



A Retrospective Study To Assess The Effect Of Teenage Pregnancy On Maternal And Newborn Outcome.

Gamit Shweta¹, Sejal Rabari²

¹Second year M.Sc. Nursing (Obstetrics and Gynecological Nursing), ²Lecturer (Community Health Nursing)

Maniba Bhula Nursing College, Uka Tarsadia University, Surat, Gujarat, India

ABSTRACT

Background: Teenage pregnancy is still a problem in world especially in developing countries. NFHS-4 estimated that about 11.8 million teenage pregnancy were noted in the year of 2017. Most of the time teenage pregnancy is affected to maternal health as well as newborn outcome. The special NICU admission rate will be more found in babies born with a teenage mother. **Objective:** This study was aimed to assess the effect of teenage pregnancy on maternal and newborn outcome, their predictor for adverse newborn outcome and complication during postpartum time. **Method:** Quantitative retrospective survey method and purposive sampling technique was used for this study. The data was collected from MRD department of selected hospital of Badly Talk from 01/01/2022 to 31/12/2023. Total sample was 328 teenage mothers and 332 babies (including four twin pregnancy). **Result:** The majority 227 (69.21%) of teenage mother had normal vaginal delivery with episiotomy. About 67 (20.43%) had LSCS. 282 (85.98%) Teenage mother delivered baby at 38 to 40 weeks of gestation age at the time of the delivery. About 38 (11.59%) mother had complication during time of delivery. About 152(46.10%) newborn had LBW, 94 (28.48%) need if NICU admission majority reason was LBW 68(72.34%). The odd ratio with p-value < 0.05, showed that only mode of delivery, significantly predicts the type of feeding, indicate that it has a statistically significant impact on newborn outcome. **Conclusion:** The finding of the study showed that teenage pregnancy is slight effect on maternal and newborn outcome.

Keywords: Assess, effect, teenage pregnancy, newborn, maternal outcome, newborn outcome, and predictors.

INTRODUCTION

According to the Prohibition of Child Marriage Act 2006, any girl married below 18 years of age and any boy married before 21 years, is considered a “child marriage”, which is a cognizable offense.^[1] Teenage pregnancy is the still the problem in world widely specially in the developing country. In our India, number of child marriage is decrease, but still marriage in teenage is large with 12.1 million child marriages reported by Census 2011.^[1] Causes of child marriage are complex and varied based on various customs and traditions across several contexts and is deeply rooted in existing socio-cultural norms with economic, regional and social media factors playing a noticeable role in determining child marriages and teenage pregnancy.^[1] All around the world, teenage pregnancy complications are the leading cause of mortality and morbidity for women as well as newborn.^[2]

The definition of teenage pregnancy includes pregnant girls who are legally acceptable as adolescent in their country.^[2] Teenage mothers are at increased risk of experiencing various complications during pregnancy due to their juvenile reproductive systems, inadequate prenatal care, and socio-economic factors. These complications may occur like preterm Birth, Pregnancy-Induced Hypertension Anemia, Obstructed Labor, Frequent operative delivery, Birth Trauma.

According to WHO total female population of India is about 48.42% in 2022-23.^[3] In Gujarat total female population was 28,948,432 in the year of 2011.^[4] And according to technical group by national commission total female population in Surat is 2,679,098.^[5] Maternal Mortality Ratio(MMR) of India for the period 2018-20, as per the latest report of the national Sample Registration system (SRS) data is 97/100,000 live births.^[6]

In 2017, data from the 4th National Family Health Survey (NFHS-4) estimated that there were 11.8 million adolescent pregnancies in the country. With 253 million adolescents between the ages of 10 and 19, India has the largest adolescent population globally.^[7] According to national family health survey 2019-21 (NFHS-5), Among young women age 15-19 in Gujarat, 5 percent have already begun childbearing, that is, they have already had a live birth or are pregnant with their first child, down from 7 percent in NFHS-4.^[7]

Through programs encouraging healthy pregnancies and births, societies stand to make great strides in their efforts to address the issue of maternal and child mortality and morbidity across populations. These initiatives not only benefit the present health of adolescents and their babies, but also the future health and potential of their offspring.

MATERIALS & METHODS

Quantitative retrospective survey method was used for this study. The data was collected from MRD department of Shree Sardar Smark Hospital, Mamta Hospital and Maternity Home, and Jamna Ba Sarvajanik Hospital. Total sample was 328 teenage mothers and 332 babies (including four twin pregnancy) during 01/01/2022 to 31/12/2023. Ethical approval was obtained from the institutional ethical committee of the college and from the concerned hospital authority to use hospital records for data collection. In this study purposive sampling technique was used. Self-structured questionnaire tool was used for data collection. Tool was validated by nine experts from the field of obstetrics & gynecological nursing and child health nursing with CVI of 1 in socio demographic data, 0.93 in maternal outcome and 0.91 in newborn outcome.

STATISTICAL ANALYSIS

The data was analyzed by using the statistical software SPSS. Descriptive statistics were used to describe the characteristics of maternal and newborn variables. Linear regression analysis predicting mother variables and new born outcome and multiple regression analysis predicting presence of complications during postpartum time.

RESULT

Table 1: Distribution of mothers according to age variables.

Sr. No.	CATOGARY	FREQUENCY	PERCENTAGE
1	Adult mothers	5244	94.11%
2	Teenage mothers	328	5.89%
	Total number of mothers	5572	100%

(Here, adult mothers meaning, mother's who's aged is more than 19 years.)

Table 1 data shows that total 5572 teenage mothers delivered the baby. Among that about 5244 is adult mothers and 328 mothers is teenage mothers. The prevalence of teenage mothers is 5.87 %

Table 2 : Distribution of mothers according to socio- demographic, obstetrical and gynecological variable

SR. NO	CATOGARY	FREQUENCY	PERCENTAGE
(A)	SOCIO-DEMOGRAPHIC DATA		
	Mother age in year		
1	18	132	40.24%
2	19	196	59.76%
	Religion		
3	Hindu	316	96.34%
4	Muslim	12	3.66%
	Area of residence		
5	Urban	5	1.52%
6	Rural	323	96.48%
	Marital status		
7	Married	267	81.40%
8	Unmarried	48	14.63%
9	Nil (if information is not recorded)	13	3.97%
	Mother education		
10	No formal education	18	5.48%
11	Primary education	174	53.04%
12	Secondary education	106	32.32%
13	Higher secondary education	30	9.16%
	Mother occupation		
14	Non- working	294	89.63%
15	Working	34	10.37%
	Father education		
16	No formal education	41	12.50%
17	Primary education	159	48.48%
18	Secondary education	109	33.23%
19	Higher secondary education	19	5.79%
	Father occupation		
21	Non working	0	0
22	Working	328	100%
(B)	OBSTETRICAL AND GYNECOLOGICAL DATA		
	Gravida		
1	Primigravida	303	92.38%
2	Second gravida	24	7.32%
3	Multi gravida	1	0.30%
	Parity		
4	Primipara	303	92.38%
5	Second para	24	7.38%
6	Multi gravida	1	0.30%
	If second or multi gravida, para		

7	History of normal delivery	1	4.17%
8	History of lower segmented caesarean section	4	16.67%
9	History of normal delivery with episiotomy	13	50%
10	Nil (if information is not recorded)	7	29.16%
	Antenatal visits		
11	Regular	158	48.17%
12	Irregular	170	51.83%
	Total number of child		
13	1 st child	307	92.47%
14	2 nd child	23	6.93%
15	dead child (still birth)	2	0.60%

(A) Distribution of socio-demographic variable.

Table 2 show that out of 328 mother, majority 196 (59.76%) of mothers has 19 year of age. 316 (96.34%) mother was belonging from Hindu religion. Most of the mothers was come from rural area, about 323 (96.34%) mother come from rural area. Respectively 267 (81.40%) mothers was married. About 174(53.04%) mothers had primary education. Among all teenage mother only 34(10.37%) mothers was working and most of the mothers 294 (89.63%) was not working. About 159(48.48%) father had primary education. All 328 (100%) father was working.

(B) Distribution of obstetrical and gynecological variable.

Table 2 show that about 303(92.38%) mothers was primigravida. 303(92.38%) mothers was primi para. Among all 328 mothers 25(7.62%) mothers are second or multi para who delivered more than one baby. So according to this data most of the mothers 12(50%) had history of normal delivery with episiotomy. During the time of antenatal period most of the mothers 170(51.83%) was irregular in her antenatal visit. About 307(92.47%) number of baby was single.

Table 3 : Distribution of Distribution of maternal outcome among teenage mother

SR. NO	CATOGARY	FREQUENCY	PERCENTAGE
	Mode of delivery		
1	Normal delivery	29	8.84%
2	LSCS (Lower segmented caesarean section)	67	20.43%
	Reason for LSCS.....		
	A) Meconium staining liquor	19	28.36%
	B) Previous LSCS	5	7.46%
	C) Fetal distress	11	16.42%
	D) Breech presentation	9	13.43%
	E) Cephalopelvic disproportion	10	14.92%
	F) Pregnancy induced hypertension with fetal distress	1	1.49%
	G) Intrauterine growth restriction with oligohydramnios	2	2.99%
	H) Twin baby	4	5.97%
	I) Oligohydramnios	2	2.99%

	J) Pre eclampsia	2	2.99%
	K) Meconium staining liquor with fetal distress	1	1.49%
	L) Fetal distress with meconium staining liquor and breech presentation	1	1.49%
3	Instrumental delivery	4	1.22%
4	Vacuum delivery	1	0.30%
5	Normal delivery with episiotomy	227	69.21%
	Gestational age at the time of delivery		
6	< 37 weeks	45	13.72%
7	38 – 40 weeks	282	85.98%
8	> 40 weeks	1	0.30%
	Duration of hospital stay		
9	1-2 days	8	2.44%
10	3-4 days	198	60.37%
11	5-6 days	115	35.06%
12	> 7 days	7	2.13%
	Presence of complication during post partum time (during hospital stay)		
13	Yes	38	11.59%
	A) Breast engorgement	8	21.05%
	B) Postpartum hemorrhage	7	18.42%
	C) Urinary tract infection	6	15.79%
	D) Constipation	5	13.16%
	E) Urinary incontinence	12	31.58%
14	No	290	88.41%
	Any specific complication during the time of delivery		
15	Yes	32	9.76%
	A) Prolonged labor	15	46.87%
	B) Perineal tear	12	37.50%
	C) Hemorrhage	5	15.63%
16	No	296	90.24%

Table 3 shows that out of 328 mothers 227(69.21%) teenage mothers had normal delivery with episiotomy that is highest ratio. About 67(20.43%) mothers had lower segmented caesarean section (LSCS). 19(28.36%) of teenage mothers had LSCS because of meconium staining liquor. 282(85.98%) teenage mothers has 38 - 48 weeks of gestational age at the time of delivery. Most of teenage mother 198(60.37%) stayed for 3 to 4 days. About 38(11.59%) teenage mothers had complication during post partum period. And 290(88.41%) teenage mothers did not get any kind of complication during post partum period. About 12(31.58%) teenage mothers experienced urinary incontinence. 32(9.76%) teenage mothers underwent complication during the time of delivery. And 296(90.24%) teenage mothers did not get any complication. About 15(46.87%) of teenage mothers experienced prolonged labour.

Table 4 : Distribution of newborn outcome among teenage mother

SR. NO	CATOGARY	FREQUENCY	PERCENTAGE
	Status of the baby at the time of delivery		
1	Alive	330	99.39%
2	Still birth	2	0.61%
	At the time of delivery what was the weight of the baby.?		
3	Normal (between 2500 gm to 3500 gm at the time of delivery)	152	46.10%
4	Low birth weight (< 2500 gm at the time of delivery)	176	53.30%
5	Large for gestational age (> 3500 gm at the time of delivery)	2	0.60%
	Sex of the baby		
6	Male	174	52.73%
7	Female	156	47.27%
	Feeding type of baby		
8	Breast feeding	301	91.21%
9	Formula feeding	29	8.79%
	Need of NICU admission?		
10	Yes	94	28.48%
11	No	236	71.52%
	reason..		
	A) fetal distress	24	25.53%
	B) intrauterine growth retardation	2	2.13%
	C) low birth weight	68	72.34%
	Duration of NICU admission ?		
12	1 to 5 days	42	44.68%
13	6 to 10 days	27	28.72%
14	11 to 15 days	19	20.22%
15	More than 16 days	6	6.38%
	Status of baby at the time of discharge		
16	Healthy	330	100%

The table 4 show the distribution of various newborn outcome. 330(99.39%) baby founded alive and only 2(0.61%) of baby founded with still birth. At the time of the delivery 174(53.05%) baby's have low birth

weight. 174(53.05%) of baby are male baby founded. About 301(91.21%) of baby are depended on breast feeding. 94(28.48%) baby need to admit in NICU. And about 236(71.52%) baby had not need NICU admission. Because of low birth weight about 68(72.34%) baby are admitted in NICU. 42(44.68%) of baby admitted in NICU for 1 to 5 days. At the time of discharge 330(100%) baby were healthy.

Table 5: Results of Linear Regression Analysis Predicting Mother Variables and Status of the Baby at the Time of Delivery

New born variable		Mother's variable							
		Mother's Age	Mother's Education	Antenatal Visits	Parity	Total Number of Children	Mode of Delivery	Gestational Age at the Time of Delivery	Duration of Hospital Stay
Status of the Baby at the Time of Delivery	OR	0.069	0.009	0.002	0.006	0.012	0.057	0.033	0.056
	t	1.227	0.166	0.044	0.036	0.069	1.001	0.581	0.996
	P value	0.221	0.869	0.965	0.971	0.945	0.318	0.562	0.320
	Sig	NS	NS	NS	NS	NS	NS	NS	NS
Baby's Weight at the Time of Delivery	OR	0.056	0.039	0.055	0.078	0.132	0.066	0.024	0.032
	t	1.008	0.698	0.977	0.448	0.754	1.170	0.424	0.576
	P value	0.314	0.486	0.329	0.654	0.452	0.243	0.672	0.565
	Sig	NS	NS	NS	NS	NS	NS	NS	NS
Feeding type of baby	OR	0.092	0.007	0.007	0.071	0.091	0.115	0.045	0.086
	t	1.659	0.124	0.130	0.412	0.527	2.039	0.806	1.552
	P value	0.098	0.901	0.897	0.681	0.598	0.042	0.421	0.122
	Sig	NS	NS	NS	NS	NS	S	NS	NS
Need for NICU Admission	OR	0.022	0.002	0.015	0.087	0.047	0.036	0.011	0.053
	t	0.396	0.028	0.273	0.502	0.268	0.639	0.195	0.952
	P value	0.692	0.978	0.785	0.616	0.789	0.523	0.846	0.342
	Sig	NS	NS	NS	NS	NS	NS	NS	NS
Duration of NICU Admission	OR	0.103	0.055	0.036		0.124	0.059	0.103	0.168
	t	0.963	0.522	0.333		1.192	0.540	0.981	1.566
	P value	0.338	0.603	0.740		0.236	0.590	0.329	0.121
	Sig	NS	NS	NS		NS	NS	NS	NS

(OR = Odd Ratio, Sig.= Significance, NS= Not Significant, S= Significant, NICU = Neonatal Intensive Care Unit)

Table number 5 indicate the result of linear regression analysis examining the effect of maternal factor (mother's age, mother's education, antenatal visits, parity, total number of children, mode of delivery, gestational age at the time of delivery, and duration of hospital stay) on newborn outcome (status of the baby at the time of delivery, baby's weight at the time of delivery, feeding type of baby, need for NICU admission, and duration of NICU admission). Among all variables analyzed, only mode of Delivery (OR = 0.115, $p = 0.042$) significantly predicts the type of feeding, indicating that it has a statistically significant impact. And other factor has none of the maternal variable in the analysis were found to be statistically significant predictors newborn outcome, as indicated by p -values greater than 0.05.

Table 6: Multiple regression analysis predicting presence of complication during postpartum time. (n=328).

Parameter Estimates				95% Confidence Interval for Exp(B)		
Predictor	df	P Value	Odd Ratio	Lower Bound	Upper Bound	Sig.
Intercept (Yes)	1	0.995				
Mother's Age (18 year)	1	0.297	0.694	0.349	1.379	NS
Antenatal Visits (Irregular)	1	0.97	0.987	0.498	1.958	NS
Total Number of Children (1 st child)	1	0.994	8.18	0.000	.b	NS
Gestational Age at the Time of Delivery (<38 week)	1	0.706	0.836	0.330	2.118	NS
Mother's Education (No Formal)	1	0.905	0.86	0.072	10.274	NS
Mother's Education (Primary)	1	0.233	2.497	0.555	11.233	NS
Mother's Education (Secondary)	1	0.573	1.577	0.324	7.691	NS
Gravida (Primi)	1	0	1.817	1.817	1.817	NS
Gravida (Second)	1	0.994	2769921	1.817	1.817	NS

(df= degree of freedom, Sig.= Significance, NS= Not Significant, S= Significant, .b= Infinity value)

The results of a multiple regression analysis aimed at predicting the presence of complications during the postpartum period based on various maternal and pregnancy-related factors. The dependent variable is "Presence of Complication During Postpartum Time," while the independent variables include mother's education, gravida, parity, mother's age, antenatal visits, total number of children, and gestational age at the time of delivery. The table provides the Odds Ratio (OR) for each predictor, along with the 95% confidence interval (lower and upper bounds), and the significance of each variable.

This analysis indicates that none of the examined maternal or pregnancy-related factors are significant predictors of complications during the postpartum period in this datasets.

DISCUSSION

This research was undertaken to find out the effect of teenage pregnancy on maternal and newborn outcome, their outcome and predictor for maternal and newborn health status. In this study majority, 196 (59.76%), were 19 years old, this findings was supported by Ting Zhang, Huien Wang, et. al. (2020) at China in which 2010(54.6%) mothers was 19 year old.^[8] Regarding the religion of teenage mothers, the majority, 316 (96.34%), identified as Hindu. In terms of residence, 323 (96.48%) of teenage mothers live in

rural areas. Regarding the education levels of teenage mothers, the largest proportion, 174 (53.04%), had completed only primary education. In terms of the occupation of all teenage mothers, the vast majority, 294 (89.63%), are not employed. Regarding the education levels of fathers, the largest group, 159 (48.48%), had completed primary education. This findings was supported by Modugu Lavanya and katta Jyoti (2023) at Telangana. In which about 111(74.0%) was has Hindu religion. Approximately 89(59.3%) mother was came from rural area. About 97(64.7%) mothers had primary education. Almost 139 (92.7%) mother are not working and 69(46.0%) father had secondary education.^[9]

The majority, 303 (92.38%), of teenage mothers were primigravida (first pregnancy). The majority, 303 (92.38%), of teenage mothers were primipara (having given birth once). The larger segment, 170 (51.83%), of teenage mothers were irregular in their antenatal visits. The predominant group, 307 (91.77%), of teenage mothers had a single child. This findings was supported by this findings was supported by Modugu Lavanya and katta Jyoti (2023) at Telangana, in which 146(97.3%) mother was primigravida. About 146(97.3%) mother was primipara. 108(72.0%) mothers was irregular and all most 146 (97.3%) had single child.^[9]

From 3 selected hospital (Shree Sardar Smarak hospital, Mamata Hospital and Jamnaba Hospital) data were collected. Total 5572 teenage mothers delivered the baby. Among that about 5244 is adult mothers and 328 mothers is teenage mothers. The prevalence of teenage mothers is 5.87%. This findings was supported by Neha shri, Mayank, et. al. (2023) at Bihar. In which 2987 (61.0%) had pregnancy before the age of 20.^[10]

Majority 227(69.21%) of teenage mothers had normal delivery with episiotomy. About 282(85.98%) of teenage mothers has 38 - 48 weeks of gestational age at the time of delivery. The findings was supported by Sushma V Dev, Mythreyi Kadambi's study. In that about 1028(75%) mothers had normal delivery. 61.4% mothers has 38-40 weeks of gestational age at the time of delivery.^[11]

About 38(11.59%) of teenage mothers had complication during post partum period. And 290(88.41%) teenage mothers did not get any complication. The findings was supported by Kavitha M, and Sivamanju S (2022). Findings of this study was about 9.65 % mother had complication during post partum time and 90.35% teenage mothers dont have any complication during post partum time.^[12]

Majority 330(99.39%) of baby status is alive and 2(0.61%) of baby status is still birth. Majority 176(53.05%) of baby's have low birth weight that is the highest ratio in this data. Majority 174(53.05%) of baby are male baby and 156(46.95%) of baby are female baby. This study was supported by Dr. Swati Chande (2016). in which all baby was alive 47 (100%). 41 (87%) baby has low birth weight. And 25 (52.08%) newborn was male.^[13]

About 94(28.48%) of baby need NICU admission due to many reason. And about 236(71.52%) of baby don't need NICU admission. This study was supported by Indrani Dutta, Dilip Kumar et. al (2013). In this study about (31.74%) baby need NICU admission and 64.28 % of baby has no need NICU admission.^[14]

Linear regression analysis shows that mode of delivery has significant impact on feeding type of baby. This finding was supported by S. Pillay, W. Sibanda, et.al.'s study Infant feeding practices of teenage mother attending a well baby clinic.^[15]

CONCLUSION

The finding of the study showed that teenage pregnancy is slight effect on maternal newborn outcome. Teenage pregnancy can prevent by providing education related to adverse effect of teenage pregnancy on maternal and newborn outcome

Declaration by Authors

Ethical Approval: Approved

Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. Stuti Kacker, India child marriage and teenage pregnancy, Young Lives India in collaboration with National Commission for Protection of Child Rights (NCPCR), New Delhi India. 2018, Available on: <https://www.younglives.org>.
2. United Nations Children's Fund, UNICEF Malaysia. World population day: young people and family planning teenage pregnancy; 2008. https://www.unicef.org/malaysia/Teenage_Pregnancies_-_Overview.pdf.
3. Trading economics, total female population, available on: <https://tradingeconomics.com/india/population-female-percent-of-total-wb-data.html>.
4. Demographic of districts of Gujarat, total population in Gujarat, Wikipedia, available on: https://en.wikipedia.org/wiki/Demographics_of_districts_of_Gujarat
5. Mr. C. Chandramouli, Surat district- population 2011-2024: available on:- <https://www.census2011.co.in/census/district/206-surat.html>.
6. Maternal health; UNICEF's concerted action to increase access to quality maternal health services. <https://www.unicef.org/india/what-we-do/maternal-health>.
7. Dr. K. S. James, National family health survey (NFHS- 5) India- 2019-21. available on: <https://dhsprogram.com>.
8. Ting Zhang, Huien Wang, et. al. (2020) topic: the adverse maternal and perinatal outcome of adolescent pregnancy: a cross sectional study in Hebei, China, national library of medicine, available on: <https://pmc.ncbi.nlm.nih.gov>.
9. Modugu Lavanya and Katta Jyothi's (2023) topic Research on how socio demographic factors affect teenage pregnancy and their fetal and maternal outcome, International journal of academic medicine and pharmacy, available on www.academicmed.org.
10. Neha shri. MAyank et.al.'(2023) topic prevalence and correlates of adolescent pregnancy, motherhood and advance pregnancy outcome in Uttarpradesh, BMC pregnancy and childbirth, available on: <https://bmcpregnancychildbirth.biomedcentral.com>.
11. Sushma V Dev, Mythreyi Kadambi's topic clinical study on feto maternal outcome in teenage pregnancy in a tertiary care institute, International journal of reproduction, contraception, obstetrics and gynecology, available on: <https://www.researchgate.net>.
12. Kavitha M, and Sivamanju S (2022) topic maternal and neonatal outcome in teenage pregnancy, International journal of reproduction, contraception, obstetrics and gynecology, available on: <https://www.researchgate.net>.
13. Dr. Swati Chande's (2016) topic birth weight of trial infants born of adolescent mother, International journal of home science, available on: <https://www.homesciencejournal.com>.
14. Indrani Dutta, Dilip Kumar et. al (2013) topic outcome of teenage pregnancy in rural India with particular reference to obstetrical risk factor and perinatal outcome, journal of south Asian federation of obstetrics and gynecology, available on: <https://www.jsafog.com>.
15. S. Pillay, W. Sibanda, et.al.'s(2018) topic Infant feeding practices of teenage mother attending a well baby clinic in a public hospital, south African journal of clinical nutrition, Volume 31, Issue 1, available on: <https://www.tandfonline.com>.