

Maternal risk in teenage pregnancies

Anwar N. Al-Bassam*

الخلاصة

خلفية الدراسة: الزواج المبكر والولادة هي عوامل مساهمة لسقم وموت الام هدف الدراسة : تقييم ضخامة مشكلة الحمل في سن المراهقة ومضاعفاته وحصيلته. المرضي والطرق: أجريت دراسة وصفية في مستشفى بغداد التعليمي، تضمنت الدراسة مجموعة النساء الحوامل في سن يافعة (15-19) سنة، رمزن بالمجموعة المعرضة ، ومجموعة النساء الحوامل اللواتي بلغ أعمارهن بين (20-24) سنة، رمزن بالمجموعة المقارنة في حملهن الاول الولادة أو بسبب مضاعفات الحمل. المعلومات التي جمعت تضمنت المواصفات الاجتماعية، المستوى التعليمي، العناية الصحية، مضاعفات الحمل، طريقة الولادة

النتائج: المجموعة المعرضة اشتملت 228 حامل بكر بين سن (15-19) سنة، والمجموعة المقارنة اشتملت 272 حامل بكر بين سن (20-24) سنة. هناك فرق إحصائي مهم بين المجموعتين في المستوى التعليمي (قيمة بي 0.0001)، العناية الصحية (بي 0.0001)، فقر الدم (بي 0.0001)، ارتفاع ضغط الدم أثناء الحمل (نسبة اود 10.96)، العمليات القيصرية الباردة (نسبة اود 2.13)،

الاستنتاج: الدراسة أظهرت أن ضعف المستوى التعليمي، ضعف العناية الصحية، المشاكل الطبية المعقدة للحمل، الولادات بعملية، كانت أكثر عند المراهقات.

Abstract

Background: Early marriage and confinement are contributing factors to high maternal mortality and morbidity.

Objective: To identify the maternal complications of teenage pregnancy.

Patients and Methods: A hospital based cohort study was undertaken among pregnant ladies admitted to Baghdad teaching hospital.

The study group comprised of teenage mothers between 15-19 years old and a control group of mothers between 20-24 years old in their first pregnancy. Data included socio-demographic characteristics, ANC, medical and obstetrical complications, mode of delivery .

Results:. The study group include 228 primigravida aged between (15-19) years and the control group composed of 272 primigravida aged between (20-24) years. There is statistically significant difference between the two groups in educational level ($p=0.0001$), antenatal care ($p=0.0001$), anemia ($p=0.0001$), hypertensive disorders [OR-95%CI=10.96 (4.15-35.51) *], elective cesarean section [OR-95%CI=2.13(1.2-3.85)*]

Conclusion: The study shows that poor educational level ,poor ANC , medical problems complicating pregnancy ,operative deliveries are higher in teenagers.

Key words: Primigravida, Teenage pregnancy, and pregnancy complication

*Consultant Obstetrician and Gynecologist /Baghdad teaching hospital/Medical city complex

Introduction

Adolescence (from latin: adolescere meaning to grow up) is a transitional stage of physical and mental human development ,generally occurring between puberty and legal adulthood age, but largely characterized as beginning and ending with teenage stage⁽¹⁾.

WHO defined adolescence as the transition from childhood to adulthood which may be referred to as 'adolescence' or 'teenage', which is a period between 10-19 years. This is the period when structural, functional, and psychosocial developments occur in a child to prepare her for assuming the responsibility of motherhood⁽²⁾.

The developmental tasks or events of adolescence are biological, psychological and social, each proceed independently in each individual, although each strands can influence the others⁽³⁾

Teenage pregnancy occurs when women aged less than 20 years become pregnant. This is of serious concern because maternal age plays a significant role in adverse outcome and complications of pregnancy⁽⁴⁾.

Teenage pregnancies represent a high risk group in reproductive terms because of the double burden of reproduction and growth, complications of pregnancy and child birth are the leading cause of mortality among girls aged 15-19 years in developing countries⁽⁵⁾.

In developed regions, teenage mothers tend to be unmarried, and adolescent pregnancy is seen as social issue whereas, in developing countries, such pregnancies mostly occur in married teenagers, and their pregnancy is most often welcomed by family and society. However, in these societies, early pregnancy may combine with malnutrition and poor healthcare to cause medical problems⁽⁶⁾.

The combination of poor nutrition and early childbearing expose young women to serious health risks during pregnancy and childbirth, including pregnancy related complications, such as anemia, pregnancy induced hypertension, preterm labor, cephalo-pelvic disproportion, damage to the reproductive tract, maternal morbidity and mortality, perinatal and neonatal morbidity and mortality⁽⁷⁾.

The United States has the highest teen birth rate (41.2 births per 1000 teens in 2004) among all industrialized countries, US teen birth rates are double the rate in Great Britain and Canada and nearly four times the rates in France and Sweden⁽⁸⁾.

Two third of teen births are to 18-19 years old women who technically have reached the age of majority⁽⁸⁾.In the Arab world ,patterns of early near universal marriage prevail .

Marriage often translates into immediate childbearing as women and their families are anxious to prove the fecundity of the newlywed⁽⁹⁾.

There is some evidence of a decrease in the prevalence of early marriage ,yet for some countries the latest figures still show that a significant group of females less than 20 years old are married, reaching 37% in Oman and 19%in the United Arab Emirates⁽⁹⁾.

In Iraq age of marriage plays a determinant factor in reproductive health of women ,where early pregnancy and unplanned childbirth may have far reaching physical, psychological and social consequence⁽¹⁰⁾.

Preeclampsia is a pregnancy-specific syndrome characterized by new-onset hypertension and protein urea, occurring usually after 20 weeks' gestation⁽¹¹⁾. Preeclampsia/eclampsia affects women of all ages, but the frequency is increased in nulliparous women younger than 20 years⁽¹²⁾. The incidence of preeclampsia in nulliparous populations ranges from 3 to 10%⁽¹³⁾In Iraq the fetal weight for considering the difference between labor and miscarriage had been decided by the ministry of health at January 2011,as fetus born with weight ≥ 750 gm if mother did not remember her LMP or had no early US ,while if she know her LMP or had early US ,miscarriage was diagnosed when their gestational age was less than 24 weeks at delivery or weighting less than 750 gm⁽¹⁴⁾.

Anemia is a common medical disorder in pregnancy and have a varied prevalence , etiology and degree of severity in different population, being more common in non industrialized countries ;further more it is the commonest nutritional deficiency in pregnancy⁽¹⁵⁾. Anemia is responsible for 40-60% of maternal death in non industrialized countries⁽¹⁶⁾. Teenage has been consistently associated with low birth weight and anemia⁽¹⁷⁾.

Patients and Methods

study is a cohort study conducted at the department of obstetrics and gynecology in Baghdad teaching hospital. The collected cases including those primigravida women who were admitted to the hospital in spontaneous labor or referred from antenatal care units for induction of labor, elective or emergency cesarean section.

Inclusion criteria: includes Singleton pregnant ladies in their first pregnancy maternal age between (15-19) years for the study group ,and (20-24) years for the control group.

exclusion criteria: multiparous pregnant women. multiple .chronic medical diseasepatients who did not remember their last menstrual period or did not had an early ultrasound'.History of infertility.

The study group consisted of (228) teenage pregnant ladies between 15-19 years old who were admitted and delivered in the hospital during the studied period compared to (272) ladies as a control group aged between 20-24 years old who were admitted and delivered in the same hospital during the same

period. Full information regarding history ,investigation, ultrasound study, and antenatal visits are recorded .then clinical examination done.

Results

During the period of the study ,a total of 500 pregnant ladies were included ,228 of them were teenage (aged 15-19 years) and those formed the study group ,while 272 of them were aged (20-24years) formed the control group .The socio –demographic characteristics included in the study are the age and educational level.

Table 1:Socio-demographic characteristics of both groups

	Adolescence pregnancy (n=228)		Control (n=272)		P-value
	No	%	No	%	
Age groups(years)mean	17.57±1.27 (15-19)		22.03±1.36 (20-24)		
Level of education					0.0001*
Illiterate	6	2.6	1	0.4	
Primary	127	55.7	61	22.4	
Secondary	95	41.7	210	77.2	

*Significant using Pearson Chi-square test at 0.05 level of significance

The mean age of the study group was 17.57±1.27 (15-19), and that of the control group was 22.03±1.36 (20-24).

There is statistically significant difference between the two groups regarding educational level,2.6%illiterate,55.7% primary,41.7% secondary school in the study group vs. 0.4%, 22.4% ,77.2% in the control group (p = 0.0001)*.

Table (2): Comparison of antenatal care between the two groups

	Adolescence pregnancy (n=228)		Control (n=272)		OR (95%CI)
	No	%	No	%	
ANC visits No visit	7	3.1	1	0.4	11.53(1.44-522.3)*
1	19	8.3	9	3.3	3.48(1.44-8.99)*
2	37	16.2	22	8.1	2.77(1.51-5.17)*
3	43	18.9	39	14.3	1.82(1.08-3.05)*
=>4	122	53.5	201	73.9	-
ANC visits(mean)	3.41±1.45 (0-6)		4.10±1.19 (0-7)		0.0001*

*Significant using Pearson Chi-square test at 0.05 level of significance.

There is statistically significant difference regarding antenatal care between the two groups, which was adequate in 53.5% of the study group vs. 73.9% in the control group (p=0.0001)*.

Table (3): Medical & obstetrical complications between the two groups.

	Adolescence pregnancy (n=228)		Control (n=272)		OR (95%CI)
	No	%	No	%	
Haemoglobin (g/dl)<10	97	42.5	58	21.3	6.13 (3.48-10.9)*
10.0--10.9	104	45.6	115	42.3	3.32 (1.96-5.70)*
=>11.0 (Normal)	27	11.8	99	36.4	-
Hb (gm/dl) mean	10.21±1.20 (7.1-15.2)		10.93±1.19 (7.7-14.4)		0.0001*
PE	25	11.0	9	3.3	3.60 (1.58-8.94)*
Eclampsia	14	6.1	4	1.5	4.38 (1.35-18.5)*
HELLP	1	0.4	-	-	-
HPT(unclassified)	19	5.3	8	2.9	3.0 (1.22-8.07)*
Gestational DM	2	0.9	1	0.4	2.40 (0.12-142.0)
APH	5	2.2	2	0.7	6.08 (0.67-288.4)
PPH	5	2.2	4	1.4	0.99 (0.24-3.97)
PPH causes Atony	2	0.8	2	0.7	p-value 0.336
GT Injury	2	0.8	1	0.3	
Retained placenta	1	0.4	1	0.3	
DVT	-	-	2	0.7	-

*Significant using Pearson Chi-square test at 0.05 level of significance
Regarding medical & obstetrical complication

There is statistically significant difference regarding anaemia between the two groups, 88.1% in the study group vs 63.6% in the control group ($p = 0.0001$)*.

Also there is statistically significant difference regarding hypertensive disorders of pregnancy including: PE 11.0% in the study group vs. 3.3% in the control group OR(95% CI)=3.60(1.58-8.94)*,

-Eclampsia 6.1% vs. 1.5% respectively, OR (95% CI)=4.38(1.35-18.5)*,

-Unclassified hypertension 5.3% vs. 2.9% respectively OR(95% CI)=3.0(1.22-8.07)*.

Other antenatal and postpartum complications showed no statistically significant difference ($p = 0.336$).

Table (4): Mode of delivery between the two groups.

	Adolescence pregnancy (n=228)		Control(n=272)		OR (95%CI)
	No	%	No	%	
Induction of labour Yes	22	9.5	46	16.9	0.52 (0.29-0.93)*
Mode of Delivery NVD	136	59.6	177	65.1	-
Elective CS	41	18.0	25	9.2	2.13 (1.2-3.85)*
Emergency CS	51	22.4	70	25.7	0.95 (0.61-1.48)

*Significant using Pearson Chi-square test at 0.05 level of significance.

There is statistically significant protective difference regarding the induction of labor between the two groups, (9.5%), in the study group vs. (16.9%) in the control group .OR-95%CI= 0.52 (0.29-0.93)*

The main cause of induction of labor in both groups was postdate pregnancy and hypertensive disorders

There is statistically significant difference regarding elective cesarean sections 18.0% in the study group vs. 9.2% in the control group OR(95% CI)=2.13(1.2-3.85)*.

While regarding emergency C/S no significant difference was found.

With regard to the indications of C/S:

Table (5): Indication of c/s (elective & emergency)

	Adolescence pregnancy with CS (n=92)		Control with CS (n=95)		OR (95%CI)
	No	%	No	%	
Malpresentation	19	20.6	19	20.0	1.04(0.48-2.26)
FTP	15	16.3	21	22.1	0.69(0.30-1.52)
Cord prolapsed	2	2.2	6	6.3	0.33(0.03-1.92)
Hypertensive disorders	28	30.4	8	8.4	4.44(1.71-12.84)* (P=0.006)*
Placental abruption	4	4.3	1	1.1	4.27(0.41-212.6)
Placenta previa	-	-	1	1.1	-
Fetal distress	17	18.5	25	26.3	0.63(0.30-1.34)
Others	7	7.6	14	14.7	0.48(0.16-1.34)

*Significant using Pearson Chi-square test at 0.05 level of significance.

In the study group, 19 cases had cesarean section because of mal presentation in labor (including breech, transverse lie ,oblique and compound presentation), 15cases failure to progress , 2 cases cord prolapse ,28 cases hypertensive disorders which was statistically significant cause (p = 0.006)*,4 cases placental abruption, 17 cases fetal distress, others including 2

cases hydrocephaly, 3 cases postdate and unfavorable cervix for induction, 1 case HPV and one case pelvic fracture, compared to 19, 21, 6, 8, 1, 25 cases for the control group respectively with one case of placenta previa.

Others in the control group included 2 cases hydrocephaly, 7 cases postdate & unfavorable cervix for induction, 2 cases pelvic fracture, 3 cases HPV.

Discussion

Teenage pregnancy is often referred to as 'at-risk pregnancy' and is of grave concern. Teenage women face a greater risk of obstetric complications than women in their twenties. Although teenage pregnancy can be a positive experience, particularly in the later teenage years, it is associated with a wide range of subsequent adverse health and social outcomes (18).

Chaiwat Pattanapisalsak MD*et al 2011 (19) and Supadit et al 1988 (20) found that teenage mothers had significantly lower levels of education than adult mothers, this is agreed with our study.

Florian Kurth et al 2010 [21] showed that adolescent mothers had attended significantly less antenatal care visits than adult mothers (3.361.9 versus 4.461.9 mean visits, $p=0.01$, $n=356$), which is agreed with our study.

M.S. Chahande et al 2009 (22) studied the relation of antenatal care services between adolescent and adult groups which did not show any statistical significance which is incompatible with our study where there is significant difference in between the two groups.

owed that diabetes mellitus was significantly higher in the adult mothers which is incompatible with our study while previous research Comparison as Nato S et al 2005 (23), Thato S, Rachukul S et al 2007 (24) reported the similar incidence of such complication between teenage and adult mothers, this is compatible with our study.

The present study found that teenage mothers had a higher incidence of anemia, similar to that found by Suebnukarn et al 2005 (25)

The increased risk of this complication was most likely to have resulted from poor nutritional habits and low calorie intake by teenage mothers. The study showed that the cause for anemia in teenage mothers was malnutrition especially, the lack of iron and folic acid. Teenagers grow rapidly and need iron to form hemoglobin. Their needs are greater than adults.

Chaiwat Pattanapisalsak MD et al 2011 (19) showed that teenage mothers had a higher proportion of normal deliveries compared to adult mothers. This may be because teenage mothers give birth to smaller infants. These findings were in accordance with the studies of Ziadeh 2001 but in contrast to studies of Scholl et al 1994 (26). The proportion of operative deliveries was higher in adult mothers, and may be due to adult mothers having higher rates of

cephalopelvic disproportions and because adult mothers have higher rates of elective caesarean sections, this is incompatible with our study.

De Vienne, Claire M. et al 2010(27); found that younger maternal age had lower risks of pre-eclampsia, cesarean section, and postpartum hemorrhage which is incompatible with our study.

The higher incidence of teenage cesarean delivery in the present study was somewhat different from those observed in other studies, Trivedi SS, Pasrija S. et al 2007(28), Al Ramahi M, Saleh S. et al 2006(29), which reported the significant lower incidence of cesarean delivery in the teenage mothers. A report by Ebeigbe and Gharoro et al 2007(30) was the only study having similar result to the present study.

Conclusions and Recommendation

This study highlights that nearly one fourth of pregnancies occur in teenage pregnant women admitted to Baghdad teaching hospital during the studied period, who have significantly higher rates of complications. This may cause retardation of growth and development, and also deprive them of their childhood and education with resultant deterioration of the overall health of the nation. The time has come to focus on this problem by education, nutritional support, and family planning, along with creating awareness among the community and also the school girls about the importance of delaying marriage, reproductive health, family life, and population education will definitely help in transforming today's adolescent girls into healthy and responsible women, giving birth to a healthy future generation.

References

- 1-Macmillan Dictionary for students Macmillan pan Ltd. (1981) page 14,456 retrived 2010-7-5.
- 2-Programming for Adolescent Health and Development. WHO Technical Report Series 886; 1999. p. 1-217
- 3-Eveleth P. Tanner J. Worldwide variation in human growth. Cambridge: Cambridge University Press:1999.
- 4-Mayor S . Pregnancy and childbirth are leading causes of death in teenage girls in developing countries. BMJ 2004;328:1152.
- 5-PriankaMukhopadhyay , Chaudhuri RN, and Bhaskar Paul. Hospital based perinatal outcomes and Complications in Teenage Pregnancy in India. J HEALTH POPULAR NUTR.2010 Oct 28(5):494-500 .
- 6-Raatikainen K , Heiskanen N, Verkasalo PK , Heinonen S. Good outcome of teenage pregnancies in high-quality maternity care. Eur J Public Health 2006; 16:157-61.

7. Agarwal N , ReddaiahVP. Factors affecting birth weight in a suburban community. *Health Popul Perspect Issue* 2005;28:189-96.
8. Chang J, Berg CJ, Saltzman LE , et al: Homicide: A leading cause of death among pregnant and postpartum women in the United State . *Am J Public Health* 2005;95:471-477.
9. Marshall & Tanner, Bongaarts, Gray, Bongaarts & Cohen, Fathalla, (2000) Baseline study to determine knowledge, attitude and practice in relation to reproductive health among female aged between 10 and 24 year living in Gauteng province, South Africa retrieved on 9/11/2006 from the World Wide Web: www.csvr.org.za/papers/papunhcr.htm
10. Enas T. Abdul-Karim, Abdul-Hussain Al-Hadi; Mother Age at marriage as a determinant of reproductive health, *Iraqi J MED SCI*, 2005; VOL.4 (1):57-62.
11. ACOG Committee on Practice Bulletins--Obstetrics. ACOG practice bulletin. Diagnosis and management of preeclampsia and eclampsia. *Obstet Gynecol*. Jan 2002; 99(1):159-67.
12. Sibai BM: Hypertension in Pregnancy. In: Gabbe SG, Niebyl JR, Simpson JL, eds. *Obstetrics: Normal and Problem Pregnancies*. 3rd ed. New York, NY: Churchill Livingstone; 1996: 964-975.
13. Sibai BM, Cunningham FG: Prevention of preeclampsia and eclampsia. In Lindheimer, Roberts JM, Cunningham FG (eds): *Chesley's Hypertensive Disorders of Pregnancy*, 3rd ed. New York, Elsevier, In press, 2009, p 215.
14. Iraqi ministry of health (order D.A.F 5/2/2/91 in 18.1.2011)
15. Diejomacoh FME, Abdulaziz A , Adekile AD : Anemia in pregnancy *Int J Gynecol Obstet* 1999;65 :299-301.
16. Bhatt R: Maternal mortality in India –FOGSI WHO study. *J Obstet Gynecol Ind* 1997.
17. Projestine S Muganyizi et al. Impact of change in maternal age composition on the incidence of caesarean section & low birth weight . *BMG Pregnancy and Child birth*; 2009. July 9:30
18. Angela Harden . Teenage pregnancy and social disadvantage. *BMJ*. 2009; 339:b4254.
19. Chaiwat Pattanapisalsak. Obstetric Outcomes of Teenage Primigravida in Su-ngai Kolok Hospital, Narathiwat , Thailand *J Med Assoc Thai* 2011, Vol. 94 No. 2.
20. Supadit W, Srilapattana B, Jantayongnee B. Teenage pregnancy. *Thai Military J* 1988; 43: 71-5.
21. Florian Kurth, Sabine Belard et al, Adolescence As Risk Factor for Adverse Pregnancy Outcome in Central Africa – A Cross-Sectional Study. *PLoS ONE* December 2010 | Volume 5 | Issue 12 | e14367.

22. Chahande MS, Jadhao AR, Wadhva SK, Suresh Ughade, Study of Some Epidemiological Factors in Teenage Pregnancy - Hospital Based Case Comparison Study; Indian Journal of Community Medicine, 2009 Vol. 27, No. 3 (2002-07 - 2002-09).
23. Nato S. Comparison of pregnancy outcome between teenage mothers and mothers aged 20-30 years old at Chao Phaya Abhaibhubejhr Hospital. Bull Dept Med Serv 2005; 30: 326-34.
24. Thato S, Rachukul S, Sopajaree C. Obstetrics and perinatal outcomes of Thai pregnant adolescents: a retrospective study. Int J Nurs Stud 2007; 44: 1158-64.
25. Suebnukarn K, Phupong V. Pregnancy outcomes in adolescents < or = 15 years old. J Med Assoc Thai 2005; 88: 1758-62.
26. Scholl TO, Hediger ML, Belsky DH. Prenatal care and maternal health during adolescent pregnancy: a review and meta-analysis. J Adolesc Health 1994; 15: 444-56
27. De Vienne, Claire M.; Creveuil, Christian; Dreyfus, Michel et al. Does Young Maternal Age Increase the Risk of Adverse Obstetric, Fetal and Neonatal Outcomes?: A Cohort Study Obstetrical & Gynecological Survey: March 2010 - Volume 65 - Issue 3 - pp 162-163.
28. Trivedi SS, Pasrija S. Teenage pregnancies and their obstetric outcomes. Trop Doct 2007; 37: 85-8.
29. Al Ramahi M, Saleh S. Outcome of adolescent pregnancy at a university hospital in Jordan. Arch Gynecol Obstet 2006; 273: 207-10.
30. Ebeigbe PN, Gharoro EP. Obstetric complications, intervention rates and maternofetal outcome in teenage nullipara in Benin City, Nigeria. Trop Doct 2007; 37: 79-83.