet carbs or Keto	62(24.4)	116(39.2)	178	
Healthy foods	34(13.4)	92(31.1)	126	
Do not Follow	59(23.2)	46(15.5)	105	
Usage of Anti-obesity Medications				
Yes	104(40.9)	81(27.4)	185	0.022*
No	150(59.1)	215(72.6)	365	
Types of Anti-obesity Medication	(n=104)	(n=81)	(n=185)	-
Orlistat (Zenical)	30(28.8)	36(44.4)	66	0.032*
Liraglutide or Semaglutide	38(36.6)	21(25.9)	59	
Phentermine + Topramet	21(20.2)	10(12.4)	31	
Sibutramine	12(11.5)	8(9.9)	20	
Nalterxone + Bupropion	3(2.9)	6(7.4)	9	
Duration of using medications	(n=104)	(n=81)	(n=185)	-
0-3Months	54(51.9)	23(28.4)	77	0.039*
4-6Months	24(23.1)	18(22.2)	42	
7-12Months	18(17.3)	21(25.9)	39	
>12 months	8(7.7)	19(23.5)	27	
Medication Efficacy	(n=104)	(n=81)	(n=185)	-
Yes, Effective	70(67.3)	68(83.9)	138	0.045*
Not Effective	34(32.7)	13(16.1)	47	
Medication Side Effects	(n=104)	(n=81)	(n=185)	-
Diarrhoea	26(25.0)	61(75.3)	87	0.018*
Headache	24(23.1)	47(58.0)	71	
Emesis & vomiting	22(21.2)	38(46.9)	60	
Abdominal Pain	17(16.3)	5(9.9)	22	
Dry Mouth	15(14.4)	8(13.5)	23	

*Significant difference at p≤0.05

class 1 was more among Saudis (25.6%) more than Egyptians (14.5%). Duration of adherence to lose weight was more among Egyptians than Saudis. The commitment to lose weight from 6 year to >10 years was 38.5% in Egyptians vs. 14.6% Saudis (*p*-value=0.000). Diabetes and endocrine disorders were considered the health problem among Saudi participants (14.2% & 12.2%) compared to (11.5% & 13.5% Egyptian participants) which was significantly different at *p*-value =0.044 and the duration of theses health problem long lasting for <5years (Saudis) & 5-10 years (Egyptians) at *p*-value =0.008.

Table 3 showed the efficacy of anti-obesity medication and side effects. About 40.9% of Saudi participants used anti-obesity medication vs. 27.4% of Egyptians, while 49.7% of Egyptians doing physical activities, eating low diet carbs or Keto (39.2%) and healthy foods (31.1%) vs. 21.3%, 24.4% and 13.4% (Saudis) respectively which are significantly different at *p*-value =0.009 (Figure 3).

Regarding anti-obesity medications, table 4 revealed that Liraglutide or semaglutide was used by Saudi participants (36.6%) vs. Egyptians (25.9%), while orlistat was used more by Egyptians (44.4%) vs. Saudis (28.8%) which are significantly different at *p*-value <0.005 (Figure 4). The duration of using medications among Saudis ranged from 0-3 months (51.9%) compared to > one year duration among Egyptians (23.5%) which are significantly different at *p*-value <0.005. diarrhoea, headache and emesis & vomiting are the most pronounced side effects that happened among Egyptians more than Saudis who were used anti-obesity medications (<0.005).

Table 4: The number and the percentage of Egyptian and Saudi population who are doing physical activities as a method to lose weight.

Characteristics	Saudis	Egyptians	Total	*P*-value
What is the most effective?	n (%)	n (%)	n	
Lifestyle is more effective	37(14.6)	151(51.0)	188	0.000*
Medication is more effective	89(35.0)	69(23.3)	158	
Do not Follow	128(50.4)	76(25.7)	204	
Duration of Exercise/week				
1-3 Days/week	34(13.4)	55(18.6)	89	0.023*
4-5 Days/week	12(4.7)	65(22.0)	77	
>5 Days/week	8(3.1)	27(9.1)	35	
No Physical Activities	200(78.8)	149(50.3)	349	
Duration time of exercises				
20 mins/Day	27(10.6)	50(16.9)	77	0.039*
30 mins/Day	13(5.1)	25(8.5)	38	
40 mins/Day	8(3.1)	30(10.1)	50	
60 mins/Day	6(2.4)	42(14.2)	36	
No Physical Activities	200(78.8)	149(50.3)	349	
Intense of Exercises				
Low Intense	28(11.0)	29(9.8)	57	0.022*
Middle Intense	16(6.3)	45(15.2)	61	
High Intense	10(3.9)	73(24.7)	83	
No Physical Activities	200(78.8)	149(50.3)	349	
Rate of Physical Activities				
Office work	95(37.4)	54(18.2)	149	0.006*
Only move when necessary	28(11.0)	13(4.4)	41	
Moderate physical activity during the day	109(42.9)	184(62.2)	293	
High physical activity during the day	22(8.7)	45(15.2)	67	

*Significant difference at p≤0.05

Table 5: The number and the percentage of Egyptian and Saudi population who are following diets and healthy foods as a method for loss weight.

Characteristics (%)	Saudis	Egyptians	Total	*P*-value
Number of meals per day	n (%)	n (%)	n	
Two meals	100(39.4)	145(49.0)	245	0.005*
Three meals	96(37.8)	102(34.5)	198	
More than three meals	58(22.8)	49(16.6)	107	
Number of water cups per day				
3-4 cups	91(35.8)	54(18.2)	145	0.000*
5-7 cups	99(39.0)	113(38.2)	212	
8 cups and more	64(25.2)	129(43.6)	193	
Types of healthy foods				
Low carbs diets	62(24.4)	116(39.2)	178	0.012*
Balanced Diets	63(24.8)	94(31.8)	157	
Ketto Diets	20(7.9)	21(7.1)	41	
Do Not Follow healthy foods	109(42.9)	65(22.0)	174	
Duration of following healthy foods				
1-2 Months	82(32.3)	29(9.8)	111	0.000*
3-5 Months	39(15.4)	46(15.5)	85	
6-12 Months	45(17.7)	41(13.9)	86	
>12 Months	39(15.4)	115(38.9)	144	
Do Not Follow healthy foods	109(42.9)	65(22.0)	174	
Duration of Sleep per day				
3-4 hours per Day	43(16.9)	30(10.1)	73	0.009*
5-7 hours per Day	118(46.5)	190(64.2)	308	
8-10 hours per Day	93(36.6)	76(25.7)	169	
Quality of Sleep				
Intermittent sleep	120(47.2)	134(45.3)	254	0.268
Sleep of high quality	134(52.8)	162(54.7)	296	

*Significant difference at p≤0.05

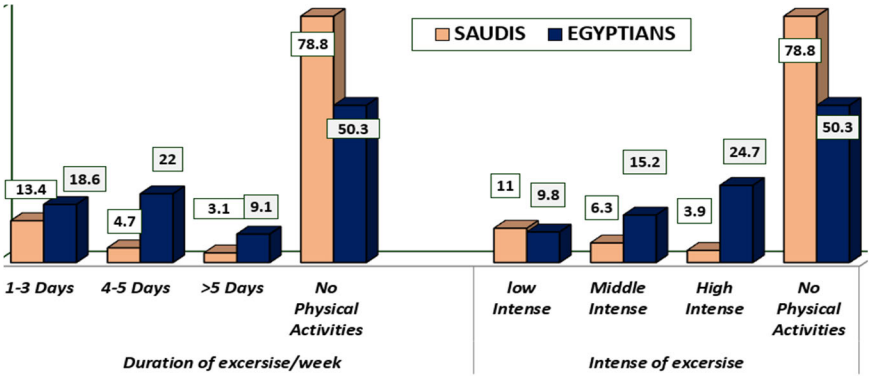

Figure 5: Duration of excersise/week and intense of excersise among Saudi and Egyptian obese participants (%)

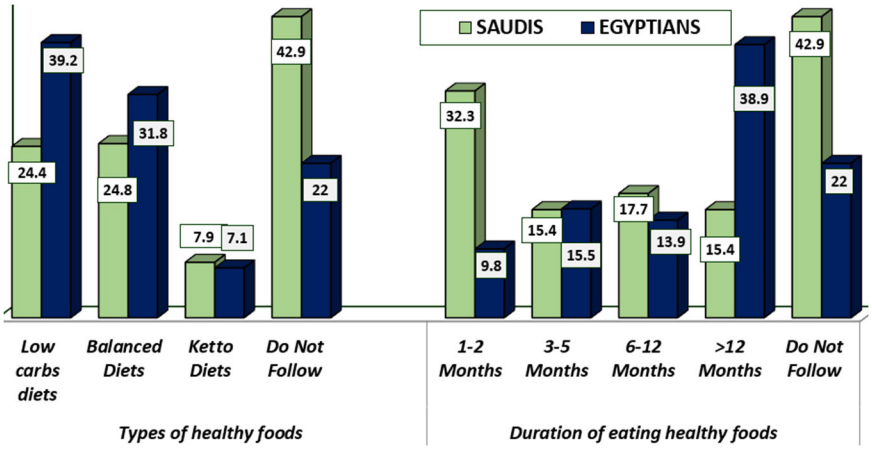

Figure 6: Types of healthy foods and duration of eating healthy foods among Saudi and Egyptian obese participants (%)

Table 4 showed the effectiveness of doing physical activities as a method for losing weight among Egyptian & Saudi population. The degree of efficiency to lose weight after following lifestyle methods was more among Egyptians (51.0%) than Saudis (14.6%), while using anti-obesity medication was more effective among Saudis (35.0%) than Egyptians (23.3%) which was significantly different at *p*-value=0.000. The rate of doing exercise from 4 to 5 days per week was more among Egyptians (22.0%%) than Saudis (4.7%%) which was significantly different at *p*-value=0.023. The duration time of exercise among Egyptians was 40 min per day (10.1%) vs. Saudis (3.1%) and for 60 mins per day among Egyptians (14.2%) vs. Saudis (2.4%). High intense of exercises was more among Egyptians (24.7%) vs. Saudis (3.9%) at *p*-value=0.022. Moderate physical activity during the day was found to be 42.9% (Saudis) vs. 62.2% (Egyptians) and high physical activity during the day was double percentages in Egyptian participants (Figure 5).

Table 5 showed the effectiveness of following diets as a method for loss weight among Saudi & Egyptian population. Most of participants ate two meals (39.4% vs 49.0%) followed by three meals (37.8% vs. 34.5%) and less percentages ate more than three meals (22.8% vs 16.6%) among Saudis vs Egyptians. Most of participants drank 5-7 cups of water in both nations (nearly 38%), but 43.6% of Egyptians was drinking 8 or more cups of water per day compared to 25.2% of Saudis.

Regarding healthy foods, the percentage of people that did not follow healthy food was 42.9% (Saudis) compared to 22.0% (Egyptians). Egyptians follow low carbs and balanced diets as healthy foods more than Saudis which was significant at (*p*-value =0.012). Concerning the duration of following healthy foods was varied between peoples of the two countries, 32.3% (Saudis) follow for one -two months, while 38.9% (Egyptians) follow more than 12 months which are significantly different at *p*-value =0.000 (Figure 6).

Table 5 also showed the duration of sleep/day was more among Egyptians for period of 5-7 hours (64.2%) compared to 46.5% (Saudis), on the other hand, sleeping period of 8-10 hours was significantly long among Saudis (36.6%) vs. Egyptians (25.7%) at *p*-value =0.009, but no significant differences was observed between the two nations in the quality of sleep (*p*-value =0.268).

DISCUSSION

Around 3.4 million people die from obesity each year, making it the fifth leading cause of death overall [29]. In this study, female participants were more in both nations than males (>55%) and the mean of age around 35 years-old (Saudis) compared to about 45 years-old (Egyptians). Some researches were agreed with our results and the mid-life age in KSA was associated with the highest prevalence rates of obesity among females than males [30]. Study done in 2019 revealed that women in Saudi Arabian showed extra weight (≥7 kg) one year following delivery [31]. The prevalence of obesity among young adults was 30% [32], compared to obesity among adult females in Egypt was double that of males [33].

Most of our participants with middle and secondary education levels of both countries with more university level among Egyptian participants. The prevalence of overweight and obesity among Saudi students remains high, particularly among those who consume more French fries per week, have a favourable family history of obesity, were obese at an earlier age, and consumed fewer dairy products [28].

According to the study of Neupane *et al.*, obesity and high school graduation are highly associated. Both primary and secondary educated women had a higher chance of being obese than the illiterate group after controlling for other factors. Higher educated women were shown to have the worst odds of any cohort. Higher educational groups had healthier lives owing to their higher socioeconomic level, health awareness, self-control, and better dietary knowledge, according to evidence from previous research worldwide [34]. Our study's findings differed from those of various other research studies (such as those conducted in Ghana, Bangladesh, and Ethiopia) [35-37].

BMI was significantly different, obesity was more among Saudis more than Egyptians, this difference might be due to variations in lifestyle, dietary habits and genetics pre-depositions among two nations. An obesogenic atmosphere that encourages unhealthy eating, a lack of activity, and weight gain has been produced by historic Saudi cultural traditions, modern cultural shifts, and economic affluence [38]. Many risk factors for cardiovascular diseases were prevalent among Saudi population either non modifiable or modifiable such as obesity, physical inactivity, fast foods, insufficient amounts of fruits and vegetables) [39]. The chance of being overweight or obese later in adulthood and midlife is raised by lifestyle changes that have already begun in young adulthood, such as increased fast-food intake, skipping breakfast, and snacking [32]. According to a nationwide survey done between 1995 and 2000 revealed that 35.6% of Saudi people were obese [40]. WHO reported that mean BMI in Egypt (2017) was 28.2% (26.3% males, 30.4% females) [41].

About half of the Saudi participants try to lose their weight (less than 1 year compared to Egyptians from <1year to >10 years). Diabetes and endocrine disorders were considered health problems among both nations. The burden of obesity-related problems in Saudi Arabia such as diabetes, hypertension, obstructive sleep apnoea and asthma might be considerably reduced with sustained weight loss [42]. Obesity is a major sponsor to the development of diabetes type-2, hypertension, sleep apnoea and fatty liver [43]. In both nations, diabetes led to depression which led to obesity [44]. Saudis' obese population were more satisfied with gastric sleeve surgery (67.0%) more than Egyptians (44.3%), and the benefits were more than complications [45].

Regarding the usage of anti-obesity medication and its side effects, about 40% of Saudi participants used anti-obesity medication compares to 27.4% of Egyptians. Management of medications that approved for chronic weight management along with lifestyle changes are appropriate. Orlistat, naltrexone/bupropion, and liraglutide are approved in the USA or European Union also, phentermine/topiramate are available [46].

Liraglutide or semaglutide was used more by Saudis, while orlistat was used more by Egyptians. Half of Saudi participants discontinued the anti-obesity medication course after short time because of severe side effects, while Egyptians continued the course of medications. Diarrhoea, headache and emesis & vomiting are the most pronounced side effects of anti-obesity medications. Orlistat, phentermine/topiramate, naltrexone/bupropion, and liraglutide are the anti-obesity drugs currently approved by the FDA for the treatment of chronic weight loss. They are expensive, with negative side effects, so, they should be reviewing the risks and benefits, before using them [25]. Some adverse reactions were seen by anti-obesity drugs for example, Orlistat showed oily stools, faecal urgency & incontinence and deficiency in vitamins A, D, E, and K. Phentermine/topiramate showed paraesthesia, insomnia, anxiety, depression and constipation. Naltrexon /bupropion showed dizziness, vomiting, headache and constipation. While Liraglutide showed vomiting, diarrhoea & constipation [26]. Others found that bupropion/naltrexone, orlistat, and phentermine/topiramate are not GLPIR. Across sex, age, and ethnicity stratification, semaglutide was linked to a decreased risk of heart rate incidents and suicidal thoughts in patients who were overweight or obese when compared to non-GLP1R agonist anti-obesity drugs. When compared to non-GLP1R agonist anti-obesity or anti-diabetic drugs, these results did not support increased risks of suicidal ideation with semaglutide [47].

The degree of efficiency to lose weight after following lifestyle methods was more among Egyptians than Saudis, while using anti-obesity medications was more effective among Saudis than Egyptians. The rate of doing exercise >5 days per week and the duration period of exercise were more among Egyptians vs. Saudis. These findings are in line with earlier studies showing that Egyptians are more prone than Saudis, who tend to have more sedentary lifestyles, to participate in structured exercise regimens [48]. According to current weight loss guidelines, some patients may be able to manage their weight over the long term through pairing medication with lifestyle changes [49]. An energy imbalance between calories taken and calories burned will result from adding to physical inactivity [50]. Overweight and obesity, particularly in young people, are thought to be mostly caused by this bad lifestyle. Regarding eating habits and behaviours that are carried over into adulthood [51]. “Healthy 24-Hour Day”, means comprising a mix of light- & moderate-intensity to vigorous-intensity physical activity, sleep, and sedentary behaviour [52].

In this research, high & moderate intense of exercises was observed more among Egyptians vs. Saudis. We suggest that as a result of greater participation in high-intensity exercises among Egyptians such as transportation by wheeling, walking, and cycling are more public in Egypt than in KSA, as sedentary behaviour is more prevalent in KSA. WHO 2020 reported that in the context of education, the family, and the community, physical activity for adolescents and children might take shape in the form of play, games, sports, or organized exercise, physical education, transportation (wheeling, walking, and cycling), or household tasks [53]. Others said that individuals who are overweight or obese might achieve clinically significant improvements in a number of health outcomes by losing 5–10% of their starting weight using high-intensity lifestyle modification programs [49]. Strength training (twice/week) in addition to an activity program may protect against the loss of muscle [54].

In this research, most of participants drank 5-7 cups of water/day in both nations but more than 8 cups among Egyptians. Better hydration practices fostered by dietary guidelines promoting the importance of water for weight control and general health may be the cause of Egyptians' higher water intake. Increased hydration can be associated with weight lossdue to reduction in feeding, increased lipolysis that led to loss of fat [55].

In this study, high percentage of Saudi participants did not follow healthy food and eat more than three meals/day which was more than Egyptians. Egyptians followed healthy foods of low carbs and balanced diets for long duration more than Saudis. In KSA, family history, dietary patterns and eating habits, genetics, marital status, hypertension, and inactivity are the primary causes of obesity [56]. Consumption of energy-dense foods and calories ingested rises due to their great availability and accessibility as well as the absence of rigid rules [57]. Egyptian medical students were eating more fruit and vegetable and have knowledge and attitude towards accessible healthy food [58].

CONCLUSIONS

From this study we can conclude that there was a difference between the two countries in cultural habits, eating habits, physical activities and the age of gaining weight. Among Saudi participants, obesity is mostly caused by sedentary lifestyles, low levels of physical exercise among younger populations, and bad eating habits in both school-age & college-aged, and adolescents. By highlighting the benefit of leading a healthy lifestyle, the government must take this issue seriously in order improve physical activity levels, decrease the number of meals, calories in their diets and avoid sedentary behaviour. Among Egyptian participants, obesity is mostly caused more in adults than children. More activities were done during going to their works and schools by walking, cycling or wheeling and most of them didn’t use special transport (own cars), no sedentary lifestyle and doing many exercises in clubs. Also, in Egypt we advise them to join with educational programs to avoid obesity and, monitor themselves if any weight gain, also trying to loss their gained weight by better lifestyle as eating healthy foods (vegetables and fruits), drinking more water or by using anti-obesity medications.

Recommendations

We recommended applying the same study in several regions and interviews more population deep insight either in Saudi Arabia or in Egypt and increased the number of obese participants. Suggest country-level comparisons of healthcare practices. Also, trying to choose participants with different ages.

Ethical Statement

This study followed the guidelines proved by the University of Ha'il Research Ethics Standing Committee (REC). On October 2024, the research protocol and instrument (Study ID: H-2024-454) were examined and authorized. The goals of the study, the confidentiality of their answers, and their right to voluntary participation were all explained to the participants. Prior to administering the questionnaire, informed consent was received from each participant. All participant information and their data were anonymised to protect participant privacy.

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