

# Determine the Rate of Harmful Maternal and Foetal Outcomes in Pregnant Adolescents

SHEHLA PARVEEN<sup>1</sup>, MUNTAHA HANIF<sup>2</sup>, NAHEED AKHTAR<sup>3</sup>

<sup>1</sup>WMO, Basic Health Unit, Ghundi, District Mianwali

<sup>2</sup>RMO, Department of Dermatology, DHQ Teaching Hospital, Sargodha

<sup>3</sup>WMO, GRD -19 DB Tehsil Piplan, District Mianwali

Corresponding author: Naheed Akhtar, Email: [naheedakhtar110592@gmail.com](mailto:naheedakhtar110592@gmail.com)

## ABSTRACT

**Objective:** The purpose of this research is to examine whether or not adolescent pregnant women have adverse maternal and foetal outcomes.

**Study Design:** Randomized controlled trial

**Place and Duration:** The study was conducted at Gynaecology department of DHQ Teaching Hospital, Sargodha and DHQ Hospital Mianwali for duration of four months from August 2021 to November 2021.

**Material and Methods:** In all, there were 84 participants in this research. Patients were between the ages of 14 and 45 years. After obtaining written agreement from patients, demographic data was collected. The patients were split into two groups, I and II, which were evenly distributed. Group I included 42 patients between the ages of 14 and 19, and Group II included 42 patients between the ages of 19 and over. Cesarean sections, instrumental deliveries, labour inductions and labour prolongations, hypertensive disorders, and other negative results were observed for the two cohorts. High rates of perinatal death and admission to the neonatal intensive care unit (NICU) were also found. SPSS 20.0 was used to analyse all of the data.

**Results:** In group I mean age of the patients was 16.65±8.51 years and had mean BMI 20.05±6.33 Kg/m<sup>2</sup> while in second group the mean age was 23.15±6.22 years and had mean BMI 24.7±9.51 Kg/m<sup>2</sup>. Study participants in adolescence (I) were more likely to have unfavourable foetal (perinatal death, low birth weight and low apgar score) and mother outcomes (C-section, Instrumental delivery, induction of labour, and prolonged labour) than those in the adult group (II).

**Conclusion:** According to this research, premature neonatal critical care unit admissions and delayed intrauterine development are both on the increase. Pregnant teenagers are more likely to suffer from anaemia, a urinary tract infection, high blood pressure pregnancy, and a need for a surgical birth.

**Keywords:** Maternal outcome, Partum haemorrhage, Fetal outcome, Pre-eclampsia,

## INTRODUCTION

Adolescent pregnancies are on the rise in industrialised nations, and they are associated with worse results for the unborn child and the mother.[1] Depending on the demographics, a variety of variables might play a role in the occurrence of teenage pregnancies. [2] Teenage pregnancies are widespread in poor nations outside of marriage, and they are discouraged in many cultures. According to various accounts, pregnant Pakistani teenagers fare worse than their elder counterparts. Three times as many teenage moms suffer from anaemia than non-adolescent mothers do. Furthermore, young women had a lower pre-pregnancy BMI, were two times more likely to have an instrumental vaginal delivery, and were three times more likely to suffer chorioamnionitis. [3,4] Teen pregnancy has long been an area of worry due to factors such as biological immaturity and lack of prenatal care as well as a mother's lack of nutritional condition throughout her pregnancy and the stress she experiences. When it comes to teenage pregnancies, cultural, economical, and regional variables are all contributing to inferior results for the mother and her unborn child. Many other health issues are linked to adolescent pregnancy, such as abortion, severe anaemia, premature labour, hypertension, surgical delivery, and cephalopelvic imbalance. Concerns of adolescent pregnancy include unwanted pregnancy, biological immaturity, poor prenatal care and inadequate maternal nutritional status all having an influence on neonatal and mother health. When it comes to teenage pregnancies, cultural, financial, and regional variables are all contributing to the lower results for mothers and their babies. Teenage pregnancies are associated with a wide range of health problems, including the risk of miscarriage and premature labour as well as severe anaemia and hypertension. [5,6] Teen pregnancies are a problem in every nation, regardless of economic background. Teenage births are more common in low-income areas due to a combination of factors including a lack of access to quality education and career opportunities. [7] Eclampsia, systemic infections, puerperal endometritis, and live births to teenage mothers are also more likely to suffer early delivery, low birth weight, and serious neonatal difficulties than newborns of females aged 20-24. [8] It is

improbable that adolescent pregnant women would be as physically fit as women in their second decade of life to withstand the financial weight of delivery and pregnancy. Individual, social, and familial concerns, as well as a lack of access to health care and contraception in most industrialised nations, all contribute to the negative consequences of adolescent pregnancy. Pregnancy-related issues, such as maternal mortality, are more likely in young pregnant women because they are not physically grown enough to fulfil the demands of pregnancy. [8,9]

Adolescent pregnancies have been associated with a variety of negative consequences for mothers, although the evidence supporting these claims has been conflicting. The risk of unfavourable maternal outcomes among teenagers and young adults aged 20–24 years was shown to be non-significant in a large, transcontinental population-based cohort research undertaken in low and middle-income nations. It's also been shown that adolescents are more likely to suffer from preeclampsia (high blood pressure), anaemia, vaginal bleeding and protracted labour than older mothers [10]. There was a reduction in maternal problems including preeclampsia and postpartum haemorrhage (PPH) among women younger than adulthood, according to another research [11].

One of the most common causes of mortality among teenagers in poor nations is complications connected to pregnancy and delivery. Hemorrhage, pregnancy-related hypertension, and sepsis are the leading causes of maternal fatalities worldwide.[12] In Ethiopia, obstructed labour, hypertensive disorders, and bleeding are the leading causes of maternal death. Pregnancy problems are more likely in young women than in older ones. Adolescent women are more likely than older women to have pregnancy-related hypertension [13-15]. Studies in Nigeria, Cameroon, and Brazil have also shown that adolescents had a greater risk of hypertensive diseases than adults [16]. Pregnancy among adolescents has been linked to an increased risk of mother and child morbidity and death. Adolescent pregnancy prevention is regarded as one of the most important intervention tactics for raising women's educational levels as well as contributing to the overall socioeconomic progress of a nation.

It is improbable that adolescent pregnant women would be as physically fit as women in their second decade of life to withstand the financial weight of delivery and pregnancy. It's not only a matter of individual, socio-cultural, and familial concerns; it's also a matter of inaccessibility to healthcare, contraception, and other services in the majority of industrialised nations... Adolescent pregnancies are more likely to suffer life-threatening complications because of their inability to satisfy the physical demands of pregnancy. When it comes to adolescent pregnancies, they are renowned for a broad variety of issues that include maternal and neonatal fatalities. [11,12]

Prevalence of teenage pregnancies, as well as their maternal and perinatal outcomes, were the primary objectives of this research.

## MATERIAL AND METHODS

This randomized control trial was conducted at Gynaecology department of DHQ Teaching Hospital, Sargodha and DHQ Hospital Mianwali for duration of four months from August 2021 to November 2021. The study is composed of 84 patients. Following the receipt of signed permission, the full demographics of the patients were documented. Participants in this research were excluded if they had a chronic condition or were less than 26 weeks pregnant.

The abdomens of the women who had been recruited were checked to identify the position, lie, and presentation of the foetus in each woman. Dimensions in the trans-abdominal plane to determine the age of conception and foetal forecasts, as well as placental and amniotic fluid volume and weight, ultrasound was done to rule out severe foetal site inadequacies. The patients were separated into two groups, I and II, who were each given an equal number of patients per group. Group I consisted of 42 patients ranging in age from 14 to 19 years, while group II consisted of 42 patients ranging in age from >19 years. They estimated the prevalence of pre-eclampsia, gestational diabetes, and post-partum haemorrhage among the study participants. It was determined if either group had more adverse outcomes (caesarean section, instrumental delivery, induction and prolongation of labour, hypertensive problem). Perinatal death, low birth weight, low Apgar score, and NICU hospitalisation were all seen as consequences for the foetus throughout the research. SPSS 20.0 was used to examine the whole set of data.

## RESULTS

In group I mean age of the patients was  $16.65 \pm 8.51$  years and had mean BMI  $20.05 \pm 6.33$  Kg/m<sup>2</sup> while in second group the mean age was  $23.15 \pm 6.22$  years and had mean BMI  $24.7 \pm 9.51$  Kg/m<sup>2</sup>. We found mean gestational age in group I was  $35.5 \pm 8.33$  weeks and in group II mean gestational age was  $37.8 \pm 9.51$  weeks. (table 1)

Table 1: Baseline full demographics of presenting patients

Variables	Adolescents	>19 years
Mean age (years)	$16.65 \pm 8.51$	$23.15 \pm 6.22$
Mean BMI	$20.05 \pm 6.33$	$24.7 \pm 9.51$
Gestational age (weeks)	$35.5 \pm 8.33$	$37.8 \pm 9.51$
Mean Parity	$4.04 \pm 2.31$	$5.08 \pm 3.41$

Table 1: Prevalence of pre-eclampsia, Gestational Diabetes and Post Partum Haemorrhage among study cases

Variables	Adolescents	>19 years
Post Partum Haemorrhage		
Yes	30 (71.4%)	15 (35.7%)
No	12 (28.6%)	27 (64.3%)
Pre-Eclampsia		
Yes	21 (50%)	10 (23.8%)
No	21 (50%)	32 (76.2%)
Gestational Diabetes		
Yes	8 (19.04%)	3 (7.1%)
No	36 (80.96%)	39 (92.9%)

There were significantly higher frequency of post partum hemorrhage, pre-eclampsia and gestational diabetes in group I as compared to group II with p value <0.05. (table 1)

We found that frequency of adverse maternal outcomes (C-section, Instrumental delivery, induction of labour and prolong labour) in adolescent group (I) was greater as compared to group II significant with p value <0.05. (Fig 1)

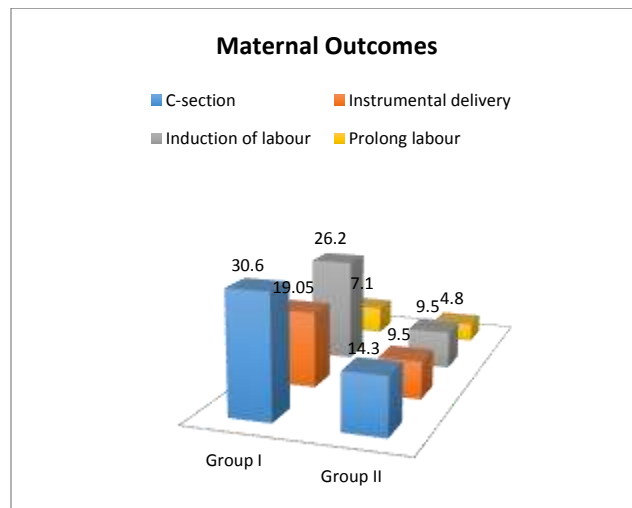


Figure 1: Comparison of maternal and fetal adverse outcomes in groups

We found that frequency of adverse fetal (perinatal mortality, low birth weight, low apgar score and NICU admission) was greater as compared to group II significant with p value <0.05. (Figure 2)

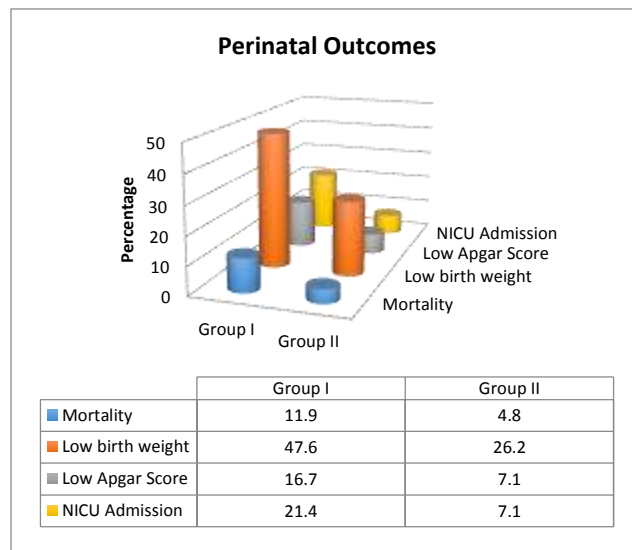


Figure 2: Comparison of perinatal outcomes in both groups

## DISCUSSION

As a public health issue, maternal mortality and adolescent morbidity are critical. More older ladies had natural vaginal deliveries, whereas teenage girls had instrumental and optive caesarean sections. Prenatal counselling was lacking for the vast majority of women in both courses. In certain cases, this may be because people don't want to go to the doctor (especially teens) (particularly for teenagers). Refusal to get pregnant may also cause scheduling delays in adolescents. [17] Preterm births are

more likely among women who are young mothers, as previous studies have shown. [18]

There were a total of 84 patients in our research, 42 of whom were between the ages of 14 and 19 and 42 of whom were above the age of 19. There was 16.65 years old and had a mean BMI of 20.05 Kg/m<sup>2</sup> in group I, whereas it was 23.15 years old and had a mean BMI of 24.79 Kg/m<sup>2</sup> in group two. The average gestational age in groups I and II was 35.5±8.33 weeks and 37.8±9.51 weeks, respectively. Our findings were in line with previous studies. [19,20] Postpartum haemorrhage, pre-eclampsia, and gestational diabetes were substantially more common in adolescents than in group II (p 0.05). Study participants in adolescence (I) were more likely to have unfavourable foetal (perinatal death, low birth weight and low apgar score) and mother outcomes (C-section, Instrumental delivery, induction of labour, and prolonged labour) than those in the adult group (II). As a result of this study, it has been shown that teenagers are more likely to suffer from premature delivery and eclampsia than adults. [21] Baker AM assessed the probability of pre-eclampsia in teens at 8.9 percent, whereas Kumar A put it at 4.3 percent.[22,23]

A great deal of mystery surrounds the role qualities play in analysing the painful occurrences moms went through when their children were teenagers. Pregnancy complications are more common among young women due to a variety of socioeconomic variables, including low educational attainment and insufficient prenatal care. [24] A lack of parental participation, poor nutrition during pregnancy, and a lack of prenatal care were all factors that linked to poor pregnancy outcomes among teens. Pregnancy outcomes were shown to be connected to a lack of prenatal care, according to the research. [25] Low apgar scores, asphyxiation, and low birth weight in adolescents have been observed]. Newborn underweight rates fluctuated widely, ranging from 5 percent to 28 percent. [18-22]

Young women who are anaemic and suffer from urinary tract inflammations, hypertension-induced pregnancies, and surgery are all at greater risk of becoming mothers. Premature delivery, low birth weight, and frequent admission to neonatal care institutions are all on the increase.

## CONCLUSION

In this research, preterm newborn critical care hospitalizations and delays in intrauterine development are also on the increase. For pregnant teens, anaemia, urinary tract infection (UTI), high blood pressure pregnancy (HBP), and surgical birth are all common complications.

## REFERENCES

- 1 Kassa GM, Arowojolu AO, Odukogbe AA, Yalew AW. Prevalence and determinants of adolescent pregnancy in Africa: a systematic review and meta-analysis. *Reproductive health*. 2018;15(1):1-7.
- 2 Papi FS, Khanam Z, Ara S, Panna MB. Adolescent pregnancy: risk factors, outcome and prevention. *Chattagram Maa-O-Shishu Hospital Medical College Journal*. 2016;15(1):53-6.
- 3 Mubeen K, Baig M. Adolescent pregnancies: the case of Pakistan. *Journal of Asian Midwives (JAM)*. 2016;3(2):69-78.
- 4 Shah N, Rohra DK, Shuja S, Liaqat NF, Solangi NA, Kumar K, Kumar K, Ahuja KL, Azam SI, Khan N. Comparison of obstetric outcome among adolescent and nonadolescent mothers from three tertiary care hospitals of Sindh, Pakistan. *Journal of Pakistan Medical Association*. 2011 ;61(10):963

- 5 Kingston D, Heaman M, Fell D, Chalmers B. Comparison of Adolescent, Young Adult and Adult Women's Maternity Experiences and Practices. *Paediatrics J*. 2012;129:1228-37
- 6 Aruda MM, Waddicor K, Frese L, Cole JC, Burke P. Early pregnancy in adolescents: diagnosis, assessment, options counseling, and referral. *J Pediatr Health Care*. 2010;24:4-13.7
- 7 Franjić S. Adolescent Pregnancy is a Serious Social Problem. *J. Gynecol. Res. Obstet*. 2018;4:006-8.
- 8 Paladugu RK, Donipudi PC, Chimata D, Jasti M. Adolescent pregnancy and its outcomes: a cross-sectional study. *Int J Community Med Public Health*. 2018;5(10):4408-14
- 9 Althabe F, Moore JL, Gibbons L, Berrueta M, Goudar SS, Chomba E, et al. Adverse maternal and perinatal outcomes in adolescent pregnancies: The Global Network's Maternal Newborn Health Registry study. *Reprod Health*. 2015;12 Suppl 2:S8. Epub 2015/06/13.
- 10 Moraes AN, Likwa RN, Nzala SH. A retrospective analysis of adverse obstetric and perinatal outcomes in adolescent pregnancy: the case of Luapula Province, Zambia. *Maternal Health, Neonatology and Perinatology*. 2018;4(1):20.
- 11 de Vienne CM, Creveuil C, Dreyfus M. Does young maternal age increase the risk of adverse obstetric, fetal and neonatal outcomes: A cohort study. *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 2009;147(2):151-6.
- 12 Mayor S. Pregnancy and childbirth are leading causes of death in teenage girls in developing countries. *BMJ: British Medical Journal*. 2004;328(7449):1152.
- 13 Say L, Chou D, Gemmill A, Tuncalp O, Moller AB, Daniels J, et al. Global causes of maternal death: a WHO systematic analysis. *The Lancet Global health*. 2014;2(6):e323-33. Epub 2014/08/12
- 14 Berhan Y, Berhan A. Causes of maternal mortality in Ethiopia: a significant decline in abortion related death. *Ethiop J Health Sci*. 2014;24 Suppl:15-28. Epub 2014/12/10.
- 15 Neal S, Mahendra S, Bose K, Camacho AV, Mathai M, Nove A, et al. The causes of maternal mortality in adolescents in low and middle income countries: a systematic review of the literature. *BMC pregnancy and childbirth*. 2016;16(1):352-. pmid:27836005.
- 16 Ayuba II, Gani O. Outcome of teenage pregnancy in the niger delta of Nigeria. *Ethiop J Health Sci*. 2012;22(1):45-50. Epub 2012/09/18. pmid:22984331; PubMed Central PMCID: PMC3437979.
- 17 Althabe F., Moore, J.L., Gibbons, L. et al. Adverse maternal and perinatal outcomes in adolescent pregnancies: The Global Network's Maternal Newborn Health Registry study. *Reprod Health* 12, S8 (2015).
- 18 Zhang, T., Wang, H., Wang, X. et al. The adverse maternal and perinatal outcomes of adolescent pregnancy: a cross sectional study in Hebei, China. *BMC Pregnancy Childbirth* 20, 339 (2020).
- 19 Goossens G, Kadji C, Delvenne V. Teenage pregnancy: a psychopathological risk for mothers and babies? *Psychiatr Danub*. 2015 Sep;27 Suppl 1:S499-503. PubMed PMID: 26417827
- 20 Abbas AM, Ali SS, Ali MK, Fouly H, Altraigey A. The maternal and neonatal outcomes of teenage pregnancy in a tertiary university hospital in Egypt. *Proc Obstet Gynecol*. 2017;7(3): Article 1 [ 10 p.]
- 21 Indarti J, Al Fattah AN, Dewi Z, Hasani RD, Mahdi FA, Surya R. Teenage Pregnancy: Obstetric and Perinatal Outcome in a Tertiary Centre in Indonesia. *Obstetrics and gynecology international*. 2020 Mar 26;2020
- 22 Baker AM, Haeri S. Estimating risk factors for development of preeclampsia in teen mothers. *Arch Gynecol Obstet*. 2012;286:1093-6
- 23 Kumar A, Singh T, Basu S, Pandey S, Bhargava V. Outcome of teenage pregnancy. *Indian J Pediatr*. 2007;74:927-31
- 24 Khatoun F, Saba I, Ghafoor M, Rajpar AP, Mahmood A, Ali M. Adverse Maternal and Fetal Outcomes of Adolescent Pregnancy. *J Soc Obstet Gynaecol Pak*. 2021; 11(1):41-44
- 25 East Gojjam Zone Health Office. Annual activity report of the year 2016/17. Debre Markos, East Gojjam zone, Ethiopia. Unpublished report. 2017