

## Determination the Effect of Overweight Women's Lifestyle on their Weight Gain

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### Abstract

**Objective:** present study aims to determine the effect of overweight women's lifestyle factors on their weight gain.

**Methodology:** A descriptive (cross-sectional) study carried out for the period from September 15<sup>th</sup>, 2016 to May 20<sup>th</sup>, 2017. The study is carried out in Baghdad City at Al-Russafa health sector and related health districts and their primary health care centers. The settings of the study include (6) health districts and (12) primary health care centers selected purposely; (3) districts in rural area, and (3) districts in urban area. A purposive "non-probability" sample of (240) women who are attending primary health care centers are selected for the purpose of the study. A questionnaire consists from (3) parts (sociodemographic characteristics, overweight women's weight status and lifestyle factors). The reliability of study instrument is determined by using The Cronbach's Alpha. Analysis of data conducted through the application of descriptive and inferential data analysis approach.

**Results:** The study results reveal that the majority of the sample is suffering from overweight (63.8%) and only (36.2%) are obese (I, II, and III types). The finding also reported that lifestyle factors such as dietary habits, sleep pattern, physical activity and motivation and mind state are significant effect on overweight woman's weight gain.

**Conclusion:** The study concluded that majority of sample under the study are overweight, and few of them are Obese. Lifestyle factors are significant in contributing to women's weight gain, therefore the study recommended that designing and implementation of weight control programs and physical activity and fitness programs for overweight women.

**Keywords:** Overweight, Women's lifestyle, Weight Gain.

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### I. Introduction

Obesity and overweight consider the most serious public health problems of the 21st century. These two terms refer to weight gain which define as medical condition that responsible to long term many complex problems that leading to impair quality of life<sup>(1)(2)</sup>.

Weight gain occurs as a result of an increase in body fluid, muscle mass, or fat. An increase in body fluid can come from medications, fluid and salt retention, kidney or heart failure, so the abnormal increasing in muscle mass is commonly seen with exercising, and the increasing in body fat is commonly seen as a result of food or lack of exercise<sup>(3)</sup>.

The prevalence of overweight and obesity is increasing in both developed and developing countries and between women more than male, for example, in United States, there is (62%) of women aged between (20-49) years are overweight, and over one-third of women overweight are obese (DHHS, 2009). While in Iraq, (69.6%) of non-pregnant women are suffering from weight gain problems<sup>(4)</sup>. Overweight and obesity are the fifth leading risk for global deaths. Each year (2.8) million adults die as a result of being overweight or obese. The death risks for overweight and obese people are in many instances closer to (0.5-1.75) time above those for people with normal weight<sup>(5)</sup>.

Weight gain has reached epidemic health problem, particularly among women because of they are more predisposed to weight gain and obesity than male. Adipose tissue is developed during puberty, pregnancy, and lactation to accommodate for the physiological bodily changes and the increased energy requirements over the reproductive cycle<sup>(6)(7)</sup>. Weight gain problems have been increasing particularly rapidly in developing countries undergoing rapid economic growth associated with modernization, urbanization, globalization of food markets and a lifestyle with low physical activity and stressful life events<sup>(8)</sup>. The health risks of excessive body fat are associated with a relatively slightly increase in body weight, not only with marked obesity. Many studies have shown that many factors are associated with unhealthy body weight status. Dietary pattern and intake,

physical activity level and others life style pattern and psychological factors most contributing factors that leading women's weight gain. On the other hand, there are additional contributing factors leading to woman's weight gain such as familial and genetic predisposition, psychosocial factors, diseases, and drugs may play a role to leading women's weight gain<sup>(9)(10)</sup>. Despite the importance of weight gain problems and its impact on woman's heath, there are limited studies focused on women obesity and overweight and associated factors in Iraq. So, the present study aims to evaluate the factors that may contributed to overweight and obesity in Iraqi women that, those who are attending the primary health care centers.

## II. Methodology

A descriptive study using an evaluation approach is conducted to find out the effect of lifestyle factorssuch as:dietary habits,sleep pattern, physical activity and motivation and mind state that may contribute to women's weight gain. The study is carried from September 15<sup>th</sup>, 2016 to May 20<sup>th</sup>, 2017 at Al-Russafahealth districts and related primary health care centers in Baghdad City. The non-probability purposive study sample of (240) women who are attending the primary health care centers in (6) Health districts and (2) primary health care centers from each them selected according to the coverage area of population. Data collection process carry out through using a questionnaire and items that made up fromthreeparts; the first part included Sociodemographic data which consist from (6)items, the second part dealing withoverweight women's weight status consist from (4)items and third part the lifestyle factors that contributing in women's weight gain consist from (20)items and (31)questions. The reliability of study instrument is determined by using the Cronbach's Alpha (Acceptable). Analysis of data conducted through the application of descriptive (frequencies, percentage, and mean of score) and inferential data analysis approach (simple linear regression, analysis of variance, and cronbach'salpha).

## III. Results

**Table (1):** Distribution of the Sample According to their Sociodemographic Characteristics

List	Characteristics	Frequency	Percent	
1	<b>Age Groups (Years):</b>	20-29	100	41.7
		30-39	78	32.5
		40-49	62	25.8
		<b>Total</b>	<b>240</b>	<b>100</b>
2	<b>Residence:</b>	Urban	120	50
		Rural	120	50
		<b>Total</b>	<b>240</b>	<b>100</b>
3	<b>Education:</b>	Illiterate	17	7.1
		Primary school	49	20.4
		Intermediate school	53	22.1
		Secondary school	63	26.3
		Diploma, and higher	58	24.2
		<b>Total</b>	<b>240</b>	<b>100</b>
4	<b>Marital Status:</b>	Single	63	26.3
		Married	134	55.8
		Divorced	16	6.7
		Widowed	12	5
		Separated	15	6
		<b>Total</b>	<b>240</b>	<b>100</b>
5	<b>Occupation:</b>	Governmental employ	66	27.5
		Self-employed	24	10
		Retired	5	2.1
		Housewife	145	60.4
		<b>Total</b>	<b>240</b>	<b>100</b>
6	<b>Socioeconomic Status:</b>	Low	46	19.2
		Moderate	179	74.6
		High	15	6.3
		<b>Total</b>	<b>240</b>	<b>100</b>

This table depicts that most of the women are with age group of (20-29) years old (41.7%). Concerning their residency, all women distributed equally in both districts of Baghdad City (50%) of each. Regarding their levels of education, secondary school graduates are accounted for most of these women (26.3%). A little bite more than half of the sample is married (55.8%). Analysis of their occupational status shows that more than half of them are housewives (58.3%). The analysis of the women's socioeconomic status indicates that most of them are linked with moderate level of socioeconomic status (74.6%).

**Table (2):** Overweight Women's Weight Status (BMI)

Weight status	Frequency	Percent	M.S.	SD
Overweight	153	63.8	1.60	0.914
Obesity I	44	18.3		
Obesity II	29	12.1		
Obesity III	14	5.8		
<b>Total</b>	<b>240</b>	<b>100</b>		

*M.S: Mean of score, SD: Standard Deviation*

This table reveals that more than half of the sample reports overweight (63.8%) while only (5.8%) of these women are having obesity type III and the remaining results indicate that have experienced obesity type I (18.3%) and obesity type II (12.1%).

**Table (3):** The Effects of Lifestyle Factors on Overweight Women's Weight Gain (N=240)

Weight Gain Contributing Factors	Un standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
<b>Life Style Factors</b>	0.024	0.006	0.254	4.098	0.001

*Dependent variable: Weight status*

The evaluation of the effects of overweight women's life style factors shows a highly significant effect on women's weight gain at p-value  $\leq 0.001$ .

**Table (4):** Mean of Score on Items of Overweight Women's Lifestyle Factors Related to Dietary Habits

Dietary Habits		Scale	F (%)	M.S	Sig.
1	How many meals do you eat a day?	1-2 meals/day	77 (32.1)	1.88	S
		3-4 meals	114 (47.5)		
		5 Meals/day	49 (20.4)		
2	Do you eat between meals?	I often nibble between meals	71 (29.6)	1.85	S
		I generally eat during the evening	135 (56.3)		
		No, I have a snack	34 (14.2)		
3	Do you eat fast foods? Such as frozen foods, pizza, and potato fingers.	< Once/week	61 (25.4)	1.88	S
		1 or twice /week	146 (60.8)		
		> 3 times/week	33 (13.8)		
4	How many vegetables do you eat?	> 4 times/day	52 (21.7)	1.98	S
		2-3 times/day	141 (58.8)		
		1 time/day	47 (19.6)		
5	How much fruit do you eat?	> 3 fruits/day	57 (23.80)	1.98	S
		2 fruits/day	130 (54.2)		
		1 fruits/day	53(22.1)		
6	Do you eat chicken skin or visible fat on meat?	Never	52 (21.7)	2.05	S
		Sometimes	124 (51.7)		
		Always	64 (26.7)		
7	Do you eat meat or fatty meat? Such as sausages, chicken wings, and ribs.	3 + times/week	73 (30.4)	1.88	S
		1 or twice/week	124 (51.70)		
		> once/week	43 (17.9)		
8	Do you eat unbraided fish?	Rarely	99 (41.30)	1.72	S
		Once a week	109 (45.4)		
		twice / week	32 (13.3)		
9	Do you eat cheese and it products?	Once times a week	95 (39.6)	1.73	S
		2 times a week	115 (47.9)		
		Rarely	30 (12.5)		
10	What kinds of fats do you usually use? as a spread, frying potatoes, sauces.	Vegetable oil	100 (41.7)	1.71	S
		Margarine/butter	109 (45.4)		
		Cream, shortening, regular margarine	31 (12.9)		
11	Do you select whole grain products? Such as whole grain bread, high-fiber breakfast cereals.	2 a week or less	74 (30.8)	1.88	S
		3-4 times a week	120 (50)		
		5 times a week/ +	46(19.2)		
12	How often do you eat baked products? Such as doughnuts, buns, croissants, Danish, Pastries, muffins.	1 a week or less	76 (31.7)	1.87	S
		2 -3 times a week	120 (50)		
		4 times a week / +	44 (18.3)		
13	How often do you eat sweets? Such as candies, chocolate, table sugar, honey, jam.	3 times a week/less	69 (28.8)	1.93	S
		4-5 times a week	120 (50)		
		Every day	51(21.3)		

**Table (4):** (Continued)

Dietary Habits		Scale	F (%)	M.S	Sig.
14	Do you drink sweet drinks? Such as fruit juice or fruit drinks, soft drinks or lemonade.	1 cup/day	69 (28.8)	1.98	S
		2-3 cups/day	107 (44.6)		
		> 3 cups	64 (26.7)		
15	Do you eat soups, broth or sauces, in pouches or canned?	< once/week	70 (29.2)	1.99	S
		once or twice a week	103 (42.9)		
		> 3 times a week	67(27.9)		
16	Do you eat salted foods? Such as crackers, chips, popcorn, pretzels, salted nuts or seeds.	< once/week	46 (19.2)	2.04	S
		once or twice a week	138 (57.5)		
		> 3 times a week	56 (23.3)		
17	Do you add salt to your food?	Rarely	62 (25.8)	1.97	S
		Often	125 (52.1)		
		Usually	53 (22.1)		
18	Do you read the nutrition facts table on food labels?	Never	61 (25.4)	2.03	S
		Often	110 (45.8)		
		Always	69 (28.8)		
19	How much water do you drink?	More than 2 liters	44 (18.3)	2.00	S
		2 liters	153 (63.8)		
		Less than 2 liters	43 (17.9)		
<b>Total</b>				<b>1.91</b>	<b>S</b>

F: Frequency, %: Percentage, M.S: Mean of scores, Sig.: Level of Significance, S: Significant (1.67-2.33)

This table indicates the mean of scores for items of dietary habits as contribution factor to women's weight gain is significant on all items (MS<sub>Total</sub>=1.91).

**Table (5):** Mean of Score on Items of Overweight Women's Lifestyle Contributing Factors Related to Sleep Pattern

Sleep Pattern		F	%	M.S	Sig.
Sleeping Hours/ Day:	≤ 7 hours/day	73	30.4	2.07	S
	8 hours/day	110	45.8		
	9 ≤ hours/ day	57	23.8		
	<b>Total</b>	<b>240</b>	<b>100</b>		
Sleep Disorders:	Never	119	49.6	1.62	NS
	Sometimes	94	39.2		
	Always	27	11.3		
	<b>Total</b>	<b>240</b>	<b>100</b>		
Types of Sleep Disorders	None	101	42.1	1.79	S
	Snoring	89	37.1		
	Sleep apnea	50	20.8		
	<b>Total</b>	<b>240</b>	<b>100</b>		
<b>Total</b>				<b>1.82</b>	<b>S</b>

F: Frequency, %: Percentage, M.S: Mean of scores, Sig.: Level of Significance, NS: Not significant (1-1.66), S: Significant (1.67-2.33)

The sleep pattern factors are showing significant contribution to women's weight gain (M.S. =1.82); evidenced by accepted range of sleeping hours (8 hours/day) that (45.8%) of women do. No significant contribution has been reported with sleep disorders that (49.6%) of women is never experiencing a problem but (37.1%) of them having "snoring" as sleep disorder at night.

**Table (6):** Mean of Score on Items of Overweight Women's Lifestyle Factors Related to Physical Activity

Physical Activities		Scale	F (%)	M.S	Sig.
1	How often do you get around on foot?	Most of the time	61 (25.4)	1.96	S
		> 3 times a week	128 (53.3)		
		1-2 times a week	51 (21.3)		
2	How often do you take the stairs instead of using the elevator?	Never	62 (25.8)	1.96	S
		Sometimes	125 (52.1)		
		Always	53 (22.1)		
3	How many hours/week, on average, do you spend watching TV?	< 7 hours	58 (24.2)	1.97	S
		8-10 hours	131 (54.6)		
		>10 hours	51 (21.3)		
4	How many hours/week, do you spend in housekeeping and related works?	> 10 hours	55 (22.9)	1.99	S
		8-10 hours	132 (55)		
		< 7 hours	53 (22.1)		
5	Do you have someone to assist you with the housework?	Always	52 (21.7)	2.07	S
		Sometimes	119 (49.6)		
		Never	69 (28.8)		

**Table (6):** (Continued)

Physical Activities		Scale	F (%)	M.S	Sig.
6	Do you do exercise?	Always	15 (6.3)	2.68	HS
		Sometimes	48 (20)		
		Never	177 (73.8)		
7	Do you do regular exercise in addition to daily living activities?	Always	13 (5.4)	2.71	HS
		Sometimes	43 (17.9)		
		Never	184 (76.7)		
8	How many times a week do you exercise for at least (30) minutes?	5-7 times a week	18 9 (7.5)	2.71	HS
		4 times a week	33 (13.8)		
		2-3 times a week	189 (78.8)		
9	Are you too tired to exercise?	Never	17 (7.1)	2.73	HS
		Sometimes	31 (12.9)		
		Always	192 (80)		
10	Do you organize your time to include exercise?	Always	11 (4.6)	2.75	HS
		Sometimes	38 (15.8)		
		Never	191 (79.6)		
11	Do you follow the physical activity recommendations to help you lose weight?	Always	15 (6.3)	2.78	HS
		Sometimes	24 (10)		
		Never	201 (83.8)		
12	Do you drink water enough during and/or after exercise session?	Always	10 (4.2)	2.78	HS
		Sometimes	34 (14.2)		
		Never	196 (81.7)		
<b>Total</b>				<b>2.24</b>	<b>S</b>

*F: Frequency, %: Percentage, M.S: Mean of Scores, Sig.: Level of Significance, S: Significant (1.67-2.33), HS: Highly Significant (2.34-3).*

This table depicts that physical activities are showing significant to highly significant items of contributing factor to weight gain.

**Table (7):** Mean of Score on item of Overweight Women's Lifestyle Factors Related to Motivation and State of Mind

Motivation and state of Mind		Scale	F (%)	M.S	Sig.
1	When the time comes to start taking care of myself, I say to myself "I've already tried; I will never be able to do it".	Never	29 (12.1)	2.25	S
		Sometimes	121 (50.40)		
		Always	90 (37.5)		
2	When I overeat, even a little, I tell myself that all is lost and I stop following the rules.	Never	45 (18.8)	2.08	S
		Sometimes	130 (54.2)		
		Always	65 (27.1)		
3	With me, it is all or nothing, either I exercise every day or I do not do it at all for the week.	Never	54 (22.5)	2.06	S
		Sometimes	118 (49.2)		
		Always	68 (28.3)		
4	I am very demanding of myself and I set the bar very high!	Never	49 (20.4)	2.03	S
		Sometimes	135 (56.3)		
		Always	56 (23.3)		
5	I have often tried to start taking care of myself and I say to myself "in the end, it won't work for very long"	Never	49 (20.4)	2.08	S
		Sometimes	124 (51.7)		
		Always	67 (27.9)		
6	I let myself go when I am out to dinner or go to a restaurant.	Never	58 (24.2)	1.98	S
		Sometimes	128 (53.3)		
		Always	54 (22.5)		
7	When I eat chips or cookies, I have to get to finish whole the bag.	Never	64 (26.7)	1.95	S
		Sometimes	125 (52.1)		
		Always	51 (21.30)		
8	When I am frustrated, disappointed, discouraged or angry, I say to myself "To heck with my good habits".	Never	67 (27.9)	1.91	S
		Sometimes	127 (52.9)		
		Always	46 (19.20)		
9	When I feel overwhelmed, stressed or bored, I feel like giving up on everything.	Never	55 (22.9)	1.94	S
		Sometimes	144 (60)		
		Always	41 (17.1)		
10	I reward myself by eating junk food	Never	60 (25)	1.92	S
		Sometimes	139 (57.9)		
		Always	41 (17.10)		
11	I know I am going to have to change my lifestyle, but I find 1001 reasons every day not to do it.	Never	46 (19.2)	2.01	S
		Sometimes	146 (60.8)		
		Always	48 (20)		

**Table (7): (Continued)**

Motivation and state of Mind		Scale	F (%)	M.S	Sig.
12	I say to myself "I don't want to exercise."	Never	52 (21.7)	1.97	S
		Sometimes	144 (60)		
		Always	44 (18.30)		
13	I feel depressed.	Never	63 (26.3)	1.87	S
		Sometimes	145 (60.4)		
		Always	32 (13.3)		
14	I feel anxious.	Never	58 (24.2)	1.83	S
		Sometimes	164 (68.3)		
		Always	18 (7.5)		
15	I feel angry in all kinds of situations.	Never	69 (28.8)	1.79	S
		Sometimes	152 (63.3)		
		Always	19 (7.9)		
16	I feel alone.	Never	63 (26.3)	1.83	S
		Sometimes	154 (64.2)		
		Always	23 (9.6)		
17	I say to myself "I don't know if I am going to be able change enough to improve my health in the long run".	Never	64 (26.7)	1.83	S
		Sometimes	152 (63.3)		
		Always	24 (10)		
<b>Total</b>				<b>1.96</b>	<b>S</b>

*F: Frequency, %: Percentage, M.S: Mean of Scores, Sig.: Level of Significance, S: Significant (1.67-2.33)*

This table depicts that there is significant contribution of women's motivation and state of mind factors to their weight gain (M.S. =1.96).

#### IV. Discussion

Regarding to the results and outcomes of the present study, data analysis indicates that most of overweight women are at age group of (20-29) years old as they are accounted for (41.7%) and (32%) among age group of (30-39) years old. This finding may be interpreted in a way that (20-29) years is considered the most common age of marriage and childbearing in the Iraqi society. These women are usually attending primary health care centers for the purpose of immunizations for their children, postnatal visits and other health care services. This finding consisted with study conducted in Baghdad City among a sample of overweight women at childbearing age shows that (66.2%) of women, who are attending primary health care centers, are within age group of (20-29) years old<sup>(11)</sup>. women's residency variable show the study sample is equally distributed (50%) in both rural and urban areas of Al-Russafa Heath Sector. Implementation of such selection is for the purpose of comparison between urban and rural settings as a contributing factor to women's weight gain. Also, data analysis reports that the secondary school has the higher frequency among the sample which is accounted for (26.3%) followed by a diploma and higher education (24.2%), Intermediate school (22.1%) and Primary school (20.4%). The overweight women's marital status show that more than half of them are married (55.8%). Such result reveals that most of women, who are attending primary health care centers, are mothers with children and visited to these health care facilities to seek free health care services. The occupational status of the sample shows that most of them are housewives (58.3%). This presents evidence that the majority of the primary health care centers' consumers are housewives. This is consistent with Abed's study (2016)<sup>(11)</sup>, which reveals that housewives are more than (58%) of the overweight women who are attending primary health care centers in Baghdad City. Finally, the overweight women's socioeconomic status results indicate that three-quarters of the sample live with moderate level (74.6%). This finding presents a fact that most of the community residents are within this socioeconomic status and it is not consistent with Al-Ebady's study (2014)<sup>(12)</sup> which is conducted in Missan City among adult people attending to outpatient clinics. The study reports that (50%) of overweight and obese women are with moderate socioeconomic status (Table 1).

Table (2) reported that most of the women under the study are overweight (63.8%), obesity type I are (18.3%), obesity type II are (12.1%) and (5.8%) are obesity type III which reveal that more than half of the sample is married, and marriage with pregnancy can impose effect on their weight gain. This is similar to the findings of Ayatollahi and Ghorehshizadeh's study (2010)<sup>(13)</sup>, which reveals that (63.9%) of the women, are overweight and (22.5%) are experiencing obesity (Table 2).

Concerning the evaluation of the effect of contributing factors on woman's weight gain shows that a high statistical significant effect of lifestyle factors at p-value ( $\leq 0.001$ ). This finding indicates that these factors have critical effect on women's body weight gain and consequently can create weight gain related problems (Table 3). Regarding to dietary habits as a contributing factor to overweight among the sample reveals that all the items are statistically significant (M.S<sub>total</sub>=1.91) especially the questions of eating between meals (snack), eating chicken skin, eating salted food, such as chips, seed and crackers, not reading the nutrition facts table on food labels and not drinking the recommended amount of water. This result provides an image for women's unhealthy dietary pattern, and most Iraqi women believe that overweight body is a sign of beauty, and

healthy body is gained by eating more quantity of food rather than quality. Scientific evidence related to the effect of lifestyle factor of dietary habits on women's weight gain has been documented that food contains high carbohydrate and saturated fat effects on body weight by controlling satiety, metabolic efficiency or by modulating insulin secretion which leading to adipose tissue formation<sup>(14)</sup> (Table 4). Women's Lifestyle contributing factors related to sleep pattern show that (45.8%) of the overweight women are with acceptable range of sleep hours (8 hour/ day) and more than (30%) of women sleep less than (7) hours per day with statistical significant (M.S. = 1.82), and have snoring problem (37.1%) and sleep apnea (20.8%) (M.S. =1.79). There is scientific evidence supported this finding which report that when individual spend short-term or too long period of sleep trials, there will be reduction in releasing of leptin, ghrelin, and have subjective hunger, and therefore they have preferences for calorie-dense, refined carbohydrate foods that lead to weight gain problems<sup>(15)</sup>(Table 5).

According to women's physical activity contributing factors report a significant effect on women's weight gain (M.S<sub>total</sub>=2.24), specially the questions of exercising or not, not follow the physical activity recommendations to lose weight. Such findings indicate that women under the study are physically inactive and less engaged in exercise session. This finding supportive with a global prevalence study, which is conducted in (22) Countries, reports that lack of physical activity is associated with overweight/obesity especially in women<sup>(16)</sup> (Table 6).

Analysis of women's motivation and state of mind reveals that all the items are significant, especially the items of unable to take care of their self, stop following the rules to lose weight and unable to change their lifestyle (M.S<sub>total</sub>= 1.96). Rosengren and others (2015), mention in their study, which deals with the effect of the state of mind among women sample with (BMI ≥ 30). The study reports that overweight women with no stress are (15.7%) and (20.5%) with permanent stress and depressed women have higher prevalence of weight gain<sup>(17)</sup> (Table 7).

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