

## ORIGINAL ARTICLE

## TRENDS AND MATERNAL OUTCOMES OF TEENAGE PREGNANCY IN POONAMALLEE HUD, TAMIL NADU, 2022 – 2025

*Nandhini Selvanesan <sup>(1)</sup>, Pradeepaa B <sup>(1)</sup>, Ramakrishnan T S <sup>(1)</sup>, Prabakaran J <sup>(1)</sup>*<sup>(1)</sup> Directorate of Public Health and Preventive Medicine

## ABSTRACT

**INTRODUCTION :** Adolescent pregnancy is a major global public health concern, associated with increased maternal and neonatal risks such as anemia, eclampsia, preterm birth, and low birth weight. Despite a global decline in adolescent birth rates, India continues to report substantial teenage childbearing. NFHS-5 (2019–21) shows that 6.8% of Indian women aged 15–19 years have begun childbearing, with Tamil Nadu reporting 6%. Teenage pregnancy is strongly linked to early marriage, lower education, and socioeconomic disadvantage. This study aimed to assess the trends, sociodemographic characteristics, and maternal outcomes of teenage pregnancy in Poonamallee HUD, Tamil Nadu, from 2022 to 2025.

**METHODS :** A descriptive cross-sectional study was conducted in Poonamallee HUD, Tamil Nadu, using PICME records of 281 teenage pregnancies (2022–2025). Sociodemographic details, pregnancy outcomes, and complications were analyzed.

**RESULTS:** The prevalence was 1.09%, rising to 2.0% in 2024–2025, coinciding with strengthened registration under PICME 3.0 (January 2024). Most cases were in the 18–19 year group. Normal deliveries accounted for 66%, cesarean sections 32%, and abortions 2%. High-risk conditions were reported in 23.3%, mainly anemia and hypothyroidism.

**CONCLUSION:** Teenage pregnancies, though relatively low, showed rising trends and significant complications, underscoring the need for targeted adolescent health interventions.

**KEYWORDS :** Teenage pregnancy, maternal outcomes, adolescent health, Tamil Nadu, Poonamallee, PICME.

## INTRODUCTION

The World Health Organization defines adolescent pregnancy as “pregnancy in young women aged 10–19 years”. Adolescent pregnancy remains a global public health concern. Every year, an estimated 21 million girls aged 15–19 years in developing regions become pregnant and approximately 12 million of them give birth.<sup>1</sup>

Globally, Adolescent Birth Rates has decreased from 64.5 births per 1000 women (15–19 years) in 2000 to 41.3 births per 1000 women in 2023. However, rates of change have been uneven in different regions of the world with the sharpest decline in Southern Asia (SA), and slower declines in the Latin American and Caribbean (LAC) and sub-Saharan Africa (SSA) regions. Although declines have occurred in all regions, SSA and LAC continue have the highest rates globally at 97.9 and 51.4 births per 1000 women, respectively, in 2023 particularly in low- and middle-income countries where the burden is disproportionately high.<sup>2</sup>

Adolescent mothers (aged 10–19 years) develop significantly higher risks of pregnancy-related complications, including eclampsia, puerperal endometritis, and systemic infections, compared to women aged 20–24 years. Their infants are also at greater risk of adverse outcomes such as low birth weight, preterm birth, and severe neonatal conditions. However, evidences on childbirth among girls aged 10–

14 years are limited, global estimates in 2023 indicate an adolescent birth rate (ABR) of 1.5 per 1000 for this group, with higher rates observed in sub-Saharan Africa and Latin America and the Caribbean.<sup>3</sup>

In India, according to the National Family Health Survey (NFHS-5, 2019–21), 6.8% of women aged 15–19 years were either pregnant or given birth at the time of the survey. This proportion varies widely across states and districts, with higher prevalence in rural areas and among adolescent girls with lower educational status and poorer wealth status.<sup>4</sup> States such as West Bengal, Bihar, and Tripura continue to report higher adolescent fertility rates, while states like Kerala and Himachal Pradesh exhibit considerably lower rates.<sup>2</sup>

Key drivers of adolescent pregnancy in India include early marriage, limited access to quality education, and barriers to adolescent-friendly reproductive health services. Despite the enactment of the Prohibition of Child Marriage Act (2006), child marriage persists in several regions. NFHS-5 data show that 23.3% of women aged 20–24 years were



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Corresponding Author: Nandhini Selvanesan

e-mail : nandhinidselvanesan@gmail.com

married before the legal age of 18, with higher prevalence in states such as West Bengal (41.6%), Bihar (40.8%), and Jharkhand (39.7%) 2. Early marriage is closely associated with early childbearing, as married adolescent girls often lack the autonomy to delay pregnancy or access contraceptive services.

In Tamil Nadu according to NFHS 5 (2019–21) reports, about 6 % of girls aged 15–19 in Tamil Nadu were either pregnant or given birth at the time of the survey which remains unchanged from NFHS 4 (6 %). In discussion with stakeholders of the district, this study was planned to describe in teenage pregnancy in Poonamallee Health Unit District of Tamil Nadu from 2022 to 2025 and to assess the effect of teenage pregnancies and their maternal outcomes.

## METHODS

A descriptive cross-sectional study was conducted using data from the Pregnancy and Infant Cohort Monitoring and Evaluation (PICME) system. Records of 281 teenage pregnancies between April 2022 and March 2025 were analyzed.

The data included information on key sociodemographic variables, such as: Age, Educational status, Marital status, Type of residence (urban/rural), history of any high risk during antenatal period and Pregnancy outcome. Descriptive analysis was carried out using Microsoft Excel and proportions were calculated.

## RESULTS

The overall prevalence of teenage pregnancy during 2022–2025 was 1.09% with variation across years: 1.3% in 2022–2023, 1.1% in 2023–2024, and 2% in 2024–2025.

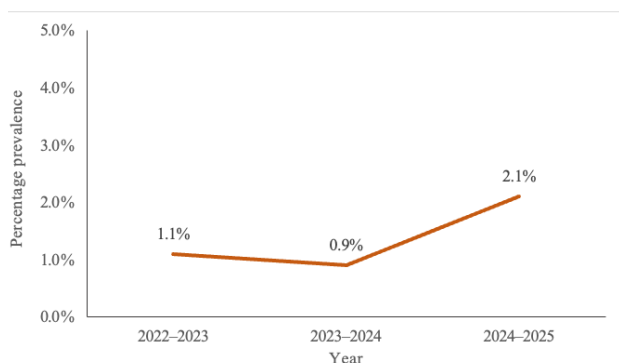


Fig 1: Trend of Teenage Pregnancy in Poonamallee (N=281), 2022-2025

Among the 281 teenage pregnancies reported, the majority were in the 18–19 year age group, accounting for 73.3% followed by 17–18 years 20.3% and 16–17 years 4.6%

while 1.8% in 15–16 year group and no cases were reported among girls younger than 15 years.

Table1: Age distribution of teenage pregnancies in Poonamallee HUD (N=281), 2022–2025

Age group	n	%
Age < 15	0	0.0
Age 15 - 16	5	1.8
Age 16 - 17	13	4.6
Age 17 - 18	57	20.3
Age 18 - 19	206	73.3

The prevalence of teenage pregnancy was 64.4% in Poonamallee block and 35.6% in Avadi corporation. The highest proportion of teenage pregnancies was reported from Thirunindravur (17.8%), followed by Thirumazhisai (15.6%), and Poonamallee Urban (11.1%). Nemam and Thirumullaivoyal each accounted for 8.9%, while Poonamallee Rural, Cholambedu, and Mitnamallee each contributed 6.7%. Soranchery reported 4.4%, and Paruthipattu 6.7%. Periyar Nagar, Thandurai, and Vilinjiyambakkam each accounted for 2.2%.

Table 2: Place distribution of teenage pregnancies in Poonamallee HUD (N=281), 2022–2025

Location	n	%
Nemam	25	8.9
Poonamallee Rural	19	6.7
Poonamallee Urban	31	11.1
Soranchery	12	4.4
Thirumazhisai	44	15.6
Thirunindravur	50	17.8
<b>Poonamallee</b>	<b>181</b>	<b>64.4</b>
Cholambedu	19	6.7
Mitnamallee	19	6.7
Paruthipattu	19	6.7
Periyar Nagar	6	2.2
Thandurai	6	2.2
Thirumullaivoyal	25	8.9
Vilinjiyambakkam	6	2.2
<b>Avadi Corporation</b>	<b>100</b>	<b>35.6</b>

Among the teenage pregnancies reported, 66.0% resulted in normal deliveries, while 32.0% required Lower Segment Cesarean Section (LSCS). Abortions were reported in 2.0% of cases. Among the teenage pregnancies reported, 23.3% of teenage pregnancies had one or more high-risk conditions. Among the antenatal complications reported, Anemia was observed in 9.3% of teenage pregnancies. Hypothyroidism was present in 6.0% of the teenage pregnancies. Gestational diabetes mellitus (GDM) in 3.3%, while PIH/Preeclampsia and heart disease complicating pregnancy were each reported in 1.2,1.3% respectively, Short primi (height <145 cm) was documented 1.3% of teenage pregnancies and others accounted for 0.7%.

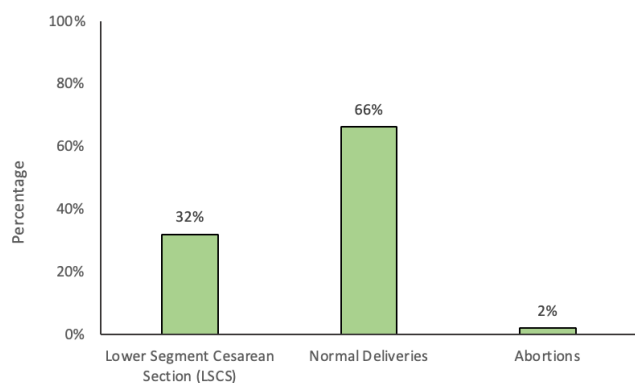


Fig. 2: Pregnancy outcome of teenage pregnancies, Poonamallee, 2022-2025

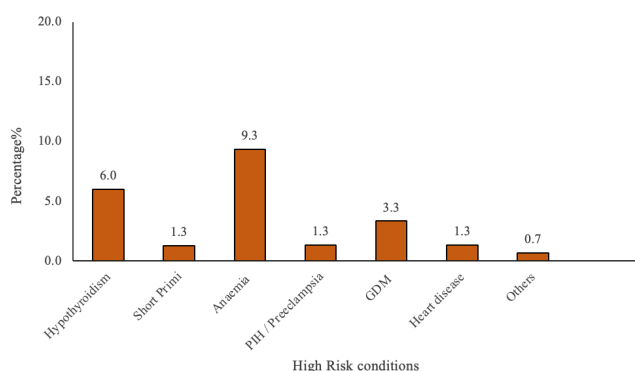


Fig 3: Prevalence of high risk complications among teenage pregnancy, 2022-2025, Poonamallee

## DISCUSSION

This study reveals that teenage pregnancy in Poonamallee block, though relatively low, demonstrated a fluctuating trend, with a recent rise to 2.1% in 2024–2025. Nearly one-third of these pregnancies required cesarean delivery, while a small proportion ended in abortion, highlighting the heightened vulnerability of this age group to adverse maternal outcomes. Notably, the observed increase may be due to enhanced registration and tracking under PICME 3.0, launched in January 2024, wherein mandatory Aadhaar authentication has strengthened pregnancy identification and reporting.

High-risk conditions were present in 23.3% of teenage pregnancies, with anemia being the most common, followed by hypothyroidism, gestational diabetes mellitus, pregnancy-induced hypertension/preeclampsia, and heart disease. These findings are consistent with national and global evidence highlighting the nutritional, biological, and social vulnerabilities of adolescent mothers.

Despite a global decline in ABR from 64.5 births per 1000 women aged 15–19 years in 2000 to 41.3 in 2023, regional disparities persist. Southern Asia has witnessed the most significant declines, while sub-Saharan Africa (SSA)

and Latin America and the Caribbean (LAC) continue to report the highest ABRs at 97.9 and 51.4 per 1000 women, respectively.<sup>3</sup> There are also large intra-country variations; for example, in Zambia, adolescent childbearing rates ranged from 14.9% in Lusaka to 42.5% in the Southern Province in 2018,<sup>4</sup> and in the Philippines, from 3.5% in the Cordillera Administrative Region to 17.9% in the Davao Peninsula Region in 2017.<sup>5</sup>

Key drivers of adolescent pregnancy in India include early marriage, limited access to quality education, and barriers to adolescent-friendly reproductive health services. Despite the enactment of the Prohibition of Child Marriage Act (2006), child marriage persists in several regions. NFHS-5 data show that 23.3% of women aged 20–24 years were married before the legal age of 18, with higher prevalence in states such as West Bengal (41.6%), Bihar (40.8%), and Jharkhand (39.7%).<sup>2</sup> Early marriage is closely associated with early childbearing, as married adolescent girls often lack the autonomy to delay pregnancy or access contraceptive services.

Sexual abuse is another major driver of adolescent pregnancy. A WHO report estimated that 120 million girls under 20 had experienced sexual violence from a non-partner, while one in eight children globally had been sexually abused before the age of 18.<sup>7</sup> Among girls aged 15–19, one in twenty reported having experienced forced sex (2020 estimate)<sup>8</sup>. Additionally, about 24% of girls aged 15–19 have experienced physical or sexual violence from an intimate partner at least once in their lifetime, with 16% reporting such experiences in the past 12 months (WHO, 2018).<sup>10</sup>

Preventing adolescent pregnancy, childbearing, and child marriage is essential for improving health outcomes across the life course and achieving the Sustainable Development Goals (SDGs), particularly indicators 3.7.2 and 5.3.1. While most interventions have focused on pregnancy prevention, there is increasing recognition of the need to improve access to and the quality of maternal care for adolescent mothers. Access and quality vary widely by geography and social status, with adolescents often receiving substandard clinical and interpersonal care compared to adults.

## CONCLUSION

This study highlights the rising trend of teenage pregnancy from 2022 to 2025, particularly in 2024–2025. The majority of cases were concentrated in the 18–19 year age group, with significant variation across blocks and urban–rural settings. Although most teenage pregnancies resulted in

normal deliveries, nearly one-third required cesarean section, and a nearly one fourth of them were complicated by high-risk conditions, predominantly anemia and hypothyroidism. These findings underscore the need for strengthened adolescent health programs, school-based health education, early identification of high-risk pregnancies, and targeted interventions to reduce preventable complications and improve maternal and neonatal outcomes.

### CONFLICT OF INTEREST

None

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