

## A CASE CONTROL STUDY TO DETERMINE THE FETO-MATERNAL OUTCOME AND COMPLICATIONS OCCURRING IN TEENAGE PREGNANCIES IN GUJARAT, INDIA

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### ABSTRACT

**Introduction:** “Stay Teen-Stay Free” has been the slogan of numerous governmental programmes for the well being of the Teenagers but with little success and outcome. Teenage pregnancy is a global problem and is considered a high-risk group, in spite of conflicting evidence. There are many studies regarding teenage pregnancy, unsafe abortions, and family planning among teenagers, but very little is known about the fetomaternal outcomes and complications associated with these high risk pregnancies.

**Aims and Objectives:** To evaluate the feto-maternal outcomes and complications in teenage (15-19 years) pregnancies as compared to those who were aged between 20-24 years.

**Materials and Methods:** This is a rural based retrospective comparative study carried out in a tertiary care centre in Gujarat, India. All teenage pregnancies documented between August 2012 to July 2014 were studied and compared to 20-24 years aged controls. Descriptive statistical analysis was done.

Also, a pilot study through focussed group discussions, was carried out in a nearby village in Gujarat to identify the high risk factors and behaviours in married teenage females who had conceived atleast once.

**Results:** A large number of teenage pregnancies were unbooked as compared to controls. Also, Antenatal complications like anemia, hypertensive disorders of pregnancy, oligohydroamnios were significantly more in teenagers as compared to those in adults. Percentage of teenagers having undergone Lower Segment Caesarean Section (LSCS) were higher as compared to controls.

Fetal complications like Low Birth weight babies and babies requiring NICU admission were also higher amongst teenagers.

In Our Pilot Study we found that School dropout rate was significantly higher in Pregnant Teens. Moreover, getting married and pregnant wasn't their decision. Most of the pregnancies were unplanned and that they had very little knowledge of contraception.

**Conclusion:** Low socio-economic status, limited education, low school attainment, young age at first conception, cultural factors and extended family structure all appeared to be related to teenage pregnancy.

Since teenage pregnancy is a multifaceted problem, it demands multidimensional solutions. Hence, more awareness should be created and various programmes should be taken up, to safeguard the rights and health concerns of teenagers. Teenage pregnancy is still a rampant and important public-health problem in India with unfavourable perinatal outcomes and needs to be tackled on a priority basis.

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### INTRODUCTION

In the democratic Indian society, teenage autonomy is experiencing a modern transition.

Apart from various teen age health problems like eating disorders, obesity, steroid abuse etc teenage pregnancy and childbirth is most dreaded. World health organization defines Teenage Pregnancy as “any pregnancy from a girl who is 10-19 years of age,” the age being defined as her age at the time the baby is born<sup>1</sup>. It is not limited to any social, economic, racial or ethnic groups<sup>2</sup>.

In the developing world, one-third to one-half of women become mothers before the age of 20 and pregnancy related complications have become the leading causes of death among them. As stated by the UN, Some 70,000 teen girls die every year from complications in pregnancy and childbirth, mostly in the developing world.

Of the 16.4 million married adolescent pregnancies across the world, four million are in India alone, in turn amounting to 16 % of the total pregnancies and 9 % of the total maternal deaths. Evidence also suggests that 4% of Indian women aged 15-19 are reported to be currently pregnant with their first child.

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According to the UN report (2013), for every 1,000 girls aged 15 to 19, there were 76 adolescent births in India in 2010 compared to 49 worldwide and 53 in less developed regions<sup>3,4</sup>. The higher rates of teenage pregnancies tend to be concentrated in rural areas and they are linked to poverty, age at marriage, early and poor transition from school to work. Nevertheless, the socio demographic factors vary in each teenage pregnancy.

Teenage pregnancy is a “high risk” obstetric condition with varied fetomaternal outcomes. Adverse maternal outcomes of teenage pregnancy includes preterm labour, anaemia, hypertensive disorders of pregnancy, urinary tract infection, abortion, sexually transmitted diseases, HIV, high rate of caesarean sections for cephalopelvic disproportion and fetal distress.<sup>5</sup> Adverse fetal outcomes include preterm births, low birth weight infants, still births, birth asphyxia, Respiratory Distress Syndrome and birth trauma or injury<sup>6</sup>

**Aims and Objectives**

1. To find out the incidence of teenage pregnancies in a charitable trust medical college hospital situated in rural area of central Gujarat SKH, Karamsad (A Tertiary Care Centre)
2. To find out the outcome of teenage pregnancies in the past 2 years and to compare these outcomes with the outcome of pregnancies of females aged between 20-24 years.
3. To identify the high risk factors and behaviours associated with teenage pregnancy with the help of focussed group discussions.

**MATERIALS AND METHODS**

This is a rural based retrolective comparative study carried out in the department of Obstetrics and Gynaecology in Shree Krishna hospital, a tertiary care centre in Gujarat, India. All teenage pregnancies documented between August 2012 to July 2014 were studied and compared to 20-24 years aged controls.

**Consent**

Written and informed consent was taken from Ethical body, HREC, Shree Krishna Hospital, Gujarat, India.

The privacy of the data was maintained. The identity and personal information of the patients was kept confidential.

**Inclusion Criteria**

**Cases:** All females between 15-19 years of age who delivered at SKH or presented Postpartum within 42 days of delivery between August 2012-July 2014.

**Controls:** All females between 20-24 years of age who delivered at SKH or presented Postpartum within 42 days of delivery between August 2012-July 2014

**Exclusion Criteria:** Cases of abortions were not included in the study due to limitations of availability of data

**Main Outcome Indicators-** Antenatal and Postpartum maternal complications, mode of delivery and associated fetal outcomes

A subgroup study involving focused group discussions with 12 teenaged pregnant females was carried out in the nearby Ardi village (extension centre of SKH, Karamsad), to identify the high risk factors and behaviors in married teenage pregnant females at a community level. Discussions were carried out in the language of understanding. Findings were noted, based on conclusions from the participants.

Information regarding events and complications of pregnancy, delivery and out come of pregnancy were recorded using a structured questionnaire and filled accurately by the principle investigator. The data was then organized using MS Excel and subjected to descriptive and inferential statistical analysis using SPSS.

**Plan of Statistical Analysis**

Chi-square/ Fisher Exact test has been used to find the significance of study parameters on categorical scale between the two groups.

**RESULTS**

Out of the total number of ----- obstetric deliveries from Aug 2012 to July 2014, the incidence of teenage pregnancy was found to be -----.

**Table 1** shows the mode of admission

	Teenage (15 – 19) years	Adult (20 – 24) years
Emergency referral	69 %	53 %
Non Emergency referral	31 %	47 %

Table 1 shows that teenage mothers had a significantly higher rate of emergency admissions. The referrals were from hospitals, private practitioners, primary and community health care centres in and around Kheda District, Gujarat. Due to the high risk nature of the peri partum period and the need for institutional deliveries with adequate facilities to manage teenage deliveries, there is an increased rate of referrals for this group.

**Table 2** shows the mean age of both the groups

	Teenage (15 – 19) years	Adult (20 – 24) years
Mean Age ( years)	18.2	22.3

Table 2 shows that there is a significant difference in the mean age at conception between both the groups. (p<0.001).

**Table 3** shows the associated antenatal complications

	Teenage ( 15 – 19 ) years	Adult ( 20 – 24 ) years
Preterm Pains	24 %	24 %
PROM	8 %	6 %
Anaemia	63 %	52 %
Pregnancy Induced Hypertension ( PIH )	31 %	21 %
Pyrexia	5 %	2 %
Oligohydroamnios	4 %	4 %

Table 3 shows that the rate of all complications was found to be higher in the teenage group, the most significant being Anaemia (63 %) followed by PIH (31 %) (p =0.045). The mean value of Hemoglobin was found to be 7.6 gm %.

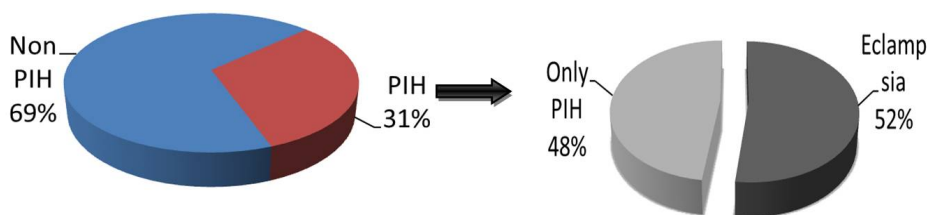


Figure 1a shows the prevalence of Eclampsia among Teenage mothers with PIH

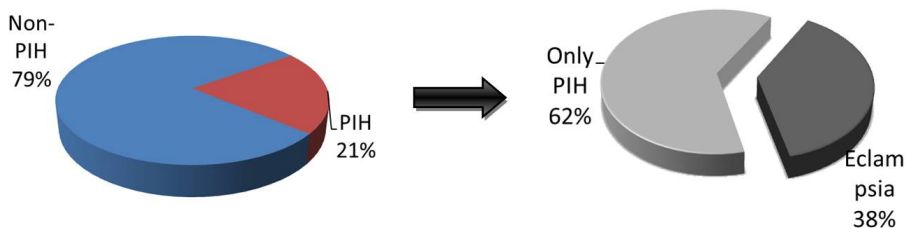


Figure 1b shows the prevalence of Eclampsia among Teenage mothers with PIH

Figure 1 shows that the Eclampsia was found to be significantly higher in teenage pregnancies than the controls ( $p=0.0133$ ). The Incidence of Eclampsia among PIH teen mothers was 16.25 %

## DISCUSSION

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Table 4 indicates the Mode of delivery

	Teenage (15-19) years	Adult (20-24) years
Full Term Vaginal Delivery	60 %	70%
Lower Segment Caeserian	33%	24%
Forceps	6.5%	4.9%
Vacuum	1.5%	1.1%

Table 4 shows that the rate of LSCS was found to be more than that of controls. The most common indications being fetal distress and Cephalopelvic disproportion. Demand CS was the third major indication, majorly due to the teen mothers not being mature enough to go through the pains of normal labour.

The rate of operative vaginal delivery was also higher than the adult mothers. The most common indication of forceps or vacuum was to assist the mother and cut short the second stage of labour due to inability of mother to bear down.

Table 5 shows the various indications of LSCS

	Teenage (15 – 19) years	Adult (20 - 24) years
Fetal Distress	35%	22%
CPD	21%	11%
Demand CS	19%	15%
Thick MSL	12%	11%
Others	19%	24%

Table 5 shows the comparative indications of LSCS amongst both the groups. Among the teenage group, the most common indications were fetal distress and Cephalopelvic disproportion. This is in accordance to the conventional belief that, teenagers, being less mature physically, have a smaller pelvis and its growth lags behind statural growth<sup>7</sup>, there by making them unfit to deliver vagianlly. Demand CS was the third major indication, majorly due to the teen

mothers not being mature enough to go through the pains of normal labour.

Table 6 shows the comparative obstetric outcome

	Teenage (15 – 19) years	Adult (20 - 24) years
Low Birth Weight (LBW)	43%	27%
Prematurity	40 %	22%
Intra Uterine Growth Retardation (IUGR)	6%	3%
Intra Uterine Fetal Death (IUID)	5%	4%
NICU admission	10%	8%

Table 6 shows the significant impact of Fetal outcome amongst both the groups. It can be seen that younger the maternal age, more is the incidence of LBW ( $p=0.0044$ ). The NICU admission rate was also higher in the same group. Major indications being birth asphyxia and prematurity.

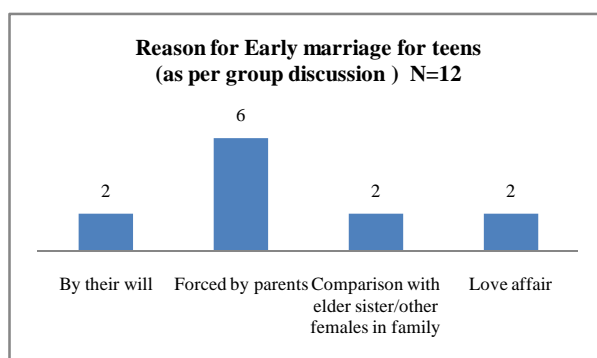


Figure 2 indicates the findings of the Focused Group Discussion at Ardi village centre

Figure 2 indicates that 6 young teenage girls were forced into early marriage in Ardi village, near Karamsad, Gujarat. 7 Out of 12 Pregnant Teens felt that early marriage and conception had hampered their education, physical health and mental health.

9 out of 12 Pregnancies were unplanned Pregnancies. Influence of Mother-In-Law emerged as one of the major reason for pressurizing the Females for early conception

It was a common opinion that they can take care of their baby but if they would have been a little older and more mature it would have been better both for them as well as the baby 11 out of 12 females would not want their children to follow their path and get married at an early age and would want to educate them but they were sceptical about the cultural beliefs in the society and about the wants of their husband and elders. Only 2 out of the 12 females were aware about the basic complications and hazards of Teenage Pregnancy like Anaemia, PIH, Eclampsia which symbolizes the lack of awareness especially in rural India

All teens were of the opinion that they would get optimal support from their husband and in-laws for matters relating to her and the baby's health but they would be extra-cautious in case of a male child

Only 1 out of the 11 pregnant teens was aware about the basic contraceptives available and 2 others were aware about only Lap TL. If these findings are extrapolated at the larger community and country level, the magnitude of the problem will be much more.

## DISCUSSION

Teenage Pregnancy, as defined by WHO is "any pregnancy from a girl who is 10-19 years of age," the age being defined as her age at the time the baby is born. The incidence in our study was found to be 7.5, which lies in the range observed in our country.<sup>8</sup>

We did not come across any unmarried teenage mothers in the study. This puts light on complex social circumstances like poverty, lack of education, need for parents to pay lesser dowry, social pressure, more money devoted for male child etc that lead to early marriage of young girls in their teens which is in turn followed by its own repercussions of having to conceive early.

In our study, 69 % of the admissions were on emergency basis. Lack of proper antenatal care, lack of awareness of complications and high risk nature of the pregnancy are few factors responsible for emergency referrals. Similar findings have also been reported in other studies<sup>9</sup>

The mean age at conception in our study amongst teenage mothers was 18.2 years compared to 22.3 years in the adult group. Young mothers have been shown to be exposed to an increased risk of anaemia, low birth weight, fetal death, eclampsia and preterm birth, higher risk of preeclampsia and postpartum haemorrhage (PPH) were significantly decreased.<sup>10</sup> Teenage pregnancy is associated with higher maternal morbidity.<sup>11</sup> Anaemia (63%) and PIH (31%) were significantly higher in the teenage group. This is in accordance to many studies that have reported similar findings<sup>12</sup>. Of the PIH group, 52 % developed eclampsia. Although researchers have yet to find an exact physiological cause for PIH and eclampsia, they believe pregnant teens may be at higher risk for the condition due to non-physiological related issues, including the nulliparity and the lack of prenatal care<sup>13</sup>. However a study by Akush *et al*<sup>14</sup> shows a lesser incidence of eclampsia amongst teenagers than adult mothers. The dominant mode of delivery in our study was LSCS (33 %). The most common indication was fetal distress (35 %) followed by CPD (21%) and Demand CS (19%). These findings are consistent with some studies<sup>15</sup> and in

contrast to come.<sup>16</sup> Hence, a difference in opinion is prevalent as per varying findings per every study. However it can be ascertained that teenagers are physically, biologically and psychologically less mature for early childbearing. 12,13 (mob)

Many studies have reflected a poor perinatal outcome of teenage pregnancies, in the form of LBW and prematurity.<sup>17</sup> This is in accordance with the present study- LBW (43%) and prematurity (40%). Stillbirths and newborn deaths are 50% more likely among infants of adolescent mothers than among mothers aged 20 to 29, according to the World Health Organization in 2012. In our study, we found 5 % Mortality rate in both the groups. The major cause being birth asphyxia and prematurity.

Teenage pregnancy is as much an adverse social event as it is an obstetrical one. The socio-demographical factors playing a pivotal role in the causation were identified in this study through focussed group discussions. Influence of mother-in-law, early marriage, comparison with other female family members, lack of contraceptive knowledge, poor education, lack of awareness about pregnancy complications etc are few factors that we found. A woman in this vicious cycle, must be rescued.

Recent research evidence shows that traditional approaches to reducing teenage pregnancy rates-such as sex education and better sexual health services are not effective on their own. This has generated increased interest in the effects of interventions that target the social disadvantage associated with early pregnancy and parenthood. World over, UNICEF, WHO, USAID, the Bill and Melinda Gates Foundation, have successfully addressed adolescent needs with a multisectoral and holistic approach with multiple stakeholders involved. Targetted group discussions, demonstrations at community levels, increased contraceptive awareness, teen friendly helpline numbers, media, service groups etc are few interventions that will help reduce this social burden. Government based maternal benefit programmes should be timely audited to check the reach and effect to beneficiary.

More research in the future can help legislative bodies to make targetted rules and amendments for safeguarding the rights of teenage girls.

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