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STUDY THE OBSTETRIC COMPLICATIONS IN MALNOURISHED OBESE, UNDER WEIGHT WOMEN & ITS COMPARISON WITH NORMAL WEIGHT WOMEN

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Abstract:

Background: *Obesity means having too much body fat. It is not the same as being overweight which means weighing too much. A person may be overweight from extra muscle bone or water as well as from having too much fat.*

Objective: *To compare obstetrics and prenatal complications among obese and normal.*

Material & Methods: *Comparative cross-sectional study. Study population was divided into three groups on the basis of BMI i.e. underweight, normal, and obese in Jinnah Hospital, Lahore.*

Results: *Of 100 cases, 69% had normal BMI, 28% were overweight and 3% were underweight at first antenatal visits. Among the obstetric complications 27.5% had cesarean section, 22.5% had hypertension, 18% had gestational diabetes, 13.5% had preeclampsia, 9.6% had infections, 4.5% had hemorrhage, 2.8% had dystocia and 1.7% had perineal trauma (Table 1). Among the perinatal complications 27.9% had macrosomia, 24.3 had cephalopelvic disproportion, 24.3% had intrauterine growth retardation, and 23.6% had perinatal mortality (Table 2).*

Conclusion: *This study shows a significant increase of wide variety of pregnancy, birth and neonatal complications in obese women as compared to the normal women.*

Keywords: *Obesity, BMI, Malnourished, Obstetrics', Complications, Pregnancy.*

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INTRODUCTION:

Obesity means having too much body fat. It is not the same as being overweight which means weighing too much. A person may be overweight from extra muscle bone or water as well as from having too much fat. Obesity is a known risk factor for many health problems, including type 2 diabetes mellitus, hypertension, coronary heart disease and stroke. In addition to their problems, obese women have higher risk of complications during pregnancy and delivery. It is well known that overweight, obesity and severe obesity increase morbidity for mother and neonate and are associated with a variety of adverse pregnancy outcomes. Obesity is associated with pregnancy complications and adverse reproductive outcomes. Including an increased risk for birth defects. Several recent studies have shown an increased risk for neural tube defects associated with maternal obesity. In some studies, obese women have been shown an elevated risk for abdominal wall defects, certain types of congenital heart defects and orofacial clefts.

Mother who are overweight or obese during pregnancy and child birth as measured by increasing maternal body mass index (BMI) are known to be at risk of significant antenatal, intrapartum, postpartum and neonatal complications. Antenatal complications include recurrent marriage, congenital malformations, pregnancy induced hypertension(PIH), preeclampsia ,gestational diabetes mellitus and venous thromboembolism .Overweight women are more likely to be induced and require caesarean. Infants of overweight and obese mothers are often macrosomic and require prolonged hospital admissions.

Overweight is associated with a higher risk of cardiovascular and metabolic disease. Pregnancy in obese women frequently results in an increased incidence of maternal complications (gestational diabetes, hypertension, and toxemia) and adverse perinatal outcome (macrosomia, perinatal mortality). Cesarean deliveries are also more frequent in obese women, mainly because of cephalopelvic disproportion due to macrosomia. Optimal treatment for gestational diabetes is difficult to achieve, although hyperglycemia further impairs maternofetal prognosis. The incidence of intrauterine growth retardation is not increased in obese pregnancy. A successful obstetrical outcome may be achievable through multidisciplinary antenatal management. [1] Once thought to be a condition of only wealthy countries; overweight [body mass index (BMI) > 25 kg/m^2] 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. [2] In some low- and middle-income countries, rates of overweight in women are similar to 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, and in Egypt it was 71% in 2000. [3,4] Obesity has become an epidemic problem worldwide, and in the Eastern Mediterranean Region the status of overweight has reached an alarming level. A prevalence of 3%-9% overweight and obesity has been recorded among preschool children, while that among schoolchildren was 12%-25%. A marked increase in obesity generally has been noted among adolescents, ranging from 15% to 45%. In adulthood, women showed a higher prevalence of obesity (35%-75%) than men (30%-60%). Several factors, such as change in dietary habits, socioeconomic factors, inactivity and multiparity (among women) determine obesity in this Region. [5]

RESULTS:

Table 1: Statistics According to Their Age of Respondent, In Jinnah Hospital, Lahore

Mean	28.4700
Median	29.0000
Mode	29.00
Std. Deviation	6.22386
Minimum	17.00
Maximum	50.00

Table 2: Statistics According to Their Gravity & Parity of Respondent, In Jinnah Hospital, Lahore

Statistics	Gravity of respondents	Parity of respondents
Mean	3.2900	2.6000
Median	3.0000	2.0000
Mode	2.00	2.00
Std. Deviation	1.51287	1.39262
Minimum	1.00	.00
Maximum	7.00	6.00

Table 3: Statistics According to Their BMI Of Respondent, In Jinnah Hospital, Lahore

Mean	27.6510
Median	24.9967
Mode	26.21
Std. Deviation	7.40739
Minimum	17.50
Maximum	52.70

Figure 1: Statistics According to Their BMI Of Respondent, In Jinnah Hospital, Lahore

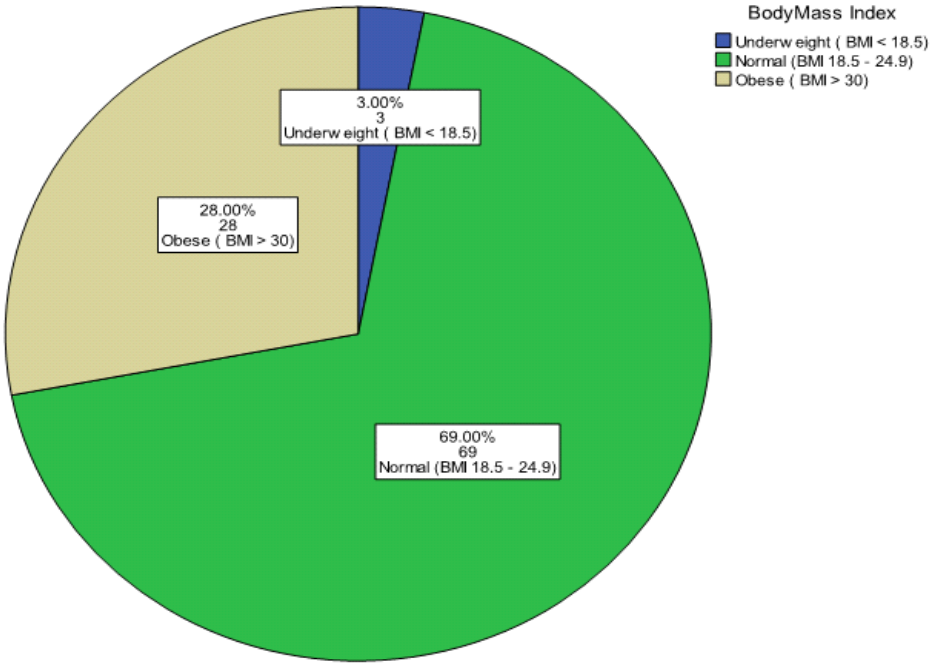

Table 4: Statistics According to Their Obstetric Complications of Respondent, In Jinnah Hospital, Lahore

Obstetric Complications	No.	Percent	Percent of Cases
Gestational Diabetes	32	18.0%	43.2%
Hypertension	40	22.5%	54.1%
Preeclampsia/eclampsia	24	13.5%	32.4%
Cesarean section	49	27.5%	66.2%
Infections	17	9.6%	23.0%
Hemorrhage	8	4.5%	10.8%
Dystocia	5	2.8%	6.8%
Perineal trauma	3	1.7%	4.1%
Total	178	100.0%	240.5%

a. Dichotomy group tabulated at value 1.

Table 5: Statistics According to Their Postnatal Complications of Respondent, In Jinnah Hospital, Lahore

Postnatal Complications	No.	Percent	Percent of Cases
Macrosomia	39	27.9%	65.0%
Perinatal Mortality	33	23.6%	55.0%
Cephalopelvic disproportion due to macrosomia	34	24.3%	56.7%
Intrauterine growth retardation	34	24.3%	56.7%
Total	140	100.0%	233.3%

a. Dichotomy group tabulated at value 1.

Table 6: Statistics According to Their Obstetric Complications BMI2 Cross Tabulation of Respondent, In Jinnah Hospital, Lahore.

		Body Mass Index			
Obstetric complications		**Underweight (BMI < 18.5)**	**Normal (BMI 18.5 - 24.9)**	**Obese (BMI > 30)**	**Total**
Gestational Diabetes	Count	0	15	17	32
	% within bmi2	.0%	32.6%	65.4%	
Hypertension	Count	1	21	18	40
	% within bmi2	50.0%	45.7%	69.2%	
Preclampsia/eclampsia	Count	0	11	13	24
	% within bmi2	.0%	23.9%	50.0%	
Cesarean section	Count	1	27	21	49
	% within bmi2	50.0%	58.7%	80.8%	
Infections	Count	0	10	7	17
	% within bmi2	.0%	21.7%	26.9%	
Hemorrhage	Count	0	4	4	8
	% within bmi2	.0%	8.7%	15.4%	
Dystocia	Count	0	1	4	5
	% within bmi2	.0%	2.2%	15.4%	
Perineal Trauma	Count	0	1	2	3
	% within bmi2	.0%	2.2%	7.7%	
Total	Count	2	46	26	74

Percentages and totals are based on respondents.

a. Dichotomy group tabulated at value 1.

- Of 100 cases,
  - 69% had normal BMI
  - 28% were overweight and;
  - 3% were underweight at first antenatal visit.
- Among the obstetric complications
  - 27.5% had cesarean section,
  - 22.5% had hypertension,
  - 18% had gestational diabetes,
  - 13.5% had preeclampsia,
  - 9.6% had infections,
  - 4.5% had hemorrhage,
  - 2.8% had dystocia and;
  - 1.7% had perineal trauma (Table 1).
- Among the perinatal complications
  - 27.9% had macrosomia,
  - 24.3 had cephalopelvic disproportion,
  - 24.3% had intrauterine growth retardation and;
  - 23.6% had perinatal mortality (Table 2).

DISCUSSION:

In this study we demonstrate that maternal pre-pregnancy obesity is linked to increased risk for many adverse pregnancy outcomes. The risk of Cesarean Delivery and associated morbidities are increased in obese women. A meta-analysis performed by Chu et al in 2007 estimated that risk of having a cesarean delivery was approximately 2 and 3 times higher among obese and non-obese respectively compared with women of normal weight. In addition, the majority of these deliveries were performed during the first stage of labor and based on indications of dystocia and fetal distress. The reason for this increased rate of cesarean delivery in obese women is unknown but could be related to increased maternal pelvic soft tissue, fetal macrosomia and intrapartum complications (e.g. inability to adequately monitor the fetus and contractions). Gestational Diabetes Mellitus is characterized by insulin resistance and inadequate insulin secretion, resulting in hyperglycemia. Obese women are more insulin resistant than normal weight women and risk for GDM is positively associated with obesity in pregnancy. Preeclampsia complicates 3-5% of pregnancies and obesity is a consistent risk factor for preeclampsia approximately three times higher than in normal weight women, but mechanisms involved are not known. In an overview of 13 cohort studies including nearly 1.4 million women, O' Brien et al observed a consistent and linear rise in risk for preeclampsia with increasing pre-pregnancy BMI. Both obesity and preeclampsia are associated with increased markers of inflammation such as C-reactive protein and inflammatory cytokines, tumor necrosis factor alpha, interleukin-6 and interleukin-8. These shared features suggest that obesity is a risk factor for preeclampsia because of preexisting inflammation.

Preeclampsia is more common in obese women with GDM than in women without it. The co-existence of these two metabolic disorders suggests a similar underlying mechanism. Maternal obesity is associated with a significantly increased risk of thrombosis during both the antenatal and postnatal periods. A case control study in Denmark, including 129 women with deep vein thrombosis or pulmonary embolism during pregnancy or puerperium and 258 controls showed a significant association between BMI 30 or higher and venous thrombosis. As both immunity and obesity are associated with thrombosis, the combination increases the risk considerably. Raises BMI are a reported risk for postpartum hemorrhage. Maternal obesity is a well-known risk for fetal macrosomia. Owens et al found that the percentage of macrosomic neonates (more than 4000g) to increase from 15.5%to 21.4% to 27.8% in normal-weight, over-weight and obese women respectively. Maternal diabetes is well known risk for macrosomia. Nevertheless, more LGA neonates are born to obese women than to women with diabetes, because maternal diabetes is much more prevalent than diabetes (46.7% compared with 4.1%). Several countries have reported an increase in mean birth weight over the past decade and an increase in the proportion of the macrosomic neonates.

Although relatively rare, shoulder dystocia is a feared complication, which in a Swedish study increased from 0.1% to 0.3% in normal weight mothers compared with obese mothers. A limitation of this study is that we relied on self-reported pre-pregnancy BMI at the first antenatal visit. Overweight and obese women may have under-reported their weight, but this report would most likely be independent of subsequent adverse outcomes and hence lead to non-differential miss-classification, that is, bias risks towards the null. Considering that we found mostly increased risk of many adverse outcomes the true risk would be even greater. The study shows a significant increased risk of a wide variety of pregnancy, birth and neonatal complications in overweight and obese women, which confirms and extends the results of most other studies. Obesity in pregnancy has disadvantages for the mother, fetus and newborn. Moreover, maternal obesity is responsible for increased obesity in offspring, thereby possibly inducing a trans-generational effect. As the obesity

epidemic also affects the women of child bearing age, it is of vital importance to address pre-pregnancy care and weight management programs to prevent this increase and consequently reduce obesity among future generations.

CONCLUSION:

This study shows a significant increase of wide variety of pregnancy, birth and neonatal complications in obese women as compared to the normal women.

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