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THE PREVALENCE OF OBESITY AMONG ADULTS IN HAFR ALBATIN REGION - SAUDI ARABIA

Nasser Turki Aldhafeeri[1*], Salman Fahad Aldhafeeri[2]

[1*]Hafr Al Batin Health Affairs – Hafr Albatin - Saudi Arabia
[2]King Khaled General Hospital – Hafr Albatin - Saudi Arabia

***Corresponding Author:** Nasser Turki Aldhafeeri
[*]Hafr Al Batin Health Affairs – Hafr Albatin - Saudi Arabia

Abstract:
Background: Obesity is a worldwide phenomenon; the percentage of obesity in the Kingdom of Saudi Arabia will be about 33.7 and 41 percent by the end of 2030. Obesity has negative influences on the body's health by raising the cholesterol level and its risk to the heart, causing cardiovascular diseases. Nearly 2.3 billion adults will become overweight & more than 700 million were obese in 2015. The World Health Organization declared obesity a global epidemic, and as the WHO estimated in 2008, 1.5 billion adults (20 years and more) are overweight, above 200 million men & nearly 300 million women were suffering from obesity.

Aims: The main objective of this study is to determine the prevalence of obesity among the general population of the Hafr Albatin region, Identify the lifestyle of the adult population in the Hafr Albatin region, Kingdom of Saudi Arabia who are overweight or obese, and compare the lifestyle of the adult population who are overweight or obese with the lifestyle of the population with normal weight.

Methods: A cross-sectional study was conducted, and data was collected from the Hafr Albatin population using the self-study tool. Data were analyzed using Microsoft Excel 2016, and SPSS v 21.0 software was used for statistical analysis.

Conclusion: The prevalence of obesity among Hafr Albatin is high; obesity has been a growing concern in Saudi Arabia, as it has been in many countries around the world. The prevalence of obesity has increased over the years due to various factors, including changes in lifestyle, dietary habits, and reduced physical activity.

Keywords: Obesity, Overweight, Hafr Albatin

Introduction:

Obesity is considered a worldwide phenomenon of interest to many researchers in different fields, particularly healthcare professionals, due to its relationship to many medical and physical issues. The Kingdom of Saudi Arabia is fifteenth in the world in terms of obesity, and the percentage of general obesity in the Kingdom was about 33.7% in 2016 [1], and it will be 42% in 2030 [2].
Scientific evidence and evidence point to the significance of physical activity for human psychological and physical health and to the risk of physical inactivity on health & bodily functions

because its negative influence on society outweighs those negative influences due to elevated cholesterol in the blood or an elevation in arterial blood pressure or The smoker's percentage, due to the life variations that the industrialized world witnessed in the second half of the last century and the consequent noticeable elevate in diseases related to contemporary lifestyle, involving diabetes, osteoporosis, obesity and heart diseases. In 1997, the World Health Organization declared obesity a global epidemic, and as the WHO estimated in 2008, 1.5 billion adults (20 years and more) are overweight, and more than 200 million men & nearly 300 million women were suffering from obesity [3].

Nearly 2.3 billion adults will become overweight & more than 700 million will be obese in 2022. for adolescents aged (15-19) years & suffering from overweight, the percentage is between (21%) & (36%), and the highest levels of obesity among adolescents in 2007 were present in the four southern European countries, Greece and Spain, Italy and Portugal, with Ghent are the English-speaking countries of the United Kingdom, Canada, and the United States. The overweight phenomenon & obesity are elevating significantly among adults in the Eastern Mediterranean area. Data on adults aged 15 years & over from 6 countries in the region show the highest levels of overweight & obesity in Jordan, Egypt, Kuwait, Bahrain, Saudi Arabia & the Arab Emirates despite the various levels of obesity. Income between them, as the prevalence of obesity in the countries ranges from (74%) to (86%) among women and from (69%) to (77%) among men. These data show a higher prevalence of obesity among adult women, as weight gain is more remarkable in adults than in men [4].

Approximately 1.2 billion people in the world are overweight, and at least 300 million of them are obese. According to the World Health Organization, obesity is one of the 10 most preventable health risks. Obesity is associated with disorders such as hypertension, diabetes, hypercholesterolemia, and liver disease. Obesity has been thought to be related to an imbalance between energy intake and expenditure. However, more recent research has suggested that genetic, physiological, and behavioral factors also play a significant role in the etiology of obesity. Thus, the management of obesity through exercise, nutrition, supplementation, and medical intervention is at the forefront of research [4]. Overweight and obesity result from excessive accumulation of fat in the body [5] and are associated with increased risk of non-communicable diseases such as cardiovascular diseases, diabetes, cancers, and other health-related complications [6].

Although overweight and obesity are more common in economically developed countries, developing countries have been projected to have a much larger proportional increase in the number of overweight and obese individuals between 2005 and 2030 [7]. Over the past 30 years, being overweight or obese has become one of the world's leading health concerns. A recent report by the Organization for Economic Co-operation and Development (OECD) observed through epidemiological studies that overweight and obesity have reached high enough proportions to be classified as a global epidemic [8].

High body mass carries with it an increased risk of the development of several serious cardiovascular and metabolic diseases, such as type 2 diabetes, hypertension, dyslipidemia, stroke, osteoarthritis, as well as several different forms of cancer, e.g., prostate, endometrial, breast as well as colon cancer [9].

Methodology:

A descriptive cross-sectional study among the Hafr Albatin population – in Saudi Arabia extended from 10/11/2022 to 20/11/2022. Inclusion criteria: adults (over 20 years old), both genders and residents of Hafr Albatin City. Exclusion criteria: bedridden, who are on Steroid treatment or Cancer treatment, and who complain of chronic kidney diseases or on dialysis. Self-administered questionnaire: The standardized data collection in an English-language questionnaire will be developed using evidence from previous studies on the population. The questionnaire will be reviewed by the supervisor after validation, and it will be translated into Arabic and back-translated to check the validity of the meaning of the questions. The questions are designed to gain

quantitative data on personal and demographic characteristics (age, level of education, family history). Questions about obesity, determinants, prevention, complication & treatment.
This study used the Center for Disease Control and Prevention (CDC) BMI category status: BMI below 18.5 kg/m2 is considered underweight, from 18.5 to 24.9 kg/m2 is considered normal weight, from 25 to 29.9 kg/m2 is considered overweight, and 30 kg/m2 and above is considered obese [10].
The ethics committee of Hafr Al Batin Health Affairs ethically approves this research.

Results:
The results showed the respondents are 250, 64.4% are male, 35.6% are female, marital status 33.6% are single, 63.6% are married, 2.8% are divorced/ widowed, about educational level there is 58.4% have a bachelor, 36% have a diploma, 4.8% having master, and 8% having Ph.D., and from the respondents, there are 91.2% are living with their families, 4.8% are living alone, and 4% are living with their friends, their age mean = 33.97 with 10.799 standard deviations, the weighted mean = 76.34, with standard deviation = 14.956, and the height means = 166.61 cm, with standard deviation = 16.491

Table no (1) Demographic data (categorical data)

	Categories	Frequencies	Per cent
Sex	Male	161	64.4
	Female	89	35.6
Marital status	Single	84	33.6
	Married	159	63.6
	Divorced/widowed	7	2.8
Educational level	PHD	2	8
	Master	12	4.8
	Bachelor	146	58.4
	Diploma	90	36
With whom are you living	Alone	12	4.8
	Family	228	91.2
	Friends	10	4

Table no (2) Demographic data (quantitative data)

Variables	Mean	Standard deviation
Age	33.97	10.799
Weight	76.34	14.956
Height	166.61	16.491

Medical history:
The results showed that only 34.8% have a medical history of obesity in their families; there are 20% have a disability or chronic disease 17.2% have a chronic disease (hypertension (2.8%), CVD (3.2%), diabetes (4%), kidney problems (0.4), other (6.8%), about the effect of the chronic disease on the physical activity there 53.5% from diseased people with chronic disease these diseases encourage them to practice it, 27.9% discourage them to practicing it, 18.6% no effect.

Table no (3) Frequency of medical history variables

Variables	Categories	Frequencies	Per cent
Obesity history	Yes	87	34.8
	No	163	65.2
Disability	Yes	50	20
	No	200	80
Chronic disease	Hypertension	7	2.8
	CVD	8	3.2

	Diabetes	10	4
	Kidney problems	1	0.4
	Other	17	6.8
	None	207	82.8
Chronic effect on physical activity	Yes, encourage me to practice it	23	53.5
	No, discourage me from practicing it	12	27.9
	No, it does not	8	18.6

Physical activity:

The results showed that 47.6% practiced physical activity (exercise (74%), walking/cycling (20%), swimming (6%), 40.3% spent 15-30 min per day, 37.8% spent 1 hour per day, 17.3% spent 2 hour per day, 5.6% spent more than 2 hours per day, about the causes of no practicing activity 24.8% they have no designated place to practice, 24% they are not interested in practicing, 18.6 % due to family pressure, 17.8% due to work pressure, 14.7% they have no time to practice.

Table No. (4) frequency of physical activity variables

Variables	Categories	Frequencies	Per cent
Physical activity	Yes	119	47.6
	No	131	52.4
Type of Activity	Exercise	88	74
	Walking/cycling	24	20
	Swimming	7	6
Time spent in the activity per day	15-30 min	48	40.3
	1 hour	45	37.8
	2 hours	21	17.3
	More than 2 hours	7	5.6
Cause of no practice activity	No time to practice	19	14.7
	No designated place to practice	32	24.8
	Work pressure	23	17.8
	Family pressure	24	18.6
	Not interested in practicing	31	24

Obesity prevalence:

The results showed the prevalence of obesity is 65.2%

Table no (5) Frequency of obesity and normal weight

Variables	Categories	Frequencies	Per cent
Obesity	Overweight	163	65.2
	Normal	87	34.8

Lifestyle:

The results showed about the life style of the respondents, there are 20% smoker, from them 52% smoke 1-10 cigarettes per day, 26% smoke 11-20 cigarettes per day, 22% smoke more than 20 cigarettes per day, and 56% smoke from more than 5 years, 36% smoke from 1-5 years, 8% smoke from less than 1 year, there are 40.8% take 3 meals per day, 40% take less than 3 meals, 17.6% take 4-5 meals per day, and 1.6% taking more than 5 meals, about irregular taking breakfast per day there are 44% take irregularly, and 56% are not, there are 28% take fast food, 18.4% don't take fast food, 36.8% take sometimes, 16.8% rarely take, there are 76.4% sleep at night , 23.6% are not, there are 69.6% don't take khat or tobacco , 30.4% take the khat or tobacco, there are 16.8% take steroid or psychiatric drugs , 93.2% are not, about red meat eating there are 42.8% eat less than once a week, 41.6% eat 2-3 times a week , 15.6% eat daily, there are 54% drink soft drinks, 22.8% drink

energy drinks, about sleep hours per day, there are 37.6% sleep less than 6 hours, 62.4% sleep from 6-8 hours, about vegetable's eating there are 26% eat it daily, 38% eat it 2-3 times a week , 16.8% eat it less than once a week, 19.2% eat it rarely, about follow up of weight, there are 45.2% follow up their weights, and 54.8% are not, about general medical follow up there are 19.6% follow up every 3 months, 14.4% follow up every 6 months, 18% follow up every 1 year, and 48% follow up every 2-5 years.

Table No. (6) frequency of lifestyle variables

Variables	Categories	Frequencies	Per cent
Smoking	Yes	50	20
	No	200	80
Number of cigarettes/days	1-10	26	52
	11-20	13	26
	More than 20	11	22
Years of smoking	Less than 1 year	4	8
	1-5 year	18	36
	More than 5 years	28	56
Meals /day	Less than 3 meals	100	40
	3 meals	102	40.8
	4-5 meals	44	17.6
	More than 5 meals	4	1.6
Breakfast daily	Yes	110	44
	No	140	56
Fast food	Yes	70	28
	No	46	18.4
	Sometimes	92	36.8
	Rarely	42	16.8
Sleep at night	Yes	191	76.4
	No	59	23.6
Khat or tobacco	Yes	76	30.4
	No	174	69.6
Steroid/psychiatric drug	Yes	42	16.8
	No	208	83.2
Red meat	Daily	39	15.6
	2-3 times/week	104	41.6
	Less than once weekly	107	42.8
Soft drinks	Yes	135	54
	No	115	46
Energy drinks	Yes	57	22.8
	No	193	77.2
Sleep's hours	Less than 6 hours	94	37.6
	6-8 hours	156	62.4
Vegetables	Daily	65	26
Irregular Follow-up for weight	2-3 times a week	95	38
	Less than once a week	42	16.8
	Rarely	48	19.2
	Yes	113	45.2
	No	137	54.8
Irregular Medical Follow-up	Every 3 months	49	19.6
	Every 6 months	36	14.4
	Every 1 year	45	18
	Every 2-5 years	120	48

Factors related to obesity Chi-square to assess the association between obesity and lifestyle factors. The results show a significant association between body weight and irregular medical follow-up, where chi-square value =, where chi-square value =8.357, p-value = 0.039, and there is no significant association with other factors where p-value for all factors > 0.05. The results showed that there is no clear difference between the lifestyle of normal weight and obese. The results showed the prevalence of obesity = 65.2%, there is no difference between the lifestyle of normal-weight people and those who are obese, and also there is no association between lifestyle factors like smoking, eating behavior and drinking, physical activity, diseases, sleeping and obesity except the Irregular Medical Follow up.

Table No. (7) chi-square values of association between obesity and related lifestyle factors

Variables	Pearson chi-square	p-value
Obesity history	0.041	0.840
Disability	0.18	0.894
Physical activity	0.024	0.876
Smoking	0.282	0.595
Meals /day	0.890	0.828
Breakfast daily	0.372	0.542
Fast food	02.514	0.473
Sleep at night	1.220	0.269
Khat or tobacco	1.051	0.305
Steroid/psychiatric drug	2.424	0.119
Red meat	1.646	0.439
Soft drinks	0.290	0.590
Energy drinks	0.003	0.959
Sleep's hours	2.452	0.117
Vegetables	1.858	0.602
Irregular Follow-up for weight	0.200	0.655
Irregular Medical Follow-up	8.357	0..039

Table no (8) Comparison between the lifestyle of normal weight and obese

Variables	Categories	Obese (%)	Normal (%)
Obesity history	Yes	34.3	35.6
	No	65.6	64.4
Disability	Yes	20.2	19.5
	No	79.8	80.5
Physical activity	Yes	47.2	48.3
	No	52.8	51.7
Smoking	Yes	19	21.8
	No	81	78.2
Meals /day	Less than 3 meals	38.7	42.5
	3 meals	41.7	39.1
	4-5 meals	18.4	16.1
	More than 5 meals	1.2	2.3
Breakfast daily	Yes	45.4	41.4
	No	54.6	58.6
Fast food	Yes	29.4	25.3
	No	16	23
	Sometimes	38.7	33.3
	Rarely	16	18.4
Sleep at night	Yes	74.2	80.5
	No	25.8	19.5

Khat or tobacco	Yes	28.2	34.5
	No	71.8	65.5
Steroid/psychiatric drug	Yes	14.1	21.8
	No	85.9	78.2
Red meat	Daily	16.6	13.8
	2-3 times/week	43.6	37.9
	Less than once weekly	39.9	48.3
Soft drinks	Yes	52.8	56.3
	No	47.2	43.7
Energy drinks	Yes	22.7	23
	No	77.3	77
Sleep's hours	Less than 6 hours	41.1	31
	6-8 hours	58.9	69
Vegetables	Daily	24.5	28.7
	2-3 times a week	36.8	40.2
	Less than once a week	17.2	16.1
	Rarely	21.5	14.9
Irregular Follow-up for weight	Yes	44.2	47.1
	No	55.8	52.9
Irregular Medical Follow-up	Every 3 months	22.7	13.8
	Every 6 months	13.5	16.1
	Every 1 year	13.5	26.4
	Every 2-5 years	50.3	43.7

Discussion:

Approximately 65.2% of the people in the Hafr-Albatin region suffer from obesity, while 34.8% of the Hafr-Albatin region are of normal weight. According to the World Health Organization, obesity is among the 10 most preventable health risks [4]. Obesity is associated with disorders such as high blood pressure, diabetes, high blood cholesterol, and liver disease. Obesity is thought to be related to an imbalance between energy intake and expenditure[10]. However, recent research has indicated that genetic, physiological, and behavioral factors also play an important role in obesity etiology [11]. Thus, managing obesity through exercise, nutrition, supplementation, and medical intervention is at the forefront of research.

Being overweight and obese result from the excessive accumulation of body fat and are associated with an increased risk of non-communicable diseases such as cardiovascular disease, diabetes, cancer, and other health complications[12]. In 2005, 30.0% of the world's adults were overweight or obese, and this value is estimated to nearly double by 2030. The World Health Organization (WHO) has estimated that about two billion and 600 million adults worldwide were overweight or obese in 2014, respectively.

Although overweight and obesity are more common in economically developed countries, developing countries are expected to experience a much greater relative increase in the number of overweight and obese individuals between 2005 and 2030 [7]. Over the past 30 years, being overweight or obese has become one of the world's leading health concerns. A recent report by the Organization for Economic Co-operation and Development (OECD) through Epidemiological Studies notes that overweight and obesity have reached proportions high enough to be classified as a global epidemic.

Conclusion:

The prevalence of obesity among Hafr Albatin is high; obesity has been a growing concern in Saudi Arabia, as it has been in many countries around the world. The prevalence of obesity has increased over the years due to various factors, including changes in lifestyle, dietary habits, and reduced physical activity.

References:

1. SS MA: A review of the prevalence of obesity in Saudi Arabia. J Obes Eat Disord. 2016, 2:1-6.
2. Bouraoui O, Alnahdi S: Modeling and Forecasting Obesity-Related Healthcare Costs using ARIMA Model. In 34th IBIMA Conference International Business Information Management Association, USA; 2019.
3. Allison DB, Zannolli R, Narayan K: The direct health care costs of obesity in the United States. American Journal of Public Health. 1999, 89:1194-1199.
4. Obesity and overweight. (2014). Accessed: http://www.emro.who.int/at/health-topi.
5. Le Gales-Camus C, Waxman A: Fighting obesity: clarification from World Health Organization. BMJ. 2004, 329:53-54.
6. Fruh SM: Obesity: Risk factors, complications, and sustainable long-term weight management strategies. J Am Assoc Nurse Pract. 2017, 29:S3-s14. 10.1002/2327-6924.12510
7. Kelly T, Yang W, Chen C-S, Reynolds K, He J: Global burden of obesity in 2005 and projections to 2030. International journal of obesity. 2008, 32:1431-1437.
8. Rask-Andersen M: Obesity Genetics: Functional Aspects of Four Genetic Loci Associated with Obesity and Body Mass. Acta Universitatis Upsaliensis; 2013.
9. Insel PM, Roth WT, Insel C: Connect core concepts in health. McGraw-Hill, 2012.
10. Althumiri NA, Basyouni MH, AlMousa N, et al.: Obesity in Saudi Arabia in 2020: prevalence, distribution, and its current association with various health conditions. In Healthcare. Volume 9. MDPI; 2021:311.
11. Al-Quwaidhi A, Pearce M, Critchley J, Sobngwi E, O'Flaherty M: Trends and future projections of the prevalence of adult obesity in Saudi Arabia, 1992-2022. Eastern Mediterranean Health Journal. 2014, 20.
12. Ekblom Ö: Physical fitness and overweight in Swedish youths. Karolinska Institutet (Sweden), 2005.