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Systematic Review

A systematic review of the evidence on the effectiveness of sexuality education interventions on young people's sexual and reproductive health outcomes in Nigeria

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ABSTRACT

Poor sexual and reproductive health (SRH) outcomes among Nigeria's youth necessitate urgent interventions to meet the country's sustainable development goal (SDG) SRH target by 2030. This review evaluates Nigeria's SRH educational interventions, focusing on their effectiveness in improving young people's (YP) SRH outcomes. It highlights the global implications of these outcomes on achieving the SDG by 2030. The review, following PRISMA standards, analyzed peer-reviewed journals and gray literature (from January 2017-June 2023), using narrative synthesis and Joanna Briggs institute (JBI) quality appraisal checklists for quasi-experimental and cross-sectional studies. The search found 1021 studies, with 6 meeting inclusion criteria (4 quasi-experimental and 2 cross-sectional studies). All reported significant improvements in YPSRH outcomes, including knowledge and attitudes towards SRH themes, uptake of SRH and HIV/STI services, parental and societal support, and reduction in risky sexual behaviors. Quality assessment revealed several methodological flaws such as inadequate blinding and contamination measures. The review offers insights for YP interventions, but methodological flaws limit effectiveness. Further studies with rigorous designs and longer follow-up are needed. The absence of economic evaluation data is a knowledge gap with important implications for decision-makers.

Keywords: Sexual education interventions, YP, Adolescents, Sexual health, Reproductive health, Contraception

INTRODUCTION

Today's population of YP (aged 10-24 years) comprising over 1.8billion people, is the largest in history, with 90% living in low- and middle-income countries (LMICs).[1] The youthful age, believed to be a transition stage between childhood and adulthood is a challenging period when significant life events occur and critical decisions are made.[1] The SRH of YP (YPSRH) is crucial for improving their wellbeing, but they are often underserved.[2] While YP are at the center of poor SRH outcomes including HIV transmission and impact, they are certainly not at the center of the resources. For example, between 2003 and 2017 only 3% of development health assistance supported adolescent.[3]

The United Nations adopted the SDGs in 2015, aiming for a better world by 2030. SDG3 focuses on promoting good health, ending preventable deaths of newborns and children under-5 years, ending all epidemics of AIDS, tuberculosis and malaria, universal access to reproductive health services, universal health coverage and access to safe, effective, quality and affordable essential medicines and vaccines for all.[4] One of the specific targets of the health SDG (SDG3.7) is that universal access to SRH services (including family planning, information and

education, and the integration of reproductive health into national strategies and programs) should be attained by 2030.[5] Implementation of these goals and targets is a common challenge (though varying in magnitude) to both developed and developing countries.[2] SRH and access to SRH services are therefore basic human rights. However, knowledge and service uptake remain limited in many LMICs especially among the youths.[6.]

Nigerian population is largely youthful with about half of its population aged under 19 years.[7] There is a high total fertility rate of 5.2% per woman, with about 17% contraceptive prevalence rate among women aged 15-49, an unmet need for family planning of 15% and a high prevalence of child marriage as about 43% of girls are married by age 18.[8] Therefore, YP especially females, need access to quality and youth-friendly services as they experience significant unfavorable SRH outcomes such as unintended pregnancies, sexual abuse and violence, sexually transmitted infections and HIV, and pregnancy and childbirth related complications.[9] Unfortunately, SRH coverage rates among this teeming population is low especially in rural and hard-to-reach areas.[10]

Many governments have sought strategies to address the specific SRH needs of YP since the 1994 international conference on population and development which placed YP's SRH on the global policy agenda.[11] Most advocated programs are complex and often involve multiple components such as: school-based teacher-led and/or peer-led education; interventions for out-of-school YP; promotion of condoms and contraceptives; access to care, support, and treatment for STIs; mass media campaigns; and legislative changes. These components may be targeted at different levels: individual, the family or the community.[12]

The massive implications of YPSRH challenges especially in LMICs like Nigeria, call for urgent and effective interventions. This review aims to describe and evaluate SRH educational interventions that have demonstrated effectiveness in improving YPSRH outcomes in Nigeria, contributing to the evidence-base on YPSRH and identifying knowledge gaps to guide future research. It further discusses the global implications of YPSRH outcomes on the achievement of the SDG.

Review question

In young Nigerians (aged 10-24 years), what is the evidence on the effectiveness of receiving SRH education interventions on their SRH outcomes compared to not receiving SRH education intervention?

The research question is formulated based on the PICOT framework:

Population

YP (aged 10-24 years) in Nigeria needing SRH services.

Intervention

Any educational intervention conducted in Nigeria seeking to improve SRH outcomes in YP.

Comparison

Measurements taken before or after an intervention or with the use of a control group not receiving SRH education intervention.

Outcomes

Knowledge and attitude to SRH themes, reduction in risky sexual behaviors such as number of sexual partners, uptake of SRH, HIV/STI services and parental/societal support

Time frame

Time frame from January 2017 to June 2023.

METHODS

This review used the preferred reporting items for systematic reviews and meta-analysis (PRISMA) checklist (Figure 1) and selected peer-reviewed, full-text articles published in English from January 2017 to June 2023 from various databases including PubMed, Embase, PsycInfo, CINAHL Plus and Google scholar, and searched for gray literature from organizations like Save the children and UNFPA.

Search strategy

Keywords associated with YP and SRH interventions and outcomes based on the definitions of YP and SRH were used such as YP, adolescents, sexual health education, contraceptives, interventions and Nigeria among others.[5,8] Refining the search process further generated the following keywords and Bolean operators: (Nigeria*) and (sex*) and (reproductive*) and (educat* or train*) and (intervention* or program* or initiative* or projec* or package*) and (adolescent* or youth* or young* or teenage*) and (effect* or impact* or outcome* or efficac*). Searches were complemented by scrutinizing the reference lists of relevant publications.

Duplicate articles were removed, titles and abstracts screened for relevance, and where there were doubts, the full article was reviewed. Inclusions and exclusions were recorded following the PRISMA guidelines.

Inclusion and exclusion criteria

Studies were eligible for inclusion if they were peer-reviewed or gray literature, carried out in Nigeria alone or with other countries but reported segregated data for Nigeria, published in English language between January 2017 to June 2023 and reported an intervention targeted

at YP aged 10-24 years. Review articles and studies targeting age groups other than 10-24 years or did not report segregated data for the age group of interest were excluded. SRH interventions without educational components were excluded.

Quality assessment and ranking strategy

The JBI checklists were used for quality assessment of quasi-experimental studies and cross-sectional studies.[13] The checklists consist of 9 questions (quasi-experimental design) and 8 questions (cross-sectional studies) assessing aspects like participant characteristics and treatments, multiple evaluations, reliability, and validity of measurement tools, among others.

Quality of both intervention and its evaluation rated on scale from 1 (Weak) to 5 (Strong). Aspects considered (in addition to quality assessment checklists) included theory, pilot-testing, personnel training, contamination prevention, no. of evaluations, follow-up length and analytical techniques among others. Studies ranked 1/2 had more identified weaknesses than strengths while ranked 4/5, more identified strengths than the weaknesses.

Data synthesis

Due to the heterogeneity of interventions, study designs and outcomes, a narrative synthesis of extracted data was conducted. A data extraction form was developed (Table 1 and 2) covering domains such as author and date, aims, study design, sampling methods, program description, main findings, some parameters used for appraisal and quality assessment, among others. The study characteristics, program description, program outcomes and quality assessment findings are described.

RESULTS

The PRISMA flow chart (Figure 1) summarizes the search results showing 1021 results, 908 of which were non-duplicate citations, 720 studies excluded after title and abstract screening, full-text of 2 articles were not found and 180 studies excluded after full-text screening yielding 6 eligible studies.[14-19]

Study characteristics

Three out of the six studies were published in 2023. Study locations include South-eastern Nigeria South-west South-south, Central, North-east and North-west.[14-19] Four studies adopted a quasi-experimental design with a control group except that conducted by Akuiyibo and his group.[13] While two studies were cross-sectional.[13,14,18] All interventions targeted YP (10-24 years) of mixed gender except the study by Arije and colleagues which targeted young females.[14] A full breakdown of the studies' details is given in Table 1.

Program description and theoretical frameworks

Some studies lacked adequate information on program details (Table 1): No details about the training/curriculum content for peer and parental/spousal education was provided in two studies.[14,18] Inadequate detail about content and procedure of co-operative learning method was observed in work by Igwilo and the collegues.[16]

Educational formats varied including television drama series, lectures, discussions, role play, demonstrations, pictures, charts, and leaflets.[15-17]

Interventions were implemented by teachers alone; peer educators alone; parents and peer-educators and teachers/counsellors and peer-educators.[14-18] All interventions were school-based excluding two that targeted both in- and out-of-school YP.[14,15] Two studies were grounded in theory: One based on the health belief model (HBM) while other grounded in the information-motivation-behavioral skills (IMB) theory.[17,18]

Program outcomes

All studies reported significant intervention effects on SRH outcomes including (1) Knowledge and perception of SRH themes (2) SRH, HIV/STI service uptake (3) parent and societal support and (4) Risky behaviors.

SRH, HIV/STI knowledge and perception of SRH themes

Five studies reported significant intervention effects for improving YP's knowledge and perception of SRH, HIV/STI: A television drama series had an increase in knowledge about condom use and STI symptoms post-intervention compared to baseline ($p \leq 0.001$).[15] Eze and colleagues found that the interventions group had more knowledge of available SRH services (48%, $p<0.001$) and perceived them as valuable (94.7%, $p=0.004$) compared to the non-intervention group (16.1% and 87.5% respectively). Significant increases in pre/post-test knowledge and attitudes ($p<0.05$) among the intervention group was reported by Igwilo and colleagues but made no comparison with the control.[19]Significant differences in mean STI/HIV knowledge and attitude scores ($p<0.001$) were reported by Yohanna and his team.[17] While a parent-led arm had the highest impact on perception with a mean difference of 16.618 compared to 7.891 (peer-led), 13.982 (peer- and parent-led) and -0.545 (control) $p<0.01$.[18]

SRH, HIV/STI service uptake

A statistically significant increase ($p<0.001$) in uptake of HIV testing services and uptake of male condoms following the delivery of a five-component intervention (parental communication, peer-to-peer interventions, facilitator-led interventions, condom distribution and social media-based interventions) compared to the control site has been reported.[14]

Parent and societal support

Two studies reported improved parental and societal support for YPSRH services: A 23.2% to 40.6% increase in parental communication on SRH issues in six months leading to increased uptake of SRH and HIV services in the intervention group compared to 3.9% to 18.9% (control).[14]Also reported was a proportion of 79.7% adolescents (intervention) versus 69.7% (non-intervention) having parental and community support for SRH service utilization.[16]

Risky behaviors

Assessing impact of SRH educational intervention on sexually risky behaviors (multiple sexual partners). Authors reported statistically significant reduction in risky behaviors though effect size was small.[17]

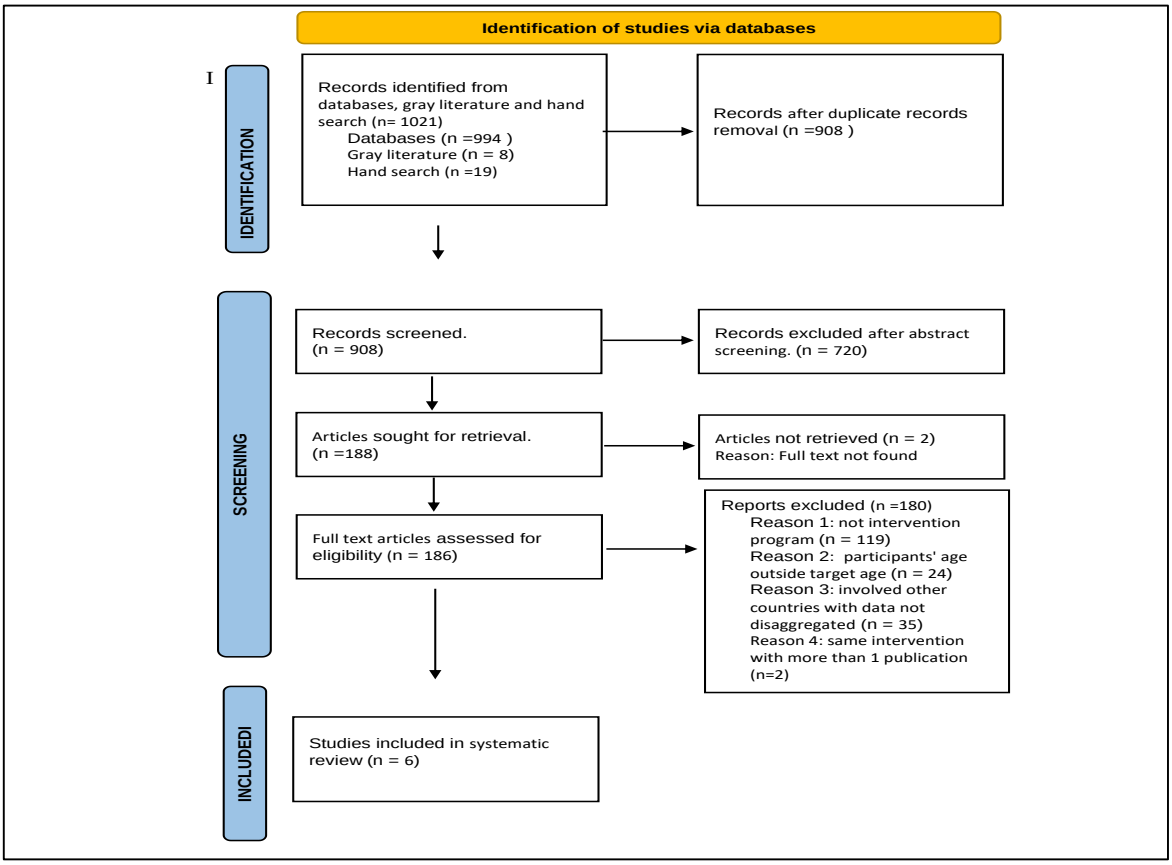

Figure 1: PRISMA flow chart.

PRISMA 2020 statement: an updated guideline for reporting systematic reviews.[20]

Quality assessment

Variations in the methodological qualities of the included studies exist (Table 1 and 2). All studies employed varying sampling strategies except Akuiyibo et al which used purposive sampling for recruiting peer-educators. Three studies described their sampling eligibility criteria and collected statistically powered samples.[14,16,17] All studies used control with exception of one.[15]

Two studies reported blinding of assessors to arm allocation.[16,17] Measures to prevent contamination was reported in one study.[17] Most studies pilot-tested their data collection tools except for two.[15,19] Most of the studies had a short follow-up period (ranging from 0-3 months). Follow-up in study by Arije and his colleagues was not specified.[14] Four studies tested for validity and/or reliability of their data collection tools.[15,17-19] Two studies did not adequately describe data analysis procedures.[14,15] Igwilo and his group reported collection pre- and post-intervention data for the control group but did not use the data for comparison with the intervention group.[19] Only a comparison between the mean scores of the urban and rural participants in the intervention group was reported and discussed.[19] No study examined the effect of potential confounders. All studies reported how informed consent was sought and received ethical approval. All studies had multiple evaluation points with exception of that conducted by Akuiyibo and colleagues.[15] Two studies did not involve use of trained personnel.[18] Based on the quality assessment and evaluation (Table 2), the most methodologically rigorous and appropriate study was Yohanna and his group as it had more identified strengths than weaknesses.[17]

Table 1: Study characteristics.

Author and date	Aim	Study design	Sampling method, participant details, attrition	Type and description of intervention	Outcome measures	Key results
Arije et al, 2023[14]	To use a collaborative approach in developing a minimum HIV prevention package for adolescent girls and young women in Nigeria	Mixed: quantitative cross-sectional descriptive study, and follow-up qualitative focus group discussion	Purposive sampling (location), random sampling for participants (n=4308) aged 15-24 years. Follow-up focus groups (n=53) discussions.	Parent- and peer-led participatory action research targeting in- and out-of-school young women. Intervention involved structural, behavioral and biological components	Knowledge of SRH themes; Uptake of HIV/SRH services	Statistically significant increase in knowledge and uptake of services compared to the control.
Akuiyibo et al, 2021[15]	To assess effectiveness of peer education program in addressing SRH related knowledge and concerns of YP in North-western Nigeria.	PPQED	Purposive sampling for peer-educators. Mobilization of willing participants (8930 YP aged 15-24 years)	Peer-led, intervention targeting both in- and out-of-school YP. 3-day training of 54 peer-educators Peer-led discussions following television drama programs with participant (5 days)	Knowledge of SRH themes such as STIs/HIV.	Significant improvement in knowledge around most SRH themes.
Eze et al, 2023[16]	to compare adolescents' experiences with targeted SRH interventions and those without, assessing their awareness, value, perception, and societal support for SRH service utilization.	Comparative cross-sectional design	Purposive sampling (location), random (control schools), and purposive selection for schools that had received prior intervention. A powered sample size of 514 participant (13-19 years); mixed gender,	Curriculum-based, adult-led (teachers and counsellors) peer-led, school-based intervention. Multifaceted: involving training of trainers (n=29), teachers (n=22) and peer-educators (n=22). Establishment of health clubs, community sensitization and distribution of the SRH educational materials	Awareness of available SRH services, value perception; and parental/societal support for adolescent SRH service utilization.	Statistically significant increase in awareness of available SRH services, value perception and parental/societal support for adolescent SRH service utilization in the intervention compared to the control group
Yohanna et al, 2023[17]	To assess the effectiveness of a family life and HIV education (FLHE) program in enhancing STI/HIV knowledge and attitudes, and reducing risky behaviors among YP in North-east Nigeria.	PPQED	Simple random sampling (location, school, class) Alternate sequencing (participant categories). A powered sample of 400 participants (15-19 years); mixed gender. 384 were successfully resurveyed	School-based, teacher-led. FLHE curriculum was integrated with carrier subjects and delivered to the intervention group (2 months).	Knowledge and attitude to SRH themes, reduction in risky behaviors.	Statistically significant improvements in knowledge and attitudes; statistically significant reduction in risky behaviors. Magnitude of effect size is small.
Olanrewaju and Elebiju, 2020[18]	To investigate the impact of peer-led, parent-led, and a combination of both on knowledge and perception of reproductive health and HIV	PPQED	Simple random (location and school), random sampling (participants and peer-educators). Powered sample of 220 students (10-19 years) number of the peer-educators not specified	School-based, peer- and parent-led. Training content not described. Participants randomly allocated into 4 arms: 3 intervention groups (peer-led; parent-led; and peer- and parent-led) and 1 control group.	Knowledge and perception to SRH and HIV	All intervention groups showed statistically significant knowledge and perception gains compared to the control. Parent-led intervention showed the greatest effect size.
Igwilo et al, 2020[19]	To assess effectiveness of student-centered learning in enhancing knowledge and positive attitudes towards sexual health compared to traditional teaching methods	PPQED	Simple random sampling of adolescents (n=140; age not specified; mixed gender).	School-based, peer- and teacher-led. Training content not adequately described. Both groups were exposed to same sexuality education topics but in different ways: student-centered (experimental) versus the traditional teaching method (control)	Knowledge and attitude of SRH themes.	Experimental group exhibited higher mean scores for knowledge and attitude than the control group, but statistical analysis was not reported

Key: PPQED = Pre-post quasi-experimental design; SRH = Sexual and reproductive health.

Table 2: Quality appraisal.

Author/ date	Quality appraisal tool	Control group	Blinding	Contamination measures	Pilot testing	Time to evaluation	Validity/ reliability testing	Strengths/ limitations (S/L)	Ranking
Arije et al, 2023[14]	JBI	Yes	No	No	Yes	Baseline, unclear	No	S: participants selection from different geo-political zones in Nigeria; powered sample size, pilot-testing conducted, personnel training conducted L: single evaluation, no baseline data, short follow-up, inadequate measures to control for confounders, possible contamination. Multiple and varying interventions across study sites limit ability to attribute impact to intervention. Not grounded in theory.	2
Akuiyibo et al, 2021[15]	JBI	No	No	No	No	Immediately after intervention	No	S: Large sample size. Personnel training conducted. L: several factors not fully controlled such as participant selection. Re-evaluation done immediately after intervention, no follow-up. Pilot testing, validity and reliability of data collection tool not conducted. Not grounded in theory.	1
Eze et al, 2023[16]	JBI	Yes	Yes	No	Yes	Baseline, 3 months	Face validity	S: Personnel training conducted, powered sample size, pilot-tested tool, estimates of the intervention effects (confidence interval, p-values) reported. L: social-desirability bias; possibility of group contamination, single evaluation point, not grounded in theory	3
Yohanna et al, 2023[17]	JBI	Yes	Yes	Yes	Yes	Baseline, 1 month	Content and Face validity	S: Grounded in theory; adequate blinding and contamination prevention measures, adequate description of intervention content, pilot-testing conducted, multiple evaluation points, ANCOVA used to determine impact of intervention. L: Short follow-up (1 month)	5
Olanrewaju and Elebiju, 2020[18]	JBI	Yes	No	No	Yes	Baseline, 8 weeks	Validity and reliability	S: Validity and reliability of data tools ascertained, grounded in theory, pilot-testing conducted, no attrition, multiple evaluation points, powered sample, L: content of training and intervention not adequately described, blinding and contamination-prevention measures not reported	4
Igwilo et al, 2021[19]	JBI	Yes	No	No	No	N/S	Face, content validity and reliability	S: contamination-prevention measures taken, face and content validity and reliability of data collection tools ascertained. L: Data analysis not rigorous, statistical power analysis not reported, pilot-test not reported, time to re-evaluation (post-test) not specified. No analytical comparison between groups.	2

Key: JBI reviewers manual.

DISCUSSION

This systematic review evaluates SRH educational interventions in Nigeria focusing on their effectiveness in improving YP's SRH outcomes. Ostensibly, the studies show positive results in knowledge, attitude, and perception of SRH with significant improvements in this domain. Similar reviews have reported statistically significant positive outcomes in these aspects. A previous review identified three out of fifty-five studies observing measured changes in SRH knowledge and six out of fifty-five studies observing measured changes in HIV/STI knowledge.[21] All these studies report statistically significant improvements in knowledge.[21] A large systematic review reported widespread positive outcomes in the knowledge-attitude domain as well as in the behavioral aspect of SRH.[22] This supports the behavioral outcome of the current review in which there were reductions in risky behaviors such as multiple sexual partners and increased condom use.

These results underscore theory that improving SRH knowledge through targeted and focused educational packages can produce positive impacts on SRH knowledge, attitudes and even behavior.[15]However, improvement in knowledge will not lead to a decrease in SRH issues unless behavior changes.[23] Hence the need for behavioral interventions to be grounded in theory. Most methodologically rigorous and appropriate study in current review was grounded in information-motivation-behavioral skills (IMB) theory developed by Fisher and Fisher.[17] This theory postulates that individuals need to be informed (SRH knowledge), motivated (personal and social motivations like perceived social support) and be behaviorally skilled (self-efficacy) to adopt and sustain healthy behaviors.[24] Regrettably, sustainability of the behavioral changes observed in study is uncertain as study had short follow-up period (1 month).[17.]

This review also found an increase in uptake of SRH and HIV/STI service encouraged by parental/societal support. A similar observation was reported where identified parental communication as a significant predictor of uptake of SRH services.[25]

The effectiveness of these interventions is largely constrained by methodological flaws as highlighted in Table 2. Most studies failed to report critical components of their program like powered samples, blinding, contamination measures, among others. A lack of consideration for theory as basis for intervention effectiveness in most of the studies is also a concern. It is therefore speculative to conclude on the effectiveness of these interventions on YPSRH outcomes based on the results of this review. Further studies with rigorous designs, longer follow-up and standardized measurement tools are required to enable comparability of results and long-term impacts.

Strengths and limitations

A strength of this review is the variability in the characteristics of the interventions with respect to location, educational format, the gender mix, the target YP (in-school and out-of-school) as well as the implementers (peer-educators, teachers, and parents). These lend credence to its generalizability irrespective of regional, demographic, or cultural characteristics of the location. However, the review findings are based on methodologically flawed studies. There is the possibility that not all intervention studies were identified and assessed for eligibility. There is also the possibility that additional details for each program may have been missed as authors of included studies were not contacted.

Knowledge gap

Most of the interventions were small-scaled and of limited duration. In practice, the choice and implementation of interventions in LMICs like Nigeria is constrained by resource availability.[12] None of the reviewed studies conducted economic evaluations of the interventions nor included any costing data. This gap has important implications for decision-makers as they try to use evidence to choose feasible interventions.

Implications

With 7 years left to 2030, Nigeria's SRH indices remains poor as only modest improvements have been observed.[9] Nigeria, with a population equivalent to 2.78% of the world population contributes about 14% of maternal mortality and 9% of the HIV/AIDS burden globally.[26,27] Young females bear a higher burden of mortality and morbidity.[28] YP are the most impacted by HIV/AIDS with young women accounting for about 25% of all new HIV infections globally.[2] Although Nigeria contributes significantly to the global burden of SRH issues, progress towards attainment of SDG 3 goal is slow due to persistent inequalities in the burden and access to SRH services among various sub-populations especially girls and young women.[28,19] YP are susceptible to sexual coercion and violence, child marriage (43% of girls are married by age 18), and transactional sex.[8] The unmet need for contraception among adolescents is 35.3%.[30] Policies and laws guiding health services (such as maternal and child health policy, national adolescent health policy) lack political commitment, and up-scaling effective programs to serve the needs of the vulnerable is yet to be addressed.[31] The international conference on population and development held in Egypt highlighted the relationship between SRH/reproductive rights, and human development following the observation that most countries with low socio-economic development were characterized by infringements of the SRH rights of women.[32] These imply that Nigeria is unlikely to meet the SRH targets by 2030, and meaningful development is unlikely until adequate measures are taken to address reproductive health issues particularly of YP.

Several barriers hinder good SRH for YP in Nigeria including inequalities in healthcare quality and access to SRH services. Most health facilities are not adapted to the SRH needs of YP who also experience stigma and discriminatory attitudes from providers.[33] Social determinants such as poverty, child marriage, cultural and religious opposition to utilization of SRH services by YP also contribute to Nigeria's poor SRH outcomes.[28] Poor YPSRH outcomes are further confounded by conflicts and humanitarian emergencies.[34]

Global health focusses on identifying public health issues, understanding the influential factors causing the issue, and contributing to solutions.[35] The 17 SDGs were developed for global transformation by creating equity and inclusion across board.[32] SDG 3 addresses key global health issues. Several other goals have bearings on health as they outline areas that can contribute to achieving goal 3. For example, goal 1 (No poverty) -It is well established that poverty increases vulnerability to diseases and prevents people from leading healthy and productive lives. Addressing poverty indirectly improves health outcomes.[36] Although some progress has been made globally towards achieving specific targets of the SDGs, the effects of COVID-19 pandemic, climate change, weakened global economy, and humanitarian situations have jeopardized most observed improvements.[37]

To make far-reaching impacts, public health practitioners can identify health issues unique to local communities and develop programs that can be used globally to address these issues. Organizations like the WHO and the centers for disease control and prevention (CDC) often depend on such data from practitioners as they address global health concerns.[38.]

The global growth in youth population has made youth empowerment crucial for achievement of SDGs. Global response to demographic shift, and the way in which YP transit to adulthood is crucial for human development and the health of the planet.[1] Globalization has facilitated interconnectedness among YP through digital technologies, enabling them to contribute to the resilience of their communities, drive social progress and inspire political change. Therefore, investments in YP (especially in LMICs) paves the way to an 'unparalleled multiplier effect'.[1] Macroeconomic, 'pro-poor' policies that address poverty rate and provide social protection for vulnerable should be prioritized: such as promoting income generation/generating opportunities by making markets work for the poor, access to education through scholarships for the disadvantaged, and training schemes targeting the disadvantaged.[39] This review highlights the need for the global community, through a strong political will and utilization of available resources, technologies, and knowledge, to re-ignite the progress towards reaching the SDGs and creating a brighter future for all.

CONCLUSION

Nigeria faces challenges in meeting its 2030 SRH-related SDG target necessitating the identification of effective interventions to improve YPSRH outcomes. This review of SRH educational interventions in Nigeria that showed effectiveness in improving YPSRH outcomes described the interventions, highlighting their strategies, and describing their outcomes. Although the findings of this review provide some potentially useful insights for adapting evidence-based interventions for YP in different contexts, these findings are limited by methodological flaws such that conclusions on their effectiveness is speculative. Further studies with rigorous designs and longer follow-up are required. The absence of economic evaluation data for reviewed studies is a knowledge gap with important implications for decision-makers. A strong political will can reignite progress towards the SDGs.

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REFERENCES

1. United Nations Educational Scientific and Cultural Organization – UNESCO (2023) Thematic factsheet: youth and empowerment. Available at: https://www.unesco.org/en/youth-and-empowerment. Accessed on 1 September 2023.
2. Joint United Nations Program on HIV/AIDS-UNAIDS. Miles to go, closing the gaps, breaking barriers, righting injustices. 2018. Available at: https://www.unaids.org/en/resources/documents/2018/global-aids-update. Accessed on 20 August 2023.
3. Li Z, Richter L, Lu C. Tracking development assistance for reproductive, maternal, newborn, child and adolescent health in conflict affected countries. BMJ Global Heal. 2019;4(4):e001614.
4. United Nations Development Program-UNDP. 'The SDGs in action: what are the sustainable development goals? 2023. Available at: https://www.undp.org/sustainable-development-goals. Accessed on 3 September 2023.
5. World Health Organization-WHO. Adolescents and young adults' health. 2023. Available at: https://www.who.int/news-room/fact-

sheets/detail/adolescents-health-risks-and-solutions. Accessed on 3 August 2023.
6. Odeigah L, Rasaki SO, Ajibola AF, Hafsat AA, Sule AG, Musah Y. High risk sexual behavior among adolescent senior secondary school students in Nigeria. Afr Heal Sci. 2019;19(1):1467-77.
7. Statista. Age distribution of populations in Nigeria in 2021 by gender. 2022. Available at: https://www.statista.com/statistics/1121317/age-distribution-of-population-in-nigeria-by-gender/. Accessed on 16 August 2023.
8. United Nations Population Fund-UNFPA (2022b) Sexual and reproductive health. 2022. Available at: https://www.unfpa.org/sexual-reproductive-health. Accessed on 8 August 2023.
9. United Nations Population Fund - UNFPA (2022a) UNFPA Nigeria 8th country program (2018-2022): Final evaluation report. Available at: https://www.unfpa.org/sites/default/files/board-documents/Nigeria%20-%20CPE%. Accessed on 6 September 2023.
10. Animasahun V, Sholeye O, Oduwole A. Promoting the sexual and reproductive health of adolescent females in Ijebu-Ode A South-west Nigeria: a study of sexual risk-taking. Int J Adolescent Med Heal. 2016;29(6):e2016021.
11. Mbizuo MT, Zaidi S. Addressing critical gaps in achieving universal access to sexual and reproductive health (SRH): the case for improving adolescent SRH, preventing unsafe abortion, and enhancing linkages between SRH and HIV interventions. Int J Gynaecol Obstetr. 2010;10(00158):50020-292.
12. World Health Organization. WHO recommendations on adolescent sexual and reproductive health. 2018. Available at: https://www.who.int/publications/i/item/9789241514606. Accessed on 1 September 2023.
13. Tufanaru C, Munn Z, Aromataris E, Campbell J, Hopp L. Systematic reviews of effectiveness', in Aromataris E, Munn Z (eds) Joanna Briggs Institute Reviewer's Manual. The Joanna Briggs Institute. 2017.
14. Arije O, Udoh E, Ijadunola K, Afolabi O, Aransiola J, Omoregie G et al. Combination prevention package of intervention for reducing vulnerability to HIV among adolescent girls and young women in Nigeria: an action research. PLoS One. 2323;18(1):e0279077.
15. Akuiyibo S, Ayanti J, Idogbo O, Piot S, Amoo B, Nwankwo N, Anosike N. Impact of peer-education on sexual health knowledge among adolescents and young persons in 2 North-western states of Nigeria. Reprod Health. 2021;18(204).
16. Eze IF, Mbachu CO, Agu IC, Akamike IC, Eigbiremolen G, Onwujekwe O. Determinants of awareness, value, perception and societal support for sexual and reproductive health services among in-school adolescents in South-east Nigeria. BMC Heal Services Res. 2023;23(505).
17. Yohanna W, Agbaje OS, Ene OC, Ofili PC, Umoke PIC. Effects of sexuality education program on young people's STI/HIV knowledge, attitude and risk behaviors in North-east Nigeria. Heal Education J. 2023;82(1):54-67.
18. Olanrewaju MF, Elebiju OJ. Effectiveness of peer- and parent-led educational interventions on HIV knowledge and attitude of in-school adolescents in selected secondary schools in Ogun state Nigeria. Texila Int J Publ Heal. 2020;13(3):257-67.
19. Igwilo SN, Okafor JO, Onwurah CC, Okondu OE. Effect of learner-centered method of teaching on sexual health knowledge and attitudes of adolescents in Anambra state secondary schools. Unizik J Educational Res Policy Studies. 2021;7:412-35.
20. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ. 2020;372:71.
21. Desrosiers A, Betancourt T, Kergoat Y, Servilli C, Say L, Kobeissi L. 'A systematic review of sexual and reproductive health interventions for young people in humanitarian and low and middle-income countries setting. BMC Public Heal. 2020;20(666).
22. Kirby D, Obasi A, Laris B. The effectiveness of sex education and HIV education intervention in schools in developing countries. World Heal Organ Technical Rep Series. 2010;938:103-50.
23. Shegog R, Baumler E, Addy RC, Peskin M, Thiel MA. Sexual health education for behavior change: how much is enough? J Appl Res. 2017;8(1):5.
24. Fisher WA, Fisher JD, Harman J. The information-motivation-behavioral skills model: a general social psychological approach to understanding and promoting health behavior', in Suls J, Wallston KA (eds) Social psychological foundations of health and illness. Hoboken, NJ: Blackwell Publishing. 2003;82-106.
25. Habte A, Dessu S, Bogale B, Lemma L. Disparities in sexual and reproductive health services utilization among urban and rural adolescents in southern Ethiopia, 2020: a comparative cross-sectional study. BMC Public Health, 2022;22(203):1-17.
26. Worldometer. Nigerian population. 2023. Available at: https://www.worldometers.info/world-population/nigeria-population/#:~:text=The%20current%20population%20of%20Nigeria,of%20the%20total%20world%20population.. Accessed on 1 September 2023.
27. International African Health Observatory. The urgency of a systemic and multisectoral approach in mitigating maternal death in Africa. 2023. Available at: https://files.aho.afro.who.int/afahobckpcontainer/

production/files/iAHO_Maternal_Mortality_Regional_Factsheet.pdf. Accessed on 1 September 2023.
28. Oyeyemi AL, Aliyu SU, Sa'ad F, Rufai AA, Jajere AM, Oyeyemi AY. Association between adolescent motherhood and maternal and child health indices in Maiduguri, Nigeria: a community-based cross-sectional study', BMJ Open. 2019;9(3):e024017.
29. Ignis IO, Ezeanochie MC. Adolescent reproductive and sexual health in Nigeria: an appraisal of the situation. J Reproduct Sexual Heal. 2017;1(1):22-32.
30. Ojoniyi OO, Oguijiuba K, Stiegler N. Susceptibility of Nigerian adolescents to pregnancy and use of modern contraceptives. Afr J Reprod Heal. 2022;26(2):106-17.
31. Akila D, Oluwasegun A, Bose K, Omotoso O, Adefila A, Mwaikambo L. Improving the quality of adolescent and youth-friendly health services through integrated supportive supervision in 4 Nigerian states. Global Heal Sci Pract. 2023;11(4):S1-14.
32. United Nations Population Fund – UNFPA. International Conference on Population and Development. 2023. Available at: https://www.unfpa.org/icpd. Accessed on 3 September 2023.
33. Nmadu AJ, Mohammed S, Usman NO. Barriers to adolescents' access and utilization of reproductive health services in a community in North-west Nigeria: a qualitative exploratory study in primary care. Afr J Primary Healthcare Family Med. 2020;12(1):e1-5.
34. 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 Reprod Heal. 2022;3:779059.
35. King NB, Koski A. Defining global health as public health somewhere else. BMJ Global Heal. 2020;5(1):e002172.
36. World Health Organization. WHO Working for a brighter healthier future: how WHO improves health and promotes well-being for the world's adolescents. 2022. Available at: https://www.who.int/publications/i/item/9789240041363. Accessed on 29 August 2023.
37. United Nations Department of Economic and Social Affairs. UNDESA The sustainable development goal report 2023: special edition. 2023. Available at: https://reliefweb.int/updates?list=UN%20Department%20of%20Economic%20and%20Social%20Affairs%20Updates&advanced-search=%28S1737%29. Accessed on 3 September 2023.
38. Turcotte-Tremblay AM, Fregonese F, Kadio K, Alam N, Merry L. Global health is more than just public health somewhere else', BMJ Global Heal. 2020;5(5):e002545.
39. Beegle K. Politics and pro-poor policies', in Beegle K, Christiaensen L. (eds) Accelerating poverty reduction in Africa. World Bank. 2019;243-5.

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