



ESTIMATING THE TRENDS AND FACTORS ASSOCIATED WITH TEENAGE PREGNANCY IN NIGERIA

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ABSTRACT: *Teenage pregnancy remains a persistent public health and socio-economic concern in Nigeria, with significant variation across socio-demographic groups. This study examined trends and determinants of teenage pregnancy between 2013 and 2018, using nationally representative data. Data were drawn from the 2013 and 2018 Nigeria Demographic and Health Surveys, comprising 16,328 female adolescents aged 15–19 years. Teenage pregnancy was defined as having ever been pregnant, including those currently pregnant, who had given birth, or who had terminated a pregnancy. Weighted descriptive statistics, bivariate analysis, and multivariable logistic regression were employed to examine changes in prevalence and socio-demographic predictors. Analyses accounted for the complex survey design. The overall prevalence of teenage pregnancy declined from 15.6% in 2013 to 13.2% in 2018 (absolute reduction: 2.4 percentage points). Higher prevalence was consistently observed among older adolescents (18–19 years), those currently or formerly married, with no or primary education, from poorer households, residing in rural areas, and living in the North-West and North-East regions. Adjusted odds of teenage pregnancy were markedly higher among currently married adolescents, those aged 19 years, and those with no education (reference group). Adolescents with secondary or higher education, those from higher wealth quintiles, and those residing in urban areas had significantly lower odds. Notably, contraceptive users had higher adjusted odds of pregnancy in both years, suggesting possible post-pregnancy uptake, inconsistent use, and misreporting. While teenage pregnancy in Nigeria declined modestly between 2013 and 2018, substantial socio-demographic disparities persist, with the highest burden among poor, rural, less-educated, and married adolescents, especially in northern regions. Interventions should prioritise delaying marriage, improving girls' education, expanding youth-friendly reproductive health services, and addressing barriers to effective contraceptive use.*

KEYWORDS: Trends, Factors, Teenage, Pregnancy, female adolescents.



INTRODUCTION

Teenage pregnancy is a major public health and socio-economic challenge in Nigeria, particularly among girls aged 15 to 19 years (Okoli et al., 2022a). Despite various policies and campaigns aimed at improving reproductive health, the rates of adolescent childbearing remain high in the country (Alukagberie et al., 2023). Factors such as age, marital status, education, religion, employment status, and geographical location significantly influence reproductive behaviors among teenagers (Kareem et al., 2023). Research by Nwosu (2017), Bolarinwa et al. (2023), and Okoli et al. (2022b) consistently shows that rural, less educated, and economically disadvantaged adolescents account for a disproportionate share of teenage pregnancy cases.

Teenage pregnancy is a complex and multifaceted public health issue that adversely affects the health, education, and socio-economic well-being of young women, their children, and society at large (Diabelková et al., 2023; Etini et al., 2024). It is commonly defined as pregnancy occurring in adolescents aged 15–19 years, often resulting from limited access to education, healthcare, and economic opportunities, while being strongly influenced by socio-cultural norms and gender inequalities (Malunga et al., 2023; Moshi et al., 2023).

Globally, teenage pregnancy remains a pressing concern. Each year, an estimated 21 million girls aged 15–19 years and 2 million girls under 15 years become pregnant in developing regions, with about 16 million adolescent girls giving birth (United Nations Population Fund [UNFPA], 2019). Complications during pregnancy and childbirth are the leading causes of death among girls in this age group, while their infants face a substantially higher risk of neonatal mortality (WHO, 2016).

Sub-Saharan Africa accounts for nearly half of the world's adolescent births, largely driven by socio-economic and cultural factors such as poverty, child marriage, and inadequate access to reproductive health services (Maharaj, 2022; Feyissa et al., 2023; Kidman et al., 2024). In many communities, adolescent pregnancies are normalized, with early childbearing tied to cultural expectations around marriage and fertility. This trend has profound consequences for the health, education, and future opportunities of young women (Sagalova et al., 2021; Alukagberie et al., 2023).

In Nigeria, teenage pregnancy rates remain among the highest in the world. The 2018 Nigeria Demographic and Health Survey (NDHS) reported that 19% of adolescent girls aged 15–19 had begun childbearing, 14% had given birth, while 4% were pregnant with their first child (National Population Commission [NPC] & ICF, 2019). However, national averages mask significant disparities: in the North West, 29% of adolescents had begun childbearing compared to just 6% in the South West (Adeneye et al., 2017; Akombi-Inyang et al., 2022). These differences are shaped by socio-cultural norms, early marriage practices, educational levels, and unequal access to healthcare (Pourtaheri et al., 2024).

The consequences of teenage pregnancy are far-reaching. Adolescent mothers face increased risks of pregnancy-related complications such as preeclampsia, obstructed labor, and postpartum hemorrhage (Chakole et al., 2022; Maheshwari et al., 2022). Teenage pregnancy also disrupts education, forcing many girls out of school and limiting future employment opportunities, thereby perpetuating cycles of poverty (Machoka et al., 2024).

At the societal level, teenage pregnancy imposes significant economic burdens, including higher healthcare costs, reduced productivity, and increased social welfare expenditures



(Moran et al., 2020). Children born to adolescent mothers are also more likely to experience poor educational outcomes, reinforcing intergenerational poverty. Thus, reducing teenage pregnancy is central to improving not only health outcomes but also broader social and economic development (Mathewos et al., 2018).

Recognizing these challenges, the Nigerian government and development partners have introduced interventions such as reproductive health education, youth-friendly services, and programs promoting girl-child education (Nmadu et al., 2020; Agu et al., 2022). Although some progress has been made, teenage pregnancy rates remain unacceptably high, especially in rural areas and northern regions (Malunga et al., 2023). The persistence of these trends underscores the need for a deeper understanding of the socio-demographic and contextual factors driving teenage pregnancy in Nigeria (Akombi-Inyang et al., 2022).

This study, therefore, seeks to estimate the trends and examine the factors associated with teenage pregnancy in Nigeria between 2013 and 2018 using NDHS data. By identifying the socio-demographic determinants and regional disparities, the study aims to provide evidence to guide targeted interventions that can reduce adolescent fertility and improve outcomes for young women and their children

METHODS

Data Source and Sampling Method

Data were sourced from the individual recode files of the NDHS 2013 and 2018 datasets, accessible via the Demographic and Health Survey Program. These surveys applied a multi-stage stratified cluster sampling method to achieve representativeness across national, regional, urban-rural, and state categories. After merging and cleaning the data for analysis, the final sample comprised 16,328 adolescent girls aged 15 to 19 from both datasets.

This research used a quantitative cross-sectional approach, utilizing nationally representative secondary information from the Nigeria Demographic and Health Surveys (NDHS) performed in 2013 and 2018. The study concentrated on female adolescents aged 15 to 19 years, investigating social and demographic factors and trends in teenage pregnancy rates over five years.

Study Variables

Outcome Variable

The primary focus was on the prevalence of teenage pregnancy, defined as girls aged 15 to 19 who had been pregnant at the time of the survey, which included those who were pregnant, had given birth, or had ended a pregnancy.

Explanatory Variables

The independent factors analyzed included: Age (15–19 years), Marital status (never married, currently married, formerly married), Religion (Christianity, Islam, others), Education level (No Education, Primary, Secondary, Higher), Employment status (Currently Working Vs. Not Working), Wealth index (five quintiles from poorest to richest), Place of residence



(urban/rural), Region (six geopolitical zones), Previous contraceptive use (ever used vs. never used), and History of pregnancy termination (yes/no). All variables were standardized across both survey years for consistency.

Data Analysis

Descriptive and Inferential Analysis

Descriptive statistics were used to summarize the socio-demographic and reproductive characteristics of adolescents. Frequencies and percentages were computed, and the prevalence of teenage pregnancy was estimated separately for 2013 and 2018. Trends were assessed by comparing prevalence across the two survey years, and results were presented in tables.

Bivariate analysis was conducted using chi-square tests to examine associations between teenage pregnancy and the explanatory variables. Logistic regression models were then fitted to identify factors associated with teenage pregnancy. Both unadjusted and adjusted odds ratios (ORs) with 95% confidence intervals (CIs) were reported. The adjusted models controlled for all socio-demographic and reproductive factors. In addition, point differences in prevalence between 2013 and 2018 were calculated to assess temporal changes in teenage pregnancy.

RESULTS

Discussion of Table 1: Socio-demographic and Reproductive Characteristics of Respondents

The socio-demographic and reproductive characteristics of the respondents provide useful insights into their health and social background. Out of the 16,328 adolescents surveyed, a large majority, 16,003 (98.01%), reported no history of pregnancy termination, while only 325 (1.99%) admitted to having experienced one. Concerning contraceptive use, 15,216 respondents (93.19%) indicated that they had never used any form of contraceptive, while only 1,112 (6.81%) reported ever using contraceptives.

In terms of age distribution, 4,118 (25.22%) of the respondents were 15 years old, 3,099 (18.98%) were aged 16, 2,949 (18.06%) were 17, 3,720 (22.78%) were 18, and 2,442 (14.96%) were 19 years old. This shows that a considerable proportion of the respondents were younger adolescents, which underscores the need for early sexual and reproductive health interventions. Marital status revealed that 12,371 (75.77%) of the adolescents had never been married, 3,843 (23.54%) were currently married, and 114 (0.70%) were formerly married.

Religious affiliation was almost evenly distributed between Christians and Muslims, with 7,983 (48.98%) and 8,202 (50.33%), respectively, while 75 (0.46%) practiced traditional religion and 37 (0.23%) belonged to other faiths. Religion is a strong determinant of attitudes toward reproductive health and may significantly shape contraceptive use and pregnancy outcomes. With respect to education, the majority of the respondents, 10,104 (61.88%), had attained secondary education, 4,010 (24.56%) had no education, 1,891 (11.58%) had only primary education, and 323 (1.98%) had higher education. While the predominance of secondary education is encouraging, the high proportion of adolescents without formal education is concerning, as education is closely linked to health knowledge and decision-making autonomy.



Regarding employment status, 11,244 (68.86%) were not working, while 5,084 (31.14%) were engaged in some form of work. Analysis of the wealth index showed that 2,707 (16.58%) of the respondents were in the poorest category, 3,334 (20.42%) in the poorer, 3,712 (22.73%) in the middle, 3,548 (21.73%) in the richer, and 3,027 (18.54%) in the richest category.

The place of residence showed that 9,788 (59.95%) lived in rural areas compared to 6,540 (40.05%) in urban areas, indicating that the majority of respondents were rural dwellers. Finally, the regional distribution revealed that the North West accounted for the largest proportion of respondents with 4,181 (25.61%), followed by the North East with 2,969 (18.18%) and the North Central with 2,868 (17.56%). In contrast, the South-South had 2,305 (14.12%), the South West 2,051 (12.56%), and the South East 1,954 (11.97%).

Overall, the descriptive findings demonstrate that while the majority of adolescents had never terminated a pregnancy, contraceptive use was very low, and a considerable proportion were married. Education levels were mixed, with secondary education being the most common, but with a sizeable proportion lacking formal education. Most respondents were rural dwellers, and the northern regions were more represented than the southern ones. These characteristics provide a critical background for understanding the determinants of adolescent pregnancy, contraceptive utilization, and reproductive health outcomes in Nigeria.

Table 1: Distribution of Socio-demographic Characteristics of the Respondents

Variable	Frequency (%)
History of pregnancy termination	
No	16003 (98.01)
Yes	325 (1.99)
Contraceptive Use	
No	15216 (93.19)
Yes	1112 (6.81)
Current Age (years)	
15	4118 (25.22)
16	3099 (18.98)
17	2949 (18.06)
18	3720 (22.78)
19	2442 (14.96)
Current marital status	
Never in married	12371 (75.77)
Currently married	3843 (23.54)
Formerly married	114 (0.70)
Religion	
Christian	7983 (48.98)
Islam	8202 (50.33)
Traditional	75 (0.46)
Others	37 (0.23)
Maternal Education	
No Education	4010 (24.56)
Primary	1891 (11.58)
Secondary	10104 (61.88)
Higher	323 (1.98)

**Currently working**

No	11244 (68.86)
Yes	5084 (31.14)

Wealth Index

Poorest	2707 (16.58)
Poorer	3334 (20.42)
Middle	3712 (22.73)
Richer	3548 (21.73)
Richest	3027 (18.54)

Place of residence

Urban	6540 (40.05)
Rural	9788 (59.95)

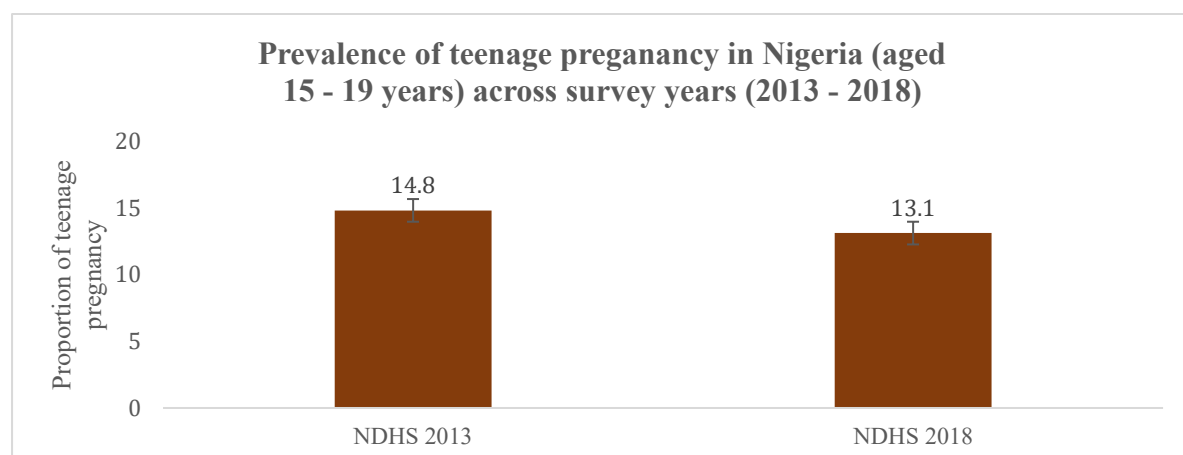
Region of residence

North Central	2868 (17.56)
North East	2969 (18.18)
North West	4181 (25.61)
South East	1954 (11.97)
South –South	2305 (14.12)
South West	2051 (12.56)

Discussion of Figure 1: Prevalence of Teenage Pregnancy in Nigeria (2013–2018)

The figure presents the prevalence of teenage pregnancy among girls aged 15–19 years in Nigeria across two survey years, 2013 and 2018, based on data from the Nigeria Demographic and Health Surveys (NDHS). In 2013, the prevalence of teenage pregnancy was 14.8%, while in 2018 it declined to 13.1%. This represents a 1.7 percentage point reduction over the five-year period.

Figure 1: Prevalence of teenage pregnancy in Nigeria (aged 15 - 19 years) across NDHS (2013 - 2018)



2013 - 15.62

2018 – 13.22



Trend of Teenage Pregnancy by Teens' Socio-Demographic Characteristics

The analysis of teenage pregnancy prevalence in Nigeria using the NDHS 2013 and 2018 datasets reveals a general decline across most socio-demographic indices, although notable variations persist. Overall, teenage pregnancy declined from 15.6% (95% CI: 14.71–16.59) in 2013 to 13.2% (95% CI: 12.39–14.10) in 2018, representing a 2.40 percentage point reduction (95% CI: 1.32–3.48). This suggests modest but significant progress in reducing adolescent fertility at the national level during the five-year period.

When disaggregated by reproductive history, adolescents with no prior pregnancy termination experienced a decline from 15.2% (95% CI: 14.24–16.12) in 2013 to 12.6% (95% CI: 11.78–13.48) in 2018, a reduction of 2.54 points. However, those with a history of pregnancy termination recorded an increase, rising from 37.2% (95% CI: 29.04–46.11) in 2013 to 41.0% (95% CI: 32.93–49.67) in 2018, equivalent to a 3.81-point increase. This indicates that a previous pregnancy experience may predispose teenagers to repeated pregnancies, underscoring the need for post-abortion care and targeted reproductive health education.

Contraceptive use presented a paradox. Among adolescents who did not use contraceptives, prevalence declined from 15.4% (95% CI: 14.43–16.38) to 12.5% (95% CI: 11.64–13.35), a 2.9-point reduction. In contrast, those who reported using contraceptives experienced an increase from 18.6% (95% CI: 15.21–22.42) to 26.3% (95% CI: 21.77–31.32), representing a 7.7-point rise. This may reflect inconsistent or incorrect use of contraceptives, possible method failure, or adoption of contraceptives after an initial pregnancy.

Age-specific trends show a steady increase in teenage pregnancy with age. At 15 years, prevalence dropped from 2.0% (95% CI: 1.40–2.89) in 2013 to 0.7% (95% CI: 0.40–1.25) in 2018, while at 16 years, it fell from 7.5% (95% CI: 6.07–9.25) to 4.3% (95% CI: 3.18–5.79). However, at 17 years, prevalence remained stable at 14.7% (95% CI: 12.67–17.09) in 2013 and 14.9% (95% CI: 12.98–17.15) in 2018. For older teenagers, declines were observed at 18 years (27.23% to 22.78%) and 19 years (32.66% to 28.07%). These results confirm that the risk of pregnancy increases significantly with age, peaking in late adolescence.

Marital status was a major determinant. The prevalence among adolescents who had never married declined from 2.2% (95% CI: 1.86–2.71) to 1.4% (95% CI: 1.16–1.75). Conversely, prevalence among those currently married rose from 47.4% (95% CI: 44.98–49.90) in 2013 to 51.7% (95% CI: 49.03–54.34) in 2018, while those formerly married recorded an increase from 49.8% (95% CI: 35.94–63.67) to 57.7% (95% CI: 42.95–71.22). This underscores the strong association between early marriage and teenage pregnancy.

Religious affiliation showed notable variation. Among Christians, prevalence declined slightly from 8.3% (95% CI: 7.34–9.36) to 7.49% (95% CI: 6.61–8.46), while among Muslims, it reduced more sharply from 22.1% (95% CI: 20.59–23.62) to 17.37% (95% CI: 16.10–18.71). For those practicing traditional religion, prevalence dropped marginally from 10.6% (95% CI: 4.60–22.72) to 9.4% (95% CI: 2.32–31.27). A new category labelled “others” appeared in 2018 with a high prevalence of 19.6% (95% CI: 9.62–36.89). These differences suggest that cultural and religious contexts influence adolescent fertility.



Maternal education was strongly protective. Adolescents with no education recorded a prevalence of 33.9% (95% CI: 31.54–36.30) in 2013, reducing to 30.7% (95% CI: 28.49–33.03) in 2018. Those with primary education showed a drop from 20.3% (95% CI: 17.58–23.34) to 15.8% (95% CI: 13.22–18.86), while those with secondary education had very low rates (6.39% to 5.94%). Girls with higher education consistently recorded the lowest prevalence, reducing from 0.7% in 2013 to 0.4% in 2018. This gradient reinforces education as a strong protective factor against teenage pregnancy.

Employment status also influenced prevalence. Adolescents who were not working showed a slight decline from 12.5% (95% CI: 11.52–13.56) to 11.5% (95% CI: 10.58–12.57), whereas those working had a sharper reduction from 23.7% (95% CI: 21.64–25.78) to 16.3% (95% CI: 14.75–17.91). This suggests that although working adolescents may initially face higher risks, targeted interventions or greater access to information and services may have contributed to the decline.

Socioeconomic differences were clearly reflected in the wealth index. The poorest quintile had the highest teenage pregnancy prevalence, though it declined from 31.4% (95% CI: 28.50–34.44) in 2013 to 24.1% (95% CI: 21.74–26.60) in 2018. The richest quintile consistently had the lowest prevalence, dropping from 3.4% (95% CI: 2.44–4.64) to 2.4% (95% CI: 1.67–3.35). This confirms poverty as a strong determinant of adolescent childbearing.

Urban-rural differences were also evident. In urban areas, prevalence declined slightly from 6.7% (95% CI: 5.75–7.87) to 5.95% (95% CI: 5.11–6.92). In rural areas, the decline was more pronounced, from 22.14% (95% CI: 20.78–23.57) to 19.21% (95% CI: 17.94–20.55). Nevertheless, rural girls remain disproportionately affected.

Finally, regional disparities were striking. In the North Central, prevalence remained stable at about 12% (2013) and 11.5% (2018). In the North East, it declined from 22.75% (95% CI: 20.14–25.59) to 17.97% (95% CI: 15.92–20.22), while in the North West, it dropped from 24.02% (95% CI: 22.03–26.14) to 19.09% (95% CI: 17.31–21.01). In the southern regions, the South South declined from 10.47% (95% CI: 8.63–12.63) to 8.37% (95% CI: 6.58–10.61), and the South West from 5.87% (95% CI: 4.48–7.65) to 4.10% (95% CI: 2.91–5.74). The South East, however, recorded a slight increase from 6.19% (95% CI: 4.57–8.34) to 7.04% (95% CI: 5.47–9.02).

The findings generally reveal a modest overall reduction in teenage pregnancy prevalence between 2013 and 2018. However, disparities persist across age, marital status, education, wealth, residence, and region. Early marriage, poverty, rural residence, and lack of education remain the most critical drivers of adolescent childbearing in Nigeria. These results call for region-specific, multi-sectoral interventions that integrate reproductive health education, poverty reduction, and policies aimed at reducing child marriage while promoting girl-child education.

**Table 2: Trend of teenage pregnancy by teens' socio-demographic characteristics**

	Teenage Pregnancy NDHS 2013 (n=7905) Prevalence % (95% CI)	NDHS 2018 (n=8423) Prevalence % (95% CI)	Point difference NDHS 2013 – NDHS 2018
Overall	15.62 (14.71 – 16.59)	13.22 (12.39 – 14.10)	2.40 (1.32 – 3.48)
Variable			
History of pregnancy termination			
No	15.15 (14.24 – 16.12)	12.61 (11.78 – 13.48)	2.54 (1.48 – 3.60)
Yes	37.18 (29.04 – 46.11)	40.99 (32.93 – 49.57)	-3.81 (-5.31 - - 2.31)
Contraceptive Use			
No	15.38 (14.43 – 16.38)	12.47 (11.64 – 13.35)	2.91 (1.84 – 3.97)
Yes	18.55 (15.21 – 22.42)	26.27 (21.77 – 31.32)	-7.72 (-8.99 - - 6.45)
Current Age (years)			
15	2.01 (1.40 – 2.89)	0.71 (0.40 – 1.25)	1.30 (0.94 – 1.66)
16	7.51 (6.07 – 9.25)	4.30 (3.18 – 5.79)	3.21 (2.49 – 3.93)
17	14.74 (12.67 – 17.09)	14.94 (12.98 – 17.15)	0.20 (-1.29 – 0.89)
18	27.23 (24.87 – 29.72)	22.78 (20.67 – 25.03)	4.45 (3.12 – 5.78)
19	32.66 (29.63 – 35.83)	28.07 (25.19 – 31.14)	4.59 (3.18 – 6.00)
Current marital status			
Never in married	2.24 (1.86 – 2.71)	1.43 (1.16 – 1.75)	0.81 (0.40 – 1.22)
Currently married	47.44 (44.98 – 49.90)	51.69 (49.03 – 54.34)	-4.25 (-5.78 - 2.72)
Formerly married	49.78 (35.94 – 63.67)	57.71 (42.95 – 71.22)	-7.93 (-9.46 - - 6.40)
Religion			
Christian	8.30 (7.34 – 9.36)	7.49 (6.61 – 8.46)	0.81 (-0.02 – 1.64)
Islam	22.07 (20.59 – 23.62)	17.37 (16.10 – 18.71)	4.70 (3.48 – 5.92)
Traditional	10.64 (4.60 – 22.72)	9.41 (2.32 – 31.27)	1.23 (0.31 – 2.15)
Others	0.00	19.60 (9.62 – 36.89)	-19.60 (-20.45 - -18.75)
Maternal Education			
No Education	33.88 (31.54 – 36.30)	30.71 (28.49 – 33.03)	3.17 (1.74 – 4.60)
Primary	20.31 (17.58 – 17.58)	15.84 (13.22 – 18.86)	4.47 (15.06 – 16.62)
Secondary	6.39 (5.63 – 7.25)	5.94 (5.23 – 6.74)	0.45 (-0.29 – 1.19)
Higher	0.65 (0.09 – 4.50)	0.38 (0.10 – 1.49)	0.27 (0.049 – 0.49)
Currently working			
No	12.51 (11.52 – 13.56)	11.54 (10.58 – 12.57)	0.97 (-0.03 – 1.97)
Yes	23.65 (21.64 – 25.78)	16.27 (14.75 – 17.91)	7.38 (6.16 – 8.60)
Wealth Index			
Poorest	31.40 (28.50 – 34.44)	24.09 (21.74 – 26.60)	7.31 (5.94 – 8.68)
Poorer	22.80 (20.51 – 25.27)	20.30 (18.22 – 22.55)	2.50 (1.24 – 3.76)
Middle	14.70 (12.82 0 16.79)	13.55 (11.64 – 15.70)	1.15 (0.08 – 2.22)
Richer	9.09 (7.62 – 10.81)	7.82 (6.45 – 9.44)	1.27 (7.25 – 8.39)
Richest	3.37 (2.44 – 4.64)	2.37 (1.67 – 3.35)	1.00 (0.48 – 1.51)
Place of residence			
Urban	6.73 (5.75 – 7.87)	5.95 (5.11 – 6.92)	0.78 (0.03 – 1.53)
Rural	22.14 (20.78 – 23.57)	19.21 (17.94 – 20.55)	2.93 (1.69 – 4.17)
Region of residence			
North Central	12.00 (9.95 – 14.40)	11.49 (9.80 – 13.44)	0.51 (-0.48 – 1.50)



North East	22.75 (20.14 – 25.59)	17.97 (15.92 – 20.22)	4.78 (3.54 – 6.02)
North West	24.02 (22.03 – 26.14)	19.09 (17.31 – 21.01)	16.98 (15.89 – 18.07)
South East	6.19 (4.57 – 8.34)	7.04 (5.47 – 9.02)	-0.85 (-1.61 - - 0.09)
South South	10.47 (8.63 – 12.63)	8.37 (6.58 – 10.61)	2.10 (1.20 – 2.99)
South West	5.87 (4.48 – 7.65)	4.10 (2.91 – 5.74)	1.77 (1.11 – 2.44)

Discussion of Socio-demographic Factors Associated with Teenage Pregnancy

Table 3 presents both unadjusted and adjusted odds ratios (ORs) with 95% confidence intervals (CIs) for socio-demographic factors associated with teenage pregnancy in Nigeria across the 2013 and 2018 NDHS datasets.

The result revealed that adolescents with a history of pregnancy termination were more likely to have experienced a teenage pregnancy in the unadjusted models (OR = 3.44, 95% CI: 2.46–4.81 in 2013; OR = 5.43, 95% CI: 3.99–7.39 in 2018). However, after adjustment for other factors, this relationship reversed, with significantly lower odds of teenage pregnancy observed (AOR = 0.61 in 2013 and AOR = 0.68 in 2018).

Contraceptive use showed a strong positive association with teenage pregnancy. In both survey years, contraceptive users had significantly higher odds of teenage pregnancy compared to non-users, with the effect strengthening in 2018 (AOR = 2.86, 95% CI: 2.04–4.02). This may reflect post-pregnancy contraceptive uptake or inconsistent use.

Age was one of the strongest predictors of teenage pregnancy. Compared to adolescents aged 15 years, the odds increased progressively with age. By 19 years, the adjusted odds of teenage pregnancy were about 18 times higher in 2013 (AOR = 17.70, 95% CI: 12.09–25.92) and 26 times higher in 2018 (AOR = 26.45, 95% CI: 14.84–47.16).

Marital status was the single most powerful determinant. Compared with never-married adolescents, those who were currently married had about 38 times higher odds of teenage pregnancy in 2013 and 63 times higher odds in 2018. Formerly married adolescents also showed extremely high risks, highlighting the role of early marriage as a key driver.

The influence of religion was mixed. In 2013, adolescents identifying as Muslims had higher odds in the unadjusted model, but this became protective after adjustment (AOR = 0.61). By 2018, both Christian and Muslim affiliations, as well as traditional religion, were associated with significantly lower odds compared to “others.”

Maternal education showed a strong protective effect. Adolescents with secondary or higher education had significantly reduced odds of teenage pregnancy compared to those with no education. The adjusted ORs ranged from 0.06 for higher education in 2013 to 0.22 in 2018, confirming the critical role of female education in preventing adolescent pregnancies.

Employment status also mattered. In 2013, working adolescents had higher odds of teenage pregnancy in the unadjusted model, but this lost significance after adjustment. In 2018, however, being employed remained a significant risk factor (AOR = 1.28, 95% CI: 1.06–1.55).



Wealth index showed a clear gradient: adolescents from poorer, richer, and richest households had progressively lower odds of teenage pregnancy compared to those from the poorest households. For instance, in 2018, adolescents in the richest quintile had a 59% lower risk (AOR = 0.41).

Place of residence showed that rural adolescents consistently had higher odds of teenage pregnancy in both surveys. However, the association weakened after adjustment in 2018 (AOR = 1.19, not statistically significant), suggesting that other socio-demographic factors may account for rural–urban differences.

Finally, regional variations were evident. In 2013, the North East and North West had significantly higher odds of teenage pregnancy compared to the North Central, although these associations lost significance after adjustment. By 2018, the South East, South South, and South West showed significantly higher adjusted odds compared to North Central, suggesting shifting regional dynamics.

Table 3: Socio-demographic factors associated with teenage pregnancy in Nigeria

Variable	Teenage Pregnancy NDHS 2013		NDHS 2018	
	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
History of pregnancy termination				
No	1.000	1.000	1.000	1.000
Yes	3.44 (2.46 – 4.81)*	0.61 (0.41 – 0.89)*	5.43 (3.99 – 7.39)*	0.68 (0.47 – 0.96)*
Contraceptive Use				
No	1.000	1.000	1.000	1.000
Yes	1.30 (1.05 – 1.60)*	1.95 (1.42 – 2.68)*	2.74 (2.21 – 3.41)*	2.86 (2.04 – 4.02)*
Current Age (years)				
15	1.000	1.000	1.000	1.000
16	3.64 (2.51 – 5.28)*	3.07 (2.05 – 4.59)*	6.20 (3.47 – 11.08)*	4.04 (2.19 – 7.45)*
17	8.06 (5.69 – 11.42)*	5.42 (3.71 – 7.92)*	24.47 (14.19 – 42.17)*	9.99 (5.63 – 17.76)*
18	17.42 (12.52 – 24.25)*	10.10 (7.04 – 14.47)*	40.49 (23.68 – 69.23)*	15.71 (8.91 – 27.70)*
19	23.55 (16.83 – 32.94)*	17.70 (12.09 – 25.92)*	63.98 (37.31 – 109.71)*	26.45 (14.84 – 47.16)*
Current marital status				
Never in married	1.000	1.000	1.000	1.000



Currently married	35.77 (29.76 – 42.66)*	37.89 (28.49 – 50.38)*	59.78 (48.81 – 73.21)*	62.64 (46.71 – 84.00)*
Formerly married	40.36 (23.72 – 68.69)*	34.50 (18.91 – 62.96)*	57.77 (32.88 – 101.49)*	57.17 (30.28 – 107.93)*
Religion				
Christian	1.06 (0.83 – 1.34)	0.97 (0.76 – 1.29)	0.27 (0.13 – 0.59)*	0.11 (0.04 – 0.28)*
Islam	3.05 (2.66 – 3.48)*	0.61 (0.44 – 0.86)*	0.65 (0.31 – 1.38)	0.06 (0.02 – 0.17)*
Traditional	1.46 (0.62 – 3.44)	0.24 (0.08 – 0.71)*	0.28 (0.06 – 1.44)	0.05 (0.01 – 0.44)*
Others	1.000	1.000	1.000	1.000
Maternal Education				
No Education	1.000	1.000	1.000	1.000
Primary	0.51 (0.43 – 0.61)*	1.08 (0.82 – 1.41)	0.39 (0.32 – 0.48)*	0.73 (0.54 – 0.98)*
Secondary	0.14 (0.12 – 0.16)*	0.67 (0.49 – 0.91)*	0.16 (0.14 – 0.19)*	0.64 (0.48 – 0.87)*
Higher	0.01 (0.002 – 0.11)*	0.06 (0.01 – 0.55)*	0.04 (0.01 – 0.12)*	0.22 (0.06 – 0.76)*
Currently working				
No	1.000	1.000	1.000	1.000
Yes	2.44 (2.15 – 2.78)*	1.15 (0.96 – 1.37)	1.39 (1.21 – 1.58)*	1.28 (1.06 – 1.55)*
Wealth Index				
Poorest	1.000	1.000	1.000	1.000
Poorer	0.62 (0.52 – 0.74)*	0.77 (0.62 – 0.97)*	0.78 (0.66 – 0.92)*	0.83 (0.66 – 1.05)
Middle	0.37 (0.31 – 0.44)*	0.88 (0.67 – 1.15)	0.42 (0.35 – 0.51)*	0.81 (0.61 – 1.07)
Richer	0.22 (0.18 – 0.27)*	0.62 (0.44 – 0.87)*	0.29 (0.24 – 0.36)*	0.76 (0.54 – 1.07)
Richest	0.08 (0.06 – 0.11)*	0.43 (0.27 – 0.68)*	0.10 (0.08 – 0.14)*	0.41 (0.25 – 0.67)*
Place of residence				
Urban	1.000	1.000	1.000	1.000
Rural	3.86 (3.28 – 4.53)*	1.31 (1.01 – 1.69)*	3.10 (2.65 – 3.62)*	1.19 (0.93 – 1.53)
Region of residence				
North Central	1.000	1.000	1.000	1.000
North East	2.54 (2.03 – 3.18)*	1.16 (0.83 – 1.64)	1.90 (1.55 – 2.32)*	1.24 (0.90 – 1.70)
North West	2.97 (2.41 – 3.66)*	1.08 (0.77 – 1.50)	1.94 (1.60 – 2.35)*	0.90 (0.66 – 1.23)



South East	0.52 (0.37 – 0.73)*	1.21 (0.74 – 1.98)	0.64 (0.48 – 0.85)*	1.85 (1.17 – 2.94)*
South South	1.08 (0.84 – 1.38)	3.26 (2.19 – 4.85)*	0.99 (0.76 – 1.29)	2.65 (1.69 – 4.16)*
South West	0.55 (0.40 – 0.74)*	1.56 (1.00 – 2.44)	0.48 (0.35 – 0.67)*	1.92 (1.18 – 3.15)*

*Significant at 5% level of significance

DISCUSSION

Figure 1 illustrates the prevalence of teenage pregnancy among Nigerian adolescents aged 15–19 years across two survey periods: the 2013 and 2018 Nigeria Demographic and Health Surveys (NDHS). The results show a slight decline in teenage pregnancy rates from 14.8% in 2013 to 13.1% in 2018, showing a marginal improvement over the five years. This downward trend suggests some progress in reproductive health awareness, access to family planning services, and adolescent health interventions across the country. However, the reduction remains slow, implying that teenage pregnancy continues to pose a significant public health challenge in Nigeria.

This finding aligns with the study by Adebayo et al. (2018), which highlighted persistent urban–rural disparities in adolescent reproductive health outcomes, with rural areas recording higher rates of teenage childbearing. Similarly, Ajaero et al. (2016) reported that exposure to mass media messages and family planning information was associated with reduced teenage pregnancy, though access remains uneven across regions. The observed decline between 2013 and 2018 may therefore reflect gradual improvements in media exposure and awareness campaigns.

Conversely, the findings of Adeneye et al. (2017) highlight that sociocultural norms, early marriage, and restricted use of contraceptives among adolescents continue to sustain high pregnancy rates, particularly in northern Nigeria. This aligns with the present finding that, despite national efforts, teenage pregnancy has not declined substantially. Studies such as Onukwugha et al. (2021) further emphasized that barriers, including stigma, poor sexuality education, and lack of youth-friendly services, remain critical determinants of adolescent fertility in the country.

The study highlights that the NDHS data demonstrate a mild decline in teenage pregnancy prevalence, the persistence of high rates, however, underscores the need for more targeted interventions, particularly in rural areas, to improve access to modern contraceptive methods, enhance comprehensive sexuality education, and address gender and cultural barriers that influence adolescent reproductive health behaviors.

The investigation into the socio-demographic aspects and the occurrence of teenage pregnancies in Nigeria, utilizing data from the Nigeria Demographic and Health Surveys (NDHS) conducted in 2013 and 2018, offers valuable insights into the factors influencing fertility rates among young girls aged 15 to 19. Analyzing responses from 16,328 teenage girls reveals ongoing inequities associated with variables such as education level, marital status, employment, religious beliefs, economic status, and geographic location. The data indicate that a vast majority, 98%, of the teenage girls reported that they had never undergone a pregnancy



termination, with only a small percentage (6.8%) acknowledging any use of contraception in their lives. This trend highlights a critical gap in the availability of contraceptive resources and reproductive health education for adolescents in Nigeria (Nwosu, 2017). Similar findings have been reported by Nwosu (2017), who noted severe barriers to contraceptive access among rural and less educated adolescents. Likewise, Okoli et al. (2022b) emphasized that low contraceptive use significantly contributes to unintended pregnancies in Nigeria, particularly in communities where cultural and religious beliefs discourage the use of contraception.

Regarding age, the distribution among respondents aged 15 and 18 years was more prevalent. This shows a significant developmental stage when adolescent girls may start to engage in sexual activities, especially during late adolescence. Additionally, analyzing marital status revealed that two-thirds of the girls had never married, while a third were currently married. This aspect is crucial in understanding trends in adolescent pregnancies since there is a strong correlation between early marriage and teenage pregnancies in Nigeria. Academic research, including works by Bolarinwa et al. (2023), supports this connection, asserting that early and forced marriages greatly elevate the chances of teenage pregnancies due to early sexual engagements and societal pressures regarding childbearing.

Most respondents reported completing secondary education, more than half, while only a mere 2% achieved higher education. The very low levels of higher educational attainment among adolescents likely result from interruptions in schooling caused by early pregnancies, marriages, or financial hardships. Ayo-Bello and Quinn-Walker (2025) argued that education serves as a powerful deterrent to early pregnancy, showing that girls who continue their education, especially at higher levels, are less likely to experience adolescent pregnancies due to increased access to health information, empowerment, and later marriages.

Among the respondents, employment rates were also low, with only a third currently having jobs. Teenagers who are not actively participating in the workforce often face higher susceptibility to engaging in transactional sex, entering early marriages, and developing dependency, all of which elevate the chances of early pregnancies. This aligns with Nwosu (2017) findings, which showed a clear link between economic inactivity and teenage pregnancy in poorer households throughout Nigeria.

When examining wealth and living areas, it becomes evident that a larger number of adolescent girls are situated in rural settings, with a fairly even spread across different wealth quintiles. Teenage pregnancy continues to be heavily concentrated among those in the lowest socioeconomic groups, as shown by the concentration curves in Figures 2 and 3. These curves, positioned beneath the line of equality, indicate that this issue primarily affects poorer individuals, particularly those in the lowest wealth brackets. This aligns with the findings of Akombi-Inyang et al. (2022), which highlighted that poverty and socio-economic instability are significant factors contributing to adolescent pregnancy in Nigeria. Urban adolescents face different but equally pressing disparities; poor urban girls often bear a heavier burden due to limited access to reproductive services (Bolarinwa et al., 2023).

Regionally, the North-West has the most respondents, reflecting long-standing trends in fertility and marriage patterns in that area. The regional concentration curves illustrated in Figure 4.2 confirm that pro-poor inequality persists across all regions, with the South-West facing the most significant inequality, while the South-East has the least (Akombi-Inyang et al., 2022). This difference highlights the need for targeted approaches based on regional



specifics. Okoli et al. (2022) emphasized that tackling adolescent pregnancy in Nigeria necessitates a localized approach grounded in data, considering the cultural, religious, educational, and service access disparities observed across regions.

An evaluation of the 2013 and 2018 NDHS data indicates a slight drop in the rate of teenage pregnancy over the five years. While this data is promising, it would be misleading to attribute the decline solely to better contraceptive practices (Nwosu, 2017; Bolarinwa et al., 2023). The decrease in adolescent fertility might be more closely related to increased school attendance and delayed marriages rather than a significant rise in contraceptive use, which remains low. The results of this analysis echo prior research; teenage pregnancy in Nigeria is not just a health issue but a complicated outcome influenced by socio-economic struggles, lack of educational opportunities, regional differences, and cultural gender norms. Though the decline in adolescent pregnancy rates is encouraging, ongoing progress will rely on comprehensive, multi-sector initiatives that tackle the fundamental causes of adolescent vulnerability.

The detailed examination provided in Table 2 highlights subtle trends in teenage pregnancy among different socio-demographic groups in Nigeria based on data from the Nigeria Demographic and Health Surveys (NDHS) conducted between 2013 and 2018. These trends show both similarities and differences when compared to previous research on adolescent reproductive health in sub-Saharan Africa, particularly in Nigeria. One significant observation is that teenage pregnancy rates dropped by 2.54 percentage points for adolescents who had never terminated a pregnancy. In contrast, those with a history of termination saw an increase in rates from 37.2% to 41.0% (Nwosu, 2017). This discrepancy aligns with the findings of Okoli et al. (2022a), which suggested that those who had experienced pregnancy termination may belong to a specific risk group, possibly indicating hidden vulnerabilities, a lack of post-abortion counseling, or limited access to comprehensive reproductive health services.

The study revealed that both groups of contraceptive users showed higher rates of pregnancy compared to non-users. This unexpected outcome has been noted by Bolarinwa et al. (2023). The results imply that adolescents might start using contraceptives after experiencing pregnancy or that social pressures might lead to errors in self-reported contraceptive use. Additionally, insufficient knowledge about contraception, poor access, or inconsistent use could diminish the effectiveness of these methods for young people.

Analysis by age reveals that the prevalence of pregnancy increases as age rises, peaking at 32.7% for 19-year-olds in 2013 before slightly declining to 28.1% in 2018. More noticeable reductions occurred among 18- and 19-year-olds, suggesting that interventions aimed at older adolescents may be effective. This observation is consistent with findings by Bolarinwa et al. (2023), which highlighted that delaying marriage and remaining in school longer serve as significant protective factors during late adolescence.

Marriage status remains the strongest predictor, where married adolescents recorded over 50% pregnancy rates, which corroborates earlier findings by Nwosu (2017) and Feyissa et al. (2023), who described how cultural expectations surrounding marriage often legitimize young pregnancies in Nigeria and similar settings.

Religious affiliation also influenced pregnancy rates, with declines among Muslims and minimal changes among Christians (Fagbamigbe et al., 2019; Okoli et al., 2022b). Regarding education, a noticeable pattern emerges: young people with no formal education had the highest rates of pregnancy in both years, although this group saw a drop of 3.17 percentage points.



Adolescents with primary schooling experienced the most significant decrease, whereas those with secondary education or higher maintained consistently low rates. These results support earlier findings by (Nwosu, 2017; Okoli et al., 2022a; Bolarinwa et al., 2023), which indicated that education acts as a protective factor against teenage pregnancy by delaying the onset of sexual activity, enhancing health knowledge, and providing better access to resources.

The employment status of adolescents also showed notable trends. Those who were employed experienced a significant decline in pregnancy rates, while their unemployed counterparts saw only a minor drop. This could imply that having a job or participating in activities outside the home may offer protective social supports, financial independence, or access to information and peer groups that lower the risk of pregnancy. This observation aligns with Amin et al. (2017), who found that initiatives promoting social engagement and empowerment can help reduce early childbearing.

Significant wealth disparities were highlighted as well. For adolescents in the lowest income bracket, pregnancy rates fell notably from 31.4% to 24.1%, with similar decreases noted across other wealth categories. This decline reinforces the established link between poverty and teenage pregnancy, as identified in studies by Fagbamigbe et al. (2019) and Moshi and Tilisho (2023), who found poverty and inequality as central drivers of early pregnancy.

Urban-rural differences remained evident during both years, with rural adolescents consistently showing higher pregnancy rates (Adebayo et al., 2018). However, both urban and rural populations experienced declines in rates, indicating ongoing national efforts to improve adolescent reproductive health, despite persistent inequalities in service provision. This observation agrees with findings from Adebayo et al. (2018) and Okoli et al. (2022a), who highlighted the continual urban-rural gaps in sexual health measures.

Regional differences were also significant. The North-West and North-East regions had the highest teenage pregnancy rates, but both areas saw some reductions, indicating potential policy effectiveness. In contrast, the South-East exhibited a slight increase, while other southern regions reported small declines. Factors such as educational disparities, religious values, economic conditions, and cultural norms likely influence these differences, as noted by (Fagbamigbe et al., 2019; Okoli et al., 2022b).

The socio-demographic patterns in teenage pregnancy revealed in the 2013 and 2018 NDHS emphasize the complex and interconnected impacts of age, marital status, education, religion, employment, wealth, and location. Many of these insights align with previous research, reaffirming established determinants while also showcasing the evolving landscape of teenage pregnancy in Nigeria. The slight improvements seen in certain subgroups may indicate advancements in policy enforcement, access to education, and youth empowerment strategies. Nonetheless, the ongoing high rates among married adolescents, those in poverty, and individuals in northern regions indicate that specialized and context-driven interventions are necessary.



STRENGTHS AND LIMITATIONS

The study possesses several notable strengths. One of its major advantages lies in the use of the Nigeria Demographic and Health Survey (NDHS) dataset, which is nationally representative and employs a rigorous, stratified, two-stage cluster sampling design. This methodological approach ensures that the findings are generalizable across diverse regions, socioeconomic groups, and population subgroups in Nigeria. The representativeness of the data also allows for meaningful comparisons between urban and rural settings, as well as across different geopolitical zones, thereby enhancing the validity of the conclusions. Another strength of the study is the large sample size of women of reproductive age, which increases the statistical power and precision of the estimates. This reduces the risk of random error and strengthens the reliability of the observed associations between socioeconomic factors and maternal healthcare utilization. Finally, the application of multivariate analytical techniques enabled the study to adjust for potential confounders and isolate the independent effects of socioeconomic and demographic variables on maternal healthcare utilization. This robust analytical strategy strengthens the internal validity of the findings and increases confidence in their relevance for informing maternal and child health policies in Nigeria.

Despite these strengths, the study also has certain limitations. A key limitation is its reliance on a cross-sectional survey design, which restricts the ability to establish causal relationships between the independent variables, such as education, wealth, and geographical location, and maternal healthcare utilization. In addition, although the analysis incorporated several important socioeconomic and demographic variables, there remains the issue of unmeasured confounding. Factors such as cultural norms, women's autonomy in healthcare decision-making, quality of healthcare services, and health system capacity were not fully captured in the dataset. These omitted variables may have influenced the results and could limit the comprehensiveness of the conclusions drawn.

CONCLUSION

Investigating teenage pregnancy trends from the 2013 and 2018 NDHS data reveals important aspects of adolescent fertility in Nigeria related to demographics and socio-economic factors. While there has been a slight overall drop in teenage pregnancy rates, the data show that various factors, such as age, marital status, education, employment, religion, and geographical location, still significantly impact the likelihood of young women becoming mothers. A high rate of teenage pregnancy remains prevalent among currently and previously married adolescents, pointing to early marriage as a major contributor. Furthermore, the higher incidence among rural, uneducated, and lower-income teenagers highlights the existing inequalities in access to education and reproductive healthcare. On a positive note, a marked decrease in pregnancy rates was observed among individuals with only primary education, those employed, and those from the lowest wealth brackets, indicating the success of targeted health and social initiatives. However, the unexpected rise in pregnancy rates among users of contraceptives suggests there may be issues with knowledge, access, or timing, warranting further investigation. These results are consistent with previous local and global research and emphasize the need for coordinated efforts across multiple sectors to address health education, alleviate poverty, empower women, and develop community programs aimed at reducing adolescent fertility and enhancing reproductive health for teenagers in Nigeria.



IMPLICATIONS AND CONTRIBUTION

This study highlights how education, wealth, and geography shape maternal healthcare utilization in Nigeria, pointing to the need for targeted policies that expand access for rural, poor, and less-educated women. By using nationally representative data and robust analytical methods, it contributes reliable evidence to the literature on health equity in sub-Saharan Africa and provides practical insights to guide interventions aimed at reducing disparities, improving maternal outcomes, and advancing Nigeria's progress toward universal health coverage and the Sustainable Development Goals

REFERENCES

- Adebayo, S. B., Oladipo, S. E., & Adekeye, O. A. (2018). Urban–rural disparities in adolescent reproductive health outcomes in Nigeria. *African Journal of Reproductive Health*, 22(1), 79–89. <https://doi.org/10.29063/ajrh2018/v22i1.9>
- Adeneye, A., Erinosh, O., Adeneye, A., & Obasi, C. (2017). Factors associated with unplanned pregnancy among unmarried adolescents in selected communities of Ogun State, Nigeria. *Arch Prevent Med*, 2(1), 001-9.
- Agu, C., Mbachu, C., Agu, I., Iloabachie, U., & Onwujekwe, O. (2022). An analysis of the roles and involvement of different stakeholders in the provision of adolescent sexual and reproductive health services in Southeast Nigeria. *BMC Public Health*, 22(1), 2161. <https://doi.org/10.1186/s12889-022-14644-1>
- Ajaero, C. K., Odimegwu, C., Ajaero, I. D., & Nwachukwu, C. A. (2016). Access to mass media messages, and use of family planning in Nigeria: a spatio-demographic analysis from the 2013 DHS. *BMC Public Health*, 16(1), 427.
- Akombi-Inyang, B. J., John, A. S., & Ekholuenetale, M. (2022). Regional patterns and socio-economic inequalities in teenage pregnancy in Nigeria: A concentration index approach. *African Population Studies*, 36(1), 55–72. <https://doi.org/10.11564/36-1-1902>
- Alukagberie, M. E., Elmusharaf, K., Ibrahim, N., & Poix, S. (2023). Factors associated with adolescent pregnancy and public health interventions to address in Nigeria: a scoping review. *Reproductive health*, 20(1), 95. <https://doi.org/10.1186/s12978-023-01629-5>
- Amin, S., Chandra-Mouli, V., & Bearinger, L. H. (2017). Empowering adolescents to improve their health and well-being: Global strategies and promising approaches. *Journal of Adolescent Health*, 61(4), S10–S17. <https://doi.org/10.1016/j.jadohealth.2017.07.015>
- Ayo-Bello, A. R., & Quinn-Walker, J. (2025). Adolescent reproductive health access in Nigeria: Barriers, breakthroughs, and policy implications. *African Journal of Public Health*, 12(1), 44–60.
- Bolarinwa, O. A., Nwagbara, U. I., & Nwachukwu, C. (2023). Socio-demographic predictors of teenage pregnancy in Nigeria: A multilevel analysis of NDHS 2018 data. *BMC Public Health*, 23(1), 123–135. <https://doi.org/10.1186/s12889-023-15226-w>
- Brahmbhatt, H., Kågesten, A., Emerson, M., Decker, M. R., Olumide, A. O., Ojengbede, O., ... & Delany-Moretlwe, S. (2014). Prevalence and determinants of adolescent pregnancy in urban disadvantaged settings across five cities. *Journal of Adolescent Health*, 55(6), S48-S57.
- Chakole, S., Akre, S., Sharma, K., Wasnik, P., & Wanjari, M. B. (2022). Unwanted Teenage Pregnancy and Its Complications: A Narrative Review. *Cureus*, 14(12), e32662. <https://doi.org/10.7759/cureus.32662>



- Diabelková, J., Rimárová, K., Dorko, E., Urdzík, P., Houžvičková, A., & Argalášová, L. (2023). Adolescent Pregnancy Outcomes and Risk Factors. *International journal of environmental research and public health*, 20(5), 4113. <https://doi.org/10.3390/ijerph20054113>
- Etini, O., & Glory Gabriel, U. (2024). The Issues and the Challenges of Teenage Pregnancy Investigating the Counseling Implications of the Speedy Remedial and Strategies for Sustainable Development. *International Journal of Integrative and Modern Medicine*, 2(3), 25-38.
- Fagbamigbe, A. F., Adebowale, A. S., & Olaniyan, F. A. (2019). Maternal socioeconomic disadvantage and teenage pregnancy in Nigeria: Evidence from the Demographic and Health Survey. *International Journal of Adolescent Medicine and Health*, 31(5). <https://doi.org/10.1515/ijamh-2017-0143>
- Fagbamigbe, A. F., Afolabi, R. F., & Adebayo, S. B. (2019). Trends and determinants of adolescent childbearing in Nigeria. *African Population Studies*, 33(1), 4295–4306.
- Feyissa, G. T., Tolu, L. B., Soboka, M., & Ezech, A. (2023). Effectiveness of interventions to reduce child marriage and teen pregnancy in sub-Saharan Africa: A systematic review of quantitative evidence. *Frontiers in reproductive health*, 5, 1105390. <https://doi.org/10.3389/frph.2023.1105390>
- Kidman, R., Raub, A., Martin, A., Bhuwania, P., Bose, B., & Heymann, J. (2024). Reducing child marriage in sub-Saharan Africa: Evaluating the joint potential of protective marriage and education policies. *Children and Youth Services Review*, 164, 107877.
- Machoka, B. N., Kabiru, C. W., & Ajayi, A. I. (2024). "My father insisted that I have the baby but not in his house": Adolescent pregnancy, social exclusion and (dis)empowerment of girls in an urban informal settlement in Kenya. *PLOS global public health*, 4(9), e0003742. <https://doi.org/10.1371/journal.pgph.0003742>.
- Moshi, F. V., & Tilisho, O. (2023). The magnitude of teenage pregnancy and its associated factors among teenagers in Dodoma Tanzania: a community-based analytical cross-sectional study. *Reproductive Health*, 20(1), 28. <https://doi.org/10.1186/s12978-022-01554-z>
- National Bureau of Statistics (NBS). Statistical report on women and men in Nigeria. Abuja: NBS; 2020
- Nmadu, A. G., Mohammed, S., & Usman, N. O. (2020). Barriers to adolescents' access and utilisation of reproductive health services in a community in north-western Nigeria: A qualitative exploratory study in primary care. *African journal of primary health care & family medicine*, 12(1), e1–e5. <https://doi.org/10.4102/phcfm.v12i1.2307>
- Nwosu, C. O. (2017). Understanding the determinants of adolescent pregnancy in Nigeria: Evidence from DHS data. *Journal of Population and Social Studies*, 25(2), 128–145.
- Okoli, C. A., Eze, R. U., & Umeora, O. U. J. (2022). Adolescent reproductive health disparities in rural Nigeria: A regional analysis. *International Journal of Adolescent Medicine and Health*, 34(2), 87–95. <https://doi.org/10.1515/ijamh-2021-0090>
- Okoli, C., Emeka, J., & Fagbamigbe, A. F. (2022). Inequality in adolescent pregnancy in Nigeria: A decomposition analysis of 2018 NDHS. *PLOS ONE*, 17(4), e0267263. <https://doi.org/10.1371/journal.pone.0267263>
- Okonofua, F. E., Omo-Aghoja, L., Bello, F. A., & Galadanci, H. (2019). Preventing teenage pregnancy in Nigeria: An urgent need. *African Journal of Reproductive Health*, 23(4), 9–16. <https://doi.org/10.29063/ajrh2019/v23i4.2>



- Onukwugha, F. I., Uche, C., & Okereke, E. (2021). Regional Variations in Adolescent Reproductive Health Outcomes in Nigeria: Implications for Health Policy. *Journal of Public Health in Africa*, 12(1), 1162. <https://doi.org/10.4081/jphia.2021.1162>
- Pourtaheri, A., Mahdizadeh, M., Tehrani, H., Jamali, J., & Peyman, N. (2024). Socio-ecological factors of girl child marriage: a meta-synthesis of qualitative research. *BMC Public Health*, 24(1), 428. <https://doi.org/10.1186/s12889-023-17626-z>
- Sagalova, V., Nanama, S., Zagre, N. M., & Vollmer, S. (2021). Long-term consequences of early marriage and maternity in West and Central Africa: Wealth, education, and fertility. *Journal of Global Health*, 11, 13004. <https://doi.org/10.7189/jogh.11.13004>
- UNFPA. (2019). State of the World's Population 2019: Unfinished business – The pursuit of rights and choices for all. United Nations Population Fund.
- UNFPA. (2019). State of the World's Population 2019: Unfinished business – The pursuit of rights and choices for all. United Nations Population Fund.
- World Health Organization. (2016). Global health estimates 2016: Deaths by cause, age, sex, by country and by region, 2000-2016. World Health Organization.
- World Health Organization. (2023). Global health estimates 2023: Deaths by cause, age, sex, by country and by region, 2020-2023. World Health Organization.