Scholars Journal of Applied Medical Sciences
Abbreviated Key Title: Sch J App Med Sci
ISSN 2347-954X (Print) | ISSN 2320-6691 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Medicine

Impact of Maternal Body Mass Index on Obstetric Outcomes in Women Attending Labor in Al-Basra Hospitals

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PhD Maternal and Neonatal

DOI: 10.36347/sjams.2021.v09i06.029 | **Received:** 09.04.2021 | **Accepted:** 03.06.2021 | **Published:** 23.06.2021

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Abstract **Original Research Article**

Background: Maternal obesity is significant risk for both mother and fetus, it is considering an obstetrical risk factor leading to high frequency of completions during prenatal period and increases the risk of several adverse outcomes of pregnancy .therefor, there is a substantial need for the development of preventive actions .body mass index is the most commonly used method to estimate the degree of obesity. ***Objectives:*** To determine of abnormal body mass index in pregnant women are attending labor. To detect the effect of body mass index on Women's health, Neonatal health. To find out relationship between the body mass index and Demographic variables. Reproductive variables and nutritional status. ***Methodology:*** A descriptive analytic study was conducted from 28th February to 25th May 2013 at-Basra General hospital and Basra Hospital for Maternity and Children on (400) pregnant women who attending in the labor room. These clients were in labor pain, singleton pregnancy, and all pregnant women underwent a trail of vaginal delivery. A non–probability (Purposive sample) was use to select the participants of study sample a questionnaire was used a tool to collected data content validity was determined through reviewing it by (14) experts in different fields. Descriptive and inferential statistics were used to analyze the data. ***Results:*** The result of study revealed that most of the study sample aged (21-30) years with mean age and standard division (26.39 ± 7.65). The highest percentage (40%) of study sample were overweight pregnant women group (25-29.9) body mass index, with Primary level education, housewives, and low socioeconomic status. (53.5%) of them were had (2-4) pregnancies and (42.5%) of them were delivered (2-4) deliveries. Women with high body mass index for study sample had a higher incidence of several complications during pregnancy such as anemia, hypertension, diabetic mellitus and urinary tract infection. There were many complications of pregnant women of high body mass index pregnant women for study sample present abortion, stillbirth, preterm delivery, big baby and low Apgar score. There was statistical significant association between body mass index and induction labor as well as caesarean section. ***Conclusion:*** Most of study sample were overweight there were a statistical significant relationships between body mass index of pregnant women and some complications during pregnancy such as anemia and hypertension, type of deliveries, type of vaginal delivery, causes of cesarean section and outcomes of pregnancy such as weight of baby and Apgar score at five min of neonate life. ***Recommendations:*** Combating obesity in women within the activities of primary health care centers services through enhancing of physical activities and increasing the awareness of pregnant women about healthy nutrition habits.

Keywords: Maternal Body Mass Women Attending.

INTRODUCTION

The body mass index (BMI) is used far more commonly than body fat percentage to define obesity. In general, BMI is closely correlated with the degree of body fat in most settings; Body Mass Index is used as one measure of obesity or state of being overweight. BMI is used as baseline and, than subsequently, to measure the effectiveness of a weight loss and / or health regimen implemented in cooperation with an individual's physician and other health care providers. (Gallagher, 2000). There are many criteria for definition the obesity in pregnancy and body mass index is one of mostly commonly used, many recent publications used pre pregnancy BMI as a risk factor for pregnancy and labor complications (Bianco, 1998 ; Guelinckx, 2008).

Obesity and overweight during pregnancy caused maternal complications include early miscarriage, pregnancy induced hypertension and preeclampsia, gestational diabetes, thrombo-embolic disease, infections, sleep apnea, prolonged labor, increased risk of interventions like induction of labor and operative delivery, shoulder dystocia and

postpartum hemorrhage. Perinatal complications include birth defects (mainly neural tube defects), macrosomia, in-utero growth restriction, still births, preterm birth and need for intensive care admission (Bilal, 2005; Satpat, 2008; Callaway, 2006).

The types of deliveries as well as affected by maternal BMI in the fact those high cesarean birth rates are associated with maternal obesity (Meher, 2 Pregnancy outcomes and infant health form an important issue. Considering the existing contradictions about the impact of maternal (BMI) on these outcomes such as (macrosomia shoulder dystocia and, still births) (Shiva, and Maxine, 2012).

While Assiut University in Egypt shows increase percentage of indication of caesarian section at variables antepartum hemorrhage, sever eclampsia, breech presentation and failure of progress for obese pregnant women. (Tosson, 2005).

Conclusion research article for Shahla Increasing BMI increase sings the incidence of induction of labor, caesarean section, pre-term labor and macrosomia The higher of BMI of women in the first trimester of pregnancy is associated with the risk of adverse pregnancy Outcome (Shahla, 2012).

Husain's she is found that delivery before (32) weeks was significantly less likely in the obese (Hussain, 2008).

While the risk of low birth weight less than (2, 500 g) was higher in underweight women, macrosomia was much more common in the obese and morbidly obese groups (Sohinee, 2007). International research has highlighted the fact that maternal obesity has implications for both the mother and her infant. There are increased risks to the mother throughout the pregnancy, including gestational diabetes, hypertensive disorders and thromboembolic complications, and to the infant including Macrosomia, shoulder dystocia, late fetal death, congenital abnormalities, and also increased complications during labor and the need for more frequent induced and operative deliveries (Ehrenberg, 2004; Heslehurst, 2007; Yogev and Catalano, 2009).

Neonates were born to obese mothers are at increased risk of admission to neonatal intensive care unit (Heslehurst, 2008). Obesity is associated with a higher incidence of obstetric such as caesarean section, as well as an increase in pregnancy complication including hemorrhage and infection (Mohammed, 2012).

Few studies have evaluated the patterns of BMI in developing regions where malnutrition and poor weight gain as well as maternal obesity have significant influences on the pregnancy outcomes. (Hussain, 2008).

Obesity Increased substantially over the past few decades, Economic technologic, and lifestyle changes have created an abundance of cheap, high-calorie food coupled with decreased required physical activity (Meher, 2009).

We are eating more and moving less. There is evidence for metabolic dysregulation among obese individuals that has been linked with a number of some decades ago (Hoque, 2008).

Improving maternal health is one of the eight millennium development goals adopted by the International community at the United Nations Millennium summit in 2000. In Millennium Development Goal 5(MDG5), countries have committed to reducing the maternal mortality ratio by three quarters between 1990 and 2015. However, between 1990 and 2005 the maternal mortality ratio declined by only 5% Achieving Millennium Development Goal 5 requires accelerating progress (WHO, 2008).

Obesity is not Just a pregnancy issue, it is a health issue according to the centers for disease control, is the modern health epidemic of western society. The world health Organization (WHO) estimated in the year 2000 that as many as 300 million People worldwide are clinically Obese (Jane and Ian Greer 2004).

Obesity causes death a yearly from the world, the direct health care costs of obesity have increasing from on pregnancy and prenatal care, higher for overweight women than normal weight (Hamdan. 2007).

Obesity during pregnancy can cause several serious health complications including high blood pressure which increase the risk for preeclampsia and eclampsia, diabetes, miscarriage, more cesarean deliveries with higher rates of anesthesia complications and infections and longer stays in the hospital and lead to more urinary tract infections and failure to start or continue breast Feeding. (Laura Riley, 2004).

Obese women are at increasing risk of complications at the time of labor and delivery. The rate of successful vaginal delivery decreases progressively as maternal BMI increases (Meaghan, 2007).

There are several hypothesis regarding the mechanism by which pregnancy weight gain related to preterm delivery, one of these hypothesis assessment of preterm a etiology and medical complication that might affect pregnancy weight gain, including diabetes, hypertension, and polyhydramnios (Abrams B, 1995; CatanlanoPM, 2007).

Women with a low BMI might have a less capacity for fluid expansion during pregnancy

.pregnancy weight gain is multifaceted include increase in maternal fat and nutrient stores growth of breasts and uterine tissue, increases in plasma volume and weight gain directly resulting from the product of conception (Institute of medicine, 1990).

There are controversial reports about the effects of pre pregnancy weight on the outcome of pregnancy low and high BMI thus pregnancy in women with abnormal weight should be considered as a high risk factor to be able to prevent complications by special care (Basheer, 2009).

Whereas is Low maternal weight was associated with increased prevalence of preterm delivery and low birth weight. It was noticed that in this group of women there was low incidence of GDM, PIH, and neonates with large birth weight. (Wieslaw, 2007).

Furthermore fatal presentation was divided into cephalic presentation versus adverse presentations such as breech presentation and transverse lie. No association between maternal BMI and fatal presentation was detected. (Wauer, 2009).

Importance of the study

Maternal obesity increases the risk of a number of pregnancy complications, including preeclampsia, gestational diabetes mellitus, and cesarean delivery. Excessive weight gain during pregnancy and postpartum retention of pregnancy weight gain are significant risk factors for, later obesity in women. Additionally, maternal health can have a significant impact on the in utero environment and, thus, on fetal development and the health of the child later in life. (Mokdad, 1991-1998**).**

Pregnancy may not ideal time to focus attention weight, but it may be a reasonable time to clarify women 'questions about healthy lifestyle, including appropriate diet and physical activity during the different stages of pregnancy. Barriers to lifestyle change Changes in eating and weight during pregnancy hunger, nausea, change in range of foods consumed, cravings belief that eating more benefits the fetus.

So the nurse must provide care to pregnancy women and take important point of body mass index during mother visit to health center and teaching mother and family for important nutritional state during pregnancy and antenatal period works in collaboration with physicians and other health care providers to provide the best plan of care for each pregnant woman as well as teaching and psychosocial support for them and for their (Davis, 2000 and Kenner, 2008) and Encouraging obese women to attending Antenatal vista to control overweight management to improve life style Attitudes to weight change, Midwives felt women lacked understanding and cooking and eat skills to help these Women understood association between health/weight and eating.

Statement of the Problem

Impact of maternal body mass index on obstetric outcomes in women attending labor in al Basra hospitals

Objectives of the Study

– To determine the abnormal BMI in Pregnant women are attending labor

– To detect the effect of BMI on:

*Women's health

*Neonatal health

-To identify the types of abnormal BMI among the study samples.

- To find out relationship between the BMI and Demographic variable: age, level of education, occupation, residency, socioeconomic status and nutritional status.

- To find out relationship between the BMI and Reproductive variables: gravity, parity, abortion, still birth, interval period between pregnancies, antenatal visit during pregnancy, gestational age pregnancy.

-To find out relationship between the BMI and outcomes

Type's deliveries and outcomes labors (weight baby, Apgar score and previous (high, low) weight babies.

- To find out relationship between the BMI and complications during pregnancy.

Definition of terms

	Impact
.a	Theoretical definition
	The act of one body, objective, striking another, collection (medical dictionary, 2012).
.b	Operational definition.
	Ti is result of body mass index and outcomes labor.
	Maternal
.a	Theoretical definition
	pertaining to mother (Barbara .nursing dictionary, 2004)
.b	Operational definition.
	Pregnant women attending labor.
	Body Mass Index
.a	Theoretical definition
	A figure obtained by divided someone's weight in Kg the square of his or her height in meter (dictionary of medical terms, 2010).

	Impact
.b	Operational definition
	Relation between weight and height of pregnant women.
	obstetric
.a	Theoretical definition
	Obstetrics (branch of medicine concerned with the treatment of women during pregnancy, labor, childbirth, and the time after childbirth. Obstetricians work to ensure that pregnancy culminates in the delivery of a healthy baby, without impairing the health of the mother(American Heritage Dictionar.2007)
.b	Operational definition
	The one branch of medicine dealing with body mass index for pregnancy women attending delivery room.
	Outcomes
.a	**Theoretical definition**
	Result of conception and ensuring pregnancy state, such as, gestational age, birth weight, congenital malformations, preterm delivery, post term delivery or stillbirth (Green Facts, 2009)
.b	**Operational definition**
	Result of pregnancy with relation of body mass index of pregnant women attending delivery room.
.	**Attending**
.a	**Theoretical definition**
	Looking after particular patient.(oxford black wells dictionary, 2010)
.b	**Operational definition**
	Give care of pregnant women felling pain labor in side delivery room.
	labor
.a	Theoretical definition
	The expulsion or extraction of a fetus and its membranes in free from hurt, injury, danger, or risk (dictionary of medical, 2012**)**
.b	Operational definition
	It is the product of expulsion of fetus and membranes through the birth canal into external world in all types of body mass index without complication to arrive safe mater and fetus.

METHODOLOGY

Design of the Study

A descriptive analytic study was conducted on impact body mass index on obstetric outcomes in a women attending labor in AL-Basra during period (28th February /2013 to25th/May/2013).

Administrative Arrangement

Prior to actual collection of data, formal administrative approval was obtained to conduct the study from the following institutions:

1. Republic of Iraq/Ministry of Planning/Center Statistical Organization (CSO) (Appendix A)
2. Ministry of Health /Basra Health Directorate/Center of Training and Development of Faculty (Appendix B)
3. Basra Health Directorate to all Basra hospital that were selected (Appendix C)

Setting of the study

The study was held in delivery room at two hospitals in Basra (AL-Basra General hospital and Basra hospital for maternity and children).

Table-2: Distribution of the Study Groups according to the Study Setting

No.	Hospital Name	Pregnant women	%
1.	AL-Basra General hospital	250	62.5%
2.	Basra hospital for maternity and children	150	37.5%
	Total	400	100%

Table (2) show that setting study sample

Time Schedule of Conducting the study

Table-3: Time Schedule for conducting the study

No	Data and work is achieved
1.	4/11/2012: construction of questionnaire started after reviewing literature and previous studies.
2.	2/12/2012 to 16/12/2012: validity of the questionnaire.
3.	18/2/2013 to 25/2/2013: pilot study was conducted in AL-Basra General hospital.
4	28/2/2013 to25/5/2013: Data collection.
5	28/5/2013 to 30/6/2013: Analysis of data.
6	1/7/ 2013 start waiting final draft.

Table (3) show time of study

Sample of the Study

1. Non –probability sample (purposive –sample) consisted of four hundred (400) pregnant women attending the (delivery room) for normal vaginal delivery.
2. The women were observed during labor until delivery, the, decision of caesarian section was taken by the senior obstetrician in that day.

Inclusions Criteria

1. Normal pregnancy with no pathological condition.
2. Prime gravid and multi gravid.
3. Any gestational age.

Exclusion Criteria

Women excluded from the study who were suffering from:

1. Medical disorders such as chronic diabetes mellitus, chronic hypertension, cardiac or endocrine disorders and respiratory diseases.
2. Fetal with congenital malformation
3. Ante partum hemorrhage.
4. Abnormal fetal presentation.
5. Placenta prevails.
6. Pre-eclampsia disorder.
7. Surgical conditions and
8. Difficulty of measured maternal weight and high in first stage of labor such as (sever labor pain).

Instrument Construction

A–The questionnaire was designed and constructed after reviewing related literatures, obstetrical background and previous studies. The questionnaire form consisted of 5 parts which included the following Appendix (E).

Part one: Socio- Demographic Characteristics

Demographic data relative to Socio-demographic data characteristic such as, mother age, mother and education level for study sample and their husband, occupation status for study sample and their socioeconomic status for family, according to WHO include: educational level, occupation, number of family, residence own or rent, number of room occupied by family, car and income from their point of view as appendix (K).

Part Two: Reproductive History

This section concerned with the fallowing data of number of Gravidity, number of Parity, number of deliveries, number of Abortion, number of Still birth, number of live babies, interval between pregnancies, weight baby, Gestational age antenatal visits and Folic acid intake during pregnancy.

Part three: Pregnancy Complication:

The part of consists of the fallowing Hypertension, Diabetic mellitus, Anemia, Urinary Tract Infection during this pregnancy.

Part four: Nutritional status of Mather during Pregnancy

The part consists of types eat and drink history of mother .nutritional intake aspects design according to WHO (2007), American Medical Association (2009), and nutritionist recommendation. Nutrition items were seven grouped into the following categories: Carbohydrates (rice, bread, pasta and potatoes), vegetables, fresh fruits, dairy products(milk, cheese, and yogurt), protein including animal types (red meat, poultry, and fish) and plant type (beans, soy, and nuts), and snacks (salty /fat/sweet).

Part five: Neonatal variables

This part consists of the following

1. Gestation age.
2. Baby previous (high weight .and low weight)
3. Sex of neonate.
4. Apgar scoring degree.
5. Number of babies.
6. Weight of baby.

B-physical Measurements

Instrument were used to measure Body Mass Index, Body mass index was computed as weight in kilograms divided by the square of height in meter (Knox et.2004). The investigator measures the current BMI according to WHO Categories of BMI in 2002 which are:

Table-4: BMI into seven Categories According WHO

BMI (Kg/m^2)	WHO class
≤18.5	underweight
18.5 – 24.9	Normal range
25.0 – 29.9	Overweight
≥30.0	Obese
30.0 – 34.9	grade I
35.0-.39.9	grade II
≥40.0	grade III

For measuring weight a certified scale place on firm surface with subjects barefoot and lightly dressed without shoos, positioned at a 90 angle against a wall, nonelastic tap was used to measured height (Wildman, 2005).

Validity of the Questionnaire

For evaluating the validity of the questionnaire from, the investigator used content validity which the items in an instrument adequately represent the universe of content (poilt and Hungler 1999), through reviewing it by panel of fourteen experts in numerous fields. The panel included (five) faculties at the College of Nursing University of Baghdad; (3) faculty's members at College of Medicine, University of Basra, and (4) faculties at the College of Nursing University of Basra; (2) experts at Ministry Health. Result indicated that all experts had actually agreed upon the item of the

questionnaire. The experts experience years was (41+ 21) (Appendix G).

On the basis of the comments and suggestion made by the above mentioned experts, some items were modified and all experts' opinions were taken in to consideration.

Pilot Study

A pilot study was carried out on twenty pregnant women attended delivery room during period 18th February to the 25rd February2013;in general Basra hospital.

The pilot study was to find out whether the items of questionnaires were clearly understood and applicable and determine the reliability of questionnaire, and to estimate the time required for the interview and other data collection from record. After conducting a pilot study a revision had been made, some items were modified and other was added to questionnaire from. The time required ranged from (10-15) minutes, for each women and (10-20) minutes for measuring weight and height of mother before labor Appendix (F). The time of delivery depended of on progress of labor (1-12) hours, and (5-10) minutes for measuring the newborn body weight, and Apgar score.

DATA COLLECTION

Dates were collected through interviewing, recording and examination technique from 28rd February /2013 to25rd May 2013 Appendix (E).

The investigator had introduced her plan to study participant and explained the objective, and the benefit of the study. Verbal consent to participate in the study was obtained from each woman by explaining then it was voluntary and confidential, and that the information disclosed would be just for research purposes. All study sample was interviewed by the investigator, in some clinics, the interviews were carried out in (delivery waiting room, in other clinics interviews were carried out in (nursing station room) and measured weight and height by formula (weight/height2) because there was no empty room. Data about the following pregnancy outcomes were collected during labor and birth. Induction of labor, caesarean section, preterm delivery, and postdate delivery, these data were collect from the chart clines. The newborn body weight, and Apgar score measuring (5-10) minutes direct after birth. Gestational age was calculated from the first day in the Last Menstrual Period (LMP) or taken from the dating ultrasound scan that was performed before 20 weeks of pregnancy.

Limitations of study

Man problem and difficulties encounter the researcher in conducting the present study as following

1. The present study had several limitations. For example this study was performed in (2) hospitals in Basra city and it did not cover the whole city all Basra hospitals.
2. The study population was limited to (400) pregnant women, and a lot of more time is needed with the women during their interview and some of them were not cooperative.
3. There was no suitable place in the present of other women for interviewing freely and the delivery room crowded and noise.
4. The collection of data is so difficult when the pregnant woman is very tired and suffering from labor pain.
5. The size of collection of sample is not equal in two hospital

DATA ANALYSIS

Data analysis of study sample was done by using the SPSS (Statistical Package for Social Sciences) (version 19) and application statistical analysis system and Excel (statistical package.)

The following statistical data analysis approaches were used in order to analyze and assess the result of the study:

A. Descriptive statistical data analysis**:**

1. Frequencies (F) & Percentage (%).

Percentage $\% = \frac{Frequency}{Samplesize} x100$

2. Mean and Standard Deviation

$$X = \frac{\sum Xi\ Fi}{\sum Fi}$$

Where X = the Mean
∑= the summation
Xi = each individual raw score
F = the number of Frequency
(SD) was calculated through the use of the following formula

(Polite and hungler, 1999)

$$SD = \sqrt{\frac{\sum fxi^2}{Fi}}$$

3-Rating & Scoring of the Scale

In healthy nutritional pregnancy aspect questionnaire items were rated and score to two point for yes, one for no The part for many questionnaire, likert scales is used for rating the items as two and one (Polit &Hungler, 1999).

Results of the Study

Table-5: Distribution of the Study Sample According to Demographic and Socio – Economic Characteristics

Demographic Variable		
Age /years	N	%
≤20	98	24.5%
21-30	190	47.5%
31-40	99	24.75%
≥41	13	3.25%
total	400	Mean ±SD=26.39±7.651
Maternal education		
Illiterate	32	8, %
Read &Write	36	9. %
Primary	137	34.25%
Intermediate	82	20.5%
Secondary	53	13.25%
College	60	15.0%
TOTAL	400	100
Maternal occupation		
House wife.	331	82.75%
Governmental occupation	46	11.5%
Student	20	5%
Free work	7	.8%
Total	400	100, 0
Level of Economic status Family		
High	23	5.75%
Middle	162	40.5%
Low	215	53.75%
Total	400	100.0
Residency		
Governorates	180	45.0%
outskirts	160	40%
District	60	15%
Total	400	100
The of parent relationship		
Related	232	58%
Not related	168	42 %
total	400	100.0

Table (5) show that the highest percentage (47.5%) of study sample at age group (21-30) years, while the lowers percentage (3.25%) their age group was (≥40) years and with Mean and SD (26.3±7.651).

Regarding level of education mother for study sample, the highest percentage (34.25%) of study sample was primary school education, while the lowers percentage (8%) was illiterate.

Regarding occupation mother for study sample, the highest percentage (82.75%) of study sample there were housewives, while the lowers percentage (5%) was a student.

Regarding Socio-Economic status, the highest percentage (53.75%) of study sample in low Socio-Economic status, while the lowers percentage (5.75%) was in high Socio-Economic status.

Regarding place of residency, the highest percentage (45%) of study sample there was living in governorate, while the lowers percentage (15%) was living in district area.

Regarding consanguinity of parent, the highest percentage (58%) of study sample there was related, while the lowers percentage (42%) of them was not related.

Table-6: Distribution of the Study Sample According to Reproductive Characteristics

Variable		
Gravidity	N	%
Primigravida (had one pregnancy)	84	21.`%
Multigravida (had 2-4 pregnancies)	214	53.5%
Grand multigravida(5-6)	65	16.2%
Great multigravida (had≥7 pregnancies)	37	9.2%
total	400	100
Number of parity		
nulliparous (didn't have any types delivery)	95	23.75%
Primipara (had one delivery)	98	24.5%
Multipara (had 2-4 delivers)	170	42.5%
Grand multipara (5-6 deliveries)	25	6.25%
Great multipara (had≥7 deliveries)	12	3%
Number of Abortion		
No abortion	289	72.25%
1-2	98	24.5%
3-4	9	2.25%
5-6	4	1%
total	400	100.0
Number of Still birth		
No Still birth	345	86.25%
1-2	50	12.5%
≥3	5	1.25%
total	400	100.0
number of alive children now		
first pregnancy	102	25.5%
1-2	183	45.75%
≥3	115	28.75%
total	400	100
Interval between pregnancy		
First one	81	20, 25%
More two years	86	58.35%
Last two years	233	21.5%
Total	400	100%
Antenatal visit during this pregnancy		
Yes	80	20%
NO	320	80%
intake Tonic during this pregnancy		
Yes	327	81.75%
No	73	18.25%
Gestational age for this pregnancy		
≤36 week	12	3%
37-39week	301	75.25%
≥40	87	21.75%

Table (6) shows that the highest percentage (55%) of study sample had (2-4) pregnancies, while the lowest percentage (8.5%) were great multigravida had (≥7) pregnancies.

Regarding the parity, the highest percentage (42.5%) of study sample had (2-4) deliveries, while the lowers percentage (3%) of them had (≥7) deliveries.

Regarding the number of abortion, the highest percentage (72.25%) of study sample they had no history of abortion, while the lowers percentage (1%) of them had (5-6) abortion.

Regarding the number of stillbirth, the highest percentage (86.25%) of study sample did not have stillbirth, while the lowers percentage (1%) of them had 5-6) stillbirth.

Regarding the number of alive child, the highest percentage (45.75%) of study sample had (1-2) alive child, while the lowers percentage (25.5%) of them had primigravida .

Regarding of the interval between pregnancies, the highest percentage (58.35%) of study sample had more two years, while the lowers percentage (20.25%) of them had (5-6) primigravida.

Regarding of the antenatal visit during this pregnancy, the highest percentage (80%) of study sample they did not antenatal visit years, while the lowers percentage (20%) of them had antenatal visit.

Regarding of history of mother take folic acid during this pregnancy, the highest percentage (81.75%) of study sample they take folic acid during this pregnancy, while the lowers percentage (18%) of them had not taken folic acid during this pregnancy.

Regarding of Gestational age, the highest percentage (75.25%) of study sample they had (37-39) weeks gestational age pregnancy, while the lowers percentage (3%) of them had (36weeks) of gestational age pregnancy.

Table-7: Distribution of the Study Sample According to types of Delivery

Types of delivery	Variable	No	%
Types of NVD 314= (78.5%)	1) Spontaneous normal Vaginal delivery	132	42%
	2)Induction labor	182	58%
	1)Amniotomy	15	8.3%
	2)ARM	22	12%
	3)Foley catheter	125	68.7%
	4)Oxytocin	20	11%
	5) Used more than one process	15	6.5
CS		86	21.5%

Table (7) show that types of deliveries of study sample, the highest percentage (78.5%) of study sample had normal vaginal delivery consist, (58% induction of labor and 42 % Spontaneous normal Vaginal) delivery .while the lower set percentage (21.5%) of study sample had caesarean section **.**

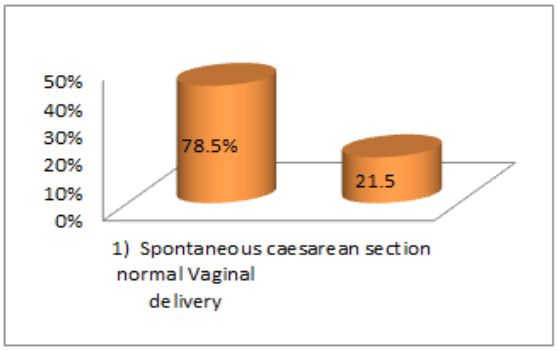

Fig-1: Column chart present percentage of type's delivery of study sample (78.5 vaginal deliveries and 21.5 caesarian sections).

Table-8: Distribution of the Study Sample According for Types and Cause of Cesarean Section

Types of caesarian section		NO	%
Elective		51	59.3%
Urgent		35	40.9%
Cause of caesarean section		NO	%
1	Fetal distress	18	2. %
2	Breech presentation	21	24.418%
3	Cephalopelvic disproportion	8	9.3%
4	Twin	5	5.8%
5	No progress	8	9.3%
6	Both tubal lection	4	4.651%
7	Hypertension	5	5.813%
8	Diabetes Mellitus	1	1.162%
9	Postdate	2	2.325%
10	Previous scare	11	12.79%
11	Infertility	3	3.49%
Total		86	100.0%

Table (8) shows that the highest percentage (59.3%) of study sample their (Elective Cesarean Section, while (40.9%) of them Urgent Cesarean Section).

Regarding for causes Cesarean Section: the higher percentage (24.418%) of study sample caused of Breech presentation, while lower percentage (1.162%) of study sample caused of Diabetes Mellitus.

Table-9: Distribution of the Study Sample According to Complication during Pregnancy

Complication		No	%
Anemia	**Yes**	156	39%
	No	244	61%
		400	100.0
Hypertension	**Yes**	43	10.8%
	No	357	89.2%
		400	100.0
Diabetes Mellitus	**Yes**	20	5%
	No	380	95%
	Total	400	100.0
Urinary tract infection	**Yes**	107	26.8%
	No	293	73.2%
	Total	**400**	**100**

Table (9) shows that the complications of pregnancy during these pregnancies (61%) of study sample did not have anemia, while (39%) of them have anemia during this pregnancy.

Regarding for Hypertension during these pregnancies: (89.2%) of study sample did not have Hypertension, while (10.8%) of them had Hypertension during this pregnancy.

Regarding for Diabetes Mellitus during this pregnancy: (95%) of study sample did not have Diabetes Mellitus, while (5%) of them had Diabetes Mellitus during this pregnancy.

Regarding for Urinary tract infection this pregnancy: (26.8%) of study sample did not have Urinary tract infection, while (26.8%) of them had Urinary tract infection during this pregnancy.

Table-10: Distribution of the Study Sample According Outcomes labor

Variable	No	%
1200-2500 G	27	6.75%
2600-3000G	169	42.25%
3100-3900G	140	35%
≥ 4000G	64	16%
Apgar score at 5 min of neonate life		
0-3	9	2.25%
4-6	53	13.25%
7-10	338	84.5%
Total	400	100

Table (10) shows that the Weight baby after birth highest pregnancies (42.25%) whit group (2600-3000G) of study sample, while the lowest percentage (16%) of them had (≥4000G).

Regarding for Apgar score at 5 min of neonate life: the highest percentage (84.5%) whit group (7-10 score) of study sample, while the lowest percentage (2.25%) of them had (0-3score).

Table -11: Distribution of (400) Study Sample According to Nutritional state during this pregnancy

Nutritional state	yes	%	No	No%	Mean score
1) Include meat in your food once a week	324	81%	76	19%	1.81
2) select fish as animal protein in your food at less once a week	345	86.25%	55	13.75%	1.86
3) Include chicken in your food once a week	319	79.75%	81	20.25%	1.86
4) Used vegetable butter, vegetable oil corn, olive, soya oil ect.. Daily in your food.	368	92%	32	8%	1.92
5) Eat potatoes so much.	371	92.75%	29	7.25%	1.92
6) Much intake of rich or bread in daily meal	382	95.5%	18	4.5%	1.95
7) Include bean or any drained vegetable in your food once a week	392	98%	8	2%	1.98
8) Include fiber in daily bases (Green vegetable food.	391	97.75%	9	2.25%	1.97
9) Avoid fast meal.	365	91.25%	35	8.75%	1.91
10) Intake of sweetened food (chocolate) daily	363	90.75%	37	9.25%	1.90

Nutritional state	yes	%	No	No%	Mean score
11) Drink fluid (soft drink)(250 ml) daily	341	85.25%	59	14.75%	1.85
12)Eat package food (cans)	389	97.25%	11	2.75%	1.97
13)Take milk and product daily	119	29.75%	281	70.25%	1.29
14)Drink coffee, tea, (1-2 cups daily)	280	70%	120	30%	1.7
15)Eat 5 fruit fresh and uncooked daily	366	91.5%	34	8.5%	1.91
16)Drink fluid (8 cups or 2.5 liter of water daily	381	95.25%	19	4.75%	1.95
Grand mean score = 2.87					

Table (11) shows that the grand mean higher than cut of point. The table also indicated that the highest mean of score (1.98) of nutritional status was item NO (7) to refer Include bean or any drained vegetable in food once a week, while the lowest mean score (1.29) of nutritional status was item NO (13) to refer Take milk and product daily.

Table-12: Distribution of the Study Sample According Body Mass Index

BMI Groups		Variables	
		No	%
underweight	< 18.5	7	2%
Normal weight	18.5-24.9	104	26%
Overweight	25- 29.9	163	41.%
Obese	>30	126	31.%
total		400	100.0

Table (12) shows that highest percentage (40%) of study sample whit group overweight, while the lowest percentage (2%) of study sample whit group underweight.

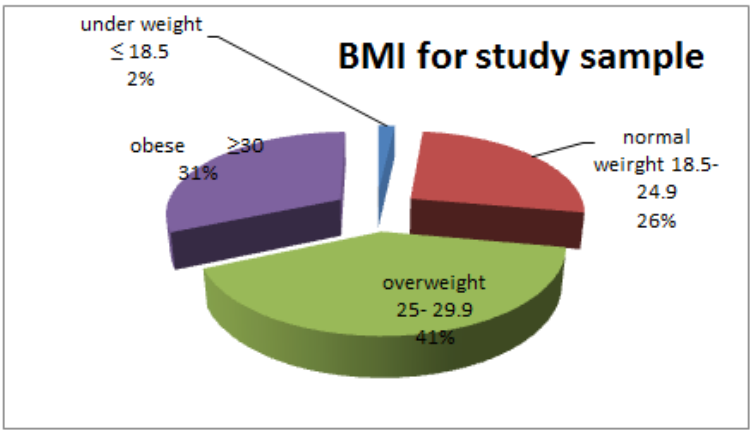

Fig-2: Pie chart of the percentage BMI for (400) pregnant women attending of labor room for AL- Basra hospitals the period between 28rdFebruary 28rd may 2013.

Table-13: Distribution of the Study Sample (Demographic and Socio – Economic Characteristics) According to BMI

Demographic Variables	BMI											
Age /years	Under weight		Normal		Overweight		obese		χ^2	df	Pv	SC
	No	%	No	%	No	%	No	%				
≤20	3	3	44	8	35	35.7	16	16.3	34.846	9	0.0	HS
21-30	2	1	45	23.76	73	38.32	70	36.8				
31-40	2	2	13	13	49	49	35	35				
≥41	0		2	15.3	6	46.3	5	38.4				
Level of education mother	Under weight		Normal		Overweight		obese					
Illiterate	1	3.1	8	25	14	43.7	9	28.7	11.903	1	.686	NS
Read &Write	1	2.7	9	25	18	50	8	22.2				
Primary	4	2.9	39	28.4	48	35	46	33.5				

Demographic Variables	BMI											
Intermediate	0	0	26	31.7	32	39	24	29.2				
Secondary	0	0	10	30.3	23	69.6	20	60.6				
College	1	1.6	12	20	28	46.6	19	31.6				
Occupation mother	Under weight		Normal		Overweight		obese					
House wife.	6	1.8	92	27.7	133	40.1	100	30.2	13.934	9	.125	NS
Governmental occupation	0	0	6	13	22	47.8	18	39.1				
Student	1	5	6	30	8	40	5	25				
Free work	0	0	0	0	0	6	3	42.8				
Economic status Family	Under weight		Normal		Overweight		obese					
Low	3	1.3	58	26.9	84	39	70	32.5	5.136	6	.526	NS
Middle	4	2.4	37	22.8	69	42.5	52	32				
Hight	0	0	9	4.1	10	4.6	4	0.78				
Residency	Under weight		Normal		Overweight		obese					
Governorates	2	1.1	46	25.5	74	41.1	58	32.2	7.837	6	.250	NS
outskirts	0	0	19	11.8	18	11.2	23	14.3				
District	5	8.3	39	65	71	118.3	45	75				
The consanguinity of parent	Under weight		Normal		Overweight		obese					
Related	5	2.1	57	34.5	89	38.3	81	34.9	3.770	3	.287	NS
Not related	2	1.1	47	27.9	74	44	45	26.7				

Table (13) Shows that there is statistically significance between (BMI and age mother of study sample, while that there are not statistically significance between (BMI and level education mother, occupation mother, economic state family, residency and the consanguinity of parent).

Regarding the association between BMI and age mother groups: the highest percentage (49%) whit group overweight pregnant women with in age group (31-40), while the lowest percentage (0%) of them had underweight with age group≥ 40.

Regarding the association between BMI and level education mother groups: the highest pregnancies (60.6%) whit group obese pregnant women from level secondary education, while the lowest percentage (0%) of them had underweight from level (intermediate and secondary education).

Regarding the association between BMI and occupation mother: the highest percentage (43%) whit government occupation with group overweight pregnant women, while the lowest percentage (0%) of them had free work with groups (underweight, normal weight and overweight.

Regarding the association between BMI and economic statues of family: the highest percentage (43.4%) low economic statues family whit group overweight pregnant women, while the lowest percentage (0%) of them had high economic statues for group g underweight**.**

Regarding the association between BMI and residency area: the highest percentage (41.1%) whit group overweight pregnant women they live in governorate's area, while the lowest percentage (0%) of them had underweight they live in district area.

Regarding the association between BMI and the consanguinity of parent: the highest percentage (44%) whit group overweight pregnant women they non related, while the lowest percentage (1.1%) of them had underweight they non related

Table-14: Distribution of the Study Sample (Reproductive Characteristics) According to BMI

Reproductive Variables	BMI								χ^2	df	PV	CS
Gravidity	Under weight		Normal		Overweight		obese		20.392	12	**0.002**	HS
	No	%	No	%	No	%	No	%				
Primigravida (had one pregnancy)	2	2.3	34	40	32	38.5	16	19				
Multigravida (had 2-4 pregnancies)	3	1.4	54	25.2	83	39.2	74	34.1				
Grand multigravida(5-6)	1	1.5	9	13.8	33	50.7	22	33.8				
Great multigravida (had≥7 pregnancies)	1	2.7	7	18.9	14	37.8	15	**40.5**				
Parity	Under weight		Normal		Overweight		obese		X	df	PV	CS
nulliparous (didn't have any types delivery)	2	2.1	33	34.7	40	42.1	20	21.1	15.368	9	**.OO1**	HS
Primigravida (had one delivery)	2	2	29	29.6	37	37.8	30	30.6				
Multigravida (had 2-4 deliveries)	2	1.2	33	19.4	74	**43.6**	61	35.8				
Grand multigravida(5-6 deliveries)	0	0	6	24	9	36	10	40				
Great multigravida (had≥7 deliveries)	1	8.3	3	25	3	25	5	41.7				
Number of Abortion	Under weight		Normal		Overweight		obese		X	df	PV	CS
No abortion	5	1.7	83	28.7	112	38.8	89	30.8	983.547	9	.35	NS
1-2	2	2.1	18	18.4	45	45.9	33	33.6				
3-4	0	0	3	33.3	5	55.6	1	1.1				
5-6	0	0	0	0	1	25	3	**75**				
Number of Still birth	Under weight		Normal		Overweight		obese		X	df	PV	CS
No Still birth	7	2	91	26.3	144	41.7	103	29.8	10.509	**825**	**.OOO**	HS
1-2	0	0	11	22	19	38	20	40				
≥3	0	0	2	40	0	0	3	**60**				
Number of Alive chilled now	Under weight		Normal		Overweight		obese		X	df	PV	CS
None	2	1.9	36	25.3	41	40.3	23	22.5	14.660	9	**0.01**	HS
1-2	3	1.7	47	25.7	73	39.9	60	32.7				
≥3	2	1.7	21	18.2	49	**42.6**	43	37.3				
Interval period between pregnancy	Under weight		Normal		Overweight		obese		X	df	PV	CS
First one of pregnancy	2	2.4	28	43.5	31	38.5	20	24.6	6.218	6	.27	NS
More two years	1	12.3	15	17.4	39	45.3	31	36				
Last two years	4	1.9	61	26.2	93	39.9	75	32				
Antenatal visit	Under weight		Normal		Overweight		obese		X	df	PV	CS
Visit	1	1.3	21	26.3	31	38.7	27	33.7	.404	6	**.939**	NS
Non visit	6	1.8	83	25.8	132	41.2	99	30.9				
intake Folic acid during pregnancy	Under weight		Normal		Overweight		obese		X	df	PV	CS
Yes	6	1.8	85	25.9	135	41	104	31.3	.105	6	.991	NS
No	1	1.5	19	27.1	28	40	22	31.4				
Gestational age	Under weight		Normal		Overweight		obese		X	df	PV	CS
≤36 week	0	0	4	33.3	6	50	2	16.5	2476.501	2200	.000	**HS**
37-39 week	6	1.9	79	26.5	124	41.1	92	30.5				
≥40	1	1.1	21	24.3	33	38.9	32	36.7				

Table (14) Shows that there is statistically significance between (BMI and (Gravidity, Parity, still birth and Alive chilled now) of study sample, while that there are not statistically significance between (BMI and Abortion, Prenatal visit, Interval period between pregnancy, intake Folic acid during pregnancy and Gestational age).

Regarding the association between BMI and Gravidity: the highest percentage (40.5%) whit group obese pregnant women with in (Great multigravida (had≥7 pregnancies), while the lowest percentage (1.5%) of them had underweight with (Grand multigravida (5-6gravida)).

Regarding the association between BMI and Parity groups: the highest percentage (40.5%) whit group overweight pregnant women from Multigravida (had 2-4 deliveries), while the lowest percentage (0%) of them had underweight from (Grand multigravida (5-6 deliveries)).

Regarding the association between BMI and Abortion: the highest pregnancies (75%) whit group obese pregnant women, while the lowest percentage (0%) of them had (3-4), (5-6) (underweight and normal weight).

Regarding the association between BMI and Still birth: the highest percentage (60%) with group obese pregnant women them have (≥3) still birth, while the lowest percentage (0%) with group underweight of them had **(**1-2), (≥3).

Regarding the association between BMI and Alive chilled now: the highest percentage (42.6%) whit group overweight pregnant women they have (≥3) child, while the lowest percentage (1.9) of them had underweight they first one of pregnancy.

Regarding the association between BMI and Interval period between pregnancies: the highest percentage (45.3%) whit group overweight pregnant women they Moor two years period between pregnancies, while the lowest percentage (1.9%) of them had underweight they last two years period between pregnancies.

Regarding the association between BMI and antenatal vista between pregnancies: the highest percentages (41.2%) whit group overweight pregnant women they did not vista antenatal health center during this pregnancy, while the lowest percentage (1.3%) of them had underweight they vista health center during this pregnancy.

Regarding the association between BMI and intake folic acid during this pregnancy: the highest percentage (41%) whit group overweight pregnant women they intake folic acid during this pregnancy, while the lowest percentage (1.5%) of them had underweight they did not take folic acid during pregnancy.

Regarding the association between BMI and Gestational age:

Regarding for ≤36 week: the highest percentage (50%) whit group overweight pregnant while the lowest percentage (0%) with group underweight.

Regarding for (37-39) week: the highest percentage (41.1%) whit group overweight pregnant while the lowest percentage (1.9%) with group underweight week.

Regarding for (≥40) week: the highest percentage (38.9%) whit group overweight pregnant while the lowest percentage (1.1%) with group underweight.

Table-15: Distribution of the Study Sample (complication during pregnancy) According to BMI.

Complication During this pregnancy		BMI								χ^2	df	P≤0.05	sig
		< 18.5 N =7		18.5-24.9 N=104		25-29.9 N=163		>30 N=126					
		N	%	N	%	N	%	N	%				
Anemia	Yes	4	2.5	44	28.2	63	40.5	45	28.8	23.15	3	.001	HS
	No	3	1.2	60	24.5	100	40.9	81	33.3				
Hypertension	Yes	0	0	8	18.6	13	30.2	22	51.2	0.078	3	.028	S
	No	7	1.9	96	26.8	150	42	104	29.3				
Diabetes Mellitus	Yes	1	5	2	18.6	9	45.2	8	40.2	3.920	3	.270	NS
	No	6	1.5	102	26.8	154	40.5	118	31				
Urinary tract infection	Yes	3	2.8	24	22.4	41	38.3	39	36.4	2.991	3	.393	NS
	No	4	1.3	80	27.3	122	41.6	87	29.6				

Table (15) Shows that there is statistically significance between (BMI and (Anemia and Hypertension) of study sample, while that there are not statistically significance between (BMI and Diabetes Mellitus and Urinary tract Infection).

Regarding the association between BMI and Anemia: the highest percentage (28.8%) they have Anemia whit group obese pregnant women, while the lowest percentage (1.2%) of them group underweight they did not have Anemia

Regarding the association between BMI and Hypertension: the highest percentage (51.2%) they have hypertension whit group obese pregnant women, while the lowest percentage (1.9%) of them group underweight they did not have hypertension.

Regarding the association between BMI and Diabetes Mellitus: the highest percentage (45.2%) they have Diabetes Mellitus whit group overweight pregnant women, while the lowest percentage (1.5%) of them group underweight they did not have Diabetes Mellitus.

Regarding the association between BMI and Urinary tract Infection: the highest percentage (36.4%) they have Urinary tract Infection whit group obese pregnant women, while the lowest percentage (1.3%) of them group underweight they did not have Urinary tract infection.

Table-16: Distribution of the Study Sample (types of Delivery) According to BMI

Types of deliveries	BMI								χ^2	df	P≤0.05	Sig
	>18.5N=7		18.5-24.9 .N=104		25-29.9 N=163		<30 N=126					
	No	%	No	%	No	%	No	%				
NVD	6	1.9	88	28.2	130	44.4	90	28.5	317.169	275	.041	S
CS	1	1.1	16	18.6	33	18.3	36	41.8				

Table (16) Shows that there is statistically significance between BMI and types of deliveries of study sample.

Regarding the association between BMI and normal vaginal delivery: the highest percentage s (44.4%) they whit group overweight pregnant women, while the lowest percentage (1.9%) of them group underweight.

Regarding the association between BMI and caesarean section: the highest percentage (41.8%) they whit group obese pregnant women, while the lowest percentage (1.1%) of them group underweight.

Table-17: Distribution of the Study Sample (types of Vaginal Delivery) According to BMI

	BMI											
Types of vaginal delivery	**>18.5N=7**		**18.5-24.9.N=104**		**25-29.9.N=163**		**<30 N=126**		χ^2	**df**	**P≤0.05**	**sig**
	No	**%**	**No**	**%**	**No**	**%**	**No**	**%**				
Spontaneous labor	**5**	**3.7**	**34**	**25.7**	**57**	**43.1**	**36**	**27.2**	36.59	16	.01	**s**
Induction labor												
Oxytocin	**1**	**1.3**	**37**	**54.1**	**53**	**64.6**	**34**	**47.6**				
folly catheter	**0**	**0**	**6**	**7.3**	**9**	**10.9**	**7**	**8.5**				
Amniotomy ARM	**0**	**0**	**2**	**2.4**	**6**	**7.3**	**7**	**8.5**				
more than one	**0**	**0**	**9**	**10.9**	**5**	**6**	**6**	**7.3**				
Total	**6**		**88**		**130**		**90**					

Table (17) Shows that there is statistically significance between BMI and types of normal vaginal delivery of study sample

Regarding the association between BMI and Spontaneous vaginal labor: the highest pregnancies (43.1%) they whit group overweight pregnant women, while the lowest percentage (3.7%) of them group underweight**.**

Regarding the association between BMI and induction vaginal labor: the highest percentage (64.4%) they whit group overweight pregnant women, used oxytocin while the (10.9%) used folly catheter for same group. From (Amniotomy) used the highest percentage (8.5%) whit group obese pregnant women .for used more than one press the highest percentage(10.9%) with group normal weight .from used more than one presses the higher percentage (10.9%) for group normal weight .while the lower percentage (0%) whit group underweight.

Table-18: Distribution of the Study Sample (cause C/S Delivery) According to BMI.

Cause of Cesarean section	BMI	<18.5		18.5-24.9		25-29.9		>30		χ^2	df	S.	P≤0.05
		No	%	No	%	No	%	No	%				
	Fetal distress	**0**	**0**	**2**	**2.32**	**10**	**11.62**	**6**	**6.97**	**86**	**30**	**HS**	**.01**
	Breech presentation	**0**	**0**	**5**	**5.81**	**7**	**8.13**	**9**	**10.46**				
	Cephalopelvic disproportion	**0**	**0**	**1**	**1.16**	**3**	**3.48**	**4**	**4.65**				
	Twin	**0**	**0**	**2**	**2.32**	**1**	**1.16**	**2**	**2.32**				
	No progress	**0**	**0**	**2**	**2.32**	**5**	**5.81**	**1**	**1.16**				
	Both tubal lection	**0**	**0**	**1**	**1.16**	**0**	**0**	**3**	**3.48**				
	Hypertension	**0**	**0**	**1**	**1.16**	**3**	**3.48**	**1**	**1.16**				

	Diabetes Mellitus	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1.16**			
	Postdate	**0**	**0**	**0**	**0**	**1**	**1.16**	**1**	**1.16**			
	Previous scare	**0**	**0**	**1**	**1.16**	**4**	**4.65**	**6**	**6.98**			
	Infertility	**0**	**0**	**1**	**1.16**	**0**	**0**	**2**	**2.32**			
	TOTAL	**86+ NVD (314) =400**										

Table (18) Shows that there is statistically significance between BMI and causes cease ran section of study sample.

Regarding the association between BMI and causes cease ran section delivery the higher percentage (% 11.62) caused of fetal distress with group overweight, while the low percentage (0%) for all caused Cesarean section with group underweight.

Table-19: Distribution of the Study Sample (Outcomes Deliveries) According BMI& Shows that there is statistically significance between BMI and (Weight baby and Apgar score at 5 min of neonate life)

Weight baby	**BMI**								**χ^2**	**df**	**P≤ 0.05**	**Sig**
	<18.5 N=7		18.5-24.9 N=104		25-29.9 N-163		<30 N=123					
	No	%	No	%	No	%	No	%				
1000-2500 g	1	3.7	11	40.7	8	29.6	7	25.9	28.044	9	.001	HS
2600-3000g	4	2.3	51	30.1	74	43.7	40	23.6				
3100-3900g	2	1.4	37	26.4	56	40	45	32.1				
>4000g	0	0	5	7.8	25	39	34	53.1				
Apgar score at 5 min of neonate life												
0-3	0	0	1	11.1	5	55.5	3	33.3	67.612	24	.000	HS
4-6	2	3.7	12	22.6	22	41.5	17	32				
7-10	5	1.4	91	26.9	136	40.2	106	31.3				

Regarding the association between BMI and (1000-2500 g) weight baby the higher percentage (40.7%) whit group normal weight pregnant women, while the low percentage (3.7%) with underweight. ‘

Regarding the association between BMI and (2600-3000g) weight baby the higher percentage(43.7%) whit group overweight, while the low percentage (2.3%) with underweight.

Regarding the association between BMI and (3100-3900) weight baby the higher percentage (40%) whit group overweight, while the low percentage (1.4%) with underweight.

Regarding the association between BMI and (≥4000g) weight baby the higher percentage (41.1%) whit group overweight, while the low percentage (0%) with underweight.

Regarding the association between BMI and Apgar score at 5 min of neonate life score (0-3) the higher percentage(55.5%)whit group overweight, while the low percentage (o%) with underweight

Regarding the association between BMI and Apgar score at 5 min of neonate life score (4-6) the higher percentage(41.5%)whit group overweight, while the low percentage (3.7%) with underweight

Regarding the association between BMI and Apgar score at 5 min of neonate life score (7-10) the higher percentage(41.1%)whit group overweight, while the low percentage (1.1%) with underweight

DISCUSSION

Maternal obesity carries significant risks for the mother and fetus, the risks increase with the degree of obesity and persists after accounting for other confounding demographic factors. (Jane, 2004).

1. Sociodemographic Characteristics of the Study Sample

A. Age

The present study reveals that the highest percentage (47.5%), of study sample are group between (21-30) years of age, as show in table (5), the mean age and SD of study sample (26.39± 7.651).

The finding of the present study indicate that there are statistical significant association between age group and all groups of Body mass index as show in table (13) this finding whit higher percentage with(38.32%) with overweight groups.

(Arar, 2011) she found that, the mean group of overweight and obese pregnant women were higher than other group of BMI, and this observation was also report by other, which suggest that women gain weight with young age (Jaleel, 2009;Callaway 2006).

The present study agreed with the pervious study done by (Tasson, 2005) who found that the mean

maternal weight in the massively obese group was significantly greater than that in the other group that the mean maternal age obese women was greater than the mean in the non-obese women, On other hand (Bhattacharya, 2009) shows that women in the overweight and obese group were significantly older age, booking weight than those in the normal group. The mean weight gain between the two groups was not statistically significant (p = 0.37)

B. Educational Level.

Educationally the high percentage (34.25%) of study sample are (primary school graduates) as shown in table (5), while the low percentage (8%) of them illiterate. The finding of present study statistical non-significant association between level educational and BMI show that in table (13), the higher percentage of primary school education was whit group overweight.

Also **(**Arar, 2011; Durand, 2007)they found that there was no much statistical difference in level of education between group BMI, although other find that obesity is more prevalent in mother with less education.

All educational levels were enrolled in the study regardless of low or high education, it at the time of data collection most women were from (primary and intermediate school education) who attended the hospital for delivery.

C. Occupation mother

The majority of female pregnant women, (82.75%) were Housewives (table5) whit (overweight) group of BMI there is finding of present study statistical non-significant association between occupation mother and BMI show that in table (13). These findings are consistent with (Shawky; Mila, 2000) study that reported that there are (92.4%) women housewives. This result also agrees with (Hossain, 2009) who mentioned (88.1%) of mother are attending their studies reported were mainly housewives (Meher, 2009) More than 90% females were housewives and belonged to middle class in all groups.

D. Socioeconomic Status

The highest percentage (53.75%) of study sample are low socioeconomic status shown in table (table 5) whit overweight group from BMI shown that in table (13). while the lowest percentage (5.75%) of them are in high Socioeconomic level. the finding of present study indicates that there are statistical non-significant associations between Socioeconomic state and all groups BMI. This finding reveals that of pregnant women were from low Lack of knowledge is one of the contributing factors for poor health among many people of low socioeconomic status (National center for educational statistics, 2008).

While (Meenakshi, 2007) finding high significant difference association between socioeconomic groups and all BMI groups.

The rates of obesity in pregnancy are increased (SOGC Clinical practice guideline, 2010).the increase is also noticed in (Taweel, 2007), who found only 24% of Iraqi women are of normal weight(Al-Tawil, 2007) .Few pregnant mother in Bare know their pregnancy weight and obesity in the sample studied could be defined accurately in terms of weight to height ratio (Aseel, 1998) .This increase could be attributed to improve in low socio-economic state after removed of United National sanction on Iraqi in addition to above factors.

E. Residency

The highest percentage (45%) of study sample are governorates area shown in table (table 5), from (50%) whit overweight group from BMI shown that in table (13). while the lowest percentage (15%) district area. the finding of present study indicates that there are statistical non-significant associations between Residency and all groups BMI.

These findings are in a consistent with (Raymajhi, 2006) who reported that 60.4% of pregnant women live at a governorates area resident compared with 27.7% of multipara because the higher parity is more frequently encountered in the governorates area and low socioeconomic population and these compounding factors continue (Nehal, 2012; Bashaar, 2008) mentioned that the majority of pregnant women(45%) came from governorates area. The present finding also disagrees with (Sipim, 1991) who stated that more pregnant lived in the outskirts area.

F. Consanguinity

The result indicates that the highest percentage (58%) of mothers in all groups BMI (were related to husband) (table 5), of present study indicates that there are statistical non-significant associations between Consanguinity and all groups BMI shown that in table (13) with overweight group. Nath, (2005) mentioned in his study the prevalence of consanguineous marriages in a rural community and its effect on pregnancy outcome in India, the prevalence of consanguinity was found to be 36%, and the majority of the marriages were between first cousins (54.44%), fetal loss was seen to be significantly higher in the consanguineous group as compared to non-consanguineous group, while no significant effect of consanguinity was observed on the number of stillbirths, neonatal mortality, obstetrical complications and congenital malformations, only 7.6% of the women were aware about the hazards of a consanguineous marriage (Basil, 2008) mentioned in his study the consanguinity and its adverse pregnancy outcomes: the North of Jordan experiences consanguineous marriages were significantly associated with low birth weight delivery, preterm delivery, and

births with congenital anomalies compared with Non-consanguineous marriages. A study in Bahrain about the relation of malformations and consanguinity, the result indicated that increased maternal age, high parity, consanguinity and a history of 2 or more previous abortions were found to increase the risk of congenital malformation (Shafei, 1986).

2. Reproductive Characteristics

A. Gravidity

Regarding the gravidity, the higher percentage (53.5%) of study sample had (2-4)pregnancies with group overweight for BMI, while (9.2%)of them had seven or more table (6).There are statistically significance relationship between gravidity and body mass index shown that in table (14**) (**Tabassum, 2009) stated that grandmultipara (para ≥5) more to perinatal complications rather than multipara (Para1-4).Begum, (2003) reported the lack of health education, religious taboos, against use of family planning methods and vogue of having large families (especially in a rural areas) accounts for increased incidence of high gravidity (İlknur, 1010; Ibrahim, 2011) mentioned No significance was found in gravidity and parity high gravidity or parity may be related to increased risk of chronic stress and diverse of lifestyle factor related to childrearing (Zhang, 2009**).**

B. Parity

Nearly (43.6%) of multipara had at between (2-4) deliveries shown in table (6), with overweight groups BMI was recorded at significant difference at P<0.05 between BMI and Gravidity shown that on table (14). This result accords with (Ibrahim, 2011) and Tosson.2005. Considering the high prevalence of obesity among women of childbearing age, however, this is a major public health issue. In 1995, it was found in a retrospective study that the cost of prenatal care in overweight women exceeded that in normal-weight control subject by 5.4- to 16.2- fold depending on the degree of obesity (Tosson, 2005).

The present study agreed with the pervious study done by Perlow who found that the mean maternal weight in the massively obese group was significantly greater than that in the normal group(Perlow, 1997) found that weight was significantly related to obese pregnant women (0.001), while parity women. This finding agreed with the present study which revealed that the maternal factors including weight and body mass index were significantly related to obese pregnant women.

Disagreed result accords with (Wieslaw, 2007) was found not relationship between parity and body mass index.

In cross- sectional analysis of over 500, 000 women delivered between 1992 to 1997 in New South Wales, Australia, the incidence of obstetric complications found to be increased significantly from parity 4 onwards (Bai, 2002). The higher parity and gravidity was a associated with a consistent increase in the risk of metabolic lead to obesity in Chinese women (Lao, 2010)

C. Abortion

Regarding the number of abortion (72.25%) of study sample had no history of abortion whit group overweight, while the lower percentage (1%) of them had habitual abortion between(5-6) number of abortion, as show in table (6) the higher percentage whit group obese pregnant women .there are statistically non-significance relationship between BMI and abortion, show that in table (14).This study illustrated that there was no significant difference between all groups in obstetric history of abortion, which is also found in other study (Tosson, 2005) However, other study showed obesity is associated with increased risk of spontaneous and recurrent abortion(Lashen, 2004). This result accords with (Karim, 1994) the risk of spontaneous abortion is increased in obese women. (BMI > 30 kg/m2. The (Gregory, 2010), authors also identified an increased risk of recurrent early miscarriages (more than 3) (successive miscarriages < 12 weeks' gestation) in the obese population. (Meher, 2009) found Maternal obesity is a risk factor for spontaneous abortion (for both spontaneous conceptions and conceptions achieved through assisted reproductive technology**.**

D. Still birth

Most of study sample (86.25%) did not have stillbirth, shown in table (6), whit in group overweight, while the lower percentage (1.25%) they had three or more, present higher percentage whit in group obese pregnant women, show that in table (14) there are statistically high significance relationship between BMI and Still birth.

(Tosson, 2005) found out, History of early stillbirth was greater in obese group than other groups, however, history of stillbirth was same in obese and normal group noticed by (jaleel, 2009). Increased perinatal and neonatal mortality, a higher risk of low birth weight babies, stillbirths, and miscarriage are some of the consequences of malnutrition in women (Krasovec and Anderson, 1991).

The most prevalent risk factor for unexplained stillbirth is pre-pregnancy obesity (greory, 2010). The odds ratio for stillbirth is for morbidly obese women (BMI ≥35 kg/m2). The mechanisms suggested for increased stillbirth risk in the obese woman include a decreased ability to perceive a reduction in fetal movement, hyperlipidemia leading to atherosclerosis affecting placental blood flow, and increased snoring and sleep apnea associated with oxygen desaturation and hypoxia. (Gregory, 2010) (Meher, 2009) his studies revealed that obese pregnant women have an estimated

risk of stillbirth that is twice that of normal weight pregnant women.

E. A Live children now

A study finding show that the highest percentage (45.75%) of study sample had (1-2) alive child with overweight group, while (25.5%) of them had first pregnancy shown in table (6) .there are statistically significance relationship revealed between BMI and a live child, shown in table (14).

Number of child live is associated with obesity in women. Increase in risk of obesity was documented for each additional child. Interestingly, the same study found increase in suggesting that perhaps lifestyle changes after the birth of a child may lead to increased prevalence of obesity.

(Weng, 2004). The Stockholm Pregnancy and Weight Development Study found that weight increase during pregnancy was the strongest predictor for sustained weight retention one year after birth. They noted an increase in reported lifestyle changes, such as changes in diet, exercise and meal patterns. This again suggests that body weight after pregnancy could be determined, in part, by lifestyle changes associated with having children. (Coitinh2001)However, studies have shown that BMI prior to pregnancy, young age at marriage, maternal age, time period from marriage to first birth and high gestational weight gain are important in determining the risk of becoming overweight after pregnancy. Julia 2005

F. Interval between pregnancies

A study finding show that the highest percentage (58.35%) of study sample had (more two years) duration of Interval between pregnancies with group overweight, while (20.25%) of them had first pregnancy shown in table (6) .there are statistically non-significance relationship revealed between BMI and Interval between pregnancies, shown in table (14).

Limiting births and spacing them at least two years apart are good for maternal and child health. Every pregnancy carries potential health risks for women, even for women who appear healthy and at low risk (WHO, 1998). The number of children that is recommended in life is two only, and the spacing between child and another 3 to 4 years to control life requirements and to provide good raring for them (PBC, 2009).

G. Antenatal visit

A study finding show that the highest percentage (80%) of study sample of them they not visit during pregnancy for maternal health center, major of them with group overweight pregnant women shown in table (6) .there are statistically non-significance relationship revealed between BMI and Antenatal visit, shown in table (14).

Main purpose of visit is to obtain comprehensive history, establish gestational age and identify any maternal or fetal risk factors. Thus, a visit at this appropriate period has been associated with significantly reduction of maternal and perinatal morbidity and mortality (Nwagha, 2008).These findings do not agree with EJOG & reproductive Biology (2009) that reported all parous women have excellent prenatal care and regularly. This result disagrees with (Sipim, (1991) who stated that between 1985- 1986 the grandmultipara visited the maternity health centers were more than lower parity. (Rayamajhi, 2006) reported in study that the grandmultipara 26.4% having absolutely no antenatal care.

WHO and (Stanton, 2008) who reported that, in Africa and Asia, antenatal care increases the rate of births with a skilled attendant, from 13% to 45% for women who make two or three visits to 73% for those who make four or more visits. The availability of high-quality antenatal care may encourage women to attend the recommended four visits, with the long-term potential of significantly reducing both maternal and perinatal mortality. While the American college of obstetricians and gynecologists recommended that women receive at least (13) prenatal visits during full term pregnancy (Alameda, 2006).

H. Intake folic acid during this pregnancy

A study finding show that the highest percentage (81%) of study sample they take folic acid during pregnancy with overweight group, while (20%) of them not take folic acid during this pregnancy shown in table (6) .there are statistically non-significance relationship revealed between BMI and a live child, shown in table (14)

According to Population Action International publication, the iron requirements during pregnancy are as follows (Yousif, 2007):

- 1st Trimester 0.8mg daily
- 2nd Trimester 4-5mg daily
- 3rd Trimester 6mg daily

During the 3rd trimester it is almost impossible to get enough iron from the diet, which means that the mother's iron stores will be utilized to meet the rapid demand. The total iron requirement for a normal pregnancy in average size female is approximately 1000mg (Yousif TK.2007)

Poor maternal weight gain may result in iron, folic acid and other micronutrient deficiencies, contributing to anemia and low birth weight.

Improving maternal nutrition and encouraging antenatal services facilitating nutrition and care during pregnancy can lead to improved perinatal outcomes in this section of the population.

An association of maternal anemia and low birth weight and preterm Poor nutrition and thus poor maternal weight gain may result in iron, folic acid and other micronutrient deficiencies, contributing to anemia and low birth weight. Improving maternal nutrition and encouraging antenatal services facilitating nutrition and care during pregnancy can lead to improved perinatal outcomes in this section of the population (Meenakshi, 2007).

F .Gestational age

Regarding of Gestational age the higher percentage present (75.25%) of study sample with age (37-39 week) shown in table (6), the higher percentage of them (41.1%) whit group overweight of BMI, while the lower percentage (0%) with age (≤36week) with group underweight, the higher percentage of them was (50%) with group overweight from BMI, shown in table (5). There is statistically significance relationship between Gestational age and body mass index shown that in table (14).

Then we found problem with preterm baby, agree with (Jaleel, 2009). Dis agree with (Islam, 2010) she found Preterm was not problem in her study. Nulliparous women who were obese had confidence interval of delivering an infant at <32 weeks 'gestation when compared with lean women (Cnattingiuset, 1998).

(Lastly; Jensen, 2003) conducted a historical cohort study on 2, 459 women to investigate the relationship between classification during pregnancy as overweight (BMI 25–29.9) or obese (BMI ≤30) on pregnancy outcomes. The rates of spontaneous preterm delivery were similar between groups of obese and overweight women and women in the normal weight group, and preterm delivery appeared to ''independent of the presence of overweight or obesity'', Castroand Avina (2002).

3. Complication during pregnancy

A. Anemia

A study finding show that the highest percentage (61%) of study sample they did not have anemia, while (39.2%) of them have anemia during this pregnancy shown in table (9), (40.5%) of them with group overweight pregnant women shown in table (15) .there are statistically high-significance relationship revealed between BMI and Anemia.

Anemia was taken as hemoglobin < 11 gm /dL in peripheral blood. Overweight and obesity were more common in subjects who showed an evidence of anemia Ante partum hemorrhage had significantly more in obese women (Zohdy, 2007).

(Meenakshi, 2007) Obesity is a growing problem. Excess energy intake does not guarantee adequate iron intake. Some low-income women with BMIs > 30 will qualify for nutrition counseling through the program.

Because of anemia, for excessive weight gain and optimal care for the woman with a BMI > 30 is regular counseling with a nutritionist (Cecilia, 2009)

Women with anemia have substantial reduction in work capacity and may find it difficult to cope with household chores and childcare, epithelial changes, alteration in gastrointestinal function)· The relationship between anemia and infections may be due to adverse effects of anemia on immune function. Premature births are more common in women with moderate anemia. They deliver infants with lower birth weight and perinatal mortality is higher in these babies ·The incidence of preterm labor (Hassas, 2012).

(Julia H. 2005)In view of the positive and significant association between obesity and the mean hemoglobin level in this population (obese pregnancy women).

B. Hypertension

A study finding show that the highest percentage (89.2%) of study sample they did not have hypertension, while (10.8%) of them have hypertension during this pregnancy shown in table (9), (51%) of them with group obese pregnant women shown in table (15). There are statistically significance relationship revealed between BMI and hypertension.

Chronic hypertension: Systolic blood pressure≥140 mmHg or diastolic blood pressure ≥90 mmHg on two consecutive measurements in the first half of the pregnancy (Ibrahim, 2010)The results of this study are broadly consistent with previous studies about maternal obesity and the occurrence of a big range of adverse outcomes, it has been reported that women categorized as obese and morbidity obese are at an increased risk of pre-eclampsia and gestational hypertension (GH) during their pregnancy compared with women who are of normal weight. There is agreement with (Weiss, 2003; Kumari, 2001) who found that a majority of studies have described an increased risk for gestational diabetes, gestational hypertension and preeclampsia associated with obesity. Moreover, National High Blood Pressure Education Program (2004) who stated that the hypertensive disorders of pregnancy, preeclampsia, and gestational Hypertensions, which complicate to 8% of pregnancies, are leading causes of maternal and fetal morbidity and mortality. There is finding in the same line With (Obrien, 2003) who mentioned that during pregnancy, obese women face increased risk of developing hypertension, pre-eclampsia and gestational diabetes. Specifically, women with a BMI (>30 kg/m^2) have a two- to three-fold higher risk for developing pre-eclampsia, while this risk doubles for an increase in BMI prior to pregnancy by (5-7 kg/m^2). On the other

hand, (Sattar; Greer, 2002) who stressed that obesity and a previous pregnancy complicated by pre-eclampsia constitute the main risk factors for developing severe pre-eclampsia in the current pregnancy. Pre -eclampsia is also associated with an increased risk for coronary heart disease in later life. In the Hypertension in Pregnancy off spring Study, ((Himmelmann) 1991) reported that neonates born to women who were hypertensive during pregnancy appear to have a propensity to impaired glucose tolerance in later childhood. (Taittonen1991) have also reported an increased risk of hypertension in the children of women who are hypertensive during pregnancy (Gregory, 2010)

C. Diabetes Mellitus

A study finding show that the highest percentage (95%) of study sample they did not have Diabetes Mellitus , while (5%) of them have Diabetes Mellitus during this pregnancy shown in table (9), (45.2%) of them with group overweight pregnant women shown in table (15). There are statistically non-significance relationship revealed between BMI and Diabetes Mellitus.

Gestational Diabetes Mellitus was also more in over weight and obese pregnant women than lean pregnant women, which was also illustrated by other; obesity is associated with increased maternal insulin resistance and fetal hyperinsulinaemi even in obese of maternal diabetes (Wals, 2007) insulin resist individual have fasting secetagogues and increased flux on amino acids could stimulate fetal hyperinsulinaemia (Arar, 2011).

D. Urinary tract infection

A study finding show that the highest percentage (73.2%) of study sample they did not have Urinary tract infection, while (26.8%) of them have Urinary tract infection during this pregnancy shown in table (9), (38.8%) of them with overweight pregnant women shown in table (15). There are statistically significance relationship revealed between BMI and Urinary tract infection.

Regarding maternal complications in pregnancy, results of our study. The one major maternal complications mentioned in literature to be associated with obesity during pregnancy include, primarily urinary tract infections, association with anemia (Soens, 2008). However, other studies showed that this is associated with slightly risk of urinary tract infection, (El-Gilany, 2000; Arar, 2010).

4. Deliveries

A. Mode of labor

Regarding of labor, the higher percentage (78.5%) of study sample had normal vaginal delivery, most of them with overweight group, while (21.5%) of them had caesarean section shown in table (7), (41.8%) of them with obese group .There are statistically significance relationship between Mode of labor and body mass index shown that in table (16).

As the length of labor (combined first and second stage) increases with BMI but morbidly obese not have a significantly prolonged second stage. This result coincided with (Schrauwers; Dekker, 2009) who stressed that the length of labor (combined first and second stage) increases with BMI (significant for obese women), except for the morbidly obese. It might be that this unexpected finding in morbidly obese women reflects doctors and midwife 'stress' in the management of these very high risk patients, one has a lower threshold to resort to an emergency caesarean section.

… The reason obese pregnant women are more likely to end up with a cesarean delivery is not known, but a theory is that obese women are more likely to experience dysfunctional labor. For example, (Vahratian; colleagues, 2004) found that the rate of cervical dilation in nulliparous women in spontaneous labor decreased as maternal BMI increased. In this study, normal weight women (BMI 19.8–26.0 kg/m2) took a median duration of (5.43) hours to dilate from (4 to 10) cm, whereas obese women (BMI > 29.0 kg/m2) took (6.98) hours. This appears to be true also in women undergoing induction of labor at term (Meaghan, 2009).

B. Types of vaginal labor

Regarding of types of vaginal labor, the higher percentage (58%) of study sample had induction vaginal delivery, (64.6%) most of them with overweight group, while (42%) of them had spontaneous normal vaginal delivery shown in table (4.3), (43.1%) of them with overweight group .There are statistically high significance relationship between types of vaginal labor and body mass index shown that in table (16).

C. Cause of Cesarean Section:

Regarding of cause of cesarean section, the higher percentage (24.4%) of study sample caused of Breech presentation, (10.4%) of them with obese group, while the lower percentage (1.1%) of them caused of Diabetes Mellitus shown in table (4.4), (1.6%) of them with obese group. There are statistically high significance relationship between cause of cesarean section and body mass index shown that in table (18).

According to of these findings of the cause CS it was current study Breech presentation, whereas anther study caused of CS it was dystocia. Of main reason to proceed to an elective CS in morbidity obese women. It occurred often in all BMI groups but significance was only in women of morbidity obese. This is agreement with (Joshua, 2004) who found that obese patients may have difficulty completing the

second stage of labor secondary to soft tissue dystocia, may be used CS it safe for mother and fates.

(Nuthalapaty, 2004; colleagues, 2008) demonstrated that, although multiparous women progressed faster during induced labor than nulliparous women, in all groups an increase in maternal weight quartile was associated with a decreased rate of cervical dilation and an increase in the duration of labor. (Denison ; colleagues2008) showed that a higher maternal BMI in the first trimester and a greater increase in BMI throughout pregnancy were associated with a reduced likelihood of spontaneous labor at term, an increased risk of post-term pregnancy, and an increased rate of intrapartum complications. (Bashaar, 2008) found, A significant association existed in his study between high BMI and risk of emergency cesarean section during a trail of labor which increased linearly with the maternal high BMI.

6. Outcomes of Pregnancy

A. Baby weight

Regarding of Baby weight, the higher percentage (42.25%) of study sample with group weight baby (2600-3000G), the most percentage (43.7%) of them with overweight group, while the lower percentage (6.75%) of them with group weight baby (1200-2500 G) shown in table (4.6), most of them(40.7%) with normal weight group, While the high weight baby (≥4000 G), the higher percentage (53.1%)present with obese group of BMI. There is statistically high significance relationship between Baby weight and body mass index.

A growing fetus gets everything from the mother, all the nutrients and oxygen necessary for baby grow normally, since the mothers" blood supplies all these for the baby, high Blood pressure affects the amount of nutrients and oxygen which slowed the growth and development of fetus and increase risk of LBW (Islam, 2010). These results agree with Carmichael and Abram, (1997) reported that high pregnancy weight as protective against LBW. This study results agree with (Zahra, 2006), study in northwest Iran, reported that weight gain during pregnancy associated with low neonatal birth weight.

(Gary; Curhan, 1996)) Reported that a women with low BMI, had given LBW babies and a women with high BMI, had given macrosomic infant (w ≥4kg) these findings agree with the results of this study. Also agrees with (Francis and Nuthalpaty, 2004).

B. Apgar score

Regarding of pager score the higher percentage present (84.5%) of study sample with score (7-10), the higher percentage of them (40.2%) whit group overweight of BMI, while the lower percentage (2.25%) with score (0-3), shown in table (10), the higher percentage of them was (55.5%) with group overweight from BMI, .There is statistically high significance relationship between Apgar score and body mass index shown that in table (19).

The Apgar score quantifies a newborn's medical condition at birth and is also an indirect measure of fetal well-being. Very low Apgar scores of (0–3), particularly at 5–10 min of life, are associated with an increased risk of cerebral palsy, neonatal seizures, and neonatal death (Forsblad, 200). In extremely preterm infants, increasing Apgar scores predict survival without severe brain damage at 6 months of life .Any clinical factor with the potential to affect fetal or neonatal well-being likely affects Apgar scores. In particular, preterm delivery, birth weight, number of prenatal visits, maternal age, marital status, maternal fever, and years of maternal schooling are associated with changes in Apgar scores. Likewise, maternal medications, infection, newborn cardio data, we found an increased risk for low Apgar scores among newborns of obese and morbidly obese mothers.

7. Nutritional status

Regarding of Nutritional status the highest mean score (1.98) of the nutrition items were number (7) refer include bean or any drained vegetable in food once a week while the lowest mean score (1.29) of the nutrition items were number (13) refer to take milk and product daily shown that in table (11). There is statistically non- significance relationship between Nutritional status and body mass index. Except item number (16) refer to drink water.

(Tosson, 2005) Many studies[National Nutrition Institutes Report, (1993conducting in Egypt revealed that obesity is becoming a problem of public health importance affecting different social and economic classes as well as different age groups. The nutrition transition in Egypt has occurred in the context of abundant dietary energy availability, urbanization and moderate fate intakes. The prevalence of obesity in adults is very high, particular among women.

(Meenakshi, 2007) The influence of nutritional status on the degradation of health has been the subject of many studies. BMI, which is derived from weight and height measurements, is a good marker of nutritional status and is used to classify people from thin to obese.

Improvement of dietary habits and improving the bio-availability of food iron. Those pregnant should eat foods rich in iron (green leafy vegetables like spinach, mustard leaves, turnip green, cereals, and sprouted pulses) and cook their food in iron utensils. They should be taught the importance of nutritious diet rather than leftovers as is customary in rural areas. Avoiding tea and coffee intake (Sharma, 2004).

(Julia, 2005) Although excessive calorie intake is responsible for the development of obesity, high-fat diets promote fat accumulation significantly more than high-carbohydrate diets because of the high energy density, metabolic efficiency, palatability, poor regulation and weak satiating effect off fat (Prentice, 1998).

CONCLUSIONS

Based on the finding of this study

1- The percentage of overweight and obese women in AL-Basra two Hospitals during the period 28 th February to 30th march 2013.were (41%, 31%)
2- Regarding for distribution study sample according body mass index. In this study found (underweight 2%.normal weight 26%, overweight 41%, and obese 31 %).
3- The study found that the highest percentage of study sample was at age (21-30) years, most of them were housewife82.75%, primary level education34.35% and low socioeconomic status53.75%, Governorates residence45%, with high parity and gravidity, (81.75%) of them Antenatal visit during pregnancy80% and Related family58%.
4- Higher maternal pregnancy weight associated statistical significant with these reproductive risk factors, over 35years of age, grand multipara, stillbirth, prior abortion, prior operation on uterus(CS), long inter-pregnancy interval more than two years .
5- There are statistical significant association between overweigh and Obesity in pregnancy associated with these selected complications during current pregnancy, Anemia, and hypertension and no significant with UTI and GDM.
6- Obesity in pregnancy increases these outcomes occurrence, C.S delivery and induction of labor macrosomia and breech presentation although it protects against preterm delivery, LBW and SGA., and low Apgar score
7- Regarding for nutritional statue, one independent variable were significant predictors for number (16) related for Drink fluid (8 cups or 2.5) liter of water daily.

RECOMMENDATIONS

In view of the above conclusion the following would be recommended:

1. Nationwide study for Iraqi obese women must be carried out to evaluate the effects of obesity on pregnancy and to prevent its complications and outcomes.
2. Explain to pregnant women the recommended weight during pregnancy, (7-11.5kg) for overweight and obese women and (11.5-16 kg) for normal weight women.
3. Combating obesity in women within the activities of primary health care centers services through enhancing of physical activities and increasing the awareness of pregnant women about healthy nutrition habits.
4. Consider high –dose folic acid (5 mg /day) during pregnancy.
5. We advise to have educational program for midwives to take care body mass index as pregnant, which induct risk for prolong maternal distress

Fetal distress and low potential for cesarean section.

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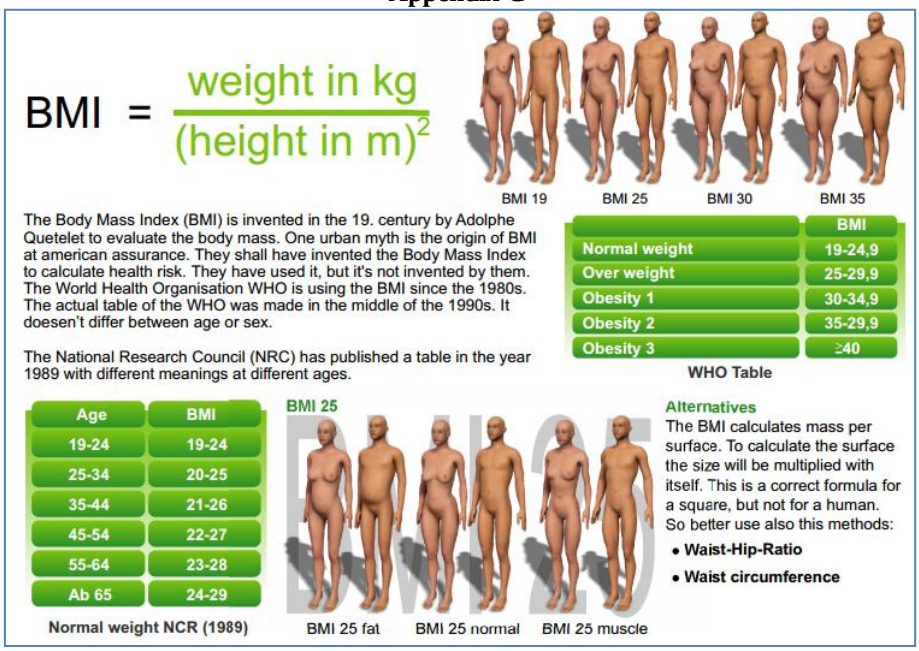
Appendix G



Appendix (K)
Scale for Measuring Socio-Economic Status

Appendix (E)

Items	**Score**		**Description**
	Male	**Female**	
Occupation	25	25	**High professional & Managerial jobs as doctors, engineers, professors, large employers, directors of business, land owners.**
	17	17	**Lower professionals, skilled and semiskilled workers as school, teacher, clerical workers, owners of small business, military men, police men.**
	9	9	**Unskilled workers as labourer's, farmers, unemployed and retired**
Level of education	0	0	**Illiterate**
	5	5	**Read & write**
	10	10	**Primary graduate**
	15	15	**Intermediate graduate**
	20	20	**Secondary graduate**
	25	25	**College graduate**
Crowding index	25	25	**-2**
	17	17	**-4**
	9	9	**≥5**
Property	25	25	**Owns house, a car & all of the households assets.**
	17	17	**House is rented, with or without a car and most of the household assets.**
	9	9	**House is shared, with other family, no car and some of the household assets.**
High score=121-150 Middle score=120-90 Low score = 89 and less ***Crowding index =number of person/number of bed** **(Tiwari et al., 2005)**			

Impact of Maternal Body Mass Index on Obstetrical Outcomes for pregnant women's Attending Labor at Al-Basra Hospitals

sheet No:	**Date of interview:**	**Hospital Name**
Age :	**Weight :**	**Height** :
BMI :		
first)Demographic Characteristics		
1-2)Level of education	**Wife**	**Husband**
Illiterate		
Read &Write		
Primary		
Intermediate		
Secondary		
College		
1-3)Occupation	**Wife**	**Husband**
House wife.		
Office work		
Student		
Free work		
Without job /husband		
1-4)Ownerships		
The house		
Owner	**Rent**	**Corporate**
Other		
2)The care		
Owner:	**Absent :**	**Other :**
1-5)Number of family members		
1-6)number of house rooms		
1-7)Residency		
	1)Governorates	
	2)outskirts	
	3)District	
1-8) Cigarette smoking	**Yes**	**No**
Mother		
Husband		
1-9) Duration of smoking		
1-10) Number of smoking		
1-11) consanguinity state		
1)Related		
2)Not related		

Second)Reproductive History			
2-1)Gravidity			
2-2)Parity			
2-3)Abortion			
2-4)No of Still birth			
2-5)No of live babies			
2-6)interval between pregnancies			
1)First one			
2)Last two years			
3)more two years			
2-7)History of macrosomic			
2-8)Previous low birth weight			
2-9)Previous history of cesarean section			
2-10)Antenatal visits	**Yes**	**No**	
Regulatory of visits	**Yes**	**No**	
2-11)Tonic intake during pregnancy	**Yes**	**No**	
Third)Pregnancy complication			
3-1)Hypertension	**Yes**	**No**	
Before pregnancy		**Induced pregnancy**	
3-2)Diabetes	**Yes**	**No**	
Before pregnancy		**Induced pregnancy**	
3-3)Anemia	**yes**		**No**
3-4)Urinary tract infection		**Yes**	**No**
Forth)Nutritional state			
4.1)Include meat in your food once a week			
4.2)select fish as animal protein in your food at less once a week			
4.3)Include chicken in your food once a week			
4.4) Used vegetable butter, vegetable oil corn, olive, soya oil ect..Daily in your food.			
5.4) Eat potatoes so much.			
6.4)Much intake of rich or bread in daily meal			
7.4)Include bean or any drained vegetable in your food once a week			
8.4) Include fiber in daily bases (Green vegetable food.			
9.4) Avoid fast meal.			
10.4)Intake of sweetened food (chocolate) daily			
11.4) Drink fluid (soft drink)(250 ml) daily .			
12.4)Eat package food (cans)			
13.4)Take milk and product daily			
14.4)Drink coffee, tea, (1-2 cups daily)			
15.4)Eat 5 fruit fresh and uncooked daily			
16.4)Drink fluid (8 cups or 2.5 liter of water daily			

Part five The newborn		
5.1)Gestational age	**Weeks**	
5-2)Mode of labor		
5-3)Weight of baby		
5-4) Sex of baby	**Male**	**Female**
5-5)Response of Apgar chart		**In number**
5-6)Previous history twin	**Yes**	**No**