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Prevalence and outcomes of teenage pregnancy among patients attending a state specialist hospital in Osogbo Osun State Nigeria

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Abstract

Background Teenage pregnancy is a significant public health issue globally due to its association with a range of adverse health, socio-economic, maternal, and neonatal outcomes.

Aims This study therefore examined the prevalence and outcome of teenage pregnancy in a state specialist hospital, Osogbo, Osun State, Nigeria.

Methods This study is a ten-year retrospective study conducted to determine the prevalence and outcome of teenage pregnancy. The sample consisted of 225 teenagers aged 13–19 years registered for antenatal and delivery services in State Specialist Hospital, Osogbo, Osun State, using total enumeration. Data were extracted from medical records of patients and hospital databases using a proforma. Data extracted were analyzed using descriptive statistics of frequency and percentages, while inferential statistics of chi-square were used to establish relationships between the variables.

Results The findings showed a 5.4% prevalence of teenage pregnancy, with the majority being aged 18 years, 55 (24.4%), at a gestational age of 36–40 weeks (79.6%), unmarried 129 (57.3%), with secondary education 118 (52.4%). The majority had no previous obstetric history, 124 (55.1%); however, 44 (19.6%) had abortions. Most teenage pregnancies recorded ended with live births, 152 (67.6%), with a significant number of preterm births, 59 (26.2%). Neonatal outcomes showed normal weight 141 (62.7%) and low birth weight 62 (27.6%). Anemia 29 (12.9%) was high among other complications as observed from the study. However, less than half of the pregnancies were delivered through caesarean section, 91 (40.4%).

Conclusion This study showed a low prevalence of teenage pregnancy among teenagers aged 15–19 years, indicating that teenage pregnancy still exists despite efforts to empower teenagers on sexuality education. Therefore, more effort should be intensified to advocate for targeted interventions to drastically reduce pregnancy among teenagers.

Keywords Outcomes, Prevalence, Specialist Hospital, Teenage, Pregnancy

1 Introduction

Teenage pregnancy is a significant public health issue globally due to its association with a range of adverse health, social, and economic outcomes. According to the World Health Organization (WHO), adolescent pregnancy is more prevalent in low- and middle-income countries (LMICs), where young women face limited access to contraception and reproductive health education [1–3]. Globally, approximately 21 million girls aged 15–19 years become pregnant each year, and about 12 million of these girls give birth [4]. The burden of teenage pregnancy is most acutely felt in sub-Saharan Africa, where teenage mothers face compounded health risks due to inadequate healthcare resources and cultural factors that may discourage delaying pregnancy [5, 6].

In Nigeria, teenage pregnancy presents a unique set of challenges, influenced by cultural norms, economic factors, and limited access to reproductive health services [10]. The prevalence of teenage pregnancy in Nigeria is among the highest in sub-Saharan Africa, with an estimated rate of 106 births per 1,000 girls aged 15–19 [11]. Akanbi et al. [12] reported that 19% of teenage girls aged 15–19 years have experienced teenage pregnancy in Nigeria, and contributing factors include early marriage, poverty, and cultural practices that often endorse early childbearing. In many Nigerian communities, marriage at a young age is culturally sanctioned, and young brides are often encouraged to bear children soon after marriage [13]. Furthermore, limited sexual and reproductive health education in schools and restricted access to contraceptives for unmarried adolescents exacerbate the problem [14].

Teenage pregnancy is associated with serious health risks, as the physical and emotional immaturity of adolescents often places them at greater risk of complications. Conditions like preeclampsia, anemia, and postpartum hemorrhage are more common among teenage mothers than among older women [7]. Adolescents may also face heightened risks of obstetric fistula and preterm labor, both of which have significant implications for their long-term health. Additionally, infants born to teenage mothers are at an increased risk of preterm birth, low birth weight, and neonatal mortality [8]. The biological vulnerabilities, combined with limited access to healthcare services in many regions, amplify these risks, making teenage pregnancy a priority for public health interventions [9]. Therefore, this study examined the prevalence and outcome of teenage pregnancy in a State Specialist Hospital, Osun State, Nigeria, with the aim of developing strategies to reduce complications associated with teenage pregnancy.

1.1 Objectives

- To determine the prevalence of teenage pregnancy among antenatal enrollees in a state specialist hospital.
- To ascertain the outcomes of teenage pregnancy among antenatal enrollees in a state specialist hospital.

1.2 Hypothesis

- There is no significant relationship between age and mode of delivery among pregnant teenagers.
- There is no significant relationship between age and mode of delivery among pregnant teenagers.

2 Materials and methods

2.1 Study design and setting

This is a ten-year retrospective study conducted in a state specialist hospital in Osogbo, Osun State, Nigeria. The State Specialist Hospital, Asubiaro, Osogbo, is one of the most important government-owned healthcare facilities in Osun State, Nigeria. Located in the state capital, the hospital serves as a referral center for various medical cases from across the state and neighboring regions. The hospital provides a broad range of medical services, including out-patient and in-patient care, maternity and child health services, surgical procedures, laboratory and diagnostic services, and emergency response. It is equipped to handle various medical conditions, with specialized units for pediatrics, internal medicine, ophthalmology, dermatology, and other fields. The maternity unit, in particular, plays a crucial role in ensuring safe childbirth and postnatal care, contributing to reduced maternal and infant mortality rates in the state.

2.2 Study population

The population for this study includes all pregnant women and teenagers enrolled for antenatal care services and delivery between January 2015 and December 2024 at State Specialist Hospital, Osogbo, Osun State, Nigeria. The hospital received a total number of 4,200 pregnant women enrolled for antenatal care and delivery, out of which 225 were teenagers from January 2015 to December 2024 (Table 4.1). The sample size was determined using total enumeration of all cases or records of teenage pregnancy.

2.3 Inclusion and exclusion criteria

Inclusion criteria include complete records of pregnant teenagers within the age range of 13 and 18 years. Exclusion criteria include incomplete records of pregnant teenagers within the age range of 13 and 18 years, as well as those above age 18 years.

2.4 Instrument for data collection

The research instrument used for this study was a checklist developed by the researcher, known as a proforma, for prevalence and outcome of teenage pregnancy based on the data in the patients' records. This study is a ten (10)-year retrospective study, and the data were extracted from all case files of pregnant teenagers from January 2015 to December 2024. Data extracted from hospital records and medical databases were used in reviewing and analyzing correspondence, clinical notes, and summaries associated with patient records. The data points included demographics such as age, marital status, and education level; pregnancy outcomes such as live births, stillbirths, and miscarriages; maternal health outcomes during pregnancy and delivery complications such as preeclampsia or postpartum hemorrhage; neonatal outcomes like birth weight and APGAR scores; as well as socio-economic context for factors such as socioeconomic background impacting health outcomes.

2.5 Statistical analysis

Statistical Package for Social Sciences (SPSS) version 28 was used for data analysis. Data were analyzed using descriptive statistics of frequency and percentage, while inferential statistics of Chi-square were used to establish relationships between the variables.

Table 1 Population of pregnant women enrolled for antenatal and number of pregnant teenagers from January 2015- December 2024.

Year	Population of pregnant women enrolled for antenatal	Population of pregnant teenagers	Prevalence of pregnant teenagers
January 2015-December 2015	400	25	6.3%
January 2016- December 2016	450	20	4.4%
January 2017- December 2017	500	35	7.0%
January 2018- December 2018	350	20	5.7%
January 2019- December 2019	400	25	6.3%
January 2020- December 2020	450	30	6.7%
January 2021- December 2021	300	20	6.7%
January 2022- December 2022	500	20	4.0%
January 2023- December 2023	350	15	4.3%
January 2024- December 2024	500	15	3.0%
Total Number	4200	225	5.4%

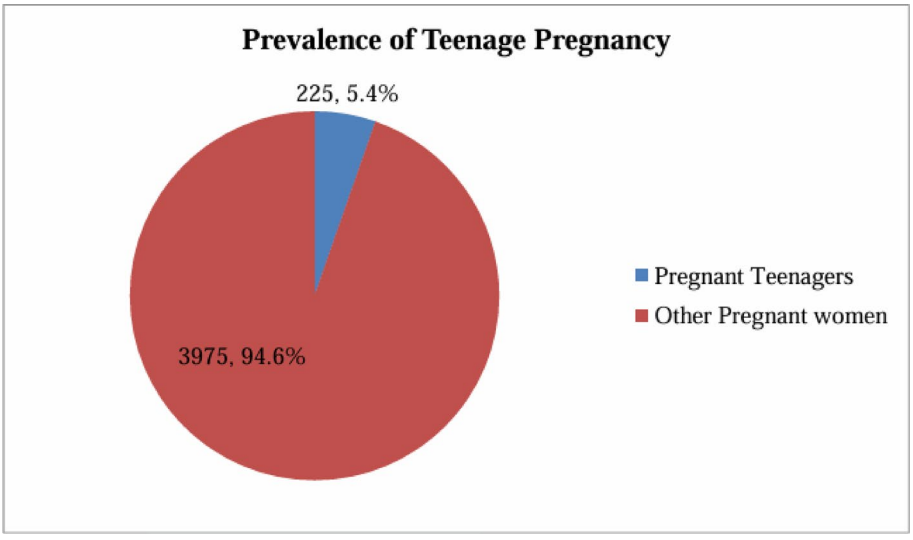

Fig. 1 Prevalence of teenage pregnancyPrevalence of teenage pregnancy

2.6 Ethical considerations

Ethical approval was obtained in June 2024 from the Osun State Health Research and Ethics Committee (OSHREC), Ministry of Health, Osun State, Nigeria, with reference number OSHREC/PRS/569T/833. The analysis adhered to strict confidentiality, ensuring that no identifiable information was disclosed. Data access was restricted to authorized personnel only, and ethical considerations were reinforced through careful handling of personal correspondence and sensitive information.

3 Results

Table 1 showed that 4200 pregnant women delivered at the Maternity Centre of State Specialist Hospital, Osogbo, between January 2015 and December 2024, out of whom 225 were teenagers, making a 5.4% prevalence of teenage pregnancy, as presented in Fig. 1.

Table 2 shows that among all the study subjects, the majority (118, 52.4%) had a secondary level of education, were aged 18 years (55, 24.4%), and the majority (199, 79.6%)

Table 2 Socio-demographic data

Variables	Categories	Frequency	Percent
Age	15 years	25	11.1
	16 years	46	20.4
	17 years	50	22.2
	18 years	55	24.4
	19 years	49	21.8
Gestational age (weeks)	30–35 weeks	46	20.4
	36-40 weeks	179	79.6
Marital status	Unmarried	129	57.3
	Married	96	42.7
Education level	No formal education	25	11.1
	Primary education	46	20.4
	Secondary education	118	52.4
	Tertiary education	36	16.0
Occupation	Student	96	42.7
	Self-employed	47	20.9
	Unemployed	82	36.4
	Total	225	100.0

Table 3 Obstetric Data

Variables	Categories	Frequency	Percent
Previous obstetric history	None	124	55.1
	Abortion	55	24.5
	Still birth	2	0.9
	Live birth	26	11.6
	Cesarean section	18	8.0
Gravidity	1	124	55.1
	2	87	38.7
	3	14	6.2
Parity	0	174	77.3
	1	37	16.4
	2	14	6.2
No of children alive	0	176	78.2
	1	35	15.6
	2	14	6.2
	Total	225	100.0

also delivered at 36–40 weeks of gestation; 129 (57.3%) were unmarried and 96 (42.7%) were still students.

As presented in Table 3, more than half, 124 (55.1%), had not been pregnant before, while 44 (19.6%) had abortions in the past. The majority, 124 (55.1%), were pregnant for the first time, and 176 (78.2%) had no children alive.

Table 4 shows that the highest percentage had live births, 152 (67.6%), with normal neonatal weight, 141 (62.7%), no maternal complications, 122 (54.2%), and the mode of delivery was vaginal delivery, 134 (59.6%).

Table 5 shows a statistically significant relationship between age (X^2 = 37.340a, p-value = 0.012) and mode of delivery among pregnant teenagers. However, a greater proportion of the teenagers aged 16 years delivered by caesarean section, 36 (39.6%).

Table 6 showed a statistically significant relationship between previous obstetric history (X^2 = 56.716a, p-value = 0.000) and mode of delivery among pregnant teenagers.

Table 4 Pregnancy Outcome

Variables	Categories	Frequency	Percent
Pregnancy outcome	Live birth	152	67.6
	Still birth	14	6.2
	Preterm birth	59	26.2
Neonatal outcome	Low birth weight	62	27.6
	Neonatal death	22	9.8
	Normal weight	141	62.7
Maternal complication	None	122	54.2
	Anemia	29	12.9
	Preeclampsia	7	3.1
	Eclampsia	14	6.2
	Hypertension	17	7.6
	Hemorrhage	21	9.3
	Sepsis	15	6.7
Mode of delivery	Vaginal delivery	134	59.6
	Caesarean section	91	40.4
	Total	225	100.0

Table 5 Relationship between age and mode of delivery among pregnant teenagers

Age	Mode of delivery		Total	X^2	df	P value
	Vaginal delivery	Caesarean section				
15 years	14 (10.4)	11 (12.1)	25 (11.1)	37.340[a]	4	0.012
16 years	10 (7.5)	36 (39.6)	46 (20.4)			
17 years	34 (25.4)	16 (17.6)	50 (22.2)			
18 years	42 (31.3)	13 (14.3)	55 (24.4)			
19 years	34 (25.4)	15 (16.5)	49 (21.8)			
Total	134 (59.6)	91 (40.4)	225 (100)			

Table 6 Relationship between previous obstetric history and mode of delivery among pregnant teenagers

Previous obstetric history	Mode of delivery		Total	X^2	df	P value
	Vaginal delivery	Caesarean section				
None	83 (61.9)	41 (48.4)	124 (55.1)	56.716[a]	5	0.000
Miscarriage	20 (14.9)	24 (26.4)	44 (19.6)			
Still birth	2 (1.5)	0 (0.0)	2 (0.9)			
Live birth	26 (19.4)	0 (0.0)	26 (11.6)			
Cesarean section	0 (0.0)	18 (19.8)	18 (8.0)			
Abortion	3 (2.2)	8 (8.8)	11 (4.9)			
Total	134 (59.6)	91 (40.4)	225 (100.0)			

4 Discussion

This study showed a low prevalence of teenage pregnancy in the study area, with approximately 5.4% of teenage pregnancies reported over 10 years. This finding contrasts with the report of Alukagberie et al. (2023) [14], who reported 7.5–49.5% teenage pregnancy in Nigeria. Also, Asmamaw et al. [15] reported 24.88% overall teenage pregnancy in Sub-Saharan Africa. However, 8.29% was observed in Burundi, while Niger recorded a high prevalence of 40.4%, Mali (36%), Tchad (35.9%), Angola (34.5%), Congo (27.22%), Burkina Faso (23.62%), Gambia (17.55%), and Nigeria accounted for 18.73%. All these reports were higher than the prevalence obtained from the study setting [15]. The state with the lowest rate of teenage pregnancy in Nigeria is Lagos (1%), while the state with

the highest rate is Bauchi (41%). The prevalence observed in this study is within the range observed in these two regions of the country [16, 17]. In addition, Chemutai et al. [18] reported a 20.6% prevalence of teenage pregnancy. Supporting the findings from this study, Onuh et al. [19], in their prospective study, reported a 3.6% prevalence of teenage pregnancy.

The findings from the study showed that teenage pregnancy occurs mostly among teenagers aged 18 years, which corresponds with the report of Todd and Black [20] that older adolescents tend to have higher pregnancy rates due to increased exposure to sexual activity and limited access to contraception. Gestational age at delivery, as observed from this study, was 36–40 weeks, which aligns with the CDC [21] report that while teenage pregnancies often result in preterm births, a significant proportion still reach term, especially in settings with improved maternal care.

The highest proportion of unmarried teenagers was observed in the study, with most having secondary school education. This corroborates the results of Adeyemi et al. [22] that most teenage pregnancies occur outside marriage. However, Ifeanyi et al. [23] identified low educational attainment as both a cause and consequence of teenage pregnancy, leading to a cycle of poverty and limited career opportunities. Owuonda [24] also emphasized that adolescent pregnancies disproportionately affect school-going girls, often leading to school dropouts and reduced educational prospects.

This study found that most teenagers were primigravidae and nulliparae, with a lower proportion having cesarean deliveries. This finding is in tandem with the study conducted by Kassa et al. [25], which reported that pregnant teenagers were predominantly primigravidae due to the early onset of sexual activity and limited access to contraceptives. Moreover, evidence supports that adolescents have a lower overall risk of cesarean delivery compared to older mothers; however, teenagers who require surgical intervention often experience complications due to physiological immaturity [7, 27–29]. This study further found that most teenage pregnancies resulted in live births through vaginal delivery, which is supported by previous studies that most adolescent pregnancies in southwestern Nigeria end in live births, although with significant risks of complications [26, 30–33].

In contrast, Kassa et al. [25] identified teenage pregnancy as a major risk factor for adverse neonatal outcomes due to inadequate prenatal care and biological immaturity. Nguyen et al. [34] also linked adolescent pregnancies to fetal growth restrictions due to maternal undernutrition and limited healthcare access.

Anemia was observed to be significant among the maternal outcomes, although most deliveries were vaginal. In line with the findings from this study, Adeyemi et al. [23] reported that teenage mothers are at higher risk of anemia and hypertensive disorders due to poor antenatal care and nutritional deficiencies. Moreover, previous studies suggested that although vaginal delivery is more common in teenage pregnancies, the rate of cesarean sections remains high due to cephalopelvic disproportion and fetal distress [26, 35, 36].

Furthermore, a statistically significant relationship was observed between age and mode of delivery among pregnant teenagers. However, a greater proportion of teenagers aged 16 delivered by cesarean section. This is supported by previous studies reporting that 40.3% of pregnant adolescents underwent cesarean deliveries [37, 38]. Additionally, there was a statistically significant relationship between previous obstetric history and

mode of delivery among pregnant teenagers, with more than half of the pregnant teenagers with previous miscarriages and cesarean sections having cesarean delivery as their mode of delivery. Ayenew [38] reported that teenage mothers are more likely to experience obstructed labor due to inadequate pelvic development, leading to increased surgical interventions.

This study, therefore, shows that teenage pregnancy still exists, and the findings can inform healthcare managers and policymakers in planning adolescent reproductive health programs.

4.1 Limitation

The limitation observed in this study is the use of documented data rather than current study data; some relevant information that could contribute to both maternal and neonatal outcomes was secondary. Therefore, the study is constrained by the quality and scope of existing data.

4.2 Practical implication

The findings of this study have significant implications for nursing practice, particularly in maternal and child health. The high outcomes of teenage pregnancies resulting in complications such as anemia, hemorrhage, preterm births, and neonatal mortality highlight the need for nurses to enhance prenatal education and early antenatal care interventions. Nurses should promote the health of pregnant adolescents by providing health education on nutrition, early danger signs of complications, and the importance of regular antenatal visits.

Additionally, the high rate of cesarean sections among teenage mothers aged 16 years calls for nurses to advocate for timely obstetric interventions and ensure comprehensive birth preparedness counseling. Nurses should implement early newborn care interventions, such as Kangaroo Mother Care for low-birth-weight infants, and educate adolescent mothers on proper infant feeding and hygiene practices. Given the psychological and emotional challenges associated with teenage pregnancy, nurses must also integrate mental health support and counseling into maternal healthcare services. Providing adolescent-friendly maternal care, including postpartum family planning counseling, can help prevent repeat teenage pregnancies and promote long-term maternal and child well-being.

5 Conclusion

Teenage pregnancy is a significant public health issue that contributes to maternal and child morbidity and mortality. This study shows a 5.4% prevalence of teenage pregnancy in the study area, with associated anemia and need for cesarean section. Although both maternal and neonatal outcomes were generally favorable, there is a need for educational interventions to prevent complications such as anemia among pregnant teenagers.

Acknowledgements
The authors express their gratitude to the management of State Specialist Hospital for their support in retrieving data during the period of data collection. All support officers who assisted in data extraction are duly appreciated.

Author contributions
All authors contributed to the manuscript from inception to the final draft. A.O.D. conceptualized, designed, and wrote the main manuscript; A.O. D. and O.F. were in charge of methodology, data collection, and data analysis; F.S.O. reviewed the methodology and results; E.M.G. reviewed the discussion and references; D.C. reviewed part of the methodology and

discussion; and B.T. reviewed the entire manuscript. Manuscript editing was done by A.O.D., F.S.O., E.M.G., and B.T. Tables and Figures in the manuscript were prepared by A.O.D. and O.F.

Funding
No funding.

Data availability
Data obtained fromthe medical records of the patients are available and will be provided if needed. The data can be provided by Akinwale O. D. or Oloyede Favour.

Declarations

Ethics approval and consent to participate
Ethical approval was obtained in June 2024 from the Osun State Health Research Committee (OSHREC), Ministry of Health, Osun State, Nigeria, with reference number OSHREC/PRS/569T/833. The analysis adhered to strict confidentiality, ensuring that no identifiable information was disclosed. Data access was restricted to authorized personnel only, and ethical considerations were reinforced through careful handling of personal correspondence and sensitive information. This study was carried out in accordance with the guidelines of the ethics committee listed in the ethics statement. This study utilized existing medical records of patients; thus, there was no contact with the participants. However, consent to utilize the medical records was obtained from the Health Information Management Department, and they were assured of the utmost confidentiality of the information from the patient records.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

Received: 23 April 2025 / Accepted: 11 May 2026
Published online: 02 June 2026

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