



Original Research Article

Obesity and Overweight in a Sample of Women at Child Bearing Age in Baghdad City

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Abstract:

Obesity is a chronic disease defined by the World Health Organization (WHO) as a condition of abnormal or excessive fat accumulation, to the extent that health may be impaired . This excess fat mass is thought to lead to increased risk of ill such as metabolic and cardiovascular disease, , decreased physical function, and some cancers . The aims of this study are To determine rate of overweight among sample of women at the childbearing age, and To find the relationship between the body mass index and some variables.

A cross-sectional study conducted in Al- washash & Bab-almoadham primary health centers, sampling was (convenient) & the sample size was 506. Data was collected by questionnaire to obtain socio- demographic information & weight and height of each women was measured by the researcher.

About 66.2% of the studied sample of women was in the age (20-29) years. And the 58.5% were housewife , about 54% of women in the sample were overweight while obesity rate was 1.4% only. About 63.3% of the sample with normal weight were mainly non contraceptive users. Analysis of results by chi-square test show that (types of contraceptive, family history of obesity, socio economic status, parity, birth space interval, types of food) was significant factors associated with body mass index.

Key words: Body mass index, Factors, Women.

السمنة وزيادة الوزن لعينة من النساء في سن الإنجاب في مدينة بغداد

الخلاصة

السمنة هو مرض مزمن عرف من قبل منظمة الصحة العالمية بأنه حالة غير طبيعية او زيادة في تراكم الدهون مما يؤدي الى تدهور حاله الصحية. ويعتقد ان هذه الكتلة الدهنية الزائدة تؤدي الى زيادة مخاطر التعرض لأمراض مثل التمثيل الغذائي وأمراض القلب والشرابيين وانخفاض النشاط البدني وبعض السرطانات.

الهدف من الدراسة هو تحديد معدل زيادة الوزن لعينة من النساء في سن الإنجاب وإيجاد اي ارتباط بين مؤشر كتلة الجسم , وبعض المتغيرات. دراسة مقطعية أجريت في المركز الصحي في الوشاش والمركز الصحي في باب المعظم للعينة غرضية وحجم العينة كان ٥٠٦. حيث جمعت المعلومات باستخدام استبانة للحصول على المعلومات الاجتماعية والديموغرافية,الوزن والطول لكل النساء حيث تم قياسها بواسطة الباحثين. حوالي ٦٦.٢% من عينة النساء كانت في عمر (٢٠-٢٩) سنة , وحوالي ٥٨.٥% من العينة كن ربات بيوت , وحوالي ٥٤% من العينة يعانون من زيادة الوزن بينما السمنة كانت حوالي ١.٤% فقط, وحوالي ٦٣.٣% من النساء اللواتي يتمتعن بوزن طبيعي لا يستعملن موانع الحمل. بعد تحليل النتائج بطريقة (مربع كاي) تبين وجود فرق معنوي واضح بين مؤشر كتلة الجسم و(انواع موانع الحمل , التاريخ العائلي للاصابة بالسمنة, الحالة الاقتصادية, عدد الولادات, فترة البعد بين طفل وآخر , نوع الطعام).

الكلمات المفتاحية : معامل كتلة الجسم، العوامل، الامهات.

Introduction

Once thought to be a condition of only wealthy countries, overweight [body mass index (BMI) ≥ 25 kg/m²] is now reaching epidemic levels in high, middle and low income countries. In the United States, 62% of women aged 20–74 years are overweight [1]. In some low- and middle income countries, rates of overweight in women are similar too or even higher than rates in the US. In Turkey, for example, the prevalence of overweight in mothers of reproductive age (15–49 years), was 52% in 1998, [2] and in Egypt it was 71% in 2000. Reproduction is thought to play a role in overweight in developed countries, but scientific interest in the role of reproduction in developing countries has focused mainly on underweight and under nutrition [3,4]. The associations of BMI and co morbidities are probably not stable within populations over time. In the same way that there are environmentally determined differences in these associations across different population groups, these associations also vary within populations according to environmental changes and nutritional transitions [5]. Variation in socioeconomic status (as assessed by education) is associated with obesity and differences in obesity are seen in the same population group by place of origin and migration status [5]. A European perspective on the relations between BMI, body composition, and risk factors noted that whenever populations are divided into subgroups, heterogeneity of risk will be found [6]. A number of studies have examined socio demographic and psychosocial characteristics in relation to prenatal weight gain. However, interrelationships among such risk factors as

Statistical Analysis

Data was analyzed by SPSS package version 18, X² test was used for significance of association p value of <0.05 was considered significant.

age, parity, income, maternal education, race, and ethnic background complicate interpretations of findings [7,8].

Material and Methods

Samples:

Al- Washash & Bab-Almoadham primary health centers were chosen for this study and the design of the study was cross - sectional. The sample was selected by (non probability convenient sample) and sample size was (506). The study started from 1st March till 30 of September 2013. the data was collected by direct interview using special questionnaire to obtained socio-demographic information (age, education, family history of obesity, parity, and birth space interval).

Setting:

The tools used for measuring BMI were height and weight scale.

BMI was measured by the following equation: [9]

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m}^2\text{)}}$$

BMI categories are defined by The Centers for Disease Control and Prevention and The World Health Organization as:

- Under weight < 18.5 kg/m²
- Normal 18.5–24.9 kg/m²
- Overweight 25–29.9 kg/m²
- Obese 30–39.9 kg/m² or Class I obesity 30–34.9 kg/m² and Class II obesity 35–39.9 kg/m²
- Very obese ≥ 40 kg/m² [10]

Results

Table 1: Distribution of sample according to demographic data

Age(years)	Frequency	Percentage
<20	24	4.7
20-29	335	66.2
30-39	128	25.3
40-49	19	3.8
Total	506	100%

Education	Frequency	Percentage
Illiterate	19	3.8
Read and write	8	1.6
Primary school	68	13.4
Intermediate school	92	18.2
Secondary school	125	24.7
College	194	38.3
Total	506	100%

Occupation	Frequency	Percentage
House wife	296	58.5
Working	210	41.5
Total	506	100%

Table (1) shows that of the (506) married women at the bearing age there were (66.2%) in age group (20-29) years. As for

education (38.3%) had college education while (24.7%) were secondary school & The housewife were (58.5%).

Table 2: Distribution of sample according to body mass index

BMI	Frequency	percent
Normal	226	44.6
Overweight	273	54.0
Obese	7	1.4
Total	506	100

Table 2 shows that (54%) of women in the sample were overweight while rate of obesity was 1.4% only.

Table 3: Relationship of BMI with contraceptive

BMI	Contraceptive use		Total	p. value
	YES	NO		
Normal	83 36.7%	143 63.3%	266 100%	$\chi^2=24.328$ $p \leq .0001$ HS
Overweight	150 54.9%	123 45.1%	273 100%	
Obese	7 100%	-	7 100%	
Total	240 47.4%	266 52.6%	506 100%	

%= percent , χ^2 = chi-squared test, P= probability level, H.S= highly significant

Table (3) shows that women with normal weight were mainly non contraceptive users (63.3%) while of the 7 women who

were obese 100% of them were contraceptive users. Results are highly significant as p-value was <0.05.

Table 4 : Relationship of BMI with types of contraceptive

BMI	Type of contraceptive					Total	p. value
	No use	oral	IUD	Injection	condom		
Normal	143 63.3%	40 17.7%	22 9.7%	12 5.3%	9 4.0%	226 100%	X ² =33.465 p≤ .000 HS
Overweight	123 45.1%	66 24.2%	63 23.1%	11 4.0%	10 3.6%	273 100%	
Obese	-	3 42.9%	3 42.9%	-	1 14.2%	7 100%	
Total	266 52.6%	109 21.5%	88 17.4%	23 4.5%	20 4.0%	506 100%	

%= percent , χ^2 = chi-squared test, P= probability level, H.S= highly significant

Table (4) shows that women with use oral contraceptive had higher rate of overweight (24.2%),Results are highly significant as p-value was <0.05.

Table 5 : Relationship between BMI and family history of obesity

BMI	family history of obesity		Total	p.value
	YES	NO		
Normal	72 31.9	154 68.1%	226 100%	X ² =11.920 p≤ .003 HS
Overweight	127 46.5%	146 53.5%	273 100%	
Obese	4 57.1%	3 42.9%	7 100%	
Total	203 40.1%	303 59.9%	506 100%	

%= percent , χ^2 = chi-squared test, P= probability level, H.S= highly significant

Table (5) shows that women with family history of obesity had higher rate of obesity (57.1%). Result is highly significant as p-value was <0.05.

Table 6: Relationship between BMI and socio economic status

BMI	Socio economic status			Total	p. value
	high	moderate	Poor		
Normal	52 23%	139 61.5%	35 15.5%	226 100%	X ² =17.853 p≤ .001 HS
Overweight	109 39.9%	126 46.2%	38 13.9%	273 100%	
Obesity	1 14.3%	5 71.4%	1 14.3%	7 100%	
Total	162 32%	270 53.4%	74 14.6%	506 100%	

%= percent , χ^2 = chi-squared test, P= probability level, H.S= highly significant

Table (6) shows that women with moderate Socio economic status had higher rate of overweight (46.2%) &

obesity (71.4%). Result is highly significant as p-value was <0.05.

Table 7 : Relationship of BMI with parity

BMI	Parity			Total	p. value
	1-2	3-4	5 & more		
Normal	194 85.8%	30 13.35	2 9%	226 100%	X ² =29.621 p≤ .000 HS
Overweight	183 67%	78 28.6%	12 4.4%	273 100%	
Obese	3 42.9%	3 42.9%	1 14.3%	7 100%	
Total	380 75.1%	111 21.9%	15 3%	506 100%	

%= percent , χ^2 = chi-squared test, P= probability level, H.S= highly significant

Table (7) shows the relationship between BMI and parity of the studies sample. It presents that there was a highly significant relationship between the two factors at

(p<.001) through using the chi-square test. The rate of overweight is highest among those with 1-2 parity size (67%).

Table 8 : Relationship of BMI with birth space interval

BMI	Birth space interval				Total	p. value
	Under 2 Months	2-6 mo.	7-12 mo.	13-18 mo.		
Normal	148 65.5%	10 4.4%	43 19%	25 11.1%	226 100%	X ² =27.126 p≤ .000 HS
Overweight	130 47.6%	14 5.1%	63 23.1%	66 24.2%	273 100%	
Obesity	3 42.9%	-	-	4 57.1%	7 100%	
Total	281 55.5%	24 4.7%	106 20.9%	95 18.8%	506 100%	

%= percent , χ^2 = chi-squared test, P= probability level, H.S= highly significant

Table (8) shows that women with birth space interval (less than 2 months) had higher rate of overweight (47.6%) &

obesity (42.9%). Result is highly significant as p-value was <0.05.

Table 9: Relationship of BMI with type of food

BMI	Type of food		Total	p.value
	Carbohydrate	Protein		
Normal	111 49.1%	115 50.9%	226 100%	X ² =10.960 p≤ .004 HS
Overweight	162 59.3%	111 40.7%	273 100%	
Obesity	7 100%	-	7 100%	
Total	280 55.3%	226 44.7%	506 100%	

%= percent , χ^2 = chi-squared test, P= probability level, H.S= highly significant

Table (9) shows that obese women had higher rate of carbohydrate dependent food (100%) & (59.3%) overweight.

Result is highly significant as p-value was <0.05.

Table 10 : One way ANOVA test of risk factors of body mass index

Variable	F	P -value
Contraception	12.702	0.000
Type of contraceptive	7.060	0.001
Milk in the breast	0.318	0.728
Type of food	0.063	0.939
Family history of obesity	6.068	0.002
Socio economic status	5.163	0.006
Birth space interval	10.952	0.000

F= Frequency, P= probability level

Table (10) shows that Contraception & Birth space interval were the more effective factors as both had a highly

significant relationship between obesity and overweight p-value was (0.0000).

Discussion

Women who are overweight or obese are significantly more likely to suffer from high blood pressure, diabetes, and heart disease [11].

In this study, the percentage of obesity 1.4% only but overweight was in a rate of 54% which herald a danger of incoming obesity in the future. This finding agreement with that of study conducted in Ethiopia [12]., they found the prevalence of overweight was 12.9%, and the prevalence of obesity was 2.7% based on age and this is similar to study conducted in Iraq [13]. Overweight was higher among women who are users of contraceptive, these results are similar to study conducted in Singapore, who found that women with a BMI ≥ 30 Kg/m², were mostly contraception users this may be because there is a tight connection between the estrogen concentration found in oral contraceptives and the number of Kilograms gained which is evident by

finding of a higher rate of overweight among women on oral contraceptive [14], also the ratio of estrogen to progestin in a pill formulation may affect appetite [15]. Obesity was higher among women who had family history of obesity, the same result were seen in Iraq [13] and in Iran [16], this is may be explained by genetic predisposition [17]. Obesity was higher among women who had moderate socio-economic status, the same result was seen in Ethiopia [12] this relationship is possibly due to Socioeconomic inequalities in health have been attributed to a number of different mechanisms, including unhealthy behaviors, inadequate access to health care, nutritional inadequacies and other inequalities in material circumstances, and psychological stress [18]. Or maybe because that as the Iraq continues to develop economically, the public health impact of obesity will increase similarly to what has been observed in countries further

along in their economic transition. Overweight was highly among women who had 1-2 child the same result was seen in Nigeria [19], recent studies in Mexico countries in North Africa, West Asia and China have found a weak to moderate positive association between parity and overweight [20-23] the possible reasons summarized: as lack of good information of family planning, bad knowledge about importance low number of children for their health. Overweight was higher among women who had birth space interval less than 2 months, these results are similar to study conducted in Nigeria [19]., and another study which conducted in USA [24], This might be explained by incomplete return of the maternal physiology and nutritional reserves to normal levels encountered among rapid conceivers. A highly significant association is noticed between overweight and food especially rich with carbohydrate these results are similar to study conducted in London [25], this is expected because of high calorie content of carbohydrate causing overweight.

Conclusion

Overweight is highly among women who are users of contraceptives, A highly significant association is noticed between body mass index and family history of obesity, socio-economic status, parity, and type of food. A positive association between birth space interval and overweight was noted.

References

- 1- CDC. Table 69, Health, United States, 2004 With Chartbook on Trends in the Health of Americans. 2004. Hyattsville, Maryland: National Center for Health Statistics, 2004.
- 2- Nutrition for Improved Development Outcomes. 5th Report on the World Nutrition Situation, March. Geneva: United Nations: Standing Committee on Nutrition, 2004.
- 3- Linne' Y, Dye L, Barkeling B, Ro'ssner S. Weight development over time in parous women-The SPAWN Study-15 years follow-up. *Int J Obes* 2003;27:1516–22.
- 4- Bastian LA, West NA, Corcoran C, Munger RG. Number of children and the risk of obesity in older women. *Prev Med* 2005;40:99–104.
- 5- Luke A, Cooper RS, Prewitt TE, Adeyemo AA, Forrester TE. Nutritional consequences of the African diaspora. *Ann Rev Nutr* 2001; 21: 47–71.
- 6- Lahmann PH, Lissner L, Gullberg B, Berglund G. Differences in body fat and central adiposity between Swedes and European immigrants: the Malmo Diet and Cancer Study. *Obesity Res* 2000; 8: 620–31.
- 7- Casanueva E, Legarreta D, Diaz-Barriga M, Soberanis Y, Cardenas T, Iturriaga A, Lartigue T, Vives J. Weight gain during pregnancy in adolescents: Evaluation of a nonnutritional intervention. *Revista de Investigacion Clinica* 1994; 46:157–161.
- 8- Stevens-Simon C, Nakashima II, Andrews D. 1993. Weight gain attitudes among pregnant adolescents. *Journal of Adolescent Health* 14:369–372.
- 9- World Health Organization. BMI categories. <http://www.euro.who.int/nutrition>. Accessed and downloaded October 7, 2008. [Evidencegrade: III].
- 10- The Centers for Disease Control and Prevention. BMI categories. <http://www.cdc.gov/nccdphp/dnpa/healthyweight>. Accessed and downloaded October 7, 2008. [Evidence grade: III]
- 11- Torrance GM, Hooper MD, Reeder BA. Trends in overweight and obesity among adults in Canada (1970–1992): evidence from national surveys using measured height and weight. *Int J Obes Relat Metab Disord* 2002;26:797–804.
- 12- Tesfalem Teshome, Pragya Singh and Debebe Moges. Prevalence and associated

factors of overweight and obesity among high school adolescents in urban communities of Hawassa, Southern Ethiopia, *Nutritional and food science*, 2013, vol.1(1),23-36.

13- N.G.AI-Tawil, M.M.Ab dulla and A.J.Abdul Ameer. Prevalence of and factors associated with overweight and obesity among a group of Iraqi women, *East Mediterranean Health J.*, 2007, 13 (2): 420-429.

14- Jeanette R. Chin, Geeta K. Swamy, Truls Østbye, and Lori A. Bastian. Contraceptive use by obese women one year postpartum. Published in final edited form as: *Contraception*. 2009 November; 80(5): 463–468.

doi:10.1016/j.contraception.2009.03.017

15- Darney. OC practice guidelines: minimizing side effects. *Int J Fertil Womens Med*. 1997;(suppl 1): 158–69.

16- Hajian-Tilaki KO, Heidari B. Prevalence of obesity, central obesity and the associated factors in urban population aged 20-70 years, in the north of Iran: a population-based study and regression approach. *Obes Rev*. 2007 Jan;8(1):3-10.

17- Cihangir Erem, Cengiz Arslan, Arif Hacıhasanoglu, Orhan Deger, Murat Topba, Kubilay Ukinc, et al. Prevalence of Obesity and Associated Risk Factors in a Turkish Population (Trabzon City, Turkey). *Obesity Research*, 12; 2004: 1117–1127.

18- Simmons D, Voyle J, Swinburn B, O'Dea K. Community-based approaches for the primary prevention of non-insulin-

dependent diabetes mellitus. *Diabet Med* 1997;14:519–26.

19- S.A. Adebawale¹, O.T. Adepoju² and F.A. Fagbamigbe. Child Spacing and Parity Progression: Implication for Maternal Nutritional Status among Women in Ekiti Communities, Southwestern Nigeria. *Pak. J. Nutr.* 2011; 10 (5): 485-491.

20- 15 Arroyo P, Avila-Rosas H, Ferna'ndez V, Casanueva E, Galva'n D. Parity and the prevalence of overweight. *Int J Gynaecol Obstet* 1995;48:269–72.

21- Coitinho DC, Sichieri R, D'Aquino Benicio MH. Obesity and weight change related to parity and breast-feeding among parous women in Brazil. *Public Health Nutr* 2001;4:865–70.

22- Loaiza E. Maternal nutritional status. *Demographic and Health Surveys Comparative Studies*, No. 24. December. Calverton, Maryland: ORC Macro, Inc., 1997.

23- Wen W, Gao YT, Shu XO, et al. Sociodemographic, behavioral, and reproductive factors associated with weight gain in Chinese women. *Int J Obes* 2003;27:933.

24- Kathryn G. Dewey and Roberta J. Cohen. Birth spacing literature: maternal and child nutrition outcomes. Program in International Nutrition, University of California, Davis; September 2004: 3-4.

25- EA Spencer¹, PN Appleby¹, GK Davey¹ and TJ Key. Diet and body mass index in 38 000 EPIC-Oxford meat eaters, fish-eaters, vegetarians and vegans. *Int J Obesity* (2003) 27, 728–734.