



ADOLESCENT PREGNANCY: THE PREVALENCE, RISK FACTORS, AND MATERNAL-NEONATAL OUTCOMES: A COMPREHENSIVE REVIEW

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ABSTRACT

India, a land teeming with over 1.3 billion people, grapples with a pressing health challenge: pregnancies among young adolescent girls. The country harbours the largest adolescent population globally, with a staggering 253 million individuals aged between 10 and 19 years. However, this demographic advantage comes with grave concern. Numerous studies underscore the grave health risks accompanying adolescent pregnancies. These medical complications can have severe consequences for both mother and child, jeopardizing their physical and emotional well-being. The rising trend of teenage pregnancies demands urgent attention and concerted action. It is imperative to prioritize solutions that empower young girls, break the cycle of early marriages, and make them aware of the resources that help them make informed decisions about their reproductive health. The main aim of this review paper is to draw attention to the persistent prevalence of adolescent pregnancies and emphasize the urgent need for the development of effective strategies and policy formulations to advocate for this issue. The objective is to improve the physical and emotional well-being of both adolescent mothers and children affected by teenage pregnancies. Through the study, I have tried to highlight the grave complications of adolescent pregnancies ranging from miscarriages and preterm labour to low birth weight infants, pre-eclampsia, postpartum haemorrhage, sexually transmitted diseases, anaemia, and pregnancy-induced hypertension. Addressing this critical issue necessitates a multi-faceted approach at regional and national levels. Efforts should be directed towards preventing early marriages, promoting education, and empowering women and girls to reduce the prevalence and mitigate the risks involved with adolescent pregnancies.

Keywords--Teenage pregnancies, adolescent pregnancies, health risks associated with adolescent pregnancies, adolescent motherhood, and adolescent pregnancies in India.

[1] INTRODUCTION

India is a land that harbours a population of over 1.3 billion people. It faces numerous health challenges due to its large population, diverse socio-economic conditions, and inadequate healthcare infrastructure in certain areas. One such social hazard is "pregnancies among young adolescent girls". According to WHO, Adolescence or Teenage is referred to as the transformation from childhood to adulthood, which is known as the period of 10-19 years of age [1].

India harbours a huge chunk of the adolescent population that accounts for nearly 253 million, and every fifth person lies in the age group 10 to 19 years[2]. Teenage females face various levels of vulnerability because harmful societal beliefs about the worth of girls impact their freedom and ability to make choices about their work, education, marriage, and social connections [2].

Adverse maternal and neonatal health outcomes arise from teenage pregnancies, primarily due to inadequate pre-natal and post-natal care, illiteracy, ignorance of family planning methods, relative immaturity, poverty, inadequate access to healthcare, and various other socio-economic barriers. As supported by several studies, early childbearing is associated with a multitude of medical complications. These complications include miscarriages, pre-term labour, low birth weight infants, pre-eclampsia, postpartum haemorrhage, and various morbidities such as sexually transmitted diseases, anaemia, and pregnancy-induced hypertension.

This review paper primarily aims to focus on the prevalence, risk factors, and complications of early childbearing on adolescent health and emphasizes the importance of policy awareness in addressing the growing issue of teenage pregnancies. By preventing teenagers from experiencing health deterioration, we can work towards creating a safe environment that safeguards their well-being.

[2] REVIEW METHODOLOGY

An exhaustive web search was conducted using databases such as Google Scholar, the International Journal of public health, PubMed, BMC, ProQuest, and Web of Science. The search utilized keywords such as "Adolescent pregnancies," "Teenage pregnancies," "Health risks associated with adolescent pregnancies," and "Adolescent pregnancies in India." After a meticulous screening process, 10 articles were shortlisted for inclusion in the study based on presumed inclusion and exclusion criteria.

Inclusion criteria: To be included, studies had to focus on adolescent/teenage females and specifically examine adverse pregnancy outcomes and/or associated risks. The eligible papers encompassed various forms such as peer-reviewed articles, literature reviews, dissertations, and grey literature. Moreover, it was required that the studies were reported in English to ensure consistency in comprehension and analysis. Below is the table of included articles and their authors (Table.1).

Exclusion criteria: Exclusion criteria were employed to remove papers that did not meet the specific study requirements. Papers lacking full-text availability or being conference proceedings were excluded from consideration. Additionally, studies classified case reports, case series and editorials were not incorporated into the analysis. Furthermore, studies that did not provide reports on adverse pregnancy outcomes and associated risk factors among adolescents were excluded. Lastly, studies conducted in languages other than the English were not included in the final selection.

Table 1
 Authors and Objectives of selected articles

S.NO	AUTHORS	OBJECTIVE
1	Shri et al. (2023) [3]	To co-relate adverse pregnancy outcomes and adolescent pregnancies [3].
2	Padmaja et al. (2022 [4].	To find out the strategies for the prevention of problems associated with teenage pregnancy [4].
3	Okram SD et al. 2019 [5]	To determine the prevalence of and adverse pregnancy outcomes of adolescent pregnancies [5]
4	Doddihal, et al. [6]	To know the outcomes of teenage pregnancies and their sociodemographic profiles [6]
5	Kumari S, Kishore J, Pandit V, et al. 2019 [7]	To learn about the causal factors of induced abortions among women of the age group 15-49 years of an urbanized village of Delhi [7].
6	Patra Reproductive Health (2016) [8]	To determine the trends of teenage pregnancies in the last 20 years in India and to examine the relation of health complications with the socio-economic factors and utilization of MCH services [8].
7	Banerjee, et al 2009 [9]	To magnify the complications related to the issue of teenage pregnancies [9]
8	Mahavarkar et al 2008 [10]	To compare maternal-neonatal outcomes of pregnancy in teenagers and adult women [10]
9	Nguyen et al. (2016) [11]	To examine the nutritional status of children born to teenage mothers in India.
10	D. Jeha et al. (2015) [12]	To analyse the risks and after-effects of early childbearing on both the mother and the newborn [12].

[3] RESULTS

3.1 Prevalence and Associated Socio-economic factors.

A study analysed datasets from the UDAYA survey held in Uttar Pradesh and Bihar [3], focusing on 4897 married adolescent girls aged 15-19. Bivariate and multivariate logistic regression analysis approaches were used on the datasets. The findings reveal that 61% espoused adolescents became pregnant before 20 years of age, and approximately 42% gave birth before reaching 20. Adolescents who married before 18 were 1.79 times more probable to experience pregnancy and 3.21 times more probable to become mothers [3]. Additionally, minimal schooling, higher spousal age gaps, substance use by respondents, and emotional and physical violence increased the risk of adverse pregnancy outcomes (OR: 1.41). [3].

The incidence of teenage pregnancy in Government Medical College, Kurnool [4] during the study period was 9.86%. Most of the study population (95.6%) were under 19 years old. A small percentage (3.9% and 0.5%) of teenage mothers were 17 and 15 years old, respectively. The average age of teenage mothers was 18.52 years. Most of the young mothers (79.5%) were

experiencing their first pregnancy. Out of all teenage pregnancies, only 1.5% were out of wedlock, while the rest (98.5%) were married [4]. The age at marriage for teenage mothers varied, with 43.5% marrying at 18 years, 39.5% at 17 years, 10.5% at 16 years, and smaller percentages at younger ages. Majority of teenage pregnancies occurred in rural areas (71%) compared to urban areas (29%). Education levels varied, with 56% having primary education, 32.4% having secondary education, and 11.6% being illiterate. Most of the study population (87.5%) was intrinsic to the underprivileged class [4].

In a study by Doddihal, et al, majority of participants (66.0%) belonged to the age range of 18-19 years. Among these adolescents, a significant proportion, specifically 90.3%, identified themselves as housewives, while 53.5% had pursued education beyond high school. The mean age at marriage was 16 years, and notable 79.2% of the participants were experiencing their first pregnancy [6]. The most common reason cited for early marriage, accounting for 68.8% of cases, was adherence to traditional practices. Additionally, family pressure was frequently reported as the cause of early pregnancy, with 46.5% of participants mentioning it [6].

3.2 Pregnancy outcomes

A research project by Kumari et al. was based on child marriages and induced abortion among women of reproductive age group residing in an urbanized village of Delhi [7]. Most of the women (82.2%) were aged 25-49 years, while 17.8% were aged 15-24 years. Nearly half of the women (49.7%) reported having married during their teenage years. About 40% of the women had a history of abortion, and one-fourth (25%) had undergone induced abortions [7]. Among the cases of induced abortion, more than half (54%) were unsafe, with a higher prevalence in the adolescent age group [7].

Another study by Doddihal, et al revealed that among the teenage participants, the majority, consisting of 92 individuals (63.9%), experienced a full-term normal delivery. Additionally, 38 individuals (26.4%) had a pre-term delivery, 4.8% experienced stillbirth, and 2.1% underwent abortion. There were also 2.8% neonatal deaths [6]. Notably, adverse outcomes such as stillbirth, abortions, and neonatal death were more prevalent among adolescents of age 15-17 years than those aged 18-19 years, proven by a statistically significant ($P < 0.05$) difference. Furthermore, these adverse outcomes were more common in multigravida (individuals with multiple pregnancies) in comparison to primigravidae (individuals experiencing their first pregnancy) [6].

Patra conducted a study on adolescent pregnancy over different time periods and found that the occurrence rate of teenage pregnancy remained relatively stable. Older adolescents aged 18-19 years had a higher proportion of live births compared to younger teenage women aged 15-17 years [8].

3.3 Related Complications with Teenage Pregnancies

Banerjee et al. Conducted a study comparing teenage pregnancies to pregnancies in older women. The teenage group had a higher prevalence of anaemia, premature deliveries, and LBW infants. The control group demonstrated severe anaemia compared to cases. The mean birth weight was remarkably lower in the adolescents' group as compared to control group [9].

A study done by Mahavarkar et al. in a rural teaching hospital in India comparing teenage pregnancies to pregnancies in older women demonstrated that teenage mothers were at a higher risk (OR = 2.83) of developing anaemia, delivering pre-term (OR = 2.97), and developing hypertensive problems (OR = 2.2) during pregnancy. They were more prone to deliver vaginally, have low birth weight infants (OR = 1.8), and less prone to have normal birth weight babies compared to women with age above 20. Adverse maternal-neonatal outcomes are often the result of teenage pregnancies, which can be attributed to significant factors such as illiteracy, poverty, and various social-cultural influence [10].

Nguyen and colleagues conducted a study using data from NFHS-4 (2015-16), focusing on 60,096 women of the age 15-49 years, who gave birth to their first child between 2010 and 2016. The study confirmed that teenage pregnancy was correlated with an increased risk of undernutrition in children [11]. The children born to adolescent mothers were found to be 0.25 standard deviations shorter for their age and more likely (by 5 %) to be stunted compared to those born to adult mothers [11]. The survey revealed that 25% of adolescents included in the study had given birth. Young adolescent mothers faced greater vulnerability and disenfranchisement compared to older first-time mothers. They tended to marry at a younger age, were more likely to be impoverished, and had higher rates of undernutrition [11].

Young maternal age, as studied by D. Jeha et al., is linked to various health risks. These include anaemia in mothers, infections, eclampsia, pre-eclampsia, emergency c-sections, postpartum depression, and difficulties with or delayed breastfeeding initiation. Infants born to teenage mothers are more likely to be premature, have low birth weight, and face risks of respiratory distress syndrome and autism later in life [12].

Padmaja et al., proposed through their study that A significant proportion of newborn, (44.1%), needed Neonatal Intensive Care Unit (NICU) admissions for a range of reasons [4]. These included factors such as premature birth, low birth weight, or other severe complications like intrauterine growth restriction (IUGR), hyperbilirubinemia, birth asphyxia, and meconium aspiration syndrome [4]. Common complications among newborns, such as anaemia, pregnancy-induced hypertension (PIH), pre-term birth, and IUGR, were observed because of inadequate antenatal care, nutritional deficiencies, and a lack of awareness regarding pregnancy [4].

According to Okram SD et al, the occurrence of teenage pregnancy in their study was 7%, which is lower compared to previous studies. The study found that the rate of caesarean section was 31%. One notable complication associated with teenage pregnancy was oligohydramnios. Additionally, 43% of the cases required neonatal intensive care units (NICU), and 31% of the babies were low birth weight infants (LBW) [5].

[4] DISCUSSIONS

4.1 Main findings

Adolescent fertility in India occurs mainly within the marital context, unlike western countries where having a child outside the marriage is common [8]. Moreover, teenage girls who undergo pregnancy encounter elevated susceptibilities, which involve heightened chances

of maternal and newborn complications that can lead to mortality. In rural regions, around nine percent of girls between the ages of 15 and 19 have already embarked on the path of becoming mothers, while in urban areas, this percentage amounts to 5% [2].

Studies have shown an alarming prevalence rate of adolescent pregnancies of approximately 9-10%. While it is on the higher side among the projects conducted in northern India (9.8%) [3] as compared to southern India (Kurnool – 7%) [4]. The mean age at various studies was different but ranges from 16.7 [4] to 18.5 [5] clearly stating the fact that most of the conceptions are occurring before the age of 20 which is way too early for a female to handle physical, physiological, and emotional changes her body undergoes. Traditional practices, early marriages, illiteracy/compromised education, and family pressure are the common reasons behind teenage Pregnancies [6].

Older teens (18-19) have a higher chance of live births compared to younger teens (15-17) [8]. Factors associated with a higher prevalence of live births included more no of ANC's received, higher education, receiving delivery advice, consuming iron/folic acid tablets, and receiving Tetanus Toxoid injections [8]. Around one-fourth of adolescent pregnancies leads to unfortunate outcomes like abortions, miscarriages, stillbirths, or pre-term deliveries [6]. These adverse pregnancy outcomes can have detrimental effects on a woman's physical and emotional well-being. Complications associated with these events may include physical trauma, excessive bleeding, infection, and long-term reproductive health issues. Additionally, the emotional impact of such losses can lead to psychological distress, grief, and an increased risk of postpartum depression.

Illiterate and ignorant young girls fall into the trap of numerous complications of adolescent motherhood. Most common among them are anaemia [4] [9] [10] [12] low birth weight babies [5] [9] [10] and pregnancy-induced hypertension [4] [10]. Low birth weight also leads to frequent SNCU/ NICU admissions. Other notable complications are Caesarean deliveries, preeclampsia, and intrauterine growth restriction (IUGR) [4]. A significant long-term effect of young-aged pregnancies is Undernutrition/ stunted growth among children [11].

4.2 Gaps and Challenges

- Insufficient or inadequate sex education programs in schools and communities can contribute to a lack of awareness and knowledge among adolescents about contraception, safe sex practices, and the consequences of early pregnancy.
- Limited or No Accessibility to affordable and youth-friendly reproductive healthcare services, including contraception, family planning, and prenatal care, may be limited or restricted, particularly in rural or marginalized communities.
- Deeply ingrained sociocultural norms and practices, such as early marriage, traditional beliefs, and gender inequality, perpetuate the cycle of adolescent pregnancies and hinder efforts to address the issue effectively.
- Economic challenges, including poverty and limited educational opportunities, can contribute to higher rates of adolescent pregnancies. Financial constraints may impede

access to healthcare services and resources necessary for preventing and managing pregnancies.

- Adolescent motherhood has always been questioned due to social stigmas and females have to face discrimination, which can impact their mental health, education, and future opportunities, negatively. Overcoming societal judgment and promoting acceptance and support are essential in addressing the challenges faced by adolescent mothers.

4.3. Implications for future research

- Developing strategies to help government address the challenges faced by adolescent females.
- Gap analysis for existing strategies and find ways to strengthen the existing programs in this direction.

[5] CONCLUSION

In summary, the prevalence of adolescent pregnancies in India is a matter of great concern, particularly in rural areas where a significant percentage of girls between the ages of 15 and 19 have already embarked on the journey of motherhood. Traditional practices, early marriages, lack of education, and societal pressures have perpetuated this phenomenon. The consequences of adolescent pregnancies are manifold, encompassing heightened vulnerabilities, maternal and newborn complications such as anaemia, low birth weight, pregnancy-induced hypertension, and undernutrition. Furthermore, adverse outcomes like abortions, miscarriages, stillbirths, and pre-term deliveries inflict severe physical and emotional distress upon young mothers. Comprehensive and effective measures are urgently needed to address these complex challenges, encompassing education, improved access to healthcare services, and robust support systems to ensure the well-being and upcoming prospects of adolescent girls in India.

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