Original Article

The Fetomaternal Outcome in the Teenage Pregnant Patients Presenting at Jinnah Postgraduate Medical Center (JPMC), Karachi

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Abstract

Objective: The purpose of this study was to determine the foetal and maternal outcomes of a teenage pregnant patient who presented to Jinnah Postgraduate Medical Center (JPMC) in Karachi, Pakistan.

Methodology: This descriptive cross-sectional study was carried out in the obstetrics and gynecology, Jinnah Postgraduate Medical Centre (JPMC), Karachi. A total of 119 consecutive teenagers were included. Maternal outcomes (lower segment caesarean section, anaemia, pre-eclampsia, and Eclampsia) and fetal outcomes (Premature Birth, Low birth weight, NICU admission) were recorded. Female, pregnant, age between 13 to 19 years old patients who had any gestation age in that service during the period from 25 Jan to 24 Jul 20, where the study's variables were analyzed to see the fetomaternal outcomes in the teenage pregnant patients.

Results: The mean maternal age was 17.01±1.30 years. A total of 55.5% of patients were found with lower segment caesarian section, 72.3% with anemia, 39.5% with preeclampsia, 21% with eclampsia, 16.8% with premature birth, 19.3% with low birth weight, and 10.1% with NICU admission. There was a significant association of the lower segment caesarian section with age and parity. Our study findings concluded that anemia was correlated with age, miscarriage history, and parity. Low birth weight was related to age and parity. NICU admission was associated with parity.

Conclusion: We observed 55.5% lower segment caesarian section, 72.3% anameia, 39.5% pre-eclampsia, 21% eclampsia, 16.8% pre mature birth, 19.3% low birth weight, and 10.1% NICU admission.

Keywords: Fetomaternal Outcomes, Teenage pregnancy, Pregnant Patient, Anaemia, Eclampsia, Pre-eclampsia.

Cite this article as: Safia, Khan S, Geeta, Bai V, Amir F, Bano K. The Fetomaternal Outcome in the Teenage Pregnant Patients Presenting at Jinnah Postgraduate Medical Center (JPMC), Karachi. J Soc Obstet Gynaecol Pak. 2022; 12(3):199-204.

Introduction

Teenage pregnancy is a risk factor for multiple obstetric and medical conditions worldwide related to fetal and maternal adverse outcomes. [1, 2] There is a higher risk of spontaneous and recurrent miscarriages, gestational trophoblastic tumors, ectopic pregnancy, and induced abortions observed in cases of teenage pregnancy. [1, 2] It is defined as a teenage girl, usually between thirteen to nineteen years, becoming a pregnant woman. The term in everyday speech usually refers to girls who have not reached legal adulthood (which varies around the world) and become pregnant. [3]

The presence of teenage pregnancy in women under the age of 19 is considered a complex public health problem involving a failure in the family, education, and society at large.[4]

Therefore, it is regarded as a condition that by itself has a greater tendency to show adverse effects.[5] This increases maternal mortality, followed by a higher prevalence of anemia, postpartum hemorrhage, need for caesarean section, instrumental delivery, hypertensive disorders, and others.[4] These complications, added to immaturity, biological, ethnicity, lack of family planning,

Authorship Contribution: [1,3,4]Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work, [2]Active participation in active methodology, [5]Drafting the work or revising it critically for important intellectual content, participated in the acquisition and data analysis, [6]Final approval of the version to be published,

Funding Source: none
Conflict of Interest: none

Received: April 28, 2022
Accepted: Sept 2, 2022

inadequate access to prenatal care, poor maternal nutrition, and maternal stress [6], determine a worse perspective and are a condition of risk to this population.[7]

Early pregnancy is also associated with increased preeclampsia, eclampsia, gestational diabetes, anemia, urinary tract infections, etc., which increase maternal morbidity and mortality.[2,8] Fetal risks include miscarriage, premature birth, low birth weight, related complications, congenital anomalies, developmental delays, fetal demise, etc.[1] A teenage girl between 15-19 years is more than twice as likely to die during childbirth as women in their twenties, and those under 15 years are five times as likely.[9]

In Pakistan, teenage marriages are standard practice, usually in rural areas, followed by early pregnancy. According to the 2012 to 2013 Pakistan demographic and health survey, the prevalence of teenage pregnant women is 8%, which has documented higher rates of multiple complications. [10]

Studies conducted in Pakistan to assist the risk and fetomaternal outcomes in teenage pregnancy have been concluded mainly with an increased frequency of maternal anemia, hypertension, urinary tract infection, and operative delivery [11] and labeled the pregnancy in teenage as a high-risk pregnancy.[12] However, neonatal intensive care unit (ICU) hospital admission for fetal risk may include low birth rate, intrauterine growth retardation, and prematurity.[11]

In the Sindh province, teenage pregnancy is a common problem due to the early marriages tradition. Furthermore, there is a paucity of data on fetomaternal outcomes in these adolescent pregnancies for this region. This study will assess the fetomaternal effect in pregnant teenage patients presenting to the hospital. The reason for this study is that there is no literature on the fetomaternal outcome in pregnant teenage patients at any health institute in Baluchistan province. However, some studies have been done on fetomaternal outcomes in teenage pregnant patients of the other three provincial hospitals of Pakistan.

Methodology

It is a cross-sectional, observational, analytical, non-experimental study was conducted from Jan 2021 to Jul 2020 in the Department of Obstetrics and Gynaecology, Jinnah Postgraduate Medical Center (JPMC). After approval of the ethical review committee, included all women who had given informed consent between the age of 13 to 19 years of any gestational age. Exclusion criteria have restricted those pregnant women with incomplete medical records and having an age ≥20. All those who are suffering from any severe health condition like hypertension (blood pressure ≥140/90 mmHg), diabetes (blood sugar >120 mg/dl), and hemoglobinopathy (by electrophoresis) were also excluded including those patients who refuse to give consent. Before inclusion, the purpose, benefits, confidentiality, and rights of participants were explained.

The principal investigator took informed consent from all eligible patients. The sample size was calculation using WHO sample size calculator. The calculated sample size was n=119, the frequency of required NICU cases is 8.4% from previous literature, with a confidence level at 95% and a margin of error at 5%. The maternal outcome was determined in terms of outcomes at the termination of gestation. Lower Segment Cesarean Section (LSCS) was defined as women's deliveries included a transverse surgical incision of 1-2 centimeters above the attachment of the urinary bladder to the uterus. On admission hemoglobin level of less than 12 g/dL was labeled as anemia. Pre-Eclampsia was characterized by blood pressure consistently at or above 140/90 mmHg at multiple incidents of measurement at least 6 hours apart with proteinuria of 2+ on the dipstick. Eclampsia was defined as the occurrence of seizures during pregnancy that were accompanied by at least two of the following features within 24 hours of the seizure. Hypertension (Higher than 130/80 mmHg blood pressure at least two occasions two hours apart) and Proteinuria (The spot urine protein/creatinine ratio ≥ 0.4, within first 24 hours of delivery), moreover Thrombocytopenia was defined as (Complete blood count < 150,000 platelets, within first 24 hours of delivery). The fetal outcome was determined in terms of outcomes at the termination of gestation, including premature birth, defined as babies born before 37 weeks of gestational age (gestational age was calculated through the first day of the last menstrual period or first-trimester ultrasound). LBW was defined as maintained, weighing less than 2,500 grams, and NICU admission was defined as babies referred for Neonatal Intensive Care Unit (NICU) care. The collection was done by reviewing the medical records of the gynaecology department of the JMPC hospital. SPSS version 21 was used for data analysis. For descriptive analysis (mean, median, and fashion), central trend and dispersion indicators (frequency, percentages, standard deviation, minimum and maximum). For the bivariate

analysis, contingency tables were used between the variables history of miscarriages, maternal outcomes (Lower segment Cesarean section (LSCS), Anaemia, Pre-eclampsia, and Eclampsia). To determine the association among variables (premature birth, low birth weight, NICU admission), the chi-square test was used (x2), considering the results statistically. The post-stratification chi-square test was applied. A P-value of ≤ 0.05 was taken as significant.

Results

During the study, 119 teenage women were recruited. Regarding the age of the population analyzed, it was observed that the ages were between 15 and 19 years, with an average of 17.01 ±1.3 with the median age being 17 years, the most frequent age being less than 17 years which accounted for 59%. Regarding the number of prenatal check-ups, an average of 6.19 ±2.906 was evidenced. Out of 119 patients, 9.2% were found with a history of miscarriages. Furthermore, it was observed that 31.9% of subjects were nullipara, and 68.1% of subjects were primary para. Comparison of maternal and fetal outcomes among age groups , miscarriages history and parity are shown in table I and II respectively.

Table 1: Comparison of maternal outcome among age-groups, miscarriages history, and parity

Characteristics	Total	Lower Segment Cesarean Section (LSCS)		P-value
		Yes	No	
Total (N)	**119**	**66 (55%)**	**53 (45%)**	**-**
Age Groups				
≤17 years	70	49 (70)	21(30)	<0.001*
>17 years	49	17 (34.7)	32 (65.3)	
Miscarriages History	11	5 (45.5)	6 (54.5)	0.483**
Parity				
Nullipara	38	31(81.6)	7 (18.4)	<0.001*
Primary para	81	35 (43.2)	46 (56.8)	
Characteristics	**Total**	**Anemia**		**P-value**
		Yes	**No**	
Total (N)	**119**	**86 (72%)**	**33 (28%)**	**-**
Age Groups				
≤17 years	70	56 (80)	14 (20)	0.024*
>17 years	49	30 (61.2)	19 (38.8)	
Miscarriages History	11	5 (45.5)	6 (54.5)	0.037*
Parity				
Nullipara	38	32 (84.2)	6 (15.8)	0.046*
Primary para	81	54 (66.7)	27 (33.3)	
Characteristics	**Total**	**Pre-Eclampsia**		**P-value**
		Yes	**No**	
Total (N)	**119**	**47 (39%)**	**72 (61%)**	**-**
Age Groups				
≤17 years	70	30 (42.9)	40 (57.1)	0.370**
>17 years	49	17 (34.7)	32 (65.3)	
Miscarriages History	11	2 (18.2)	9 (81.8)	0.129**
Parity				
Nullipara	38	19 (50)	19 (50)	0.108**
Primary para	81	28 (34.6)	53 (65.4)	
Characteristics	**Total**	**Eclampsia**		**P-value**
		Yes	**No**	
Total (N)	**119**	**25 (21%)**	**94 (79%)**	**-**
Age Groups				
≤17 years	70	18 (25.7)	52 (74.3)	0.132**
>17 years	49	7 (14.3)	42 (85.7)	
Miscarriages History	11	2 (18.2)	9 (81.8)	0.809**
Parity				
Nullipara	38	10 (26.3)	28 (73.7)	0.330**
Primary para	81	15 (18.5)	66 (81.5)	

Chi-Square Test was applied.
P-value ≤0.05 is considered Significant.
**Not Significant at 0.05 levels.

Although there are patients who did not perform a single control during their pregnancy. The number of sexual partners that the patients had ranged from 1 to 5 partners, with an average of 1.52 (±0.891). Lower segment caesarian section (LSCS) was found in 55.5%, anaemia in 72.3%, pre-eclampsia in 39.5%, eclampsia in 21%, premature birth in 16.8%, low birth weight in 19.3%, and NICU admission in 10.1%. The results showed a significant association between the lower segment caesarian section and age (p=0.000) and parity (p=0.000). Anemia was significantly associated with age (p=0.024), miscarriage history (p=0.037) and parity (p=0.046). Premature birth was associated with parity (p=0.015). Low birth weight was significantly associated with age (p=0.000) and parity (p=0.005). NICU admission was significantly associated with parity (p=0.039).

Table II: Comparison of fetal outcome among age-groups, miscarriages history, and parity

Characteristics	Total	Pre Mature Birth		P-value
		Yes	No	
Total (N)	**119**	**20 (17%)**	**99 (83%)**	**-**
Age Groups				
≤17 years	70	13 (18.6)	57 (81.4)	0.538**
>17 years	49	7 (14.3)	42 (85.7)	
Miscarriages History	11	1 (9.1)	10 (90.9)	0.473**
Parity				
Nullipara	38	11 (28.9)	27 (71.1)	0.015*
Primary para	81	9 (11.1)	72 (88.9)	
Characteristics	**Total**	**Low Birth Weight**		**P-value**
		Yes	**No**	
Total (N)	**119**	**23 (19%)**	**96 (81%)**	**-**
Age Groups				
≤17 years	70	21 (30)	49 (70)	<0.001*
>17 years	49	2 (4.1)	47 (95.9)	

Miscarriages History	11	1(9.1)	10(90.9)	0.367**
Parity				
Nullipara	38	13 (34.2)	25 (65.8)	0.005*
Primary para	81	10 (12.3)	71 (87.7)	
Characteristics	**Total**	**NICU Admission**		**P-value**
		Yes	**No**	
Total (N)	**119**	**12 (10%)**	**107 (90%)**	**-**
Age Groups				
≤17 years	70	10 (14.3)	60 (85.7)	0.069**
>17 years	49	2 (4.1)	47 (95.9)	
Miscarriages History	11	1 (9.1)	10 (90.9)	0.909**
Parity				
Nullipara	38	7 (18.4)	31 (81.6)	0.039*
Primary para	81	5 (6.2)	76 (93.8)	

Discussion

Adolescent pregnancy has become a significant health issue in developed and developing countries in recent decades[13] between the different countries, teenage pregnancies vary dramatically, of which developing countries contribute 90 percent. [3, 12, 14-18]

The province of Sindh, Pakistan, found the highest prevalence of early, child, and forced marriage practice is prevalent and appears in all regions, directly linked with traditional practices, cultural norms, religious beliefs, and deeply rooted gender inequalities. For several reasons, teen pregnancy is the most critical issue. However, it is still a challenge to decrease the occurrence of teenage pregnancies in developing and developed countries, directly associated with adverse social, emotional, cultural, economic, and health consequences for the mother and her child.

The mean age of women was 17.01 ±1.3, with the median age being 17 years, which is comparable to studies by Tanveer Q et al. [19], Yasmeen G [17], and Sheikh S.[20]

This study showed that teenage pregnancy is associated with a high risk of poor education, anemia, hypertension, postpartum hemorrhage, low birth weight, preterm labor, post-term labor, fetal distress, meconium aspiration syndrome. [2-4, 14-16, 21-23]

Regarding medical and obstetrical outcomes in this study, the incidence of preterm delivery, low birth weight, hypertension, and anemia was higher in teenagers. These findings are agreed with the findings of a study done by Banerjee et al [24], which showed that teenage pregnancy is often of grave concern and is of high-risk pregnancy. Teenage women face a greater risk of bad obstetrical outcomes than adult mothers.

In Pakistan, teenage pregnancy is not usually the problem within wedlock because they already have family and social support. However, these girls are not empowered to make their own decisions due to generally suffering a low socioeconomic status at a young age. As a result, while the girls are growing up and their child is physically, emotionally is not mature enough to reproduce.

Different studies have been reported numerous age groups bracket of teenage pregnant women, which conflict with the results regarding obstetric outcomes. Some studies suggest the obstetrical outcome in older teenage while others report adverse outcomes for the younger teenage groups.

In developing countries, the birth of girls aged 15-19 is approximately 90% occur within early marriage. Pressure on girls to improve their fertility is often an imbalance of power and no access to contraception. The prevalence of teenage child marriage according to NFHS data provided was 11.9%, followed by rural areas at 14.1%, and urban areas were 6.9%. Married teenagers have given birth to one child, which accounted for 27.3%, and 4.2% have two or more children. [25, 26)]In many cases, pregnancy supposes the beginning of the mistreatment towards the surrogate. In our study, 55% of mothers had a lower segment caesarian section (LSCS), 72.3% had anemia, 39.5% had pre-eclampsia, 21.1% had eclampsia, 16.8% had a premature birth, 19.3% had a low birth weight, and 10.1% had NICU admission.

A study conducted in Larkana showed that in a cohort of 257 patients, 17.1% belonged to the age group of 10-14 years, while 82.8% were between the ages of 15–19 years.[14] According to the global record data information, pregnancy and childbirth-related complications died approximately 529,000 women every year.[27] In contrast, the risk of death due to pregnancy-related causes is double among women aged 15-19 compared to women in their twenties. [28]

In a study conducted by Rita et al[29], 79.2% of teenage mothers had varying anaemia grades, followed by 13.6% having eclampsia, 37% having pre-eclampsia, and LSCS rate were as high as 52%. 16.01% had preterm deliveries (premature birth), 12.5% were low birth weight neonates, 8.4% required NICU care.

Other local studies revealed an increased risk of adverse pregnancy outcomes, particularly a hypertensive disease of pregnancy, placental abnormalities, and anemia in the teenage group.[16] Risks of preterm delivery, instrumental delivery, and related complications are more frequently seen in teenage pregnancy. [18]

The majority of the women were anemic (Hb < 11gm/dL), which may reflect our women's general state of nutritional deficiency. However, teenage mothers were a significantly higher frequency of severe anemia (Hb < 7 gm/dL). While these young mothers are still growing and may compete with the growing foetus for nutrients, their physical immaturity may explain them. [23] Several other studies also have been found and reported in the past studies. [22, 30, 31]

In over study, the NICU admission rate was 8.4%. Similar results were seen in a study conducted in Nigeria in 2003 where the NICU admission was found similar in teenage pregnancy. More vaginal deliveries by LSCS is 72.3%. Similar results are obtained in Mann, L. et al[32] and Gupta, N et al.[30]

In one study, the incidence of teenage pregnancy and anaemia was10.06% and 79.2%, respectively, but other studies showed the incidence of teenage pregnancy from 8.3-23.4%.[33] Some studies reported that preeclampsia was found in 37% of teenage pregnant mothers. In one study, low birth weight was 12%, and the NICU admission rate was 8.4%. Perinatal mortality is 2% [19, 29, 31], comparable to other studies where low birth weight is 38.9% and perinatal mortality is 5.1%.[34]

Cesarean delivery rates among low-risk women of all ages have significantly increased in the last two decades, and adolescent girls are not immune to this trend. Caesarean section rates are increasing globally. A recent study that gathered and included data from thirty-one European countries reported that the average caesarean section rate in these countries is 25%. Although this trend is not limited to Europe or other high-income countries, it is also occurring in developing countries. [21] Cesarean section and anaemia are major maternal complications affecting fetal outcomes. Babies with low birth weight (LBW) were more in the study group, demanding extra care.[15]

Ortiz-Prado et al reported that more than 57.5% of births were carried out were cesarean sections, and more than 19,000 were performed on adolescent women. C-Sections per 1000 live births (575 per 1000) were double the not for profit public health system (223 per 1000).[35, 36]

Therefore, to see the adverse obstetrical, neonatal, and fetomaternal outcomes, a more extensive population-based scale study may be required to see the actual prevalence of teenage pregnancies in our setup.

Conclusion

Our study findings concluded that anaemia was correlated with age, miscarriage history, and parity. Low birth weight was related to age and parity. NICU admission was associated with parity. During teenage pregnancy, we observed 55.5% lower segment caesarian section (LSCS), 72.3% anemia, 39.5% pre-eclampsia, 21% eclampsia, 16.8% premature birth, 19.3% low birth weight, and 10.1%NICU admission. This study was done to evaluate outcomes and complications related to teenage pregnancy. The study concluded that the common complications were lower segment caesarian section, anemia, pre-eclampsia, eclampsia, and low birth weight among teenage pregnancies. The healthcare provider must consider that teenagers need to be educated for more antenatal visits for screening tests so that various complications can be assessed earlier for appropriate management.

Study Limitations: The study was conducted on an urban population with a small sample size and a single hospital-based environment. However, for larger populations, the results were not generalized. Teenage pregnancy still represents one of the significant public health problems. Therefore, public awareness about the health impacts of teenage girls' marriage and early pregnancy should be increased. At the same time, education of teenage girls should be provided, together with increasing the frequency of antenatal visits for early diagnosis and management of antenatal complications. Improving nutrition during pregnancy and ensuring supplementation of folic acid, iron, and other vitamins to prevent anaemia is paramount. Information can be provided early through premarital counselling and family planning services to delay pregnancy until the young girl reaches maturity. Further prospective cohort studies with a large sample size of adolescents and adult mothers' groups will help highlight pregnancy complications and obstetrical outcomes.

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