

## Demographic Profile, Mode of Delivery and Birth Weight in Teenage Pregnancy: A Prospective Comparative Study

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### Abstract

**Background and Aims:** Teenage pregnancy is often attributed for poor maternal and neonatal outcome. The incidence is found to be more in certain communities and those with poor socioeconomic and educational status. Preterm delivery and low birthweight are also more common in teenage pregnancy. This study was aimed at the demographic profile, mode of delivery and the incidence of preterm deliveries in teenage pregnant girls. **Methods:** In this prospective comparative study, two equal groups of 250 teenage pregnant girls between 17-19 years (Group T) and pregnant women between 20-30 years of age (Group W) were evaluated regarding their demographic profile with respect to age, referral status, religion, socioeconomic and educational status. Their gestational age at delivery, mode of delivery and birthweight of the neonates were also recorded. Statistical analysis was done using SPSS version 16.0 and the data analyzed using Chi-square test and Fisher's exact test. **Results:** Mean age in Group T was 18.5 years with SD 0.57 and in Group W it was 23.6 years with SD 2.30. Among Group T, 25.2% were referred from peripheral centers, while it was 4.0% in Group W. Statistically significant higher incidence of teenage pregnancy was noted among the Muslims compared to other communities ( $p < 0.00001$ ).

There was no statistically significant difference in teenage pregnancies with respect to their socioeconomic and educational status. Statistically significant increase in preterm delivery before 37 weeks of gestation was found in Group T as compared to Group W ( $p = 0.0004$ ). There was no statistically significant difference regarding the mode of delivery and birthweight of the neonates. **Conclusions:** Increased incidence of teenage pregnancies was found among Muslims, compared to other communities, but there was no significant influence with respect to their educational and socioeconomic status. There was higher incidence of preterm delivery in teenage pregnancies, but there were no significant differences in the mode of delivery and birthweight of the neonates in this group.

**Keywords:** Teenage Pregnancy; Demographic Profile; Mode of Delivery; Birthweight.

### Introduction

Teenage pregnancy (Adolescent pregnancy) is defined as pregnancy occurring below the age of 20 years. This is an important health issue in both developing and developed countries [1]. According to World Health Organization guideline 2011, about 16 million adolescent girls between 15 and 19 years of age give birth each year, which is roughly 11% of all births worldwide. Almost 95% of these births occur in developing countries. Teenage pregnant girls, in addition to the usual pregnancy related medical problems, are likely to have concerns due to the under developed physical features to sustain the pregnancy and give birth to a healthy baby [2].

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However, these problems are more evident in teen age girls below 15 years. In those between 15-19 years, this is more of a socioeconomic problem rather than the biologic effects of age [3].

The incidence of early menarche and unprotected sexual intercourse in adolescents has made a rise in the number of teenage pregnancies. In the developing countries, age of menarche is found to be inversely related to the socioeconomic status, with a significant difference between the urban and rural populations and between the high and low economic status [4]. This study was aimed to assess the demographic profile and mode of delivery in teenage pregnant girls between 17-19 years of age as compared to mothers between 20-30 years of age.

## Methods

This prospective comparative study was undertaken at the Institute of Maternal and Child Health, Government Medical College, Kozhikode, a tertiary care teaching hospital during a one-year period from January 2012. After obtaining Institutional Ethics Committee approval and patient's consent, 250 teenage pregnant girls between 17-19 years and 250 pregnant women between 20-30 years of age were selected as Group T and Group W respectively. All of them were married, and primigravidae with singleton pregnancy having cephalic presentations above 28 weeks of gestational age.

Demographic profile of both the groups with regard to their age, referral status, religion, socioeconomic and educational status were recorded. The gestational age at delivery, and mode of delivery (normal vaginal, instrumental or caesarean section) were studied. The

type of vaginal delivery (spontaneous or induced) and in those who underwent caesarean section, whether they were elective or emergency were also recorded. The incidence of low birth weight of the neonate, indicating intrauterine growth retardation were also noted.

Statistical analysis was done using SPSS version 16.0 for windows. Categorical data were expressed as frequencies and percentages and continuous data by mean±standard deviation (SD). Chi-square test and Fisher's exact test were used for analyzing the data. Risks were explained in terms of relative risk (RR). 95% confidence interval (CI) for RR was also estimated.  $p < 0.05$  was considered to indicate statistical significance.

## Results

The mean age of pregnant teenage girls (Group T) was 18.5 years with SD 0.57 and that of pregnant women (Group W) was 23.6 years with SD 2.30. Amongst Group T, 25.2% girls were referred from peripheral centers, while only 4.0% women from Group W were referred cases.

Distribution of patients according to their religion were studied. Among Group T, there were 67 (26.8%) Hindus, 182 (72.8%) Muslims and 1 (4.0%) Christians, while it was 179 (71.6%), 65 (26.0%) and 6 (2.4%) respectively in Group W (Figure 1). This showed a statistically significant higher incidence of teenage pregnant girls among the Muslim community, as compared to other communities ( $p < 0.00001$ ).

The socioeconomic status of the subjects studied were studied as those above poverty line (APL), below poverty line (BPL) and tribal patients (TL). Among Group T, 4 (1.6%) were APL, 244 (97.6%) BPL and 2

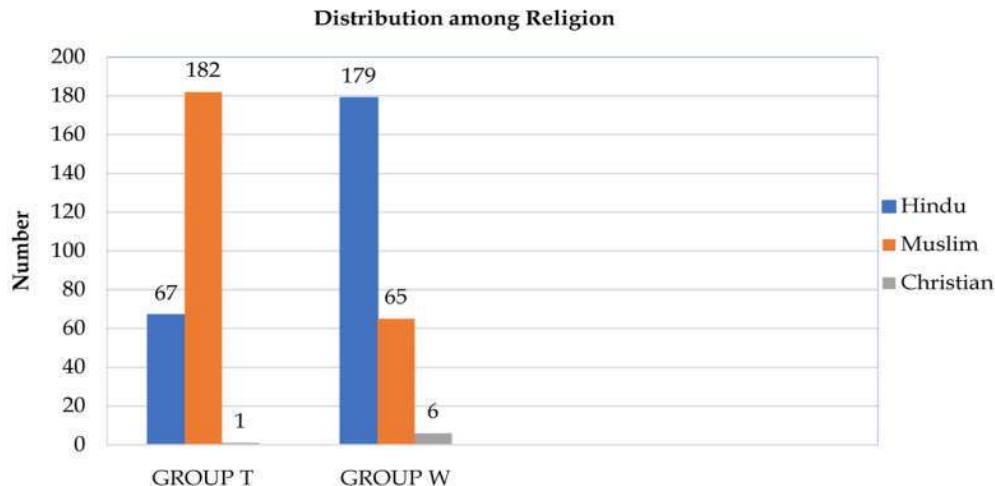


Fig. 1: Comparison of religion

(0.8%) TL, while it was 2 (0.8%), 247 (98.8%) and 1 (0.4%) respectively in Group W (Table 1). This was not statistically significant ( $p = 0.601$ ).

Regarding the educational status, those who had formal education of tenth standard and above or only below tenth standard were studied. In Group T, 225 (90.0%) had formal education of tenth standard and above and the rest (25, 10.0%) were educated below this level. It was 223 (89.2%) and 27 (10.8%) respectively in Group W (Table 2). This was not statistically significant ( $p = 0.769$ ).

The gestational age at delivery were studied among the groups. Among the teenage girls (Group T), 35 (14.0%) delivered preterm before 37 weeks of gestation, while the remaining 215 (86%) delivered before 37 weeks of gestation. This was 12 (4.8%), and 238

(95.2%) respectively in adult mothers of Group W (Figure 2). This showed an increased incidence of preterm delivery in teenage girls compared to the control group, which was statistically significant ( $p = 0.0004$ ).

The mode of delivery studied showed 187 (74.8%) vaginal delivery, 2 (0.8%) assisted forceps delivery, 7 (2.8%) vacuum extraction and 54 (21.6%) Caesarean sections in Group T. In Group W, it was 190 (76.0%) spontaneous vaginal delivery, 1 (0.4%) each of assisted forceps delivery and vacuum extraction and 58 (23.2%) Caesarean sections (Table 3). This showed no statistically significant difference in the mode of delivery among the two groups ( $p = 0.172$ ).

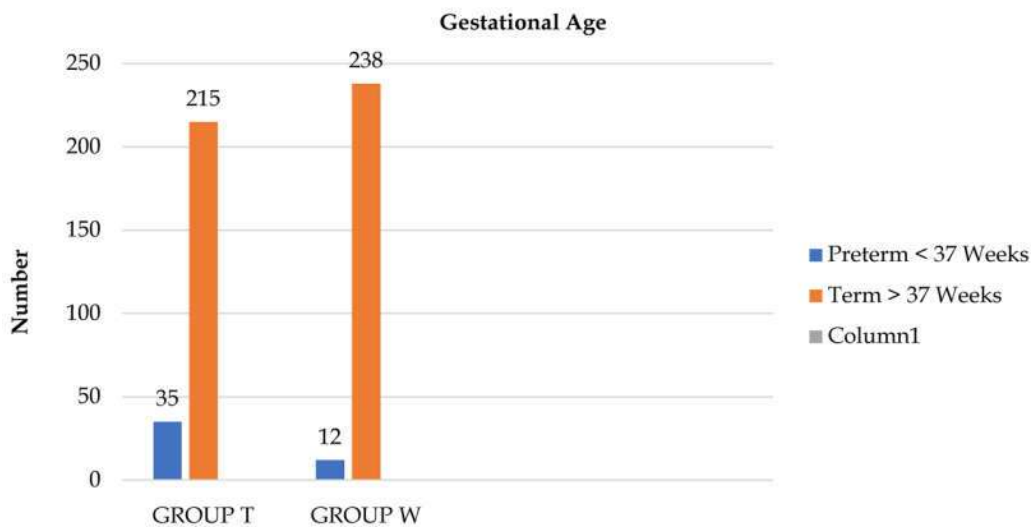
Among the 196 girls delivered vaginally in Group T, 114 (45.6%) delivered spontaneously and 82

**Table 1:** Comparison of socioeconomic status

| Group   |    | Socioeconomic status |      |     | Total |
|---------|----|----------------------|------|-----|-------|
|         |    | APL                  | BPL  | TL  |       |
| Group T | No | 4                    | 244  | 2   | 250   |
|         | %  | 1.6                  | 97.6 | 0.8 | 100   |
| Group W | No | 2                    | 247  | 1   | 250   |
|         | %  | 0.8                  | 98.8 | 0.4 | 100   |

**Table 2:** Comparison of educational status

| Group   |    | Formal education |                     | Total |
|---------|----|------------------|---------------------|-------|
|         |    | < 10th Std.      | 10th Std. and above |       |
| Group T | No | 25               | 225                 | 250   |
|         | %  | 10.0             | 90.0                | 100   |
| Group W | No | 27               | 223                 | 250   |
|         | %  | 10.8             | 89.2                | 100   |



**Fig. 2:** Comparison of gestational age at delivery

(32.8%) were induced. In the 54 Caesarean sections of this group, 5 (2.0%) were done as elective and the remaining 49 (19.6%) were emergency sections. Among the 192 mothers delivered vaginally in Group W, 116 (46.4%) delivered spontaneously and 76 (30.4%) were induced. Of the 58 Caesarean sections of the Group W, 6 (2.4 %) were elective and the remaining 52 (20.8%) were done as emergency (Table 4). There was no statistically significant difference regarding the type of delivery in those vaginally delivered or Caesarean sections in the two groups studied ( $P = 0.936$ ).

The incidence of low birthweight babies (< 2.5 kg) was 58 (23.2%) and the remaining 192 was  $\geq 2.5$  kg in Group T. In group W, it was 49 (19.6%) and 201 (80.4%) respectively (Table 5). This difference was also not statistically significant ( $p = 0.326$ ).

## Discussion

Adolescent birth rate has come down from 65 births per 1000 women in 1990 to 47 births per 1000 women in 2015 globally [5]. The incidence of teenage pregnancy in our institution during this period was 7.1% of the total pregnant mothers. This prospective study was undertaken to assess the demographic profile of teenage pregnancies with respect to their age, religion, socioeconomic and educational status. The mode of delivery and birth weight of their

babies were also studied.

The age groups studied for teenage pregnant girls were between 17-19 years, which showed a mean age of 18.5 years with SD 0.57. It was 23.6 years with SD 2.30 in the group of pregnant women between 20-30 years of age. The early age of marriage in northern Kerala is a factor for the higher incidence of teenage pregnancies.

While 25.2% of Group T were referred from peripheral centers, only 4.0% of Group W were referred cases. The higher referral rate of teenage pregnant girls to a tertiary care center is probably due to the awareness regarding the higher incidence of obstetric complications in teenage pregnancies.

The population studied were from Malappuram, Wayanad and Kozhikode districts of northern Kerala which included Hindu, Muslim and Christian communities of varying socioeconomic and educational status. In this study, there was a higher incidence of teenage pregnancies among the Muslim community, which was statistically significant ( $p < 0.0001$ ). This is due to the earlier age at marriage in this community in northern Kerala. Lack of knowledge regarding health hazards of teenage pregnancy and contraceptive methods among them also might have contributed to this.

The socioeconomic and educational status studied did not show statistically significant difference among the two groups, which indicate

**Table 3:** Comparison of the mode of delivery

| Group   |    | Mode of delivery |         |        | Total |
|---------|----|------------------|---------|--------|-------|
|         |    | Vaginal          | Forceps | Vacuum |       |
| Group T | No | 187              | 2       | 7      | 250   |
|         | %  | 74.8             | 8.0     | 2.8    | 100   |
| Group W | No | 190              | 1       | 1      | 250   |
|         | %  | 76.0             | 4.0     | 4.0    | 100   |

**Table 4:** Comparison of the type of delivery

| Group   |    | Vaginal     |         | Caesarean |           | Total |
|---------|----|-------------|---------|-----------|-----------|-------|
|         |    | Spontaneous | Induced | Elective  | Emergency |       |
| Group T | No | 114         | 82      | 5         | 49        | 250   |
|         | %  | 45.6        | 32.8    | 2.0       | 19.6      | 100   |
| Group W | No | 116         | 76      | 6         | 52        | 250   |
|         | %  | 46.4        | 30.4    | 2.4       | 20.8      | 100   |

**Table 5:** Comparison of birthweight of babies

| Group   |    | Birth weight |               | Total |
|---------|----|--------------|---------------|-------|
|         |    | < 2.5 kg     | $\geq 2.5$ kg |       |
| Group T | No | 58           | 192           | 250   |
|         | %  | 23.2         | 76.8          | 100   |
| Group W | No | 49           | 201           | 250   |
|         | %  | 19.6         | 80.4          | 100   |

that these factors are not influencing the incidence of teenage pregnancies in the population studied. Socioeconomic status as compared regarding APL, BPL and tribal populations were almost equal in both the groups. Educational status as assessed by their formal education status were also similar in both the groups.

Our study showed a statistically significant ( $p < 0.0001$ ) increase in the incidence of preterm delivery at gestational age below 37 weeks in the teenage group, compared to the control group. Studies have shown increased risk of preterm delivery in teenage pregnancies compared to adult mothers and the risk is higher in second time teen pregnancies [5]. However, our study was restricted to pregnancies above between 17-19 years of age, and only the outcome of their first pregnancy were studied. Sidhartha et al have reported increased incidence of preterm births and low birth weight babies in teenage pregnancies [7]. Ananthalakshmy et al. also found higher incidence of premature deliveries among teenage mothers [8].

We compared the mode of delivery among the two groups. Though not statistically significant, there was an increased incidence of assisted vaginal delivery (forceps and vacuum extraction) with lower incidence of caesarean section in the teenage group, compared to the adult group. Studies have reported lesser incidence of delivery by episiotomy, forceps or vacuum in teenage mothers. Caesarean sections were even found decreased in adolescent pregnancies as the biological immaturity is not a significant problem in adolescent pregnancy [9]. In a Swedish national survey, Rasmus et al have found that teenage mothers were more likely to be delivered vaginally and the risks for obstetric maternal complications were lower than for adult women except for the risk of prematurity [10]. Ugianskiene et al. in a Danish study could not find increased risks of adverse maternal, obstetrical and neonatal outcomes in teenage pregnancies, which was assumed to be due to the availability of high-quality medical care [11]. Our results were also consistent with the above studies, except that there was a slightly higher incidence of assisted vaginal delivery in the teens.

Ananthalakshmy et al. has found increased incidence of low birth weight babies (less than 2.5kg) among teenage deliveries [8]. Louis et al in a study conducted in Uganda found high incidence of low birthweight babies (25.5%) among teenage mothers [12]. Our study showed an incidence of 23.2% of low birthweight babies among the teenage mothers as against 19.6% in the control group but was not statistically significant ( $p = 0.326$ ).

## Conclusions

From this study, we conclude that the incidence of teenage pregnancy is higher among the Muslim population of northern Kerala. Socioeconomic and educational status did not have significant influence in the incidence of teenage pregnancies. There is a significant increase in the incidence of preterm deliveries in teenage pregnancies. However, there is no significant difference in the mode of delivery and incidence of Caesarean sections in them compared to the adult mothers. There is no significant increase in the incidence of low birthweight in babies born to teenage mothers. Thus, apart from the increased incidence of preterm delivery, teenage pregnancy in our study group is mainly a social issue rather than a medical problem.

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