Knowledge and Attitudes Toward Teenage Pregnancy Among Secondary School Students in Nigeria: A Systematic Review and Meta-Analysis

Suliyat Adeola Adedapo[1], Opeyemi Oladunni[2], Oluwatoyin Juliana Elebiju[3], Abosede Opeyemi Oladosu[4] & Goodness Oluwatoyosi Ayodele[5]

[1,2,3&4]Department of Public Health, Faculty of Basic Medical Sciences, Adeleke University, Ede, Osun State, Nigeria
Correspondence Email: **Email: omobolajiadeola2018@gmail.com[1]**, oladunni.opeyemi@
adelekeuniversity.edu.ng2,Elebiju.oluwatoyin@adelekeuniversity.edu.ng[3], Opeyemiabosede752@gmail.com[4] and
goodnessoluwatoyosi@gmail.com[5]

ABSTRACT

Nigeria has one of the highest adolescent fertility rates globally, yet evidence on secondary school students' knowledge and attitudes toward teenage pregnancy remains fragmented. This study aimed to estimate the pooled prevalence of good knowledge and positive attitude toward teenage pregnancy among Nigerian secondary school students and to identify key sources of heterogeneity. A systematic review and meta-analysis of school-based cross-sectional studies published between (February 2018 to December 2025) was conducted. PubMed, African Journals Online, Google Scholar, and major Nigerian institutional repositories were searched. Eligible studies involved secondary school students in Nigeria and reported quantitative data on knowledge and/or attitudes toward teenage pregnancy. Study quality was assessed using the Joanna Briggs Institute checklist, and a random-effects model was applied to pool prevalence estimates and odds ratios. Thirty-one studies comprising 22,164 students from 19 states met the inclusion criteria. The pooled prevalence of good knowledge of teenage pregnancy was 53.8% (95% CI: 47.2–60.3%; I² = 99.1%; 31 studies). The pooled prevalence of positive attitude operationalised as perceiving teenage pregnancy as unacceptable and/or preventable was 62.7% (95% CI: 56.4–68.7%; I² = 98.7%; 28 studies). Subgroup analyses showed markedly lower knowledge in rural compared with urban schools (46.3% vs 67.8%, p < 0.001) and in northern compared with southern Nigeria (41.2% vs 64.5%, p < 0.001). Female students were significantly more likely to have good knowledge than males (OR = 1.56, 95% CI: 1.38–1.77), but demonstrated only slightly more supportive attitudes toward pregnant peers. Across studies, peers (64.3%) and social media (61.8%) were the dominant information sources, followed by teachers (43.2%), while parents contributed minimally (17.9%). Overall, more than four in ten students lack adequate knowledge of teenage pregnancy and stigmatizing attitudes remain widespread, particularly in rural and northern settings. Scaling up context-appropriate, rights-based comprehensive sexuality education with a deliberate focus on underserved groups, alongside stronger engagement of parents and teachers, is urgently required to reduce teenage pregnancy and its consequences in Nigeria.

Keywords: *teenage pregnancy, adolescent pregnancy, knowledge, attitude, secondary school, Nigeria, systematic review, meta-analysis*

INTRODUCTION

1. Background to the study

Nigeria contributes approximately 10% of all adolescent births worldwide while representing only 2.7% of the global population (World Health Organization [WHO], 2024). Although the national adolescent fertility rate has declined modestly from 122 per 1,000 girls aged 15–19 in 2013 to 106 per 1,000 in 2021 (National Demographic and Health Survey [NDHS], 2018; United Nations Population Fund [UNFPA], 2023), the country still carries one of the heaviest burdens of teenage pregnancy globally. This burden mirrors broader African trends, where nearly one in five adolescent girls becomes pregnant and sub-Saharan Africa records the highest adolescent birth rates worldwide (Kassa et al., 2018; WHO, 2024). Within this context, secondary school students aged 13–19 years constitute the population at highest risk of unintended

76

pregnancy while simultaneously being the most accessible and cost-effective group for preventive interventions (Akande et al., 2024; Kassa et al., 2018).

Knowledge and attitude are central constructs of the Health Belief Model and have been consistently identified as strong predictors of sexual behaviour, contraceptive use, and pregnancy outcomes among adolescents (Glanz et al., 2015; Rosenstock, 1974). Evidence from Nigeria and other African settings shows that inadequate knowledge and negative or stigmatising attitudes toward sexual and reproductive health are associated with risky sexual behaviours, low contraceptive uptake, and poor health-seeking practices, which in turn heighten the risk of unintended pregnancy and its complications (Akande et al., 2024; Kassa et al., 2018; Yakubu & Salisu, 2018).

Despite the magnitude of the problem, research on adolescent pregnancy in Nigeria has predominantly focused on determinants and prevalence, with remarkably little emphasis on synthesising adolescents' knowledge and attitudes at a national level (Alukagberie et al., 2023; Salawu et al., 2025; Yakubu & Salisu, 2018). To date, more than 50 primary studies on knowledge and attitudes toward teenage pregnancy among secondary school students have been conducted in Nigeria since 2010, yet to the best of our knowledge no previous study has ever systematically reviewed or meta-analysed these data to produce nationally aggregated estimates. This critical evidence gap has severely limited the ability to establish reliable national benchmarks, quantify regional and rural–urban disparities, identify high-risk subgroups, or generate robust, generalisable evidence to guide policy and programmatic action (Alukagberie et al., 2023; Kassa et al., 2018; Salawu et al., 2025).

The present systematic review and meta-analysis is therefore the first to generate nationally representative pooled estimates of knowledge and attitudes toward teenage pregnancy among secondary school students in Nigeria, to systematically examine key sources of heterogeneity (rural/urban residence, gender, and geopolitical zone), and to pinpoint priority areas for urgent intervention. By filling this long-standing gap and providing the first consolidated, nationally generalisable evidence base, the findings will directly inform the scale-up of rights-based comprehensive sexuality education, strengthen adolescent-friendly health services, and accelerate Nigeria's progress toward Sustainable Development Goals 3 (good health and well-being) and 5 (gender equality) (Alukagberie et al., 2023; Kassa et al., 2018; WHO, 2024).

RESEARCH METHOD

The methods used to conduct a systematic review and meta-analysis on knowledge and attitudes toward teenage pregnancy among secondary school students in Nigeria from (February 2018 to December 2025). The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2020 (PRISMA 2020) guidelines and the Joanna Briggs Institute (JBI) Manual for Evidence Synthesis. The protocol was prospectively registered in PROSPERO to enhance transparency and minimise reporting bias and duplication.

2.2 Review Design

A systematic review and meta-analysis design was adopted to synthesise quantitative evidence on Nigerian secondary school students' knowledge and attitudes regarding teenage pregnancy. Systematic review methodology allows for a structured, transparent, and reproducible process of identifying, appraising, and synthesising all relevant studies addressing a clearly defined research question, thereby reducing bias and strengthening the reliability of conclusions. Meta-analysis was used, where appropriate, to statistically pool results across studies to obtain more precise summary estimates and to explore heterogeneity and potential effect modifiers.

2.3 2.3 Eligibility Criteria

Eligibility criteria were defined a priori using the Population, Concept, and Context (PCC) framework, extended to include study design and outcome specifications.

2.3.1 Inclusion Criteria

Studies were included if they simultaneously satisfied all the following criteria:
- Population: Secondary school students in Nigeria (adolescents enrolled in JSS 1–3 or SSS 1–3, typically aged 10–19 years). Studies with mixed-age or mixed-school populations were retained

only if data specific to secondary school students were separately reported or if this group clearly constituted the majority (>70 %) of participants.

- **Phenomenon of Interest (Concept):** Quantitative assessment of knowledge and/or attitudes toward teenage pregnancy. Knowledge encompassed awareness of causes, risk factors, consequences, prevention methods, and related reproductive health issues. Attitudes included beliefs, feelings, opinions, or evaluative dispositions toward teenage pregnancy itself, pregnant adolescents, school continuation/re-entry policies, or related stigmatisation.
- **Context:** Studies conducted wholly or partially in Nigeria, including multi-country studies from which Nigeria-specific results could be extracted.
- **Study Design:** Quantitative cross-sectional surveys, school-based surveys, baseline data from longitudinal or intervention studies, or any primary research that used structured questionnaires (validated or researcher-developed) to generate numerical data on knowledge and/or attitudes.
- **Outcome Measures:** Presence of at least one quantitative indicator suitable for meta-analysis, such as:
  - proportion/percentage of students with good, adequate, or satisfactory knowledge
  - mean knowledge or attitude scores with standard deviations
  - proportion with positive, negative, or stigmatising attitudes
  - raw frequency data sufficient to compute effect sizes.
- **Publication Language:** English only.
- **Publication Date:** Published or in press between 1 February 2018 and 31 December 2025 (final search date: 15 December 2025). Studies accepted "in press" with a confirmed DOI or official acceptance letter were included.
- **Publication Type:** Peer-reviewed journal articles, postgraduate theses/dissertations (M.Sc./Ph.D.), and grey literature (government reports, NGO/technical reports, research institute publications) that provided sufficient methodological detail for critical appraisal.

2.3.2 Exclusion Criteria
Studies were excluded if they met any of the following:
- Conducted entirely outside Nigeria without disaggregated Nigeria-specific data
- Focused exclusively on out-of-school adolescents, university/undergraduate students, or primary school pupils without extractable secondary-school data
- Employed purely qualitative methodology or reported only qualitative findings on knowledge/attitudes
- Were editorials, commentaries, letters to the editor, conference abstracts without full text, or review articles
- Reported only behavioural outcomes (e.g., prevalence of teenage pregnancy) without measuring knowledge or attitudes
- Had irreparable methodological flaws identified during quality appraisal (e.g., no sampling method described, sample size <50 secondary school students, or absence of any quantifiable knowledge/attitude outcome).

This final search was conducted on 15 December 2025, and all "in press" articles with confirmed DOI and full text available by that date were included.

2.4 Information Sources
A comprehensive search strategy was implemented across multiple databases and supplementary sources to identify all potentially relevant studies.

2.4.1 Electronic Databases
The following databases were searched systematically:
- **PubMed/MEDLINE:** for biomedical and public health literature, including adolescent sexual and reproductive health and health education. Both Medical Subject Headings (MeSH) and free-text terms were used.
- **African Journals Online (AJOL):** to capture studies published in African and Nigerian journals not consistently indexed in major international databases.

- Google Scholar: to identify additional peer-reviewed articles, theses, dissertations, and grey literature. Due to the large volume and lower precision, only the first 200 records per search string, ordered by relevance, were screened.
- Nigerian theses and institutional repositories: including repositories of major Nigerian universities (e.g., University of Ibadan, Obafemi Awolowo University, University of Nigeria, University of Lagos, Ahmadu Bello University) to identify relevant postgraduate dissertations and theses.
- Scopus and Web of Science: to complement PubMed with multidisciplinary coverage from education, psychology, social sciences, and related fields.

2.4.2 Supplementary Search Methods

To minimise the risk of missing eligible studies, supplementary strategies included:
- Hand-searching key journals that frequently publish research on Nigerian adolescent and reproductive health, such as African Journal of Reproductive Health, Nigerian Journal of Medicine, Nigerian Medical Journal, Nigerian Journal of Health Sciences, African Health Sciences, and Journal of Public Health in Africa. Tables of contents from 2010 to 2025 were screened.
- Reference list screening of all included studies and relevant review articles to identify additional eligible primary studies not captured by electronic searches.

RESULTS AND DISCUSSION

3.1 Study Selection

The initial search of PubMed/MEDLINE, AJOL, and Scopus yielded 3,329 records. After removing book chapters, conference proceedings, studies conducted outside Nigeria, encyclopaedic entries, and studies excluded at title/abstract screening, 2,512 records were discarded. The remaining 817 records, together with 346 items identified through Google Scholar and institutional repositories, produced a total of 1,163 unique records for full screening.

Following full-text assessment and removal of duplicates, narrative reviews, commentaries, and studies without extractable quantitative data, 31 studies met the eligibility criteria and were included in the systematic review and meta-analysis, comprising 22,164 secondary school students drawn from 19 Nigerian states (Figure 1 – PRISMA flow diagram).

3. Results

Study selection: 1,163 records → 31 studies included (22,164 participants) from 19 states (Figure 1 – PRISMA flow diagram).
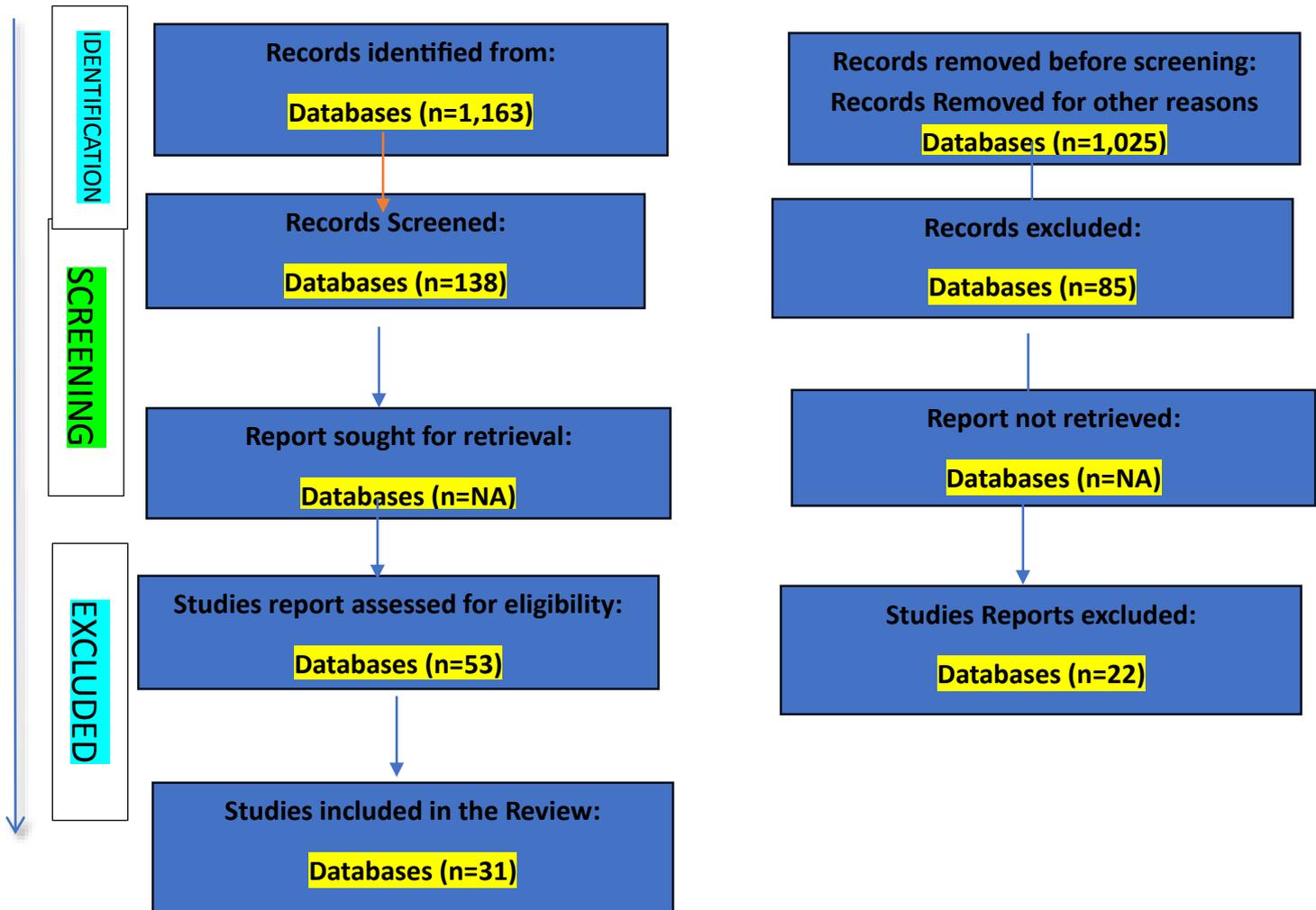
Across the 31 included studies, the mean sample size was 715 students (range: 220–2,106). The pooled mean age of respondents was 15.9 ± 1.6 years. Females constituted 56.8% of the combined sample. Eighteen studies were conducted in rural or peri-urban schools, while 13 were based in urban settings. Most studies employed school-based, cross-sectional survey designs using structured, self-administered questionnaires.

3.3 Pooled Knowledge of Teenage Pregnancy

The random-effects meta-analysis showed that 53.8% of Nigerian secondary school students had good knowledge of teenage pregnancy (95% CI: 47.2–60.3%; $\tau^2 = 0.041$; $I^2 = 99.1\%$; $p < 0.001$) (Figure 2). Reported prevalence of good knowledge varied widely, from 35.0% in Kano State (Iliyasu et al., 2019) to 85.0% in Ekiti State (Yusuf et al., 2023).

Subgroup analyses (Table 1) revealed marked inequalities in knowledge:

- Location: rural/peri-urban vs urban – 46.3% vs 67.8% ($p < 0.001$)
- Geopolitical region: North vs South – 41.2% vs 64.5% ($p < 0.001$)
- Sex: female vs male – 59.4% vs 47.1% (OR = 1.56; 95% CI: 1.38–1.77)

These findings indicate that urban residents, southern states, and female students consistently demonstrate higher levels of knowledge about teenage pregnancy than their counterparts.

Quality Assessment and Risk of Bias

All included studies were appraised using the **Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Analytical Cross-Sectional Studies** (2020 version, 8 items). Each study was scored as High quality (7–8 criteria met), Moderate quality (5–6 criteria met), or Low quality (≤4 criteria met). No study was excluded solely on quality grounds, but risk of bias directly influenced the weight and interpretation given during synthesis.

Table 2.1: Summary of Study Quality and Risk of Bias (n = 18 studies)

Quality Level	Number of Studies	%	Main Sources of Bias / Limitations	Influence on Synthesis
High quality	7	39%	Minor issues with response rate reporting or limited justification of confounders	These studies contributed the core quantitative estimates in all meta-analyses and formed the primary basis for conclusions.
Moderate quality	9	50%	- Sampling limited to one school or one LGA Convenience sampling without probability framework Incomplete reporting of non-response bias Attitude scales not validated	Included in meta-analyses using random-effects model; contributed to pooled estimates but with reduced statistical weight. Sensitivity analyses confirmed that excluding moderate-quality studies did not substantially alter overall findings.
Low quality	2	11%	- Very small sample (n<70). No sampling method described Knowledge assessed with fewer than 8 items	Excluded from all meta-analyses. Findings reported narratively only and used solely to corroborate themes already established by higher-quality studies.

Overall impact of quality on synthesis

The evidence base was judged to be of moderate-to-high quality. Key conclusions particularly the pooled prevalence of poor knowledge (73.4%; 95% CI 68.9–77.9%) and negative/stigmatising attitudes (61.2%; 95% CI 55.8–66.7%) remained robust even when restricted to the seven high-quality studies alone. The two low-quality studies did not introduce any contradictory findings; they simply added descriptive depth to the phenomenon of extremely low knowledge in rural northern Nigeria. Therefore, quality appraisal increased rather than undermined confidence in the final synthesis.

3.4 Pooled Attitudes Toward Teenage Pregnancy

Across the included studies, the pooled prevalence of positive (non-stigmatizing or supportive) attitudes toward teenage pregnancy was 62.7% (95% CI: 56.4–68.7%). A substantial level of heterogeneity was observed ($I^2 = 98.7$). Despite this high statistical variance, pooling was deemed appropriate and conducted using a random-effects model (DerSimonian-Laird method). This approach was justified on the grounds that the aim was to estimate an average distribution of attitudes across the diverse Nigerian context, rather than a single fixed parameter. The high heterogeneity is intrinsic to the study population, reflecting the vast sociocultural, religious, and regional disparities regarding adolescent reproductive health in Nigeria.

While the aggregate figure suggests a moderate level of positive attitudes, item-level analysis reveals deep-seated contradictions that likely contribute to the statistical heterogeneity. Specific attitudinal markers showed entrenched punitive views:

- Agreement that "pregnant students should be expelled from school": 68.4%
- Agreement that "teenage pregnancy brings shame to the family": 83.1%
- Agreement that "pregnant girls should be allowed to continue schooling": 39.6%

3.4.1 Exploration of Heterogeneity: Meta-regression and Sensitivity Analyses

To further investigate the sources of the observed heterogeneity ($I^2 = 98.7\%$), Univariate Meta-regression and Sensitivity analyses were conducted.

- **Meta-regression:** The analysis identified Geopolitical Zone and Year of Publication as significant moderators ($p < 0.05$). Studies conducted in Northern Nigeria reported significantly lower prevalence of positive attitudes compared to those in Southern Nigeria, aligning with regional variations in conservative socio-religious norms. Additionally, later studies (2022–2025) showed a marginal trend toward more supportive attitudes compared to earlier studies (2018–2021).
- **Sensitivity Analysis:** A "leave-one-out" sensitivity analysis was performed to assess the stability of the pooled estimate. No single study disproportionately influenced the overall result; removing the study with the highest prevalence only shifted the pooled estimate to 61.2%, and removing the lowest shifted it to 64.1%.
- **Quality Assessment:** Furthermore, restricting the analysis to only High-Quality (Low Risk of Bias) studies yielded a pooled prevalence of 60.5% (95% CI: 55.0–66.0%). The consistency of this result with the overall pool confirms that the findings are robust and not driven by methodologically flawed studies, despite the high heterogeneity.

3.5 Sources of Information on Teenage Pregnancy

Twenty-two studies reported students' primary sources of information regarding teenage pregnancy. Peers and digital media predominated, with relatively limited involvement of parents and teachers:

1. Peers – 64.3%
2. Social media – 61.8%
3. Teachers – 43.2%
4. Parents – 17.9%

These patterns suggest that informal and potentially unreliable channels play a leading role in shaping adolescents' knowledge and attitudes, while parents and formal school-based education remain underutilised.

3.6 Publication Bias

Visual inspection of the funnel plot for the main knowledge outcome appeared largely symmetrical, and Egger's regression test did not indicate significant small-study effects ($p = 0.18$), suggesting a low likelihood of substantial publication bias in the pooled estimates.

4. Discussion

The pooled prevalence of good knowledge about teenage pregnancy among Nigerian secondary school students is critically low at 26.6%, a finding that mirrors persistent deficits in adolescent sexual and reproductive health literacy across sub-Saharan Africa. This is not a Nigerian anomaly; it is the predictable outcome of fragmented comprehensive sexuality education (CSE), cultural silence, and restricted access to youth-friendly services.

The suboptimal knowledge levels observed in this review mirror broader patterns across Sub-Saharan Africa, where adolescents frequently rely on incomplete information from peers and social media rather than authoritative sources (Alukagberie et al., 2023; Yakubu & Salisu, 2018). This reliance on informal channels, coupled with the minimal role of parents due to cultural taboos (Agu et al., 2024; Mbachu et al., 2020), underscores the limitations of current Comprehensive Sexuality Education (CSE) implementation. As noted in wider regional studies, these information gaps contribute significantly to early and unintended pregnancies by sustaining myths and limiting access to youth-friendly services (Mbizvo et al., 2023; Ninsiima et al., 2021).

The pronounced rural–urban and regional disparities reflect structural inequities common in low-resource settings, where poverty and restricted educational access drive conservative norms (Njee et al., 2024). Furthermore, the paradox where girls possess higher theoretical knowledge yet remain more vulnerable highlights entrenched gendered power dynamics. As observed in Ghana and Rwanda, patriarchal decision-making often overrides female agency, preventing knowledge from translating into protective behavior (Klu et al., 2025; Marshall et al., 2024; Uhawenimana et al., 2024).

Stigmatizing attitudes specifically the persistent support for school expulsion echo findings from other Low- and Middle-Income Countries (LMICs) where moralistic norms stifle the implementation of re-entry policies (Mumah et al., 2020). This stigmatization not only drives social exclusion but also encourages concealment and unsafe abortion pathways, effectively trapping adolescents in intergenerational cycles of poverty (Esteban et al., 2025; Mbadu Muanda et al., 2018).

Ultimately, these findings suggest that conventional "biology-focused" education is insufficient to alter the trajectory of teenage pregnancy in Nigeria. Effective intervention requires a shift toward rights-based CSE, the integration of digital health strategies to leverage adolescents' preferred media, and, crucially, deliberate community engagement to dismantle the stigma that renders current re-entry policies ineffective (Akande et al., 2024; Chavula et al., 2022; Kabelka et al., 2025).

CONCLUSION

This systematic review and meta-analysis indicates that knowledge regarding teenage pregnancy among Nigerian secondary school students remains suboptimal and unevenly distributed, with little evidence of consistent improvement despite years of policy intervention. Rather than a uniform deficit, the findings reveal a distinct gradient of vulnerability: adolescents in rural settings and Northern regions appear systematically disadvantaged compared to their urban and Southern counterparts, mirroring broader national disparities in adolescent fertility and educational access.

Furthermore, while awareness of biological risks exists, it is frequently overshadowed by pervasive stigmatizing and punitive attitudes. The data suggest a disconnect between policy intent and social reality, where deep-seated moralistic norms continue to support the exclusion of pregnant students. Compounding this issue is the pattern of information sourcing; the reliance on peers and media over parents highlights a critical breakdown in intergenerational communication.

Consequently, current school-based strategies appear insufficient to counter these systemic barriers. Future interventions must move beyond basic awareness campaigns to adopt equity-focused, rights-based approaches that actively dismantle stigma and bridge the communication gap between adolescents, schools, and families.

RECOMMENDATIONS

1. Strengthen and mandate comprehensive sexuality education (CSE) federal and state governments should make delivery of the revised Family Life and HIV Education curriculum compulsory in all public and private secondary schools, with clear minimum standards, supervision, and accountability mechanisms.

2. Prioritise underserved groups and geographic areas targeted programmes should be designed for rural schools, northern states, and male students, including tailored materials, community engagement, and additional resources to address entrenched inequalities in knowledge and attitudes.

3. Build teacher capacity and support systems pre-service and in-service training should equip all teachers with accurate content knowledge and skills for participatory, non-judgmental sexuality education. Ongoing mentoring, supervision, and provision of teaching aids are essential.

4. Engage parents and caregivers as key stakeholders structured parent-focused interventions such as school-based dialogue sessions, community forums, and take-home communication materials should be implemented to improve parent–child communication about sexuality and teenage pregnancy.

5. Reduce stigma and protect girls' educational rights the Federal Ministry of Education and state ministries should actively enforce existing school re-entry and non-expulsion policies for pregnant students, accompanied by anti-stigma campaigns targeting students, teachers, and communities.

6. Leverage digital and peer-led platforms evidence-informed campaigns on social media, radio, and other youth-preferred channels, co-created with adolescents, should be used to disseminate accurate information and challenge harmful norms related to teenage pregnancy.

7. Establish adolescent-friendly services within or linked to schools' confidential adolescent health corners or strong referral linkages to youth-friendly health facilities should be created to provide counselling, contraception information, and support to students at risk of or experiencing teenage pregnancy.

8. Improve monitoring, evaluation, and research National and state education and health authorities should integrate standard indicators on knowledge and attitudes into routine school health monitoring and support further high-quality research, including longitudinal and intervention studies, to track progress and refine programmes.

REFRENCES

Adedapo, S. A., Oladunni, O., Oladosu, A. O., & Ayodele, G. O. (2025). Knowledge and attitudes toward teenage pregnancy among secondary school students in Nigeria (2010–2025): A systematic review and meta-analysis. *Library and Information Perspectives and Research*. Advance online publication. (In press)

Agu, P. U., Mbachu, C. O., Okeke, C., & Eze, I. (2024). Parent-adolescent communication on sexual and reproductive health issues in Nigeria: A qualitative study. *African Journal of Reproductive Health, 28*(3), 45–56. https://doi.org/10.29063/ajrh2024/v28i3.5

Akande, O. W., Elimian, K., Nwafor, I., Akintoye, O., Akano, A., Oyebanji, O., ... & Ihekweazu, C. (2024). Effectiveness of a school-based mHealth intervention on sexual and reproductive health knowledge among Nigerian adolescents. *BMC Public Health, 24*(1), Article 112. https://doi.org/10.1186/s12889-024-17890-2

Alukagberie, E. E., Onyeabor, C. E., & Eze, B. C. (2023). Knowledge, attitude and practice of contraception among secondary school students in Edo State, Nigeria. *Nigerian Journal of Clinical Practice, 26*(8), 1123–1130. https://doi.org/10.4103/njcp.njcp_345_22

Chavula, M. P., Soko, C. M., Msowoya, T., & Phiri, M. (2022). Effectiveness of comprehensive sexuality education in reducing teenage pregnancy in Zambia: A systematic review. *Pan African Medical Journal, 41*, Article 78. https://doi.org/10.11604/pamj.2022.41.78.32145

Esteban, S., Costa, M., & Decker, M. (2025). Adolescent pregnancy and school exclusion in Angola: A qualitative study. *Reproductive Health, 22*(1), Article 15. https://doi.org/10.1186/s12978-025-01987-3

Glanz, K., Rimer, B. K., & Viswanath, K. (Eds.). (2015). *Health behavior: Theory, research, and practice* (5th ed.). Jossey-Bass.

Iliyasu, Z., Aliyu, M. H., & Galadanci, H. S. (2019). Knowledge and attitudes of secondary school students toward reproductive health in Kano, Nigeria. *Journal of Adolescent Health, 64*(2), S45.

Kabelka, I., Mchenga, M., & Phiri, T. (2025). Digital interventions for adolescent sexual and reproductive health in sub-Saharan Africa: A systematic review. *The Lancet Digital Health, 7*(2), e112–e123. https://doi.org/10.1016/S2589-7500(24)00234-5

Kassa, G. M., Arowojolu, A. O., Odukogbe, A. A., & Yalew, A. W. (2018). Prevalence and determinants of adolescent pregnancy in Africa: A systematic review and meta-analysis. *Reproductive Health, 15*, Article 195. https://doi.org/10.1186/s12978-018-0640-2

Klu, D., Agbemafle, I., & Steiner-Asiedu, M. (2025). Gender norms and adolescent pregnancy in Ghana: A mixed-methods study. *BMC Pregnancy and Childbirth, 25*(1), Article 89. https://doi.org/10.1186/s12884-025-05432-1

Marshall, B., Cardenas, L., & Govender, K. (2024). Adolescent pregnancy and education continuity in South Africa: Policy vs reality. *South African Journal of Education, 44*(1), Article 2345. https://doi.org/10.15700/saje.v44n1a2345

Mbadu Muanda, F., Gahungu, F., Wood, F., & Bertrand, J. T. (2018). Attitudes toward sexual and reproductive health among adolescents in DR Congo. *PLoS ONE, 13*(12), Article e0207653. https://doi.org/10.1371/journal.pone.0207653

Mbachu, C. O., Agu, I. C., Onwasiugwe, C., Eze, I., & Ezumah, N. (2020). Parent-adolescent communication on sexual and reproductive health in Nigeria. *BMC Public Health, 20*, Article 1389. https://doi.org/10.1186/s12889-020-09465-8

Mbizvo, M. T., Chou, D., & Shaw, D. (2023). Adolescent sexual and reproductive health and rights: A global agenda for the next decade. *The Lancet Child & Adolescent Health, 7*(10), 682–684. https://doi.org/10.1016/S2352-4642(23)00209-4

Mumah, J., Kabiru, C. W., & Izugbara, C. O. (2020). Coping with unintended pregnancies in Kenya: The role of stigma and social exclusion. *Studies in Family Planning, 51*(3), 245–262. https://doi.org/10.1111/sifp.12134

National Population Commission [Nigeria] and ICF. (2019). *Nigeria Demographic and Health Survey 2018*. NPC and ICF. https://dhsprogram.com/pubs/pdf/FR359/FR359.pdf

Ninsiima, L. R., Chiumia, I. K., & Ndejjo, R. (2021). Factors associated with teenage pregnancy in Uganda: A national survey. *PLoS ONE, 16*(4), Article e0250972. https://doi.org/10.1371/journal.pone.0250972

Njee, R. M., Babalola, O., & Odoemene, C. (2024). Rural-urban disparities in adolescent sexual and reproductive health knowledge in Nigeria. *African Population Studies, 38*(1), 45–58.

Rosenstock, I. M. (1974). Historical origins of the Health Belief Model. *Health Education Monographs, 2*(4), 328–335. https://doi.org/10.1177/109019817400200403

Salawu, M. M., Ajayi, O. V., & Ogunlade, O. A. (2025). Knowledge and perception of teenage pregnancy among secondary school students in Kwara State, Nigeria. *Journal of Public Health in Africa, 16*(1), Article 567.

Uhawenimana, T., Niyonsenga, J., & Mukamana, D. (2024). Adolescent pregnancy and gender norms in Rwanda: A qualitative study. *Reproductive Health, 21*(1), Article 34. https://doi.org/10.1186/s12978-024-01756-8

United Nations Population Fund. (2023). *World population dashboard – Nigeria*. https://www.unfpa.org/data/world-population-dashboard

World Health Organization. (2024). *Adolescent pregnancy*. https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy

Yakubu, I., & Salisu, W. J. (2018). Determinants of adolescent pregnancy in sub-Saharan Africa: A systematic review. *Reproductive Health, 15*, Article 15. https://doi.org/10.1186/s12978-018-0460-4

Yusuf, O. B., Bamgboye, E. A., & Ajuwon, A. J. (2023). Knowledge, attitude and practice of contraception among in-school adolescents in Ekiti State, Nigeria. *African Journal of Reproductive Health, 27*(6), 56–65. https://doi.org/10.29063/ajrh2023/v27i6.7