

Relationship of Maternal Sociodemographic characteristics With Neonate's Weight among Primigravida Attending Primary Health Care Centers in Sulaimani City/Iraq

علاقة الخصائص الاجتماعية للأمهات بوزن الطفل حديث الولادة لدى الحوامل لأول مرة و الوافدات لمراكز الرعاية الصحية الأولية في مدينة السليمانية/العراق

Atiya K. Mohammed*

Peshwaz Abdalrahman Ahmed**

الخلاصة:

خلفية البحث: وزن الطفل عند الولادة له دور مهم في بقاء الطفل حياً وتطور الطفل وله تأثير في حدوث الأمراض الايضية عند البلوغ وكذلك خصائص الامهات اظهرت تأثير على تطور ونتيجة الحمل وخاصة تلك التي تكون متعلقة بوزن الطفل عند الولادة و وفاة الطفل قبل موعد الولادة.
الهدف: تهدف الدراسة الحالية لإيجاد الربط بين الخصائص الاجتماعية والديموغرافية للأمهات مع وزن الطفل عند الولادة.
المنهجية: هذه دراسة استباقية تحليلية للنساء الحوامل البكرات والبالغ عددهم 147 واللاتي يراجعن وحدات العناية بالحامل في مراكز الرعاية الصحية في مدينة السليمانية وكانت النساء مؤهلات للمشاركة في هذه الدراسة وتبعن حتى ما بعد الولادة. جرت هذه الدراسة ابتداء من 31 \ كانون الثاني \ 2018 حتى 31 \ حزيران \ 2019. تم جمع البيانات من خلال مقابلة النساء الحوامل باستخدام المعلومات على الخصائص الاجتماعية والديموغرافية للعينة، تم استخدام الاحصاء الوصفي الاستنتاجي لتحليل البيانات من خلال البرنامج SPSS اصدار 22.0 سوفت وير.
النتائج: الوسط الحسابي للعمر (24.4) والانحراف المعياري SD=5.04 و 75.5 % ربات بيوت 46.9% معظمهم ذات مستوى معاشي كافي و 98.6% من غير المدخنين و 98.6% منهم كانوا لا يشربون المشروبات الكحولية. اغلبية الحالات (72.1%) من سكان المدينة و الغالبية ولادة اطفالهم عند الاسبوع (37-40) و 91.2% من الاطفال كان اوزانهم والدقيقة الاولى لفحص الابغار سكور للمولودين الجدل 94.9% منهم كانت في حالة ممتازة وان نسبة قليلة 21.1% ادخلو للعناية المركزة لاطفال حديثي الولادة (الخدج).
الاستنتاج: تشير النتائج الى وجود دلالة احصائية بين الوزن عند الولادة لعينة الدراسة مع موقعهم الجغرافي.
التوصيات: طبقا الى النتائج اوصت الدراسة بالتاكيد على العناية المبكرة خلال مدة الحمل على ان تأخذ الممرضة دورها في تقليل نسبة انخفاض اوزان المواليد حديثي الولادة.

Abstract:

Background: Birth weight plays an important role in infant survival, child development, and adult metabolic diseases also, maternal characteristics have been variously shown to impact on the progress and outcome of pregnancy, especially those related to birth weight and perinatal mortality.

Aim of the study: The study aimed to identify the association between sociodemographic characteristics of the mother and birth weight.

Methodology: A Prospective analytic study of 147 prime pregnant women who visited primary health centers for antenatal care in Sulaimani City were eligible to participate in this study prospectively followed up until the postpartum. This study collected of the data in a period starting from 30 \ December \ 2018 to 30 \ June \ 2019. An interviewer-administered questionnaire was used to retrieve information on sociodemographic characteristics from the participants. Descriptive & inferential statistical used for analysis data; it was done with the SPSS version 22.0 software.

Results: The result of study revealed that the men of the age of women were 24.4 and SD=5.04, 75.5% were housewives, (46.9%) were sufficient to some extent financially, (98.6%) were nonsmokers and (98.6%) wasn't drinking alcohol. The majority of the cases (72.1%) were from urban areas and all of them delivered their babies at term. About 91.2% of the babies had normal birth weight, and the 1st minute Apgar score of newborns for 94.9% of them were in the excellent condition and less than one quarter (21.1%) of them were admitted to the neonatal intensive care unit.

Conclusion: There was no statistical significant relationship between neonate's birth weights with mother's sociodemographic characteristics, but there was a statistical significant association between birth weights of the study sample with their residency.

Recommendation: according to these finding the researcher emphasize on prenatal care as early as possible that the nurse must take the role in reducing the incidence of LBW.

Keywords: Maternal Sociodemographic, Neonate Weight and Primigravida

*BSc, MSc, PhD, Assistant prof. Maternal Neonate Nursing, College of Nursing, University of Sulaimani, Sulaimani, Iraq.

Email: Atiya.mohammed@univsul.edu.iq.

**BSC, Master Candidate, College of Nursing, University of Sulaimani, Sulaimani, Iraq.

INTRODUCTION

Birth weight is that the weight of a baby at its birth⁽¹⁾. The conventional weight of 2499 grams, terribly Low Birth Weight ranges between 1000 to 1499 grams, very Low Birth Weight is below 1000 grams. High Birth Weight ranges between 4000 to 5000 grams or more⁽²⁾. Birth weight plays a very important role in neonate survival, child development, and adult metabolic illness. It's been powerfully related to high mortality risk throughout the primary year of life, and it's a robust predictor of the survival of a personal baby. Child size, like birth weight and length, was rumored to have an effect on not solely infant mortality rate, however additionally childhood morbidity. Fetal weight can't be measured directly in utero, however, it is calculable or foretold from Fetal and maternal anatomical characteristics. Maternal measuring measurements give an easy, low cost and offered means that of predicting birth weight with a variable degree of responsibility⁽³⁾.

The subsequent factors are found to work out birth weight: maternal height, maternal fatness, maternal weight gain, parity, fetal sex, close altitude, paternal height, but smoking and glucose intolerance. Alternative factors that verify fetal birth weight embody maternal factors like race, stature and biological science. Also, fetal age at delivery could be an important determinant of newborn weight. Such maternal factors like property, socio-cultural, demographic and maternal conditions (such as cardiovascular disease, malaria, tract infections, deficiency disease and anemia) are strongly related to fetal complications, particularly low birth weight, immaturity and birth physiological state all of that act singly or mutually with one another to extend baby and infant mortality rate⁽⁴⁾.

Low birth weight could be a sensitive indicator for predicting the possibility of child healthy growth and development and a primary determinant of infant mortality rate risk. Low birth weight is either the results of preterm birth or due to restricted vertebrate growth. It's closely related to fetal and neonatal mortality rate and morbidity, suppressed growth and psychological feature development, and chronic diseases later in life. These chronic diseases might embody ketosis-resistant diabetes mellitus, coronary heart condition, and high blood pressure, intellectual, physical and sensory disabilities⁽⁵⁾.

High birth weight or fetal Macrosomia or fetal overweight is represented as newborn by excessive birth weight. Fetal macrosomia is outlined as birth weight of 4000 – 4500g or bigger than ninetieth for gestational age when correcting for baby sex and quality (90th percentile). It's encountered in up to 100% of deliveries. Factors related to higher birth weight include: biological science, period of gestation, presence of gestational diabetes, and DM sorts I & II, previous delivery of macrosomic baby, excessive weight gain in maternity, maternal fatness, multiparity, male Fetal and parental stature. Macrosomic babies are a unit in danger for shoulder dystocia and birth trauma⁽⁶⁾.

Studies on birth weight in Iraq have focused mainly on the biomedical risk factors and have largely ignored the influence of the sociodemographic which encompasses maternal age, education, occupation and residency; therefore this study examined the effects of maternal, sociodemographic factors in the birth weight of infants in Sulaimani of Iraq.

AIM OF THE STUDY

The study aimed to identify the association between sociodemographic characteristics of the mother and birth weight.

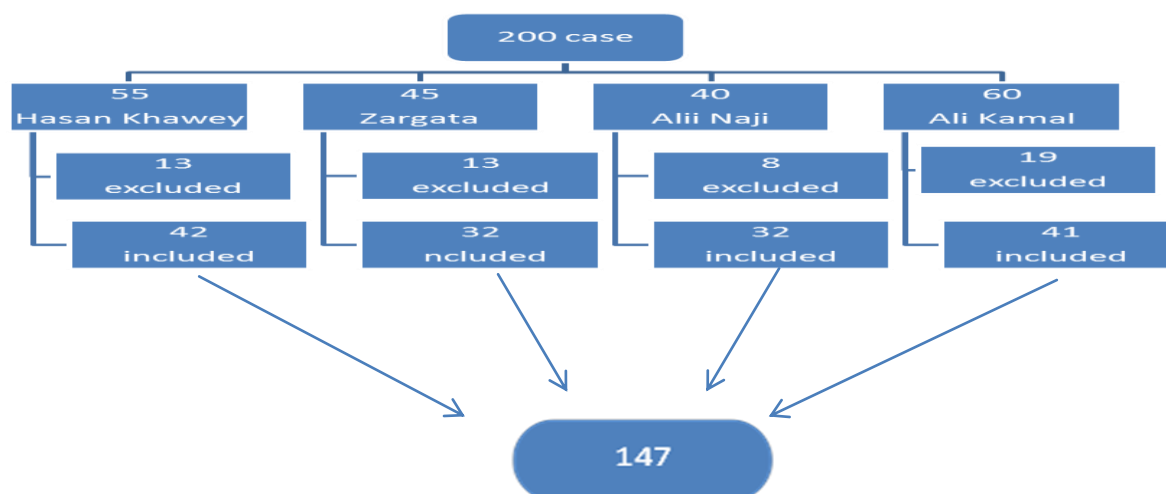
METHODOLOGY:

Study design and setting: This prospective analytical study of 147 prime gravida women

Who visited selected antenatal care units of Sulaimani primary health centers (PHC) s were eligible to participate in this study prospectively followed up until the postpartum. Collection of data was starting from 30th December 2018 to 30th June 2019. The study was carried out at the Sulaimani prenatal health care centers (4 health care centers have been chosen randomly which contain the following; Ali Kamal, Ali Naji, Zargata, Shahid Hasan Khawey). Simple randomization technique performed by the researcher and the supervisor for selecting the setting of the data collection in the difference location in Sulaimani city; Finally, the Maternity Teaching Hospital for the birth of the child, which is the largest hospital in the Sulaimani City.

Study sample: A purposive non probability sample, initially 200 prime gravida women were interviewed who attended antenatal care centers in Sulaimani city, but 147 of them were eligible in order to participate in the study sample. About 53 cases in the study sample were excluded because of several reasons: they didn't inform the researcher about time and the place of delivery, they didn't answer the researchers' calls to be oriented about the time & place of delivery, some of them changed their phone number, they delivered in the private sectors and because some of them faced one of the excluded criteria that mentioned below as explained in the following flow chart.

Inclusion criteria include: Primigravida, Pregnant with single fetus, Full term delivery and Regular antenatal check-up visits while exclusion criteria include: Fetal anomaly, Women with known complication including; preterm labor, antepartum hemorrhage, severe anemia, Breech presentation, Elective caesarean section, cardiovascular and neurological disease, psychological illness. High risk, including: eclampsia, pre-eclampsia and also gestational diabetes.



Flowchart of the distribution of the sample according to setting of the study

Data Analysis: In order to achieve the early stated objectives, the data of the study were analyzed through the use of statistical package of social sciences (SPSS) version 22 through descriptive and inferential statistical analyses.

There were criteria of probability levels to determine the significance of the test [Highly significant ($p \leq 0.001$), Significant ($p \leq 0.05$) and Not significant ($p > 0.05$)].

RESULTE:

Table (1): Distribution of 147 cases according to maternal socio-demographic characteristics

Socio-demographic characteristic	No. 147	Percentage %
Maternal age		
<20 years	38	25.9
20-24	42	28.6
25-29	44	29.9
≥ 30	23	15.6
Mean\pm SD 24.4\pm5.04		
Residency		
Urban	106	72.1
Suburban	33	22.4
Rural	8	5.4
Level of education		
Illiterate	15	10.2
Primary school	61	41.5
Secondary school and high school	38	25.9
Institute graduated	20	13.6
University graduate and above	13	8.9
Occupation		
Housewife	111	75.5
Teacher	7	4.8
Employee	14	9.5
Student	13	8.8
Nurse	2	1.4
Financial Status		
Sufficient	47	32.0
Sufficient to some extent	69	46.9
Insufficient	31	21.1
Smoking		
Active smoking	2	1.4
Passive smoking	0	0
Non smoking	45	98.6
Alcohol drinking		
Yes	2	1.4
No	145	98.6

Table (1) shows Nearly one third (29.9%) was in the age group of 25-29 years to mean age 24.4 and SD=5.04, 72.1% urban areas and primary school educated to represent (41.5%) and (75.5%) were housewives. (46.9%) were barely satisfied financially, most of the prime gravidity (98.6%) was nonsmokers and (98.6%) wasn't drinking alcohol.

Table (2): Distribution of 147 cases according to early neonate condition

Variable	NO. 147	100%
Birth weight		
Low birth weight	11	7.5
Normal birth weight	134	91.2
Overweight at birth	2	1.4
Mean± SD 3.27±0.45		
Neonate length		
45-60	147	100
Gender of Neonate		
Male	72	49.0
Female	75	51.0
Apgar scores 1st minute		
Severely depressed	0	0
Moderately depressed	8	5.4
Excellent condition	139	94.6
5th minute Apgar scores		
Severely depressed	0	0
Moderately depressed	1	0.7
Excellent condition	146	99.3
Admission Neonatal Intensive Care Unit		
Yes	31	21.1
No	116	78.9
Reason for admission to Neonatal Intensive Care Unit		
Meconium aspiration	15	10.2
Thick Meconium	2	1.4
Low Apgar Scores	3	2.0
Bradycardia	4	2.7
Low weight	3	2.0
Mother Rh negative	1	0.7
Failure of progress	1	0.7
Kidney hydronephrosis	1	0.7
Difficulty breathing	1	0.7

Table (2) the majority of births 91.2% had a normal weight with Mean and SD of 3.27±0.45. All of the births were within the normal length range (45.7cm-60 cm), more than half (51.0%) of the newborns were females. The Apgar score of newborns, within the 1st minutes, 94.9% of newborns were in the excellent condition, (21.1%) of the newborns was admitted to the neonatal intensive care unit.

Table (3): Association between maternal sociodemographic characteristics and the neonate birth weight

Variable	Birth weight			P. Value
	Low birth weight	Normal birth weight	Over birth weight	
	F (%)	F (%)	F (%)	
Age group				
<20 years	3(7.9)	34(89.5)	1(2.6)	
20-24	3(7.1)	39(92.9)	0(0)	

25-29	4(9.1)	40(90.9)	0(0)	0.796** Not significant
≥30	1(4.3)	21(91.3)	1(4.3)	
Total	11(7.5)	134(91.2)	2(1.4)	
Residency				
Urban	4(3.8)	101(95.3)	1(0.9)	0.007* Significant
Suburban	6(18.2)	27(81.8)	0(0)	
Rural	1(12.5)	6(75.0)	1(12.5)	
Total	11(7.5)	134(91.2)	2(1.4)	
Education				
Illiterate	1(6.7)	14(93.3)	0(0)	0.357** Not significant
Primary school	5(7.0)	65(91.5)	1(1.4)	
Secondary school and high school	0(0)	27(96.4)	1(3.6)	
Institute graduated	5(17.5)	24(82.8)	0(0)	
University graduate	0(0)	3(100)	0(0)	
Master graduate	0(0)	1(0)	0(0)	
Total	11(7.5)	134(91.2)	2(1.4)	
Occupation				
Housewife	8(7.2)	101(91.0)	2(1.8)	0.449** Not significant
Teacher	2(28.6)	5(71.4)	0(0)	
Employee	0(0)	14(100)	0(0)	
Student	1(7.7)	12(92.3)	0(0)	
Nurse	0(0)	2(100)	0(0)	
Total	11(7.5)	134(91.2)	2(1.4)	
Financial Status				
Sufficient	4(8.5)	43(91.5)	0(0)	0.914* Not significant
Sufficient to some Extent	5(7.2)	63(91.3)	1(1.4)	
Insufficient	2(6.5)	28(90.3)	1(3.2)	
Total	11(7.5)	134(91.2)	2(1.4)	

Table (3) there was no statistical significant association between birth weights of the study sample with sociodemographic status, but there was a statistical significant association between birth weights of the study sample with maternal residency.

DISCUSSION

One aim of this study was to find out the association between maternal sociodemographic characteristics and birth weight. The association wasn't significant except between maternal residence and birth weight. An age group that ranged between (<20 year and ≥30); nearly more than a quarter (29.9%) was in the age group of 25-29 years to mean age 24.4 and SD=5.04. The mean age of the present study was agreement with a study conducted by Nazari et al (2013) ⁽⁷⁾ showed that the mean age of women of the study sample was 24 years which also supports the present study.

Considering a residency the majority of the cases (72.1%) were from urban were the others were from the suburban's (22.4%) and the rural (5.4%) areas and the education level of mothers ranged from illiterate to master graduate, the majority of them are primary school educated which represented (41.5%), the lowest percentage of the study sample is a master graduate which represent (0.7%) of all the study sample. The study conducted by Rijvi et al (2018) ⁽⁸⁾ supports the present study where the majority of their study sample was primary

educated while in a study conducted by Li and Chang (2005) ⁽⁹⁾ the majority (82%) of mothers had intermediate or higher education which disagrees with the present study.

The occupational status found that most of the study sample (75.5) was housewives. This result insisted the need for complete pregnancy, healthy advised for these women because exposure to work outside the home gives women better chances of contact with a more experienced person and acquire valuable health and social information. The study by Atiya (2015) ⁽¹⁰⁾ supports the present study where the majority of the cases were housewives (88%). The sameness of the study conducted by Islam Khan et al (2018) ⁽¹¹⁾ where the majority (86.5%) of mothers were housewives.

Financial state divided on three financial groups; satisfy, barely satisfy and unsatisfied. Most of them (46.9%) barely satisfied financially, 32% were satisfied and 21% were unsatisfied. The study by Rijvi et al (2018) ⁽¹²⁾ 60% was barely satisfied, 4% financially satisfied and 36% were unsatisfied which nearly agrees with the results of the present study.

Studies worldwide have examined the effect of socioeconomic status indicators on birth-weight and intrauterine growth retardation (IUGR). Low socioeconomic status has been shown to be one of the major risk factors for LBW and IUGR (Shahnawaz et al., 2015) ⁽¹³⁾. For many women in the developing world, economic, social and cultural factors make it difficult for them to obtain the necessary food and health care, which are closely interrelated. Some researchers consider that health, therefore, may be an important determinant of opportunities in life and this process termed 'selection from health', and suggest that health 'selects' people in different social strata (Isiugo-Abanihe and Oke, 2011) ⁽¹⁴⁾. The present study shows that most of the study sample (98.6%) was nonsmokers while just (1.4%) were smokers. Which is nearly agreed with the study that conducted by Affusim et al (2018) ⁽¹⁵⁾ where the respondents never smoked. On the other hand, disagreed with a study that conducted by Li and Canhg (2005) ⁽¹⁶⁾, the prevalence of smoking among those who responded was 11.6% which is higher than the results of the present study.

Maternal exposure to tobacco smoke has been associated with increased levels of nicotine and cotinine in the serum or urine of the mother and the neonate and in the amniotic fluid. These substances constitute a hazard to the fetus as they cross the placental barrier and may act to inhibit fetal growth. Maternal passive and light active smoking has been associated with significant reductions in birth weight, crown-heel length, upper- and lower- arms' length and head circumference of neonates. The relation between maternal smoking and fetal development is thought to arise from a direct toxic effect of smoke or from an indirect effect mediated by a reduction in maternal weight gain (Wadi and Al Sharbatti, 2011) ⁽¹⁷⁾.

The results of this study show that the majority of the study sample (98.6%) wasn't alcoholics whereas simply (1.4%) were alcoholics that is generally agreed to study carried out by Affusim et al (2018) ⁽¹⁸⁾ that 94.3% of them not taking alcohol. In an exceedingly prospective cohort study by Mills (1984) ⁽¹⁹⁾ data collected from thirty one, 604 pregnancies to seek out the connection between maternal alcohol drinking throughout maternity and birth weight, they found that overwhelming a minimum of one to 2 drinks daily was related to a well redoubled risk of manufacturing a growth-retarded babe. Conversely, overwhelming, but one drink daily had a small impact on intrauterine growth and birth weight.

The majority of births within the current study ninety one.2% had a traditional weight, 7.5% had a low birth weight and 1.4 had a high birth weight with Mean and SD of 3.27.27±0.45. All of the births were inside the conventional length vary (45.7cm-60cm), over 0.5 (51.0%) of the newborns were females et al. (49.0%) were males. This result's nearly opposite with the results of Islam Khan et al (2018) ⁽²⁰⁾ wherever the prevalence of LBW was 17% and therefore the results of Monawar Hosain (2005) ⁽²¹⁾ in the African nation wherever it absolutely was 14% in their study; However the survey of South Asian countries (2003-2004)

showed that the prevalence was 36% in Bangla Desh, 30% in India, 21% in Nepal, 15% in Bhutan and, 22% in the Maldives. Supported the info taken from the Maternity Teaching Hospital in Sulaimani city,, Kurdistan /Iraq, through 2019 , the incidence of low birth weight in 11 November , this rate is far higher compared with the finding study conducted by Al-Hadi et al. (2006) ⁽²²⁾.

That reportable rate of LBW (31%) in western Iraq (Al-Anbar) is lower than that reported in eastern Iraq (Diyala) (51.8%) and the center of Iraq (Baghdad) (50%) in 2005 and 2006, respectively. However, the reported figure (31%) is almost double that reported in Baghdad in 1990s (15.1% and 13.3%) ,which are in turn much higher than that reported in neighboring countries, Saudi Arabia (Riyadh) (7.1%, 7.4% and 8.2%) and Syria (6.6%) (23) and Iran (5.2%). The prevalence of LBW in Eastern Mediterranean countries varies greatly with the economic status of these countries. Very low rates are found in Bahrain, Cyprus, Kuwait, and Qatar and United Emirates, while very high rates prevail in Afghanistan, Djibouti and Somalia (Al-Hadi et al., 2006) ⁽²³⁾.

Concerning birth length, all of the births were with within the traditional length vary (45.7cm-60cm).The results of the study by Rijvi et al (2018) dose aren't supporting the results of this study, wherever in their study pure gold had birth length between 40-55 cm and seventy six had birth length between 56-65 cm conjointly, the gender of newborns of this study was (51.0%) females et al. (49.0%) were males that are sort of in agreement with the results of the study that conducted by Shin et al., (2013) ⁽²⁴⁾ for a similar reason wherever forty eight. 2% of the infants were male.

The Apgar score of newborns, at intervals the primary minute, 94.9% of newborns were within the glorious condition and five.4% of them was moderately within the depressed condition. Fortuitously, within the first 5 minutes 99.3% of the newborns were within the glorious condition and only 0.7% of them were still within the moderately depressed condition. The study that conducted by Papazian et al.(2017) ⁽²⁵⁾ to assess the impact of maternal body mass index (BMI) and gestational weight gain (GWG) on baby outcome birth weight and Apgar scores weren't influenced by pre-gestational body mass index or gestational weight gain.

Less than one quarter (21.1%) of the newborns of the present study was admitted to the neonatal intensive care unit. The various reasons for new born admission to (NICU) of these 21.1% were meconium aspiration, Brady cardia, low Apgar score, low weight and Thick Meconium. Mother Rh negative, Failure of progress, kidney hydronephrosis and issue respiration as conferred in table 2.

The finding within the current study showed the association between birth weights of the study sample with maternal sociodemographic characteristics. Previous studies recommend that maternal characteristics are also related to baby outcomes. However, the influence of maternal characteristics of birth weight (BW) has not been adequately determined by Kurdish population. This study tends to investigate associations between maternal characteristics and BW in a sample of 147 women living in Sulaimani, Iraq. There was no statistical significant association between birth weights of the study sample with sociodemographic standing, however, there was a There was no statistical significant association between birth weights of the study sample with residency, whether or not still currently no study performed regarding the association between birth weight with maternal residency.

Previous studies have incontestable direct and indirect influences of genetic-, socio-cultural-, demographic-, and activity maternal factors on BW. As an example, advanced maternal age, parity, and pre-pregnancy body mass index (BMI) have a considerable impact on BW. Maternal education, house financial gain, smoking and drinking habits conjointly

impact on biological attack. (Shin et al., 2013) ⁽²⁾ However, these associations haven't been adequately determined in Kurdish populations.

CONCLUSION

According to finding the present study concluded that there is no relationship between birth weights with maternal sociodemographic characteristics, including: age, level of education, occupation, financial state, smoking and drinking alcohol but there was a significant association between birth weights of the study sample with mother's residency.

Finally, the study analyzed data from one hospital and findings may not be generalizable to mothers who attended other hospitals and those who delivered at home.

RECOMMENDATION:

1. Appropriate pre-pregnancy body mass index (BMI) and weight gain during pregnancy are important for pregnant women and their offspring.
2. Using different type of mass media to stimulate public awareness about factors effect of birth weight, particularly smoking, psychosocial status.
3. Studies on birth weight in Iraq have focused mainly on the biomedical risk factors and have largely ignored the influence the sociodemographic which encompasses maternal.
4. A similar study can be done in a different place and cultural setting incorporating factors like ethnicity, religion, diet and environmental factors that was not dealt with in this research.
5. Emphasize on prenatal care as early as possible and improve health services that the nurse must take the role in reducing the incidence of LBW.

REFERENCES:

1. Martin, Joyce A., Hamilton, Brady E., Osterman, Michelle J.K., Driscoll, Anne K., Drake, Patrick. "Births: Final Data for 2016". *National Vital Statistics Reports* 2018; 67 (1):pp1–12.
2. Hill, M.A. (2019, March 27). Embryology Birth Weight. Retrieved from https://embryology.med.unsw.edu.au/embryology/index.php/Birth_Weight.
3. Affusim C.C., Erah F., Eromon P, E. Fuh N.F. Birth Weight and Maternal Socio-Demographic Characteristics in a Rural Tertiary Hospital. *International Journal of Advances in Scientific Research and Engineering* 2018; 4(5):pp.59–67. Available at: <https://pdfs.semanticscholar.org/d1c0/02f81f90a443594cb4a362d3cb93a8557eed.pdf>. [Accessed 9 Sep. 2019]
4. Affusim C.C., Erah F., Eromon P, E. Fuh N.F. Birth Weight and Maternal Socio-Demographic Characteristics in a Rural Tertiary Hospital. *International Journal of Advances in Scientific Research and Engineering* 2018; 4(5):pp.59–67. Available at: <https://pdfs.semanticscholar.org/d1c0/02f81f90a443594cb4a362d3cb93a8557eed.pdf>. [Accessed 9 Sep. 2019]
5. WHO/UNICEF. *Low Birth Weight: Country, regional and global estimates* 2004, New York.
6. Martin, Joyce A., Hamilton, Brady E., Osterman, Michelle J.K., Driscoll, Anne K., Drake, Patrick. "Births: Final Data for 2016". *National Vital Statistics Reports* 2018; 67 (1):pp1–12.
7. Nazari, M., Zainiyah, S.Y.S., Lye, M.S., Zalilah, M.S. and Heidarzadeh, M. (2013). Comparison of maternal characteristics in low birth weight and normal birth weight infants. *Eastern Mediterranean Health Journal* 2013; 19(9):pp.775–781.
8. Rijvi, S., Abbasi, S., Karmakar, A., Siddiqua, S.F. and Dewan, F. A Study on Maternal Weight Gain and its Correlation with Birth Weight of Baby at Term. *Anwer Khan Modern Medical College Journal* 2018; 9(1):pp.22–28.

9. Li, Y.-M. And Chang, T.-K. Maternal Demographic and Psychosocial Factors Associated with Low Birth Weight in Eastern Taiwan. *The Kaohsiung Journal of Medical Sciences* 2005; 21(11):pp.502–510.
10. Atiya k. mohammed. Maternal satisfaction regarding quality of nursing care during labor and delivery in Sulaimani teaching hospital. *International Journal of Nursing and Midwifery* 2015; 8 (3):pp.18-27.
11. Islam Khan, S., Easmin Jhorna, D., Chakma, A., Tareq, A. and Rasheda Begum, M. Socio-demographic and nutritional determinants of birth weight. *Journal of Food Science and Nutrition* 2018; 01(01). Available at: <http://www.alliedacademies.org/articles/sociodemographic-and-nutritional-determinants-of-birth-weight-9700.html>. [Accessed 30 Sep. 2019]
12. Rijvi, S., Abbasi, S., Karmakar, A., Siddiqua, S.F. and Dewan, F. A Study on Maternal Weight Gain and its Correlation with Birth Weight of Baby at Term. *Anwer Khan Modern Medical College Journal* 2018; 9(1):pp.22–28.
13. Shahnawaz, K., Choudhary, S., Sarker, G., Das, P., Pal, R. and Kumar, L. Association between maternal socio-demographic factors and low birth weight newborn in a rural area of Bihar, India. *South East Asia Journal of Public Health* 2015; 4(1):pp.30-34.
14. Isiugo-Abanihe, U.C. and Oke, O.A. Maternal and environmental factors influencing infant birth weight in Ibadan, Nigeria. *African Population Studies* 2011; 25(2). Available at: <http://www.bioline.org.br/pdf?ep11026>. [Accessed 15 Sep. 2019].
15. Affusim C.C., Erah F., Eromon P, E. Fuh N.F. Birth Weight and Maternal Socio-Demographic Characteristics in a Rural Tertiary Hospital. *International Journal of -Advances in Scientific Research and Engineering* 2018; 4(5):pp.59–67. Available at: <https://pdfs.semanticscholar.org/d1c0/02f81f90a443594cb4a362d3cb93a8557eed.pdf>. [Accessed 9 Sep. 2019]
16. Li, Y.-M. And Chang, T.-K. Maternal Demographic and Psychosocial Factors Associated with Low Birth Weight in Eastern Taiwan. *The Kaohsiung Journal of Medical Sciences* 2005; 21(11):pp.502–510.
17. Wadi, M.A.A. and Al Sharbatti, S...S. Relationship between birth weight and domestic maternal passive smoking exposure. *Eastern Mediterranean Health Journal* 2011; 17(04):pp.290–296.
18. Affusim C.C., Erah F., Eromon P, E. Fuh N.F. Birth Weight and Maternal Socio-Demographic Characteristics in a Rural Tertiary Hospital. *International Journal of Advances in Scientific Research and Engineering* 2018; 4(5):pp.59–67. Available at: <https://pdfs.semanticscholar.org/d1c0/02f81f90a443594cb4a362d3cb93a8557eed.pdf>. [Accessed 9 Sep. 2019]
19. Mills, J.L. (1984). Maternal Alcohol Consumption and Birth Weight. *JAMA* 1984; 252(14):p.1875.
20. Islam Khan, S., Easmin Jhorna, D., Chakma, A., Tareq, A. and Rasheda Begum, M. Socio-demographic and nutritional determinants of birth weight. *Journal of Food Science and Nutrition* 2018; 01(01). Available at: <http://www.alliedacademies.org/articles/sociodemographic-and-nutritional-determinants-of-birth-weight-9700.html>. [Accessed 30 Sep. 2019]
21. Monawar Hosain, G.M. Factors Associated with Low Birth weight in Rural Bangladesh. *Journal of Tropical Pediatrics* 2005; 52(2):pp.87–91. Available at: <https://academic.oup.com/tropej/article/52/2/87/1652029>. [Accessed 26 Sep. 2019]
22. Abdul Hussein M Al-Hadi, Shukria SJ Al-ageeli, Jawad KA. Low Birth Weight in Baghdad, Iraq. *Al-Diwan Journal: Journal of the Faculty of Medicine* 2006; 4(84):P.363-365.

23. Mahabat S. Saeed¹, Atiya K. Mohammed, Rowshan J. Azeez, Pregnancy Outcome in Ladies Aged 40 Years and Above. *International Journal of Science* 2016; 5(6):p.70-79.
24. Shin, Y., Choi, S., Kim, K., Yu, J., Ahn, K., Kim, H., Seo, J., Kwon, J., Kim, B., Kim, H., Shim, J., Kim, W., Song, D., Lee, S., Lee, S., Jang, G., Kwon, J., Lee, K., Park, H., Lee, P., Won, H. and Hong, S. Association between Maternal Characteristics and Neonatal Birth Weight in a Korean Population Living in the Seoul Metropolitan Area, Korea: A Birth Cohort Study (COCOA). *Journal of Korean Medical Science* 2013; 28(4):p.580.
25. Paapazian, T., Abi Tayeh, G., Sibai, D., Hout, H., Melki, I. and Rabbaa Khabbaz, L. Impact of maternal body mass index and gestational weight gain on neonatal outcomes among healthy Middle-Eastern females. *PLOS ONE* 2017; 12(7):p.e0181255.