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Original Research Article

Effect of adolescent pregnancy on maternal and foetal health

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ABSTRACT

Background: Adolescence is a time when structural, functional, and psychosocial developments occur. Pregnancy during teenage can adversely affect the health of both the mother and the foetus as the adolescent female concerned is yet to attain her full growth potential. Adolescent pregnancy is a global phenomenon with serious health, social and economic consequences.

Methods: It was a single centric, prospective, observational study. 211 Patients who attended the inpatient or outpatient department of obstetrics and gynaecology in an urban tertiary care hospital and followed up till outcome.

Results: As per the study conducted, almost 83% of teenage mothers conceive by 19 years of age. Owing to the increasing awareness regarding maternal and foetal wellbeing, majority of the teenage mothers were booked. Teenage mothers and their babies are prone to intrapartum and postpartum complications as well as stillbirths. The most common comorbidity associated in teenage mothers was pregnancy induced hypertension (PIH) spectrum disorders followed by anaemia. The rate of neonatal intensive care unit (NICU) admission for babies of teenage mothers was 10%.

Conclusions: Adolescent mothers and their babies are at a risk of complications than other mothers in the twenties. The need of the hour are comprehensive measures and convergence among various departments to address all the needs of adolescents. Robust measures and policies to end teenage marriages and consequent pregnancies are exactly what the developing nations need at present.

Keywords: Adolescent, Teenage, Preterm, Low birth weight, Complications, Preeclampsia

INTRODUCTION

Teenage is a period of transition from childhood to adulthood. World Health Organization defines teenage pregnancy or adolescent pregnancy as “any pregnancy from a girl who is 10-19 years of age”.¹ The United Nations International Children’s Emergency Fund (UNICEF) reported that worldwide every fifth child is born by an adolescent mother and 80% of these so-called teenage pregnancies occur in third-world countries.² As of 2019, adolescents aged 15–19 years in low- and middle-income countries (LMICs) had an estimated 21 million pregnancies each year, of which approximately 50% were unintended and which resulted in an estimated 12 million

births.³ Adolescents aged 10-19 years account for 11% of all births worldwide.² Approximately 90% of the teenage births occur in developing countries. Every year, an estimated 21 million girls aged 15–19 years in developing regions become pregnant and approximately 12 million of them give birth.⁴ Teenage pregnancies are related to social issues, including lower educational levels and poverty.⁵ It is more common in rural than urban areas.⁵ Teenage pregnancy is an important public health problem in both developed and developing country, as it is a ‘high risk’ or ‘at-risk’ pregnancy due to its association with various adverse maternal and fetal outcomes which results in increased mortality and morbidity of the mother and the child. Early childbearing is associated with various health risks for both mother and child. Teenage mothers are more

likely to experience pregnancy related complications which often lead to maternal death. Teenage pregnancies are considered problematic because complications from pregnancy and childbirth are the leading causes of death in teenage girls aging between 15 and 19 years in developing countries. In the 10 highest-risk nations, more than one in six teenage girls between 15 and 19 years old gave birth annually, and nearly one in seven babies born to these teenagers died before the age of one year.⁶ Studies of risk and protective factors related to adolescent pregnancy in LMICs indicate that levels tend to be higher among those with less education or of low economic status.⁷

Aims and objectives

Aims and objectives were: to conduct a study to find out the effect of adolescent pregnancy on maternal and foetal health, and to look into complications of adolescent pregnancy.

METHODS

Study site

The study was conducted at the department of obstetrics and gynaecology, GGMC and Sir JJ Group of Hospitals, Mumbai.

Study design

The design of the study was prospective and observational.

Sample size

211 patients those who attended the inpatient or outpatient department of obstetrics and gynecology in GGMC and Sir JJ Group of Hospitals and followed up till outcome.

Sample population

All patients who conceived at 18 or 19 years of age and delivered at 18-20 years of age who attended the inpatient or outpatient department of obstetrics and gynaecology in GGMC and Sir JJ Group of Hospitals and followed up till outcome and throughout their PNC period were evaluated and their foetal & maternal outcome were studied in detail.

Duration of study

It was a single centre prospective observational study between 20 July 2021 to 20 December 2022.

Selection criteria

Inclusion criteria

Those who are ready to participate and give informed consent; all patients who conceived at 18 or 19 years of age and delivered at 18-20 years of age who attended the

inpatient or outpatient department of obstetrics and gynaecology in GGMC and Sir JJ Group of Hospitals and followed up till outcome and throughout her PNC period; and all patients whose age can be confirmed by any of the age proof document were included.

Exclusion criteria

All medicolegal cases and POCSO, all patients seeking abortion, and all patients who had a miscarriage or an ectopic pregnancy were excluded.

Ethical considerations

The study was conducted after obtaining permission from the institutional ethics committee (IEC). All the data collected was kept strictly confidential. The participants were informed completely about the study and after that written informed consent (in English/Hindi/Marathi) was taken from the subjects and/or their attendants before their recruitment in the study.

Methodology

Age was documented on the basis of age proof document.

Detailed clinical, past, personal, marital, family, menstrual, obstetrics history was noted.

General physical examination –temperature, pulse, BP, height and weight was noted. Systemic examination was done. Sterile per speculum and per vaginal examination done wherever necessary. Ultrasonography (USG) obstetrics and Doppler was carried out accordingly.

Patient was followed up for mode of delivery, if LSCS then indication, any maternal complication, comorbidity, baby status, whether any NICU admission, if yes, then indication any neonatal death and if yes, its cause.

Data analysis

All the data collected from patient was compiled in a Microsoft office excel sheet and analysed. Results are displayed in tabular and graphical format.

RESULTS

Age

Out of 211 cases, 35 (16.59%) females were 18 years old and 176 (83.41%) were 19 years old at the time of conception.

Gravidity of the mother

170 (80.57%) cases were primigravida. 41 (19.43%) cases were multigravida.

ANC registration

Out of 211, majority 196 (92.89%) cases were booked. 15 (7.11%) cases were unbooked.

Mode of delivery

Vaginal delivery was performed in 161 (76.30%) cases followed by LSCS in 48 (22.75%) cases. 1 (0.47%) case was vaginal birth after caesarean section (VBAC) and 1 (0.47%) was delivered using vacuum device (Table 1).

Table 1: Mode of delivery in study population (case, n=211).

Mode of delivery	Case	%
Vaginal delivery	161	76.30
LSCS	48	22.75
Vacuum device	1	0.47
VBAC	1	0.47
Total	211	100

Stillbirths

Out of 213 neonates (including the twin births) born in case group, 9 were still births. Out of 9 stillbirths, 4 (44.44%) were macerated still births and 5 (55.56%) were fresh still births.

Associated comorbidities in mother

Out of 211 cases, maximum 129 (61.13%) cases reported no associated comorbidity. 82 (38.86%) cases reported associated comorbidity.

Out of 82 cases in whom associated comorbidity was recorded, most common comorbidity was the PIH spectrum disorders in 35 (43%) followed by anaemia in 11 (13.41%) cases.

Other comorbidities included genital herpes, hypothyroidism, acute febrile illness, pulmonary TB, seizure disorder, and dengue positive (Figure 1).

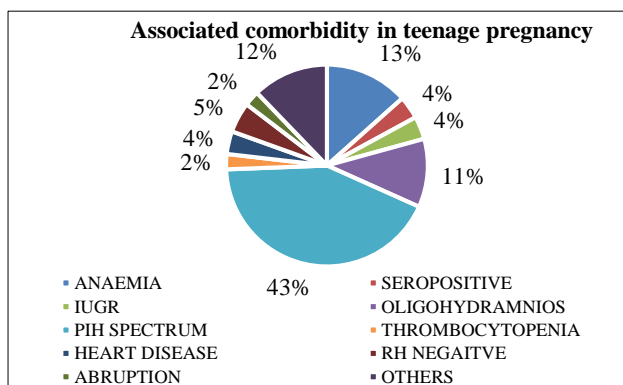


Figure 1: Associated comorbidities in study population (n=211).

Indications of LSCS

One or more of the above-mentioned indications of LSCS were present in pregnant women. Out of 48 cases that delivered via LSCS, MSAF was the most common indication in 17 (35.42%) followed by NPOL and PIH spectrum conditions in 13 (16%) each (Figure 2).

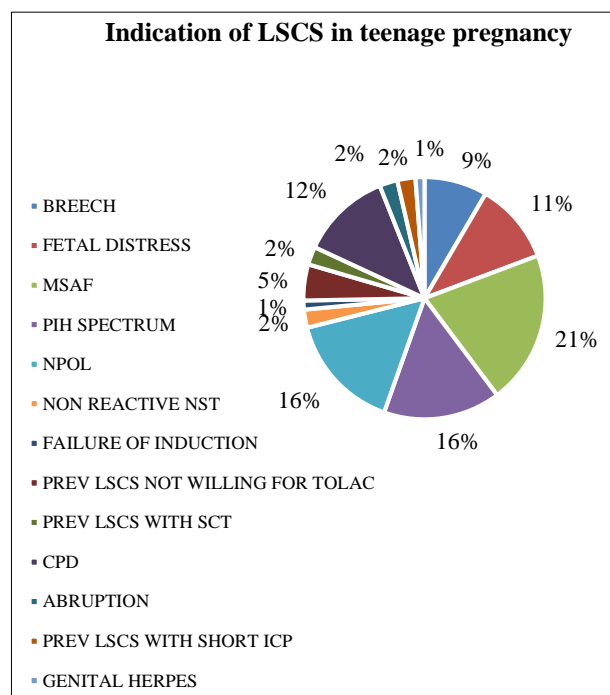


Figure 2: Indication of LSCS in teenage pregnancy (n=211).

Intrapartum complications

Most common intrapartum complication in case group was intrapartum haemorrhage in 7 (53.85%), abruption and perineal tear in 3 (23.08%) each (Table 2).

Table 2: Intrapartum complications in study population (n=211).

Details of intrapartum complication	Case	%
Abruption	3	23.08
Haemorrhage	7	53.85
Perineal tear	3	23.08
Malpresentation	0	0
Paraurethral tear	0	0
Thinned out scar	0	0
Total	14	100

Postpartum complications

Most common postpartum complication in case group was wound gape in 5 (35.71%), followed by postpartum haemorrhage in 4 (28.57%) (Table 3).

Table 3: Postpartum complications in study population (n=211).

Details of postpartum complications	Case	%
Episiotomy gape	2	14.29
Fever	2	14.29
Wound gape	5	35.71
COVID-19 positive	1	7.14
PPH	4	28.57
Total	14	100

ICU admission

Maximum cases 205 (97.16%) did not require ICU admission.

6 (2.84%) cases needed ICU admission for post-operative monitoring.

Problems encountered during childbirth and post-natal care

Maximum cases 176 (83.41%) and 194 (91.94%) participants in control group did not encounter any problems during childbirth and post-natal care. Difficulty in kangaroo mother care was experienced by 5 (2.37%) cases.

Difficulty during breast feeding was encountered by 17 (8.05%) cases and 10 (4.74%) controls. Post-partum blues were experienced by 4 (1.90%) cases and 3 (1.42%) controls.

Time of birth

Majority of the neonates in case group 193 (90.61%) were born at term. 20 (9.39%) neonates in case group were preterm.

Birth weight

In maximum cases 141 (66.20%) babies were born with normal weight. 64 (30.05%) babies in case group were born with low birth weight.

5 (2.35%) babies in case group had very low birth weight. 5 (2.35%) babies in case group had extremely low birth weight.

Indications of NICU admission

Out of 213 neonates in case group, majority 181 (84.98%) cases did not need ICU admission. 23 (10.80%) needed ICU admission. This parameter was not applicable for 9 (4.23%) neonates as they were stillborn. Low birth weight was the most common indication in cases 6 (26.09%) followed by preterm birth in 5 (21.74%) cases with some overlapping indications.

Table 4: Indications of NICU admission in study population (case n=213).

NICU admission	Case	%
Birth asphyxia	2	8.70
Cardiomegaly	1	4.35
Mild pericardial effusion	1	4.35
Hyperbilirubinaemia	3	13.04
IUGR	1	4.35
Low birth weight	6	26.09
Preterm	5	21.74
Respiratory depression	2	8.70
Social admission	3	13.04
Maternal Kochs	1	4.35

Note: n=213 as this also includes 1 set of twins which was delivered.

DISCUSSION

Teenage pregnancy is of serious concern because maternal age plays a significant role in adverse outcome and complications of pregnancy. The combination of poor nutrition and early child bearing expose young women to serious health risks during pregnancy and childbirth, including damage to the reproductive tract, pregnancy related complications, such as anaemia, preeclampsia, preterm labour, cephalopelvic disproportion, perinatal and neonatal mortality, and lowbirthweight.⁸

Adverse fetal outcomes include preterm births, low birth weight infants, still births, birth asphyxia, respiratory distress syndrome and birth trauma or injury.⁹ The rates of preterm birth, low birth weight and asphyxia are higher among the children of adolescents, all of which increase the chance of death and of future health problems for the neonate. Early childbearing has implications for society, because if those affected cannot fully realize their educational and occupational potential, society loses their economic contribution.¹⁰ According to a study conducted in the United States, more comprehensive sex education reduced teen births.¹¹

According to the present study, majority of the cases were primigravidas (80.57%) which was consistent with various studies carried out on teenage pregnancy.¹²⁻¹⁴ In the present study, Majority of the adolescent mothers were booked with a few unbooked cases which implies the increasing awareness regarding ANC registration and care in the younger mothers. Majority of the adolescent mothers had vaginal deliveries followed by LSCS. The main indication of LSCS in the present study was MSAF followed by NPOL.

Similarly, according to studies conducted by Yasmin et al and Munde et al, majority of adolescent mothers had vaginal delivery followed by LSCS.^{9,15} The main indication of LSCS in the study by Yasmin et al was foetal

distress while that in the study by Munde et al was cephalopelvic disproportion.^{9,15}

In the present study, the major comorbidity seen in adolescent mothers was PIH spectrum disorders as opposed to anaemia in the study by Kumar et al and PROM in the study by Riyana et al.^{16,17}

Majority of the babies born to adolescent mothers in the present study were term, however out of the babies admitted in NICU, most common indication for admission was LBW and preterm. In a study conducted by Kumar et al, in case group birth asphyxia was observed in 11.7% cases, hyperbilirubinaemia in 5.7% cases, respiratory distress in 1.9% cases, MSAF in 1.6%, congenital anomaly in 0.5% cases.¹⁶

Limitations

The present study however limits itself to an observational study and does not compare the incidence of the above variables to the non-teenage mothers.

CONCLUSION

We hence conclude that teenage pregnancy is a high risk condition having serious physical, mental and social impact on both, the mother and child. Teenage pregnancy is likely to make the situation worse in India, which will soon be the most populous country in the world. The current study suggests holding ANC camps on a regular basis in primary health care facilities in order to promote the health of teenagers. There needs to be more public awareness of teenage girls' health and their access to sex education. Laws prohibiting marriage before the age of 18 must be vigorously enforced in order to reduce the frequency of adolescent pregnancies, which in turn reduces obstetric problems, maternal and newborn morbidity, and mortality. Teenage abortions should be less risky and awareness regarding the same must be created. It is evident that teenage pregnancy rates could be reduced by effective measures like sex education in schools, community based programs, widespread awareness about contraception.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. World Health Organization & United Nations Population Fund. Married adolescents: no place of safety. World Health Organization. 2006. Available at: <https://apps.who.int/iris/handle/10665/43369>. Accessed on 08 February 2023.
2. UNICEF. Mädchen in Entwicklungsländern. UNICEF, Austria. 2001. Available at: <https://www.>

- unicef.org/media/84781/. Accessed on 08 February 2023.
3. Sully EA, Biddlecom A, Darroch JE, Riley T, Ashford LS, Lince-Deroche N, Firestein L, Murro R. Adding it up: investing in sexual and reproductive health 2019. Available at: <https://www.guttmacher.org/report/adding-it-up-investing-in-sexual-reproductive-health-2019>. Accessed on 08 February 2023.
4. National family health survey 2019-2021. Available at: https://main.mohfw.gov.in/sites/default/files/NFHS-5_Phase-II_0.pdf. Accessed on 08 February 2023.
5. Adolescent pregnancy. World Health Organization. 2018. Available at: <https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy>. Accessed on 08 February 2023.
6. Mayor S. Pregnancy and childbirth are leading causes of death in teenage girls in developing countries. *BMJ*. 2004;328(7449):1152.
7. Chung WH, Kim ME, Lee J. Comprehensive understanding of risk and protective factors related to adolescent pregnancy in low- and middle-income countries: A systematic review. *J Adolescence*. 2018;69:180-8.
8. Banerjee B, Pandey GK, Dutt D, Sengupta B, Mondal M, Deb S. Teenage pregnancy: a socially inflicted health hazard. *Indian J Comm Med*. 2009;34(3):227.
9. Yasmin G, Kumar A, Parihar B. Teenage pregnancy-its impact on maternal and fetal outcome. *Int J Scientific Study*. 2014;1(6):9-13.
10. National Research Council. Risking the future: adolescent sexuality, pregnancy, and childbearing, Volume II: Working Papers and Statistical Appendices. 1987. Available at: <https://nap.nationalacademies.org/catalog/946/risking-the-future-adolescent-sexuality-pregnancy-and-childbearing-volume-ii>. Accessed on 08 February 2023.
11. Mark ND, Wu LL. More comprehensive sex education reduced teen births: Quasi-experimental evidence. *Proceedings of the National Academy of Sciences*. 2022;119(8):e2113144119.
12. Talungchit P, Lertbunnaphong T, Russameecharoen K. Prevalence of repeat pregnancy including pregnancy outcome of teenage women. *Siriraj Med J*. 2017;69(6):363-9.
13. Valsaladevi A, Sathyabhama AH. A retrospective study of obstetric outcome in teenage pregnancy and older pregnancies. *J Evid Based Med Healthc*. 2017;4(57):3459-64.
14. Kathmandu N. Immediate neonatal outcome of adolescent pregnant mother at Nepal Medical College Teaching Hospital. *Nepal Med Coll J*. 2012;15(1):117-21.
15. Mundhe S, Patil V, Saha D. Study of maternal and neonatal outcome in teenage pregnancy. 2018;81055072.
16. Kumar A, Singh T, Basu S, Pandey S, Bhargava V. Outcome of teenage pregnancy. *Indian J Pediatrics*. 2007;74:927-31.

17. Andriyana H, Amelya M, Nababan B, Rusdianto E.
Outcome and risk of obstetric complication in teenage

pregnancy in tertiary center hospital in Indonesia.
KnE Med. 2016;70-5.

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