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Adolescent Pregnancy in Nigeria: A Narrative Review of Prevalence, Causes and Outcomes

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Abstract

Introduction: Adolescent pregnancy remains a pressing public health and social challenge in Nigeria, where young women face elevated risks of maternal and neonatal morbidity and mortality. Socioeconomic disparities, cultural norms, early marriage, limited sexual and reproductive health education, and ongoing insecurity in parts of the country contribute to unintended pregnancies among girls aged 10–19.

Methods: This narrative review synthesizes evidence from 66 articles, including peer-reviewed papers and national survey data published from 2000 to 2024. Searches were conducted across MEDLINE/PubMed, Web of Science, Scopus, Google Scholar, and gray-literature sources (WHO, UNFPA, NDHS).

Results: Nationally, 15% of girls ages 15–19 have experienced pregnancy, with rural rates (17.3%) exceeding urban rates (4%). Regional variation is evident: prevalence ranges from 1.5% in Edo State to 24.1% in Jigawa, while northern states such as Kebbi, Zamfara, and Kaduna report hotspots exceeding 30%. Key factors include low educational attainment, poverty-driven early marriage, peer pressure, restrictive gender norms, and inadequate family communication. **Conclusion:** Effective reduction of adolescent pregnancy in Nigeria requires multisectoral strategies that integrate comprehensive sexuality education, culturally tailored community engagement, improved access to youth-friendly health services, and socioeconomic support for high-risk groups. Future research should evaluate long-term psychosocial trajectories and the impact of targeted nutritional and mental health interventions to inform sustainable policy solutions.

Keywords: Teenage pregnancy; adolescent pregnancy; young mothers; pregnancy outcomes; unwanted pregnancy; Nigeria

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Background

Adolescent or teenage pregnancies, as defined by the World Health Organization, refer to pregnancies in young women aged between 14 and 19. The mother's age is defined as her age at the time of birth, and girls aged 10 to 14 are classified as younger adolescents.¹ This stage of life presents unique challenges, including limited knowledge and poor decision-making, which can lead to unintended pregnancies and related complications. Worldwide, adolescent pregnancy remains a significant public health and societal concern due to its complex links with socioeconomic, cultural, and educational factors.² In Nigeria, early childbirth is associated with various determinants, such as limited access to reproductive health services, widespread gender norms, and inadequate sexual education.³ It is clear that the consequences for both mother and child are substantial; research shows that adolescent mothers are more likely to face complications during pregnancy and childbirth, increasing morbidity and mortality rates. Furthermore, the socioeconomic impacts extend beyond health issues, as young mothers often experience interruptions to their education and diminished economic opportunities, which can perpetuate cycles of poverty.

The issue of teenage pregnancy in Nigeria continues to be a significant concern, evidenced by the alarming rates and distribution. It reflects extensive socio-cultural dynamics as well as health ramifications. Influencing factors are both educational, economic, and societal. Moreover, in Nigeria, it is estimated that around fifty per cent of adolescent pregnancies are undesired, inciting considerable public health apprehensions, particularly the elevated prevalence of unsafe abortions.⁴ This upheaval in the lives of young women frequently entrenches cycles of poverty, with insufficient access to educational opportunities and healthcare services amplifying their susceptibility to social vices. The objectives of this review were to explore evidence and shed

light on the prevalence of adolescent pregnancy in Nigeria, to determine both the causes and contributing factors of adolescent pregnancy in Nigeria and to highlight the related negative maternal and neonatal consequences linked with pregnancies among this specific demographic

Method

A comprehensive literature review was carried out using MEDLINE/PubMed, Web of Science, Scopus, and Google Scholar, focusing on studies published between 2000 and 2024. Older studies were included only if they provided a trend or historical context. The keywords used in the search included "teenage pregnancy," "adolescent pregnancy," "young mothers," "pregnancy outcomes," "unwanted pregnancy," and "Nigeria." Additionally, extra sources were identified through a thorough review of reference lists, websites (WHO and UNFPA), and National Demographic and Health Survey data. Two independent reviewers used a screening checklist developed for this review to assess the studies separately, with any discrepancies resolved. Opinion pieces, editorials, anecdotal reports lacking empirical data, articles not published in English, and studies that only superficially mentioned adolescent pregnancy without providing data or analysis were excluded. Following the screening, 66 articles met the inclusion criteria.

The review paper, as summarized in Figure 1 below, begins by setting the context and aims, outlining the prevalence, causes, and outcomes of adolescent pregnancy in Nigeria. It then moves through sections on evidence and analysis, covering national trends, regional disparities, cultural and socioeconomic drivers, and the health and social consequences for mothers and children. Finally, it concludes with a discussion and recommendations that emphasize targeted interventions in education, healthcare, and policy to break cycles of poverty and improve adolescent reproductive health outcomes.

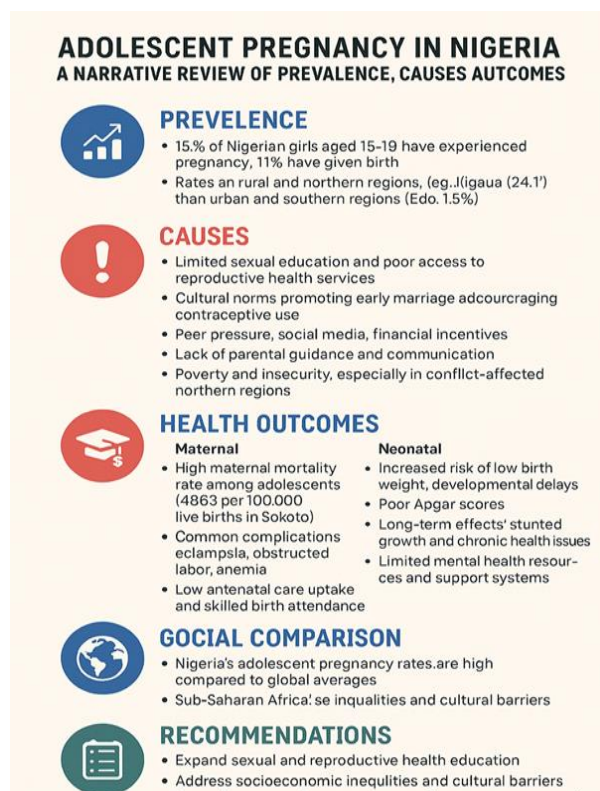


Fig 1: The roadmap for the review

Results

Prevalence of Adolescent Pregnancy in Nigeria

Based on the latest Nigerian National Demographic and Health Survey (2023), fifteen per cent of women aged 15–19 have experienced pregnancy at some point; eleven per cent of young women have given birth to a live child; two per cent have undergone pregnancy loss; and four per cent are presently pregnant.³ The National Health Survey is carried out every five years. In 2018, it was found that 19% of adolescent women had already started bearing children. This is lower than 23% and 25% in the 2013-2008 and 2003 editions, respectively (Fig. 2). However, the rate was higher in rural areas, at 29% in 2003, 32% in 2018 and 17.3% in 2023, it dipped among girls in urban areas, from 17% in 2003, 8% in 2018 and 4% in 2023.⁵⁻⁷ Research attributes this to improvement in education, a strong correlate of socio-cultural influences alongside access to

healthcare, especially in the Nigerian urban settings.³

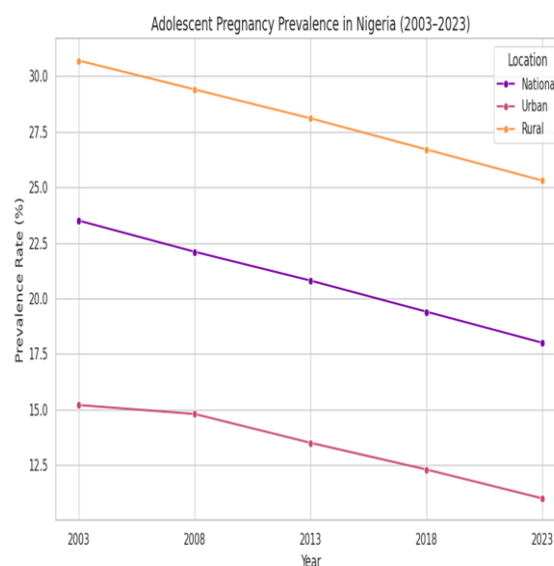


Fig 2: illustrates the trend of adolescent pregnancy in Nigeria over two decades (2003–2023) using data from the National Demographic and Health Survey.

There exist regional variations in prevalence across Nigeria, in that a female teenager in Nigeria's north-west geopolitical region was about four times (16.9 %) as likely to have had children as her counterpart in Nigeria's south-west region (3.9 %). Edo State had only 1.5 % of adolescent women who experienced childbirth, compared to 24.1% of adolescents in Jigawa State, northwestern Nigeria.⁵ Recent spatial distribution and multilevel analyses revealed alarming figures, ranging from 0 to 66.67%. The highest incidences of these pregnancies were observed in Kebbi, Zamfara, Kaduna, Jigawa, Bauchi, Katsina, and Sokoto.⁸ It was identified that factors such as age at sexual debut, educational attainment, marital status, ethnicity, and employment status are associated with adolescent pregnancy in these regions.

Socioeconomic factors influencing prevalence

Adolescent pregnancy in Nigeria is strongly shaped by socioeconomic inequalities, particularly low educational attainment and poverty. Girls with limited access to schooling often lack awareness of reproductive health, leaving them vulnerable to unintended pregnancies. Financial hardship also drives many families to arrange early marriages, which further escalates adolescent pregnancy rates.

For comparison, studies outside Nigeria highlight similar patterns. Among the Chepang ethnic group in rural Nepal,⁹ limited education was associated with a tenfold increase in adolescent pregnancy risk (aOR 10.3; 95% CI, 8.42–14.87), while poverty and early marriage raised the odds more than thirteen times (aOR 13.3; 95% CI, 10.76–19.2). Although these figures are not Nigerian, they underscore the universal role of education and economic stability in shaping reproductive outcomes.

In Nigeria, these same dynamics are evident. National surveys consistently show that adolescents from poorer households and rural areas are disproportionately affected. For example, the 2023 Demographic and Health Survey revealed that adolescent pregnancy rates were significantly higher in rural regions compared to urban areas, reflecting the combined impact of poverty, limited schooling, and restricted access to healthcare. Thus, while international evidence provides useful parallels, the Nigerian context demonstrates how entrenched socioeconomic inequalities perpetuate cycles of adolescent pregnancy and poverty.

Cultural attitudes towards adolescent pregnancy

Cultural perspectives concerning adolescent pregnancy within Nigeria notably influence behaviors about health-seeking and the way policies are formulated and executed. Recent

investigations have underlined that the low rate of contraceptive usage among sexually active adolescents is strongly tied to societal views on chastity and familial honor, frequently resulting in coerced early marriages. When pregnant, young females often grapple with the stigma perpetuated by society, which acts as a hindrance to their access to vital maternal healthcare services.¹⁰ To illustrate, the utilization of effective maternal health services remains strikingly inadequate, with merely 42.6% of adolescents availing themselves of comprehensive antenatal care and only 53.0% receiving aid from skilled birth attendants.¹¹ The lack of accessibility to healthcare further fuels sentiments of shame and social isolation. Moreover, interventions in the West African context frequently tackle mental and sexual health as distinct entities rather than in a comprehensive manner, thus revealing a notable deficiency in grasping the extent to which social determinants affect outcomes for adolescents.¹² It is therefore imperative to confront these cultural attitudes and roll out targeted interventions aimed at enhancing health outcomes for pregnant adolescents in the country.

Comparison with global adolescent pregnancy rates

The pressing necessity for a thorough evaluation of adolescent pregnancy in the Nigerian context can be stressed through a comparison with worldwide statistics. Despite the substantial disparities in adolescent pregnancy rates across various geographical settings, the average national figure remains regrettably high, mirroring a familiar pattern apparent in Sub-Saharan Africa, in contrast to their developed counterparts. Various studies across Africa revealed high prevalence of teenage pregnancy, in Kenya it was 15.3% (95% CI: 14.41, 16.18%), higher than those reported in Cameroon (8.7%) and Northern Africa (9.2%), but lower than those reported in South Africa

(19.2%), East Africa (54.6%), and East Africa (21.5%).⁶

Similarly, a secondary analysis of cross-sectional data from Demographic and Health Surveys conducted in 32 sub-Saharan African countries, including Nigeria, between 2010 and 2018 showed a prevalence ranging from 7.2% (in Rwanda) to 44% (in Congo), the authors concluded that age, occupation, marital status, level of education, early sexual initiation, knowledge of contraceptives, unmet need for contraception and wealth quintile as were the identified factor associated with first adolescent pregnancy.¹²⁻³

On a global scale, in 2022, an estimated 13% of adolescent girls gave birth before age 18.¹⁴ This category of young women is believed to experience a high rate of mortality and pregnancy-associated morbidities like obstetric fistula, eclampsia, endometritis and systemic infections. Empirical studies denote that upwards of 16 million young females worldwide, a significant proportion hailing from economically disadvantaged environments, get entangled with pregnancy events, which markedly influences their educational and social pathways.¹⁵ Both the national and global data highlight not only the immediate repercussions but also emphasize the necessity for a unified strategy involving educational initiatives, healthcare provision, and social support systems to alleviate these distressing figures.

Causes of Adolescent Pregnancy

Generally, the socioeconomic impediments and educational inadequacies assume a critical significance in Nigeria. The restricted availability of comprehensive sexual education renders a considerable portion of the youth poorly prepared to make knowledgeable choices regarding reproduction. This deficit in information, together with cultural standards that tend to endorse premature marriage and

procreation, augments the probability of youthful pregnancies. In addition, economic constraints often push adolescents into vulnerable circumstances, prompting them to engage in hazardous behaviors in pursuit of economic stability.

Lack of access to sexual and reproductive health education

About sexual and reproductive health, education remains markedly constrained within Nigeria, intensifying the nation's menace of adolescent pregnancy and the accompanying health hazards. Lack of western education in adolescents makes them vulnerable and prone to making poorly informed choices,¹⁶ frequently culminate in premature pregnancies with their attendant complications. This phenomenon is especially pronounced in poor regions, where women generally encounter substantial obstacles in procuring essential sexual and reproductive health (SRH) services.¹⁷ A systematic review elucidates that young mothers incur a greater likelihood of facing adverse pregnancy outcomes, which can be attributed to reasons related to deprived educational and socioeconomic standing, in addition to restricted access to antenatal care.¹⁸

Influence of peer pressure and social norms

In Nigeria, the landscape that adolescents navigate is complex, characterized by peer influences and dominant societal norms that exert a substantial impact upon their choices concerning sexual behaviors and reproductive health. The societal expectations, once internalized, frequently result in young people participating in early sexual activities, typically without sufficient comprehension of the potential repercussions, such as unintended pregnancies. Peer pressure, risky sexual behavior, and pregnancy termination are predominant among the exposed and educated adolescents.¹⁹⁻²¹ For instance, a study by

Onyema et al²² on teenage pregnancy and socioeconomic implications for adolescents in the southern senatorial district of Cross Rivers State, Nigeria, revealed that teenage pregnancy emerged as a significant issue in the area, due to deeply rooted socio-cultural factors. Practices like widowhood rituals, a patriarchal mindset, and a strong bias towards preferring male children all play a role.

Additionally, early marriages, peer pressure, the influence of social media, rural to urban migration and financial incentives contribute to this troubling trend. These cultural norms have far-reaching consequences that compromise the futures of these young individuals. Many find themselves dropping out of school, facing heightened poverty, and struggling to care for their newborns. The impact is profound, affecting not just the teens involved but also their families and communities.

The practice of early marriage, more predominant in the northern part of the country, is also deeply rooted in traditional customs and exposes young females to a range of health hazards, encompassing maternal mortality and morbidity.²³ Moreover, certain entrenched traditional beliefs sustain the perspective that a woman's foremost function is that of a spouse and a mother, consequently constraining possibilities for educational attainment and personal growth, elements that are fundamentally associated with improved health outcomes.²⁴⁻⁵ A retrospective review of the outcome of teenage pregnancy in the Federal Medical Centre, Katsina, highlighted that teenage deliveries made up 6.95% of all deliveries (723 out of 10,391), 95.6% of which were married, and only 3% attained a tertiary level of education. One third of them (33.5%) suffered anemia in pregnancy, and cesarean section was done for 14.2%, mostly for eclampsia (69%) and cephalopelvic disproportion (12.5%).⁸ These factors collectively highlight the complex interplay of education, religion, socioeconomic status, and cultural influences on teenage pregnancy in

some areas. Cultural influences underscore the need for a holistic approach to maternal health education, specifically tailored to address both customary practices and the health-related exigencies encountered by young women in certain communities.²⁶

Role of family dynamics and parental guidance

The significance of familial configurations and the level of paternal involvement is essential in the development of adolescent conduct, particularly in reproductive health. Studies have persistently underscored the value of transparent discourse between parents and adolescents about sexual issues, as it markedly lessens behaviors associated with sexual risk.²⁷ For instance, it has been observed that young individuals who benefit from affirmative parental discussions related to sexual health tend to be less inclined towards engaging in sexual activities before marriage.²⁸ This is consistent with evidence indicating that robust familial relationships can cultivate resilience when navigating the tribulations of adolescence, which include the risk of unintended pregnancies. Furthermore,²⁹ emphasizes the vital influence of parental attachment on the management of stress, which can have an indirect bearing on the decision-making processes surrounding sexual relationships. Hence, families that prioritize constructive communication and emotional intimacy not only promote well-being but also enable their adolescents to make well-informed choices, thereby ultimately contributing to a reduction in the incidence of adolescent pregnancies in all situations.

Impact of poverty and insecurity

Economic instability is of considerable significance in aggravating the circumstances that lead to adolescent pregnancy in Nigeria. Numerous families are entangled in the web of

poverty, wherein the deficiency of financial resources frequently constrains access to satisfactory maternal health services. This shortfall is underscored by the notably low rates of utilization of antenatal care and skilled birth attendants among the adolescent population. Insecurity from the Boko Haram humanitarian crisis and kidnappings in the north has subjected a significant number of young girls to abject poverty, illiteracy, homelessness, early marriage and sexual assaults.³⁰⁻³² This has worsened the already bad situation related to adolescent early sexual debut, pregnancy and complications.

Health Outcomes of Adolescent Pregnancy

Maternal Mortality and health risks associated with adolescent pregnancy

The consequences of adolescent pregnancy are extensive, ranging well beyond mere immediate socioeconomic issues. The analyses of Nigeria Demographic and Health Survey data show that adolescent motherhood has remained high over the past decade, with some regions showing an increase from 50.9% in 2008 to 55.2% in 2018, more so, WHO data showing the top five causes of mortality among girls aged 15–19 in different countries²⁶ revealed a troubling figure for Nigeria (Fig. 3), with maternal conditions at the top of the list at 52.56 per 100,000, followed by malaria (6.74 per 100,000), then sickle cell disorders and trait (4.56 per 100,000), HIV/AIDS (3.78 per 100,000), and tuberculosis (3.11 per 100,000). This reflects the significant risks associated with pregnancy in this age group, and the gap between maternal conditions and other causes highlights an urgent need for improved adolescent maternal health services. In keeping with this, a study by Airede et al.³³ found a high maternal mortality ratio (MMR) among adolescents, up to 4863 per 100,000 live births, compared with 2151 per 100,000 live births in the total hospital population. The mean age of the adolescents who died was 17 years, and

associated risk factors identified were the absence of routine antenatal, delivery and postpartum care, as well as lack of education and poverty. Eclampsia and prolonged obstructed labor accounted for up to 76% of deaths. Abortion was an uncommon cause of maternal death in those adolescents. As highlighted above, young women frequently encounter elevated risks associated with hypertensive disorders throughout pregnancy, and it has been confirmed by studies across Nigeria and beyond. Analysis of Nigeria demographic and health surveys showed that 6.4% of expectant mothers experienced such complications, with eclampsia demonstrating a remarkable case fatality rate of 27.9%. The UNFPA also reported that young girls between the ages of 15 and 19 face a staggering risk during childbirth, being twice as likely to die compared to women over the age of 20. This alarming statistic highlights the vulnerability of their still-developing bodies.³⁴⁻⁵ The combination of socioeconomic conditions, insufficient sexual health education, and restricted access to healthcare services worsens these health outcomes, given that those in lower wealth brackets correlate with a higher prevalence of adolescent pregnancies.³⁶

In addition to pre-eclampsia, other pregnancy and childbirth complications like postpartum hemorrhage, obstructed labor, and preterm births may result in mortality or severe maternal morbidity.³⁷⁻⁹ Similarly, a study revealed that the incidence of repeated pregnancies among adolescents stood at 12.2%; this may intensify the likelihood of maternal morbidity due to the inherent physiological and psychological burdens tied to these scenarios.⁴⁰ Interestingly, in advanced societies like the USA, an extensive review revealed that an increasing maternal age was found to be associated with a higher risk of maternal mortality, with the greatest risk in the oldest age group of 50–54, with mothers under the age of 15 also found to be at a greater risk.

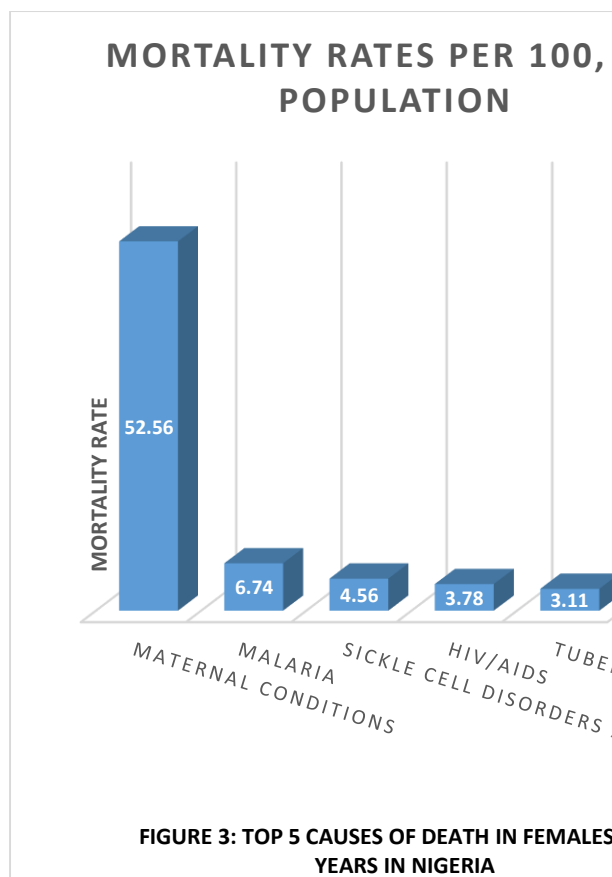


Fig 3: Top 5 causes of mortality among girls aged 15-19

Source: Data from WHO Global Health Estimates 2021 on the top five causes of mortality among girls aged 15–19 reveal the trend for Nigeria: maternal conditions lead at 52.56 per 100,000, followed by malaria (6.74 per 100,000), sickle cell disorders and trait (4.56 per 100,000), HIV/AIDS (3.78 per 100,000), and tuberculosis (3.11 per 100,000).

Neonatal health outcomes for children born to adolescent mothers

Adolescent motherhood poses considerable neonatal health outcomes. Evidence suggests that offspring delivered by adolescent mothers are more likely to confront higher chances of detrimental health conditions, such as low birth weight and developmental delays.⁴¹⁻² It has been reported that children born to mothers

below the age of 14 tend to present with diminished Apgar scores as well as an augmented probability of undergoing episiotomy during the delivery process, thereby implying more arduous births.⁴³ Evidence from Nigeria indicated that teenage mothers appear to be at increased risk of low birth weight and neonatal morbidity.⁴⁴⁻⁶ A Canadian research on risk factors and birth outcomes associated with teenage pregnancy, it was discovered that adolescent pregnancy was associated with a higher risk of socioeconomic disadvantage, mental health problems, and substance use during pregnancy, also, teenage pregnancy increased the risk of a low Apgar score (adjusted odds ratio, 1.56; 95% confidence interval, 1.21-2.02).⁴⁷

Interestingly, longitudinal investigations in India have found that offspring of adolescent mothers typically have shorter stature and lower body weight than those born to older mothers, with the disparities amplifying over time, particularly among male offspring.⁴⁷

Psychological effects on adolescent mothers

The psychological impacts linked to adolescent motherhood are significant; young mothers often face higher rates of mental health issues such as depression and anxiety, which are frequently driven by societal shame and limited family support. This psychological distress can substantially hinder their ability to meet the demands of motherhood, ultimately leading to negative consequences for both mother and child. Research indicates that psychological preparedness is vital for effectively managing parenting challenges; however, many young mothers face substantial obstacles in this area due to a lack of suitable mental health resources and social exclusion.⁴⁸ This distress may be worsened by internalized stigma and experiences of intimate partner violence.⁴⁹ Societal disapproval manifests in various harmful ways, including social exclusion and reduced access to education and

healthcare, adversely affecting both maternal and child health outcomes.⁴⁷ It has also been noted that only 38.2% of adolescents utilized comprehensive antenatal care before the Sustainable Development Goals (SDG) era, with only a slight increase to 42.6% afterwards. Goueslard et al. found a link between adolescent pregnancy and a higher risk of hospitalization for non-lethal self-harm and early death, three years after pregnancy.

Long-term health implications for both mother and child

There may be profound, long-lasting health repercussions for both the adolescent mother and her offspring. Potential pathways leading to persistent health predicaments include chronic pain, urogenital fistulas and reproductive health issues in the succeeding years or decades. These health problems are further exacerbated by the psychosocial ramifications of early motherhood, most notably anxiety and depression, posed by social stigma and deficits in support systems. A population-based study in Canada involving 2.2million teenagers uncovered a disturbing pattern,⁵⁰ there was a link between female teenage pregnancy and increased risk of premature mortality in the future; risk of premature death was 1.9 per 10 000 person-years among those without a pregnancy, 4.1 per 10 000 person-years among those with one pregnancy, and 6.1 per 10 000 person-years among those with two or more pregnancies.

For the offspring, maternal youth is correlated with negative developmental outcomes, comprising reduced birth weights and an increased frequency of childhood ailments, which may persist into later adolescent and adult life. This underscores the necessity for targeted interventions aimed at supporting adolescent mothers and alleviating the

detrimental effects on forthcoming generations⁵¹

Socioeconomic Outcomes of Adolescent Pregnancy

The socioeconomic consequences appear to perpetuate a cycle of poverty, wherein insufficient education limits access to improved job opportunities, further sinking these individuals and their families into impoverished circumstances. Additionally, research findings demonstrate that adolescent mothers exhibit increased rates of smoking and substance use during pregnancy. This factor correlates with negative neonatal outcomes, thereby complicating their long-term economic stability.⁵²

Educational attainment and dropout rates

Young mothers frequently encounter systemic obstacles that impede their capacity to progress in education, resulting in low educational levels, financial difficulties, and psychosocial stress. Existing literature suggests that mothers who resumed their education after childbirth experienced lower rates of poverty and fewer grade repetitions before the onset of pregnancy.⁵³ Additionally, further supportive frameworks, including dependable childcare provisions, are essential to enhancing retention in educational institutions during the period of pregnancy and after childbirth. The convergence of socioeconomic influences and access to educational opportunities can engender a cycle of deprivation; thus, tackling these matters via specifically designed interventions is imperative for disrupting the repetitive patterns of poverty linked with adolescent motherhood.⁴¹

Employment opportunities and economic impact

Young mothers frequently face considerable challenges regarding their participation in the workforce, predominantly driven by social stigma coupled with restricted educational access, which exacerbates ongoing cycles of

poverty. Moreover, when examining the intricacies of child marriage, it becomes apparent that culturally restrictive practices similarly hinder educational and job opportunities for young women, thereby entrenching gender disparities and economic marginalisation.⁵⁴

Impact on family dynamics and support systems

Young mothers frequently face a breakdown in their familial relationships, with the demand for not just tangible aid but also emotional and financial backing becoming critical as they attempt to navigate the hurdles associated with early parenthood. Recent findings indicate that most pregnant adolescents report insufficient familial support, which further intensifies feelings of isolation and stress.⁵⁴⁻⁵ This absence of support tends to align with various socioeconomic factors, demonstrating that educational attainment and the profession of their partners considerably affect the level of assistance accessible to these young mothers. Moreover, the interplay between socioeconomic status and familial expectations can complicate relationships, leading to strained ties and an overwhelming sense of responsibility.⁵⁶ These dynamics emphasize the need for interventions to strengthen familial support for adolescent mothers, improving outcomes for both parent and child. Also, policy reforms in sexual and reproductive health education can equip adolescents with the essential knowledge to make informed decisions.⁵⁷⁻⁸ Moreover, programs that support the community, including peer-led education and the engagement of parents, can cultivate an atmosphere that is favorable for candid discussions surrounding sexual health, thus serving to reduce stigma and improve accessibility to vital resources.⁵⁹

Discussion

This review examines the challenges of adolescent pregnancy in Nigeria using data

from both national surveys and regional studies. Although teenage pregnancy rates have decreased since 2003 from 23% to 15% in 2023, the statistics conceal persistent regional and social inequality throughout Nigeria. The problem is widespread in both rural areas and northern regions of the country.^{3,5,6} The pregnancy rate in Jigawa state reaches 24.1%, but Edo state shows only 1.5%.⁷ The disparities between regions indicate deep-rooted issues connected to educational opportunities and income levels, as well as traditional cultural customs.⁸ The education system in particular serves as a vital indicator since better educational access directly correlates with reduced pregnancy rates, as seen through the example of urban areas where the rate decreased from 17% in 2003 to 4% in 2023.³⁻⁶ Yet many young girls lack essential reproductive health information, which puts them at risk.¹⁶⁻¹⁸

Multiple factors that lead to adolescent pregnancy in Nigeria create a challenging cycle, according to the review. Teens lack sufficient sexual education, which prevents them from making informed decisions and their peers, along with social norms, force them into premature sexual encounters.¹⁹⁻²² The cultural beliefs about marriage and family dynamics in Cross River State contribute to the existing pressure, which results in early marriages and accidental pregnancies.²²⁻⁵ Poverty makes things worse. Families in need often view early marriage as their only escape from poverty, yet it typically results in additional difficulties.⁹ In Jos, Northcentral, Nigeria, an in-depth interview of 17 young women who experienced at least one teenage pregnancy revealed that the majority were unmarried and expressed lack of maturity, poor parental guidance and lack of sexual and reproductive knowledge as the main factors that led to their unintended pregnancies.⁵⁶ The ongoing security threats from Boko Haram in northern regions have forced numerous girls into dangerous situations, which have led to both early sexual experiences and violent

attacks.³⁰⁻³ The absence of family support regarding sex leads adolescents to lack the necessary guidance because of weak communication.²⁷⁻⁹ Studies show that open talks with parents reduce risky behaviors, yet this is rare in many homes.²⁻⁸

The health outcomes for adolescent mothers along with their newborns create significant concerns. The death rate during childbirth for young mothers reaches extreme levels in specific areas because these regions experience 4,863 deaths per 100,000 live births, which exceeds national statistics.³³⁻⁴ The conditions of eclampsia, together with obstructed labor, occur frequently because these women receive inadequate antenatal care.³³⁻⁶ Full prenatal care check-ups reach only 42.6% of pregnant teenagers, while skilled birth assistance reaches 53% of deliveries.¹¹ Their newborns experience higher risks of low birth weight and early health complications.⁴¹⁻⁴⁶

Interestingly, the WHO emphasizes that maternal conditions remain a leading cause of death among adolescent females worldwide, highlighting the biological and care-related pathways that lead to these complications, for example teen mothers in Nigeria experience overlapping complications similar to those in some developed countries due to common biological vulnerabilities (immature pelvic and physiological development) and behavioral/psychosocial factors (late antenatal booking, substance use, poor nutrition), which create common pathways to these complications across nations. For example, some neonatal complications occur at levels comparable to Canada, where Apgar scores are poor at birth in both settings.^{43,47} However, outcomes differ in scale and severity. The key difference lies in health system capacity and social determinants: timely access to skilled birth attendants, emergency cesarean delivery, blood transfusions, magnesium sulfate for eclampsia, and neonatal intensive care significantly reduce mortality in Canada, whereas delays in deciding to seek care,

reaching care, and receiving adequate treatment alongside poverty, food insecurity, and higher infectious disease burdens widen fatality rates in many Nigerian environments. It is not surprising that their mental health worsens, as depression and anxiety often affect individuals facing discrimination and lacking sufficient support.^{48-9,56} Both mothers and children endure long-term difficulties stemming from mental health issues and growth delays that persist into adulthood.

The socioeconomic consequences cannot be overlooked; the practice of adolescent pregnancy creates economic barriers that lead numerous individuals to become trapped in poverty. The widespread school dropout pattern restricts career choices for young people who also maintain their families in poverty.^{52,53} Young mothers may use tobacco and other substances during their pregnancies, which produces adverse effects on their babies and diminishes their future earning potential.⁵¹ The practice of child marriage intensifies this problem because it denies girls both education and professional opportunities.^{54,57} Additionally, teenagers experience social isolation when they lack family support because their parents feel the burden, which makes childbearing more challenging.⁵⁵⁻⁵⁸

It is important to note that the observed patterns in Nigeria are similar to those in other parts of sub-Saharan Africa, where rates range from 7.2% in Rwanda to 44% in Congo.^{12,13} The pregnancy rates in Nigeria are mid-range but exceed those in Cameroon, which stands at 8.7%.⁶ Moreover, the worldwide adolescent birth rate among girls exceeds 13%, positioning Nigeria's statistics among other regions, but still requires further attention.^{14,15} Generally, most of the reviewed studies identified sociocultural, environmental, and economic factors influencing adolescent pregnancies in developing nations, specifically peer pressure, unwanted sexual advances, coercive relations, gender inequalities, poverty, religion, early marriage, parental neglect, lack of affordable

education, absence of comprehensive sexuality education, contraceptive non-use, male responsibility for condoms, early sexual debut, and inappropriate recreation predominate especially in the rural setting. Individual factors, such as alcohol, substance abuse, experimentation, inability to resist sexual temptation, curiosity, and cell phone use, are more common in urban areas. Health service factors involve contraceptive costs, unskilled health workers, long wait times, lack of privacy, misconceptions about contraceptives, and unfriendly adolescent reproductive services that cut across the different settings need attention.⁶⁰⁻⁶⁵

These findings have clear implications for policy. A single uniform policy strategy will not be effective. The implementation of targeted programs must consider geographic location and cultural background to effectively address areas with the highest number of cases. School-based sexual education initiatives can give teenagers the power to choose better paths for their lives. Community programs, which include parents and peers, may help decrease stigma and increase support. The poverty cycle could be interrupted by providing better healthcare and economic assistance to high-risk areas. The implementation of security programs combined with free services in northern states could decrease the birth rates. The solution to reduce pregnancies and enhance lives requires a unified strategy that combines educational and health initiatives with social support programs.

Conclusion

This review explored the complex characteristics associated with adolescent pregnancy in Nigeria, bringing to light both the immediate and long-term impacts on the health and general welfare of young mothers as well as their offspring. A significant occurrence of mental health concerns, specifically depressive disorders, among pregnant teenagers highlights an urgent requirement for focused mental health support.

Future research should evaluate the effectiveness of adolescent-focused Community Health Worker (CHW) outreach packages in improving antenatal care (ANC) attendance and maternal outcomes, as CHW-led interventions enhance adolescent engagement with sexual and reproductive health services in Africa. The impact of Maternity Waiting Homes (MWHs) on reducing maternal near misses among adolescents in Nigeria is unknown. However, studies from Ethiopia and low-resource settings show MWHs can increase facility delivery and decrease severe maternal complications. Conditional Cash Transfers (CCTs) have improved maternal health service use in Nigeria and other LMICs, but their effects on pregnant adolescents need investigation. Research is also needed on the feasibility and outcomes of integrating routine mental-health screening at ANC booking for adolescents, due to high undiagnosed perinatal mental health disorders in low-income settings. Few studies have explored participatory, co-designed approaches involving adolescents, families, TBAs, CHWs, and community or faith leaders, despite evidence that co-design improves cultural acceptability and sustainability of maternal health interventions. Such context-specific evidence is crucial for informing scalable, adolescent-centered maternal health strategies in Nigeria. Furthermore, examining the effectiveness of nutritional supplementation, for example, vitamin D, and its influence on pregnancy outcomes may yield vital insights, given its link to reduced complication risks among young expectant mothers.⁶⁶

References

1. UNFPA. Girlhood, Not Motherhood. United Nations Population Fund. 2015.https://eeca.unfpa.org/sites/default/files/pubpdf/Copy%20of%20Girlhood_not_motherhood_final_web.pdf
2. World Health Organisation (WHO). Adolescent Pregnancy. Geneva: WHO; April 10

2024. Geneva. <https://www.who.int/en/news-room/fact-sheets/detail/adolescent-pregnancy>. (accessed on September 11 2024)

3. Federal Ministry of Health and Social Welfare (Nigeria), National Population Commission (Nigeria), ICF. Nigeria Demographic and Health Survey 2023–24: Key Indicators Report. Abuja (Nigeria), Rockville (MD, USA): NPC and ICF; 2024. <https://dhsprogram.com/pubs/pdf/PR157/PR157.pdf>

4. Krug C, Neuman M, Rosen JE, Weinberger M, Wallach S, Lagaay M, Punton M, Prakash A, Nsanya MK, Ayieko P, Kapiga S. Effect and cost-effectiveness of human-centred design-based approaches to increase adolescent uptake of modern contraceptives in Nigeria, Ethiopia and Tanzania: population-based, quasi-experimental studies. *PLOS Global Public Health*. 2023 Oct 18;3(10):e0002347.

5. Akombi-Inyang BJ, Woolley E, Iheanacho CO, Bayaraa K, Ghimire PR. Regional Trends and Socioeconomic Predictors of Adolescent Pregnancy in Nigeria: A Nationwide Study. *International Journal of Environmental Research and Public Health*. 2022; 19(13):8222. <https://doi.org/10.3390/ijerph19138222>.

6. Kassa GM, Arowojolu AO, Odukogbe AA, Yalew AW. Prevalence and determinants of adolescent pregnancy in Africa: a systematic review and Meta-analysis. *Reprod Health*. 2018 Nov 29;15(1):195. doi: 10.1186/s12978-018-0640-2. PMID: 30497509; PMCID: PMC6267053.

7. Akombi-Inyang BJ, Woolley E, Iheanacho CO, Bayaraa K, Ghimire PR. Regional Trends and Socioeconomic Predictors of Adolescent Pregnancy in Nigeria: A Nationwide Study. *International Journal of Environmental Research and Public Health*. 2022; 19(13):8222. <https://doi.org/10.3390/ijerph19138222>.

8. Bolarinwa, O.A., Tessema, Z.T., Frimpong, J.B. et al. Spatial distribution and factors associated with adolescent pregnancy in Nigeria: a multilevel analysis. *Arch Public Health* 2022; 80 (43). <https://doi.org/10.1186/s13690-022-00789-3>.

9. Bhatta K, Pathak P, Subedi M. Prevalence and factors associated with adolescent pregnancy among an indigenous ethnic group in rural Nepal: a community-based cross-sectional study. *Journal of*

Preventive Medicine and Public Health. 2024 May;57(3):269.

10. Taiwo MO, Oyekenu O, Hussaini R. Understanding how social norms influence access to and utilisation of adolescent sexual and reproductive health services in Northern Nigeria. *Frontiers in Sociology*. 2023 October 11;8:865499.

11. Tolossa T, Gold L, Dheresa M, Turi E, Yeshitila Y, Abimanyi-Ochom J. Adolescent Maternal Health Services Utilisation and Associated Barriers in Sub-Saharan Africa: A Comprehensive Systematic Review and Meta-analysis Before and During the Sustainable Development Goals. *Heliyon*. 2024 August 3.

12. Ahinkorah BO, Kang M, Perry L, Brooks F, Hayen A. Prevalence of first adolescent pregnancy and its associated factors in sub-Saharan Africa: A multi-country analysis. *PloS one*. 2021 Feb 4;16(2):e0246308.

13. UNICEF. Adolescent Health:. <https://data.unicef.org/topic/child-health/adolescent-health/> (accessed on September 8, 2024).

14. Saleh MA. Outcomes of Teenage Pregnancy at Benghazi Medical Center 2019-2020. *International Journal of Science Academic Research*. 2022;3(3):358-602.

15. Alukagberie ME, Elmusharaf K, Ibrahim N, Poix S. Factors associated with adolescent pregnancy and public health interventions to address in Nigeria: a scoping review. *Reprod Health*. 2023 Jun 24;20(1):95. doi: 10.1186/s12978-023-01629-5. PMID: 37355659; PMCID: PMC10290377.

16. Ekholuenetale MJ. Prevalence, timing, socioeconomic inequalities and determinants of sexual and reproductive health indicators among reproductive-aged women in sub-Saharan African countries (Doctoral dissertation, University of Portsmouth, United Kingdom).

17. Amoadu M, Hagan D, Ansah EW. Adverse obstetric and neonatal outcomes of adolescent pregnancies in Africa: a scoping review. *BMC pregnancy and childbirth*. 2022 Jul 27;22(1):598.

18. Yahaya H, Adeyemo QE, Kumah A. Adverse Perinatal Outcomes and their Associated Determinants in Sub-Saharan Africa. *Journal of*

Medicine, Surgery, and Public Health. 2024 Jul 2;100124.

19. Oghagbon PU, Agbede CO. Environmental factors predicting unintended pregnancies among in-school female adolescents in rural communities in South-South Nigeria. *Midwifery*. 2020;4(3):45-53.

20. Elekeh RI, Enwereji EE, Odina C. Factors and conditions that influence teenage pregnancy among in-school adolescents in Umuahia North Local Government Area (LGA) of Abia State, Nigeria. *International journal of Health statistics*. 2021 May 18;1(1):15-20.

21. Onyema AO, Isokon BE. Teenage pregnancy and socioeconomic implications for adolescents in Southern Senatorial District of Cross River State, Nigeria. *Int J Intellect Discourse*. 2024;7(1):190–198.

22. Mainasara MM, Khadijah KR. Survey on Medicinal Plants Used in Traditional Maternal Health Care in Selected Areas of Katsina State, Nigeria. *Savanna*. 1(2):239-47.

23. Danjuma H. A Study of Causes of Teenage Pregnancy Rate in Nigeria: Statistical Modeling Approach. 02_AJMS_311_21-libre.pdf (d1wqtxts1xzle7.cloudfront.net) (Accessed on September 8, 2024)

24. Onasoga OA, Anyebe EE, Aderibigbe AO, Fadare RI. Knowledge and Perception on Causes, Social Consequences, and Preventive Strategies of Teenage Pregnancy among Secondary School Students in North Central Nigeria. *Achievers Journal of Scientific Research*. 2024 Jun 15;6(1):168-77.

25. Lawal AM, Rasheed FA, Tukur J, Abdulkarim N. Outcome of teenage pregnancy at Federal Medical Centre, Katsina: A five-year review. *J Med Clin Res Rev*. 2021;5(9):1–6.

26. Bolarinwa, O.A., Tessema, Z.T., Frimpong, J.B. et al. Spatial distribution and factors associated with adolescent pregnancy in Nigeria: a multilevel analysis. *Arch Public Health* 2022; 80 (43). <https://doi.org/10.1186/s13690-022-00789-3>.

27. Ekundayo OO, Babalola OB. Sexual risk behaviour: the roles of impulsivity, family type and peer pressure among undergraduate students in Nigeria. *European Review of Applied Sociology*. 2020;13(20):15-23.

28. Gumban GD, Martos RJ, Rico KW, Bernarte RP, Tuason IC. Let's talk about sex: Parental communication and sexual behavior of male Filipino youth. *Asia Pacific Journal of Multidisciplinary Research*. 2016;4(2):130-9.

29. Abia EM, Hasbullah M, Daud MN. Relationships between Parental Attachment, Peer Attachment and Stress among School-going Adolescents in Akwa Ibom State, Nigeria. *International Journal of Academic Research in Business and Social Sciences*. 2022;12(1):2127-37.

30. Olarewaju OA. Insecurity in northern Nigeria: Implications for maternal and child health. *Clinical Epidemiology and Global Health*. 2021 October 1;12:100869.

31. Marlow HM, Kunnuji M, Esiet A, Bukoye F, Izugbara C. The sexual and reproductive health context of an internally displaced persons' camp in northeastern Nigeria: narratives of girls and young women. *Frontiers in Reproductive Health*. 2022 January 13;3:779059.

32. Abdurrahman A, Adamu AN, Ashimi A, Adekunle OO, Bature SB, Aliyu LD, Akeem O, Abdullahi H, Lavin T, Daneji S, Musa B. Predictors, prevalence and outcome of hypertensive disorders in pregnancy in Nigerian tertiary health facilities. *BJOG: An International Journal of Obstetrics & Gynaecology*. 2024 Aug;131:42-54.

33. Airede, L. R., & Ekele, B. A. (2003). Adolescent maternal mortality in Sokoto, Nigeria. *Journal of Obstetrics and Gynaecology*, 23(2), 163–165. <https://doi.org/10.1080/0144361031000074709>.

34. UNFPA: Adolescent pregnancy. UNFPA ESARO | Adolescent pregnancy. (accessed on July 13, 2025)

35. UN. World is failing adolescent girls' warns UNFPA chief, as report shows third of women in developing countries give birth in teen years. <https://news.un.org/en/story/2022/07/1121972> (accessed on August 24, 2025)

36. Kareem YO, Abubakar Z, Adelekan B, Ameyaw EK, Gbagbo FY, Goldson E, Mueller U, Yaya S. Prevalence, trends, and factors associated with teen motherhood in Nigeria: an analysis of the 2008–2018 Nigeria demographic and health surveys. *International Journal of Sexual Health*. 2023 Apr 3;35(2):248-62.

37. Cochrane C, Anderson C, Mitra S, Green L, Baggett CD, Mersereau JE, Getahun D, Kwan ML, Chao CR, Kushi LH, Nichols HB. Cancer Diagnosis During Pregnancy and Livebirth Outcomes in the Adolescent and Young Adult Horizon Study. *Journal of Women's Health*. 2024 September 5.
38. Oloyede O, Xu L, Adepoju L. Gestational Hypertension in Adolescent Mothers: A 2016-2022 Trend Analysis. *medRxiv*. 2024:2024-08.
39. Adeyinka, D. A., Oladimeji, O., Adekanbi, T. I., Adeyinka, F. E., Falope, Y., & Aimakhu, C. (2010). Outcome of adolescent pregnancies in southwestern Nigeria: a case-control study. *The Journal of Maternal-Fetal & Neonatal Medicine*, 23(8), 785-789. <https://doi.org/10.3109/14767050903572166>.
40. Ukah CE, Orock-Benem VT, Shei CM, Ngeha CN, Nangue FD, Dang SZ, Mande MM, Ekeme M. Prevalence and determinants of repeat pregnancy among adolescent girls in selected health areas of the Limbe Health District of Cameroon: A community-based cross-sectional study.
41. Oluwaseunlafunmi OK, Salibi G, Tzenios N. Effects of pre-pregnancy maternal underweight on pregnancy and perinatal outcomes of the foetus. *SJMAS*. 2024 Sep 1;2(7).
42. Fadipe OO, Sotunsa JO, Owopetu CA, Anokwuru RA, Asonye C, Sodimu JO. Pregnancy Outcomes of Women With Hypertensive Disease in Lagos State, Nigeria. *International Journal of Public Health, Pharmacy and Pharmacology*. 2024 Apr 14;9(2):56-63.
43. Nandi A, Zahra F, Austrian K, Haberland N, Ngô TD. Growth failure among children of adolescent mothers at ages 0-5 and 6-12 years in India. *Annals of the New York Academy of Sciences*. 2023 Apr;1522(1):139-48.
44. Onuh, Samuel Ameh; Ocheke, Amaka N. 5 Year Review: Teenage Pregnancy; Delivery and Outcome. *Nigerian Journal of Medicine* 32(2): p 202-206, Mar-Apr 2023. | DOI: 10.4103/NJM.NJM_20_23.
45. Oboro, V. O., Tabowei, T. O., Jemikalajah, J. J., Bosah, J. O., & Agu, D. (2003). Pregnancy outcomes among nulliparous teenagers in suburban Nigeria. *Journal of Obstetrics and Gynaecology*, 23(2), 166-169. <https://doi.org/10.1080/0144361031000074718>.
46. Alabi MA, Fasasi MI, Akanbi MO. Fertility Behaviour of Adolescent Mothers in Northern Nigeria and Neonatal Mortality Risk: Mediating Effect of Quality Maternal Health Services. *EJMED [Internet]*. 2020 November 13 [cited 2025 July 13];2(6). Available from: <https://ej-med.org/index.php/ejmed/article/view/514>.
47. Wong SPW, Twynstra J, Gilliland JA, Cook JL, Seabrook JA. Risk Factors and Birth Outcomes Associated with Teenage Pregnancy: A Canadian Sample. *J Pediatr Adolesc Gynecol*. 2020 Apr;33(2):153-159. doi: 10.1016/j.jpag.2019.10.006. Epub 2019 October 18. PMID: 31634579.
48. De Fatima Moniz M, Astuti AW, Hakimi M. Psychological Impact of Adolescent Pregnancy in Developing Countries: A Scoping Review. *Women, Midwives and Midwifery*. 2024 Jun 30;4(2):1-3.
49. Ray JG, Fu L, Austin PC, et al. Teen Pregnancy and Risk of Premature Mortality. *JAMA Netw Open*. 2024;7(3):e241833. doi:10.1001/jamanetworkopen.2024.1833
50. Cohen B, Bledsoe CH, editors. Social dynamics of adolescent fertility in sub-Saharan Africa. National Research Council, Division of Behavioral and Social Sciences and Education, Commission on Behavioral and Social Sciences and Education, Working Group on the Social Dynamics of Adolescent Fertility (1993-02-01).
51. Diabelková J, Rimárová K, Dorko E, Urdzík P, Houžvičková A, Argalášová L. Adolescent pregnancy outcomes and risk factors. *International journal of environmental research and public health*. 2023 Feb 25;20(5):4113.
52. Jochim J, Meinck F, Toska E, Roberts K, Wittesale C, Langwenya N, Cluver L. Who goes back to school after birth? Factors associated with postpartum school return among adolescent mothers in the Eastern Cape, South Africa. *Global public health*. 2023 Jan 2;18(1):2049846.
53. Retnowulandari W, Wangga MS, Notoprayitno MI, Ahmad N. The Prevalence Of Child Marriage: Comparative Study Of Indonesia And Other South Asian States. *Jambura Law Review*. 2024 July 24;6(2):339-66.
54. Ayamolowo LB, Adekunle EA, Ayamolowo SJ, Adesoji BA, Adekunle PF. Patterns and Determinants of Family Support among Pregnant Women in Ile-Ife, Nigeria: A Quantitative

Cross-Sectional Study. *Ethiopian Journal of Health Sciences*. 2024 May 1;34(3).

55. Adviento AL, Canaceli ZJ, E Lenon Z, D Sacramed MC, Tagulinao P, Rhyanne M, Vallespin MR. Unveiling Socioeconomic Disparities: Understanding Pregnancy Awareness and Family Well-being among Middle-Late Adolescent Mothers across Diverse Socioeconomic Strata in Urban Manila, Philippines.

56. Olorunsaiye CZ, Degge HM, Ubanyi TO, Achema TA, Yaya S. "It's like being involved in a car crash": teen pregnancy narratives of adolescents and young adults in Jos, Nigeria. *Int Health*. 2022 Nov 1;14(6):562–71.

57. United Nations Children's Fund (UNICEF). *Towards Ending Child Marriage: Global Trends and Profiles of Progress*. New York: UNICEF; 2021.

58. Meherali S, Rehmani M, Ali S, Lassi ZS. Interventions and strategies to improve sexual and reproductive health outcomes among adolescents living in low-and middle-income countries: a systematic review and meta-analysis. *Adolescents*. 2021 Sep 15;1(3):363-90. 40.

59. Adeleye K, Ogungbe O, Yeboah-Kordieh Y, Gresh A, Iradukunda F. Exploring Multilevel Determinants of Stillbirth: A Comprehensive Analysis Across Sub-Saharan African Countries. *medRxiv*. 2024:2024-05.

60. Lambonmung A, Acheampong CA, Langkulsen U. The Effects of Pregnancy: A Systematic Review of Adolescent Pregnancy in Ghana, Liberia, and Nigeria. *Int J Environ Res Public Health*. 2022 Dec 29;20(1):605.

61. Ayamolowo LB, Ayamolowo SJ, Adelakun DO, Adesoji BA. Factors influencing unintended pregnancy and abortion among unmarried young people in Nigeria: a scoping review. *BMC Public Health*. 2024 Jun 4;24(1):1494.

62. Ayamolowo LB, Ayamolowo SJ, Odetola TD. Risk Factors Associated with Unplanned Pregnancy among Adolescents in Rural Communities: Implications for Nurses. *Women's Health Bull*. 2020 Jul;7(3):1–11.

63. Obiyan MO, Olaleye AO, Oyinlola FF, Folayan MO. Factors associated with pregnancy and induced abortion among street-involved female adolescents in two Nigerian urban cities: a mixed-

method study. *BMC Health Serv Res*. 2023 Jan 11;23(1):25.

64. Ogujiuba K, Ojoniye O, Stiegler N. Analysis of Unmarried Adolescents and Modern Contraceptives Initiation in Nigeria: Evidence from 2018 NDHS. *Soc Sci*. 2022 Jun 29;11(7):282.

65. Yakubu I, Salisu WJ. Determinants of adolescent pregnancy in sub-Saharan Africa: a systematic review. *Reprod Health*. 2018 Dec 27;15(1):15.

66. Kurmangali Z, Abdykalykova B, Kurmangali A, Zhantagulov D, Terzic M. The influence of vitamin D on pregnancy and outcomes: Current knowledge and future perspectives. *Gynecologic and Obstetric Investigation*. 2024 Mar 8:1-6.

