

Assessment Of Body Mass Index In Younger And Older Pregnant Women And Its' Effect On Their Health Status: Comparative Study.

تقييم القياسات الجسمية للنساء الحوامل اليافعات والمتقدمات في السن وأثرها على حالتها الصحية:

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الخلفية: العديد من الدراسات أكدت وجود علاقة واضحة بين زيادة الوزن في الحمل ومخاطر الولادة ونتائج الحمل. السمنة في الحمل ترافقها مخاطر كبيرة مثل زيادة معدل الولادات القيصرية وزيادة وزن المولود والمشيمة وإيضاً بقاء الأم مدة طويلة في المستشفى بعد الولادة.

أهداف البحث: ١. تقييم القياسات الجسمية للحوامل اليافعات ٢. تقييم القياسات الجسمية للحوامل المتقدمات في السن.

٣. مقارنة القياسات الجسمية لهن قبل الحمل وبعد الحمل.

المنهجية: دراسة وصفية أجريت في مركز الرعاية الصحية الأولية في باب المعظم للفترة من الخامس عشر من آذار إلى العاشر من أيار ٢٠١٣.

اختيرت عينة غير احتمالية (غرضية) شملت مئة امرأة حامل وكانت خمسون امرأة منهن من الحوامل اليافعات والخمسون الأخريات من الحوامل المتقدمات في السن.

جمعت المعلومات من خلال استخدام استبانة مصممة ومكونة من جزئين، الجزء الأول يتكون من ثلاث فقرات شملت البيانات الديموغرافية، الجزء الثاني يتكون من فقرتين تخص القياسات الجسمية قبل وبعد الحمل.

استخدمت إجراءات التحليل الإحصائي الوصفي (التكرارات، النسبة المئوية، مربع كاي، واختبار تي للمقارنة).

: كشفت النتائج بأن القياسات الجسمية للحوامل المتقدمات في السن واليافعات قد زادت أوزانهن بتأثير الحمل لكن الحوامل المتقدمات في السن تأثرن بالوزن الطارئ خلال الحمل أكثر من الحوامل اليافعات وتعود هذه الزيادة في أوزان الحوامل المتقدمات في السن إلى أن القياسات الجسمية للنساء تتأثر بأعمارهن أي أنه كلما زاد عمر المرأة زادت قياساتها الجسمية.

تتأثر القياسات الجسمية للمرأة ويزداد وزنها في الحمل كلما تقدمت في السن.

التوصيات : أوصت الدراسة بضرورة متابعة النساء الحوامل لأوزانهن وعدم تخطي الحد الطبيعي لكي لا يكون الوزن هو سبب رئيسي لمضاعفات الحمل وما بعد الحمل

مفتاحية: القياسات الجسمية، الحوامل اليافعات، الحوامل المتقدمات في السن.

Abstract

Background: A number of studies have reported a clear association between maternal overweight and adverse obstetric and perinatal outcomes. Pregnancy obesity associated with greater risk of pregnancy complications, caesarean delivery and greater birth and placenta weight. longer stay in hospital after delivery..

Objective: 1. To assess (BMI) of younger pregnant women. 2. To assess (BMI) of older pregnant women. To compare (BMI) between younger and older pregnant women. ٣.

Methodology: Non-probability (purposive sample) of (100) pregnant women (50%) of them younger and (50%) was older pregnant women, who visit Bab AL-Moadam primary health center. This study started from 15th of March 2013 to 20th of May 2013..

The data are collected through the use of constructed questionnaire, which consists of two parts. part 1: consists of (3) items about demographic characteristics, part 2: consists of (2) items about Body Mass Index of younger and older pregnant women before and after pregnancy. Descriptive statistical analysis procedures (frequency, percentage, Chi square test, T-paired test).

Results: Revealed that the Body Mass Index of older pregnant women and younger pregnant women increase related to pregnancy but the older pregnant women were more affected by increase maternal weight more than younger pregnant women and the interpretation of these results related to the relationship between women age and their weight.

Conclusions: Body Mass Index of the women increase and this increase related to pregnancy and the age of women.

Recommendations: the study recommended that all the pregnant women should be maintenance their weight and become within normal range to avoid the complication during and before pregnancy.

Keywords: Body Mass Index, Younger, Older and Pregnant women.

INTRODUCTION:

The rising rate of obesity is a major public health concern in the West, where 28% of pregnant women are overweight and 11% are obese ⁽¹⁾. In the UK, 56% of all women are over the recommended BMI, with 33% of them classified as overweight (BMI > 25) and 23% obese (BMI > 30). Although the exact incidence of obesity in pregnant women in the UK is unknown, the Confidential Enquiry into Maternal and Child Health 2004 reported that 35% of all maternal deaths occurring in the triennium 2000–2002 were in obese women with Body Mass Index > 30 Kg/m². Data from North America have been supported by results from Danish ^(2,3). In the UK, Sebire studied the effects of maternal obesity on pregnancy outcomes in a London cohort of 287,213 women. Since then, similar reports have been published from Wesland Scotland ⁽⁴⁾. ⁽⁵⁾ increased incidences of preterm delivery, low birth weight and increased perinatal loss in these women, others have reported a protective effect of maternal underweight on certain pregnancy complications and interventions. Pregnancy obesity associated with greater risk of pregnancy complications, caesarean delivery and greater birth and placenta weight. Longer stay in hospital after delivery, independent of pregnancy BMI, pregnancy complications and caesarean delivery. In addition to pregnancy obesity, it is another indicator of adverse pregnancy outcomes. In addition to established risks associated with pregnancy overweight or obesity, there has been increased interest in the potential adverse ⁽⁶⁾. Consequences of excess weight gain in pregnancy, irrespective of the woman's size at the start of pregnancy ^(7,8). Given that, more than one-third of mothers gain excess weight during pregnancy. Two key issues from a health policy perspective are the first to determine whether there is a link between excessive weight gain and adverse pregnancy outcomes including hypertensive disorder of pregnancy, gestational diabetes, caesarean delivery, premature birth, birth weight and placenta weight and whether this excessive weight gain increased health care utilization. A recent study based on the Danish National Birth cohort (a very large sample of nearly 61,000 mothers and their infants) found that independent of pregnancy BMI, excess weight gain in pregnancy was associated with increased risk of large for gestational age infants, caesarean section delivery, low apgar score and postnatal weight retention in the mother. These adverse perinatal outcomes might be expected to result in excess health care utilization associated with gestational weight gain. However, no previous study has examined whether excess weight gain in pregnancy is associated with increased length of postnatal hospital stay. Given the independent association of weight gain in pregnancy with adverse perinatal outcomes reported in the Danish National Birth cohort ⁽⁹⁾.

More than one in five pregnant women are obese in the UK ⁽¹⁰⁾. Pre gravid obesity has significant implications for maternal and fetal health. Maternal risks include increased risk of developing major complications such as gestational diabetes mellitus, pregnancy-induced hypertension, pre-eclampsia during pregnancy and having a complicated delivery including caesarean section. For the offspring, the short- and long-term risks include an increased risk of congenital anomaly and stillbirth, neonatal morbidity and mortality and early onset childhood obesity ^(11,12). Most studies reporting complications in pregnancy associated with maternal obesity have focused on major morbidity and have not commented on minor complications. Although symptoms such as heartburn are common and are generally perceived as being benign, they can be associated with significant morbidity, increased healthcare usage, and therefore increased costs ⁽¹³⁾. The objectives of this study were therefore to investigate the effect of body mass index (BMI) on the risk of developing minor complications during pregnancy

METHODOLOGY:

A comparative study was carried out throughout the present study by compared between (BMI) of two group of pregnant women the first were younger pregnant and the second were older pregnant women. Underweight: less than or equal to a BMI of 19.9 Kg/m² Normal: BMI of 20 – 24.9 Kg/m², Overweight: BMI of 25 – 29.9 Kg/m² ,Obese: BMI of 30 – 34.9 Kg/m², Morbidly obese: BMI greater than 35 Kg/m², The group with BMI in the normal range (20 – 24.9 Kg/m²) was used as the reference or comparison group for the analysis. This study started from 15th of February 2013 to 15th of April 2013. Prior to collection of the data, formal administrative approval was obtained to conduct the study from: Bab AL-Moadam Primary Health Care Center to collect the data through the application of questionnaire to the study group. The study was conducted at Primary Health Care center of Bab AL-Moadam in Baghdad city.

Non-probability (purposive sample), the study sample consists of (100) pregnant women who were selected from Bab AL-Moadam Primary Health Care center. The criteria of this sample was (50) younger pregnant women and (50) older pregnant women (35 years old and above) in reproductive age, with different educational levels, who were visit primary health center for pregnancy follow-up. A questionnaire was constructed through the review of related of literatures, previous studies, The questionnaire was used as a means of data collection. It comprised of :

1- Demographic information's

This part presents the demographic data sheet, which was comprised of different items that include general information about pregnant women such as: (Age, educational level, occupation).

2- BMI information's include: This part consists of (3) items (trimester of pregnancy, BMI before pregnancy, BMI after pregnancy) (Frequency, Percentages, Chi square Test, T-Paired sample Test, Bar Chart.

RESULTS:**Table (1) : Distribution of older and younger pregnant Women Demographic Characteristics**

Group variables		Frequency	Percentage
Age of younger pregnant women	14	6	12.0 %
	15	11	22.0 %
	16	8	16.0%
	17	5	10.0%
	18	8	16.0%
	19	12	24.0%
Age of older pregnant women	35	10	20.0%
	36	10	20.0%
	37	16	32.0%
	38	3	6.0 %
	39	4	8.0 %
	40	7	14.0%
Education of younger pregnant women	Illiterate	0	0
	Read &write	3	6.0%
	Primary school graduate	33	66.0%
	Secondary school graduate	5	10.0%
	Institute	8	16.0%
	College	1	2.0%
	Higher education	0	0
Education of older pregnant women	Illiterate	0	0
	Read &write	0	0
	Primary school graduate	25	50.0%
	Secondary school graduate	15	30.0%
	Institute	10	20.0%
	College	0	0
	Higher education	0	0
Occupation of younger pregnant women	Employer	46	52.0%
	Non-employer	4	8.0%
Occupation of older pregnant women	Employer	34	68.0 %
	Non-employer	16	32.0 %

Table (1), demonstrates that the highest percentage of the study sample (24.0%) were in age group of (19) years in younger pregnant women while the highest percentage of the study sample (32.0%) were in age group of (37) years in older pregnant women, (66.0%) of the younger pregnant women were primary school graduated while (50.0%) of the older pregnant women was also primary school graduated,(52.0%) of the younger pregnant women were employer and (68.0%) of the older pregnant women were employer.

Table (2): Distribution the body mass index of younger pregnant before pregnancy.

Age of younger pregnant women			Body Mass Index before pregnancy			Total
			2 (Normal weight)	3(Over weight)	4 (Obese)	
	14.00	No.	2	4	0	6
		%	4.0%	8.0%	0.0%	12.0%
	15.00	No.	6	4	1	11
		%	12.0%	8.0%	2.0%	22.0%
	16.00	No.	5	3	0	8
		%	10.0%	6.0%	0.0%	16.0%
	17.00	No.	3	1	1	5
		%	6.0%	2.0%	2.0%	10.0%
	18.00	No.	4	3	1	8
		%	8.0%	6.0%	2.0%	16.0%
	19.00	No.	7	4	1	12
		%	14.0%	8.0%	2.0%	24.0%
	Total	No.	No.	19	4	50
		%	%	38.0%	8.0%	100.0%

This table show the highest percent of the body mass index of younger pregnant women before pregnancy was (24.0 %) in age (19) years old and that mean the highest percent of the older pregnant women after pregnancy was normal, BMI of (20-24.9) Kg/m². (1) Underweight: less than or equal to a BMI of 19.9 Kg/m², (2) Normal: BMI of 20 – 24.9 Kg/m², (3) Overweight: BMI of 25 – 29.9 Kg/m², (4) Obese: BMI of 30 – 34.9 Kg/m², (5) Morbidly obese: BMI greater than 35 Kg/m², The group with BMI in the normal range (20 – 24.9 Kg/m²).

Table (3): Distribution the body mass index of younger pregnant before pregnancy.

Age of younger pregnant women			Body Mass Index before pregnancy			Total
			2 (Normal weight)	3 (Over weight)	4 (Obese)	
	14.00	No.	2	4	0	6
		%	4.0%	8.0%	0.0%	12.0%
	15.00	No.	4	4	3	11
		%	8.0%	8.0%	6.0%	22.0%
	16.00	No.	3	4	1	8
		%	6.0%	8.0%	2.0%	16.0%
	17.00	No.	2	3	0	5
		%	4.0%	6.0%	0.0%	10.0%
	18.00	No.	1	5	2	8
		%	2.0%	10.0%	4.0%	16.0%
19.00	No.	4	6	2	12	
	%	8.0%	12.0%	4.0%	24.0%	
Total		No.	16	26	8	50
		%	32.0%	52.0%	16.0%	100.0%

This table show the highest percent of the body mass index of younger pregnant women before pregnancy was (24.0 %) in age (19) years old and that mean the highest percent of the older pregnant women after pregnancy was obese, BMI of (30-34.9) Kg/m².

(1) Underweight: less than or equal to a BMI of 19.9 Kg/m², (2) Normal: BMI of 20 – 24.9 Kg/m², (3)Overweight: BMI of 25 – 29.9 Kg/m² , (4) Obese: BMI of 30 – 34.9 Kg/m² , (5) Morbidly obese: BMI greater than 35 Kg/m², The group with BMI in the normal range (20 – 24.9 Kg/m²).

Table (4): Distribution the body mass index of older pregnant before pregnancy.

Age of older pregnant women			Body Mass Index before pregnancy				Total
			2 (Normal)	3 (Overweight)	4 (Obese)	5 (Morbidly Obese)	
age	35.00	No.	4	0	6	0	10
		%	8.0%	0.0%	12.0%	0.0%	20.0%
	36.00	No.	1	0	6	3	10
		%	2.0%	0.0%	12.0%	6.0%	20.0%
	37.00	No.	10	0	4	2	16
		%	20.0%	0.0%	8.0%	4.0%	32.0%
	38.00	No.	1	1	0	1	3
		%	2.0%	2.0%	0.0%	2.0%	6.0%
	39.00	No.	3	0	0	1	4
		%	6.0%	0.0%	0.0%	2.0%	8.0%
	40.00	No.	1	0	1	5	7
		%	2.0%	0.0%	2.0%	10.0%	14.0%
Total		No.	No.	1	17	12	50
		%	%	2.0%	34.0%	24.0%	100.0%

This table show the highest percent of the body mass index of older pregnant women before pregnancy was (32.0 %) in age (37) years old and that mean the highest percent of the older pregnant women before pregnancy was Normal :BMI of (20-24.9) Kg/m².

(1) Underweight: less than or equal to a BMI of 19.9 Kg/m², (2) Normal: BMI of 20 – 24.9 Kg/m², (3)Overweight: BMI of 25 – 29.9 Kg/m² , (4) Obese: BMI of 30 – 34.9 Kg/m² , (5) Morbidly obese: BMI greater than 35 Kg/m², The group with BMI in the normal range (20 – 24.9 Kg/m²).

Age of older pregnant women			Body Mass Index after pregnancy			Total
			2 (Normal weight)	4 (Obese)	5 (Morbidly Obese)	
age	35.00	No.	1	4	5	10
		%	2.0%	8.0%	10.0%	20.0%
	36.00	No.	1	3	6	10
		%	2.0%	6.0%	12.0%	20.0%
	37.00	No.	5	6	5	16
		%	10.0%	12.0%	10.0%	32.0%
	38.00	No.	0	1	2	3
		%	0.0%	2.0%	4.0%	6.0%
	39.00	No.	0	1	3	4
		%	0.0%	2.0%	6.0%	8.0%
	40.00	No.	0	1	6	7
		%	0.0%	2.0%	12.0%	14.0%
Total		No.	7	16	27	50
		%	14.0%	32.0%	54.0%	100.0%

Table (5) : Distribution the body mass index of older pregnant after pregnancy.

This table show the highest percent of the body mass index of older pregnant women after pregnancy was (32.0 %) in age (37) years old and that mean the highest percent of the older pregnant women after pregnancy was obese, BMI of (30-34.9) Kg/m².

(1) Underweight: less than or equal to a BMI of 19.9 Kg/m², (2) Normal: BMI of 20 – 24.9 Kg/m², (3)Overweight: BMI of 25 – 29.9 Kg/m² , (4) Obese: BMI of 30 – 34.9 Kg/m² , (5) Morbidly obese: BMI greater than 35 Kg/m², The group with BMI in the normal range (20 – 24.9 Kg/m²).

DISCUSSION:

In this study the results show the highest percentage of the study sample (24.0%) were in age group of (19) years in younger pregnant women while the highest percentage of the study sample (32.0%) were in age group of (37) years in older pregnant women, (66.0%) of the younger pregnant women were primary school graduated while (50.0%) of the older pregnant women was also primary school graduated,(52.0%) of the younger pregnant women were employer and (68.0%) of the older pregnant women were employer. The highest percent of the body mass index of younger pregnant women before pregnancy was (24.0 %) in age (19) years old and that mean the highest percent of the older pregnant women after pregnancy was normal, BMI of (20-24.9) Kg/m². The highest percent of the body mass index of younger pregnant women before pregnancy was (24.0 %) in age (19) years old and that mean the highest percent of the older pregnant women after pregnancy was obese, BMI of (30-34.9) Kg/m². The highest percent of the body mass index of older pregnant women after pregnancy was (32.0 %) in age (37) years old and that mean the highest percent of the older pregnant women after pregnancy was obese, BMI of (30-34.9) Kg/m². The results revealed that the Body Mass Index of the older pregnant women were more effected by increase maternal weight more than younger pregnant women and the interpretation of this results related to the relationship between women age and their weight. That mean the Body Mass Index increase with increase age of women. Weight gain during pregnancy was calculated from maximum weight measured in pregnancy and the mother's self-reported pre-

pregnancy weight. Maximum weight in pregnancy was abstracted from the medical chart by an obstetrician. found 53 women who did not appear to change weight during pregnancy and a further 75 who appeared to gain more than 30 kg. While it is known why some women do not gain weight in pregnancy and others gain excessive amounts, such extreme changes are likely to be related to uncommon pathologies, which did not want to have a major influence on our findings, and therefore we excluded these 128 women from all analyses. calculated total gestational weight gain as the difference between maximum recorded weight gain during pregnancy and self-reported pre-pregnancy weight (determined at the first antenatal visit). We calculated average weight gain during pregnancy as this maximum weight minus her pre-pregnancy weight divided by gestational age. In analyses of weight gain per gestational week, we scaled this to provide differences in length of hospital stay for a 0.10 kg/weeks of gestation weight gain. This was chosen as a plausible weight change in pregnancy and is consistent with a previous publication from this cohort⁽¹⁴⁾. We also categorized women as having gained inadequate, adequate, or excess weight according to IOM guidelines. This guideline recommended that obese women should not gain more than 11.5 kg but no upper limit was provided. For this study, we assume that women who gained more than 11.5 kg during the pregnancy are in excess weight gain category⁽¹⁵⁾. Recently IOM reviewed their guidelines and recommended rates of weight gain in 2nd and 3rd trimester as well. As we do not have the record of trimester specific weight gain, we could not extend our analysis for this finer category. Body Mass Index was calculated using the formula $\text{weight}/\text{height}^2$. The women were then categorized into five groups according to their BMI as follows after Abrams .Underweight: less than or equal to a BMI of 19.9 Kg/m², Normal: BMI of 20 – 24.9 Kg/m², Overweight: BMI of 25 – 29.9 Kg/m², Obese: BMI of 30 – 34.9 Kg/m² ,Morbidly obese: BMI greater than 35 Kg/m², The group with BMI in the normal range (20 – 24.9 Kg/m²) was used as the reference or comparison group for the analysis⁽¹⁶⁾.

CONCLUSION:

Body Mass Index of the women increase and this increase related to pregnancy and the age of women.

RECOMMENDATIONS:

1. BMI increase with age of women .every women should know the effect of increase weight on here self and her pregnancy.
2. Every pregnant woman should be persisting on exercises and eating healthy during pregnancy to avoid increase in weight.
3. The pregnant women should be maintenance normal weight and avoid obesity.
4. The women should be monitoring their weight pre pregnancy, during and after pregnancy.

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