# Effect of  Delivery on Women Waist Circumference

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## Abstract

**Background**:  The population  worldwide  have faced a growing  epidemic of AO, the prevalence of overweight and obesity is increasing in both developed and  developing countries. Abdominal   obesity  is  a  major  risk  factor  for  many  chronic  diseases  including  diabetes, hypertension and ischemic heart diseases ,so it is considered a major Public health problem.

**Objectives:** This study was  carried out to explore  the effect types of delivery on the waist circumference among women in Nasiriya maternity hospitals.

**Materials and methods:** A hospital based cross sectional study was carried out in two teaching hospitals  (Al  Haboobi  teaching  hospital  and  Bent  Al  Huda  teaching  hospital)  in  Nasiriya Maternity hospitals from first of November 2023 to second of February 2024. All non-pregnant women who were suffering from any medical problem , and  attended the obstetric outpatients in these  two  hospitals  were  included  in  this  study.  Based  on  assumed  prevalence  of  caesarean section among women in a previous study in Al Nasiriya city(20%), so the needed sample size to calculate such prevalence rate with precision of 5%, confidence level of 95%, and added extra sample  of  10%,  is  almost  equal  to  500  Women.  data  were  collected  by  using  a  specialized questionnaire  which  was  designed  for  the  purpose  of  the  study.   Abdominal  obesity  was considered when patients waist circumference measurement more than 88 cm.

**Results:** This  study  showed  that  prevalence  rate  of  Abdominal  obesity  among  non-pregnant women was 64.4%. This rate was significantly affected by mode of delivery (Abdominal obesity was more among women who had history of caesarean section in comparison with women who had history of normal vaginal delivery) (p=0.0001).

**Conclusion:** two-third of  non-pregnant women with Abdominal obesity  in Nasiriya maternity hospitals   .  It  is  recommended  to  re-enforce  pre  natal   health  care  of  non-pregnant  women through the antenatal care services at primary health care level and state the complication after caesarean section  control weight before pregnancy.
According to the results obtained from this study and the current situation regarding the care of women in reproductive age in Iraq and specifically in Al- Nasiriya city, the most important and practical recommendation is to activate the maternal health care at PHCC or at least in every hospital with a nutritional clinic with well-trained doctors and other heath staff .
**Key word**: Abdominal obesity, caesarean section, waist circumference

**Introduction :**Is an over the top amassing of fat in the body to that it can negatively affect wellbeing, it is a worldwide pandemic and is a critical hazard factor for creating c3wardiovascular maladies (CVD), including diabetes, hypertension and dyslipidemia. In creating nations, the rate of corpulence has tripled, which has been ascribed basically to receiving a cutting edge way of life with less physical movement and exorbitant utilization of vitality thick nourishments (1).

The World Health Organization (WHO) perceives stoutness as a worldwide medical problem with one billion grown-ups overall recognized as overweight and an extra 300 million large . All around, it has influenced created and creating nations . Ladies specifically have a high pervasiveness of weight . Stoutness has been found to have numerous destructive impacts for ladies of conceptive age. Large ladies will probably experience issues getting to be noticeably pregnant and are more inclined to premature delivery amid early pregnancy (2).

Ladies who are overweight are at more serious danger of creating pregnancy complexities and issues related with work and conveyance and are more in danger of baby blues confusions, for example, disease, discharge and embolism. This implies, maternal mortality and grimness are fundamentally hoisted among hefty ladies .Obesity among ladies has been connected to training, age, pay and conjugal status (3) .

Weight record (BMI) prescribed by the World Health Organization (WHO) to arrange heftiness, is the highest quality level for recognizing patients in danger of antagonistic wellbeing results. Different epidemiological investigations have demonstrated an immediate relationship amongst BMI and the danger of restorative complexities and death rate (4 ).

WHO and the National Institute of Health have given rules to arranging stoutness in light of BMI. The rules have recommended that grown-ups who have a BMI≥30 kg/m2 are hefty and are for the most part at higher hazard for unfriendly wellbeing occasions than overweight (BMI in the vicinity of 25.0 and 29.9 kg/m2) or lean (BMI in the vicinity of 18.5 and 24.9 kg/m2) ( 5).

Midriff boundary shorts prescribed for the conclusion of stomach weight as per ethnicity and sexual orientation. is evenly arranged and untwisted. The subject is made a request to look forward and inhale out; the estimation is taken toward the finish of lapse; at that point, the methodology is rehashed. AO is a multifactorial issue emerging from hereditary, ecological, financial, and behavioral variables. These variables contrast in their separate commitments to the AO pandemic (6).

To streamline obstetric results, ladies should put on weight amid pregnancy. As indicated by the (IOM) for corpulent ladies (weight record [BMI] of 30 kg/m or more), the gestational weight pick up (GWG) ought to be 5 to 9 kg or 11 to 20 lbs; for underweight ladies (BMI<18.5), it ought to be 12.5 to 18 kg or 28 to 40 lbs. After labor, ladies need to lose the rest of the GWG, as maintenance of that weight pick up has been connected with long haul overweight or stoutness issues and related dreariness, for example, diabetes, hypertension, and coronary illness (7).

## Methods

**Study plan and settings :**A healing center based near cross sectional investigation was done in two doctor's facilities (Al Haboobi showing doctor's facility and Bent-Al-Huda maternity and kids doctor's facility) in Al-Nasiriya city from first of November 2023 to second of February 2024.

## Population of the investigation :
The aggregate patients gathered were 500 (250 cases ladies with cesarean segment and 250 control ladies NVD). It incorporate 250 ladies who had history of CS before one year,[1-5] years and those with cesarean segment following five years in examination with 250 NVD ,who goes to the obstetric and gynecological outpatients in these two healing facilities for various purposes.

## Sample size estimation :
A suitable example estimate was computed by applying the accompanying condition:

$n= (z^2pq)/d^2$

n= test measure

z= z measurement for a level of essentialness

p= assessed pervasiveness rate in past examinations which was(20%).

q= (1-p)

d= accuracy

An accuracy 5% and certainty level 95% and the pervasiveness of cesarean segment was 20% of every 2023 in Thi-qar province* so the required example estimate for vast populace is equivalent to 250 patients.

$n=(1.96)2^× 0.2^× 0.80/(0.05)2 = 2.458 \sim 250$

## Data gathering :
Before information gathering a pilot consider was directed on 30 women.(15) who had history of CS and (15) who had history of NVD preceding the best possible investigation keeping in mind the end goal to test the plausibility of the examination, cost, and time prerequisite. Each one of those (30) cases were incorporated into the best possible investigation. Information gathering was performed in two phases, initial, a survey self-announced and also anthropometric measure.

Before talking the ladies, the reason for the investigation was clarified, the survey was illuminated and the thought behind taking the anthropometric measure was likewise clarified. The ladies were educated that, they were free in their cooperation in the examination. The significance about genuineness in their reaction additionally was talked about and educated verbal assent was taken. At long last, the gathered information were updated toward the day's end for fulfillment.

The survey comprised of four segments :

Segment (1): incorporate inquiries concerning the socio statistic qualities

( name, age ,residency, percapita month to month salary ,occupation , instructive status , financial state )

Segment (2): incorporate inquiries concerning obstetric history

[ equality ,method of conveyance and its term, course of feeding],past restorative history ,medicate history .

Section(3): incorporate inquiries concerning taking weight losing specialist, hunger stimulants and proteins.

Segment (4): incorporate inquiries concerning Exercise.

**Anthropometric measure:**

**A.-Weight estimation:**

It was taken to the closest 0.1kg by utilizing computerized weight scale for all members with a well adjustment while the lady wearing light garments with an acknowledged blunder of 0.1 kg; the adjust of scale was checked at visit interim for sufficiency.

**B-Height estimations:**

It was performed by utilizing versatile stature measure to the closest 0.5 cm, the lady remain with foot together, head on a level plane and without shoes in disengaged room in outpatient center in the designated healing facilities.

**C-Waist perimeter estimation**

It was performed by utilizing an adaptable and not stretchable measuring tape put on a level plane around the mid-region at the midpoint between the iliac peak and lower rib toward the finish of ordinary lapse as observed from foremost view to the closest 0.5 cm. To assess corpulence.

- BMI was computed by utilizing the standard recipe (8):

BMI = weight (kg)/tallness (m)²

As per the WHO and International Task Force (87), the weight status arranged into four classes: (underweight with BMI < 18.5, typical weight with BMI =18.5-24.9, overweight with BMI 25-29.9 and fat with BMI ≥ 30).

Iraqi populace didn't have any cut off point criteria for midriff circuit as a marker of co morbidities chance, the standard embraced by WHO were utilized by the present investigation to assess the hazard; so WC of > 88 cm for female and WC of > 102 for male were considered as pointer of hazard factors (9).

**2.9. techniques of recording , coding and checking of information :**

The information specifically enlisted in the survey frame at the work field and checked day by day and week by week . A quantitative approach was utilized for coding and the poll information was pre-coded by utilizing of measurable bundle for sociology (SPSS) adaptation ( 23).

## Results and Discussion

**Table (1): Distribution of socio statistic attributes of member ladies as per their method of conveyance.**

| Variables | Vaginal Delivery | | Cesarean Section | | $X^2$ | P |
|---|---|---|---|---|---|---|
| | No | % | No. | % | | |
| **Age** | | | | | 17.7 | .061 |
| <20 | 8 | 3.2 | 2 | 0.8 | | |
| 20-29 | 108 | 43.2 | 76 | 30.4 | | |
| 30-39 | 102 | 40.8 | 113 | 45.2 | | |
| ≥40 | 32 | 12.8 | 59 | 23.6 | | |
| Total | 250 | 100 | 250 | 100 | | |
| **Occupation** | | | | | 7.74 | .12 |
| **Employed** | 58 | 23.2 | 85 | 34.0 | | |
| **Housewife** | 190 | 76 | 164 | 65.6 | | |
| **Student** | 3 | 1.2 | 1 | 0.4 | | |
| **Total** | 250 | 100 | 250 | 100 | | |
| **Percapita Month To Month Income** | | | | | 3.87 | .079 |
| **Under 250 000ID** | 98 | 39.2 | 77 | 20.8 | | |
| **250 000 ID And Above** | 152 | 60.8 | 173 | 69.2 | | |
| **Total** | 250 | 100 | 250 | 100 | | |
| **Family Members** | | | | | 0.317 | .85 |
| <4 | 27 | 10.8 | 31 | 12.4 | | |
| 4-5 | 96 | 38.4 | 95 | 38.0 | | |
| ≥ 6 | 127 | 50.8 | 124 | 49.6 | | |
| Total | 250 | 100 | 250 | 100 | | |
| **Financial Status** | | | | | 1.22 | .54 |
| Low | 62 | 24.8 | 55 | 22.0 | | |
| Medium | 161 | 64.4 | 161 | 64.4 | | |
| High | 27 | 10.8 | 34 | 13.6 | | |
| Total | 250 | 100 | 250 | 100 | | |
| **Residency** | | | | | 17.09 | .082 |
| Urban | 172 | 68.8 | 201 | 80.4 | | |
| Rural | 78 | 31.2 | 49 | 19.6 | | |
| Total | 250 | 100 | 250 | 100 | | |
| **Instructive Level** | | | | | 19.87 | .071 |
| Illiterate | 84 | 3.6 | 45 | 18.0 | | |
| Primary | 43 | 7.2 | 68 | 27.2 | | |
| Secondary | 79 | 1.6 | 86 | 34.4 | | |
| University And Above | 44 | 7.6 | 51 | 20.4 | | |
| Total | 250 | 00 | 250 | 100 | | |

It was watched that, there was no noteworthy relationship between method of conveyance and each of the accompanying: age, occupation, percapita month to month wage, relative and financial status (p>0.05).

**Table (2): Distribution of midriff perimeter and BMI as indicated by the sort of cesarean segment.**

| Variables | Elective Cesarean Section | | Emergency Cesarean Section | | $X^2$ | P |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | | |
| **Midriff Circumference** | | | | | 0.726 | .39 |
| ≤ 88 Cm | 13 | 6.8 | 6 | 10.2 | | |
| >88 Cm | 178 | 93.2 | 53 | 89.8 | | |
| **BMI** | | | | | 8.935 | .20 |
| Underweight | 1 | 0.6 | 0 | 0.0 | | |
| Normal | 11 | 5.8 | 8 | 13.6 | | |
| Overweight | 42 | 21.9 | 20 | 33.9 | | |
| Obese | 137 | 71.7 | 31 | 52.5 | | |
| Total | 191 | 100 | 59 | 100 | | |

Shows the appropriation of midriff circuit and BMI as per the sort of cesarean area and length; It was watched that, there was no critical relationship between kind of cesarean segment and midsection periphery however there was noteworthy relationship with BMI. The pervasiveness of heftiness was more typical among ladies with elective cesarean section71.1% when contrasted with ladies with crisis cesarean segment 52.5%.

**Table (3): Distribution of Waist circumference of participant women according to their mode of delivery**

| Variables | Obese | | Non- Obese | | $X^2$ | P |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | | |
| Caesarean Section | 230 | 1.7 | 20 | 11.2 | 17.98 | .0001 |
| Vaginal Delivery | 91 | 8.3 | 159 | 88.8 | | |
| Total | 321 | 00 | 179 | 100 | | |

This table shows distribution of waist circumference of the participant women according to their mode of delivery, it was observed that, there was significant association between  the mode of delivery and waist circumference(p <0.05), the  proportion of abdominal obesity was high 71.7% among women who had history of caesarean section while proportion of abdominal obesity was low28.3% among those who had history of normal vaginal delivery.

## Discussion

In introduce examine , there was no noteworthy relationship between method of conveyance and each of the accompanying: age ,occupation ,percapita month to month pay , relative and financial status (p>0.05) contrast and past investigation in Zambian discovered age, area of living arrangement, instructive level and family unit abundance of ladies were critical indicators of both overweight and stoutness among ladies paying little respect to place of home (10).

As to history of the member ladies, It was seen that, there was no critical relationship between method of conveyance and each of equality and term of work (p>0.5) like the outcome

There was critical relationship between midsection perimeter and number of cesarean area (p<0.05) and there was no huge relationship between abdomen boundary and length after cesarean segment (p>0.05) .the specialist couldn't discover brings about past examination to contrast and it.

In show think about there was no noteworthy relationship between sort of cesarean segment and abdomen circuit ,however there was huge relationship with BMI. The commonness of weight was more typical among ladies with elective cesarean section71.1% when contrasted with ladies with crisis cesarean area 52.5% additionally comparative investigation couldn't found to contrast the present discoveries and it.

## Limitation of our study:

The principle confinements in this examination were there was no restorative records contain weight list and midriff perimeter estimations before pregnancy . a few alerts must be taken in regards to the speculation of the outcomes .

1.      This investigation is a cross sectional examination in which, the fleeting relationship can't be evaluated .

2.      Variability in cutoff point estimation of abdomen periphery and factors between various nations .

3.      Possibility of choice inclination .

4.      There was no investigations at national level about the impact CS on the body weight and midsection boundary among tyke bearing ladies .

## Conclusions

Stomach overweight and stoutness is normal among ladies in conceptive age bunch . Predominance of stomach stoutness is higher in ladies who had history of CS than NVD and it is expanded with expanding the quantity of cesarean area .

## Suggestion

Health specialist co-ops should embrace, execute, and screen strategies that help sound weight earlier and weight pick up amid pregnancy, and postnatal through essential care doctors and obstetricians/gynecologists

Healthcare specialists should routinely gather family wellbeing histories to distinguish individuals at high danger of weight related sicknesses, and ought to accordingly use each chance to incorporate direct relatives in danger in wellbeing training.

An mediation that incorporates people at high-hazard for creating corpulence related maladies and their families to advance way of life changes in their eating regimen and PA is, accordingly, a discerning technique that will add to the control and counteractive action of overweight and heftiness related wellbeing infections in the regenerative age gathering.

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