



PSYCHOLOGICAL DIMENSIONS AND IMPLICATIONS OF ADOLESCENT SEXUAL AND REPRODUCTIVE HEALTH: A SCOPING REVIEW OF EXISTING EVIDENCE

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ABSTRACT

Adolescence is a critical developmental period marked by complex biological, psychological, and social changes that influence sexual and reproductive health (SRH) behaviors. Psychological factors such as attitudes, self-efficacy, mental health, and communication skills play a crucial role in shaping adolescents' sexual decision-making and preventive behaviors. However, evidence on intervention-based strategies integrating psychological perspectives remains fragmented. This scoping review aimed to map and synthesize intervention-based evidence on adolescent sexual and reproductive health with a focus on psychological perspectives and implications. This review followed the Arksey and O'Malley framework and adhered to PRISMA-ScR guidelines. A comprehensive search was conducted in PubMed, Scopus, Web of Science, CINAHL, and Google Scholar for studies published between 2019 and 2025, identifying 245 records. After screening and eligibility assessment, 11 studies were included. Eligible studies included randomized controlled trials and quasi-experimental designs involving adolescents aged 10-19 years and interventions incorporating psychological outcomes. Data were extracted and synthesized descriptively. Eleven intervention studies from diverse global settings were included. School-based, digital, and family-based interventions consistently improved adolescents' SRH knowledge, attitudes, self-efficacy, communication skills, and preventive behaviors. Theory-driven and multi-component interventions demonstrated the greatest effectiveness. Psychological and psychosocial factors, including mental health, social norms, and parent-adolescent communication, significantly influenced SRH outcomes. However, gaps were identified in low- and middle-income countries and in long-term behavioral and mental health outcomes. Psychologically informed, theory-based, and multi-component interventions are effective strategies to promote healthy sexual and reproductive behaviors among adolescents.

Keywords: adolescents; mental health; psychological factors; sexual and reproductive health

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INTRODUCTION

Adolescence represents a critical developmental stage characterized by rapid biological, psychological, and social changes that influence sexual and reproductive health (SRH) behaviors and outcomes. Adolescents increasingly encounter intricate sexual and reproductive health challenges, including premature sexual activity, unintended pregnancies, sexually transmitted infections (STIs), and gender-based violence, which are frequently interrelated with psychological factors such as attitudes, self-efficacy, mental health, and communication skills (Musindo et al., 2023; Vanderkruik et al., 2021). Consequently, effective sexual and reproductive health interventions during adolescence are crucial for fostering healthy sexual practices and enhancing long-term health outcomes.

Globally, adolescent sexual and reproductive health remains a major public health concern. Approximately 10%-20% of adolescents encounter unmet needs for sexual and reproductive health services, whereas adolescent pregnancy persists in approximately 5-10% of girls aged 15-19 years in low- and middle-income countries (WHO, 2023). Approximately 20% of teenagers globally experience mental health disorders, which are significantly linked to sexual risk behaviors and negative reproductive outcomes (Vanderkruik et al., 2021). In Indonesia, national statistics indicate

that adolescent pregnancy is still widespread, with around 7% of females aged 15-19 having encountered pregnancy or childbirth. Furthermore, risky sexual behaviors and restricted access to adolescent-friendly sexual and reproductive health services persist (Kementerian Kesehatan Republik Indonesia, 2023). Empirical research demonstrates that school-based and digital treatments can markedly enhance sexual and reproductive health knowledge and diminish risky sexual behaviors among teenagers (Akande et al., 2024; Gómez et al., 2022; Millanzi et al., 2022).

A recent study underscores the significance of psychological factors in influencing teenage sexual and reproductive health outcomes. Elements such as attitudes, perceived norms, self-efficacy, communication skills, and mental well-being are pivotal in adolescents' sexual decision-making and preventive practices (Arcos-romero & Calvillo, 2023; Huang et al., 2022). Interventions based on behavioral theories, such as the Theory of Planned Behavior and gender-transformative strategies, have been beneficial in enhancing sexual and reproductive health-related information, attitudes, and behaviors (Darabi & Yaseri, 2022; Lohan et al., 2022). Digital and family-oriented interventions have emerged as effective techniques to improve parent-adolescent communication and encourage healthy sexual activities (Guilamo-Ramos et al., 2023; Mccrimmon et al., 2024).

Despite the implementation of several interventions to enhance adolescent sexual and reproductive health, the incorporation of psychological perspectives into evidence-based therapies remains disjointed. Prior evaluations have delineated adolescent sexual and reproductive health programs and obstacles to service accessibility; nonetheless, a thorough synthesis concentrating on psychological outcomes in intervention studies remains scarce (Agyepong et al., 2024; Chidwick et al., 2022). This scoping review seeks to delineate intervention-based evidence regarding adolescent sexual and reproductive health, emphasizing psychological perspectives and implications. It aims to provide a comprehensive overview of intervention strategies, outcomes, and research gaps to inform future policy and practice. This scoping review seeks to delineate and integrate intervention-based research about adolescent sexual and reproductive health, emphasizing psychological outcomes and implications.

METHOD

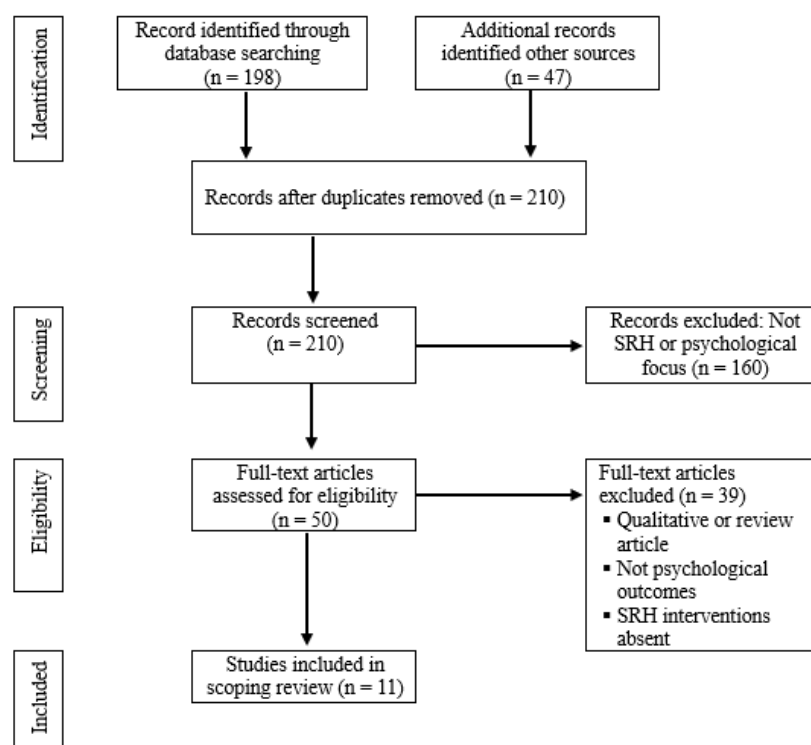


Figure 1. PRISMA Flow Diagram of Study Selection Process

This scoping review was conducted to map existing evidence on psychological perspectives and implications related to adolescent sexual and reproductive health (SRH). The review followed the methodological framework proposed by Arksey and O'Malley and further refined by Levac et al., and adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) guidelines.

Table 1.
Population-Concept-Context

PCC Component	Description
Population	Adolescents (10–19 years)
Concept	Psychological perspectives and implications of sexual and reproductive health interventions
Context	School, community, family, and digital health settings globally

Search Strategy

A comprehensive literature search was performed across major electronic databases, including PubMed, Scopus, Web of Science, CINAHL, and Google Scholar. The search covered articles published between 2019 and 2025. Keywords and Medical Subject Headings (MeSH) terms were combined using Boolean operators, including: *“adolescent” OR “teenagers” AND “sexual and reproductive health” OR “sexual health” AND “psychological” OR “mental health” OR “attitudes” OR “behavior” AND “intervention” OR “trial” OR “quasi-experimental”*. Reference lists of included studies were also manually screened to identify additional relevant publications.

Studies were included in this scoping review if they met the following criteria: 1) the population consisted of adolescents aged 10-19 years; 2) the concept focused on sexual and reproductive health interventions or outcomes incorporating psychological components, such as attitudes, knowledge, self-efficacy, mental health, communication, and risk perception; 3) the context involved school-based, community-based, family-based, or digital interventions; 4) the study design was a randomized controlled trial (RCT) or quasi-experimental study; and 5) the publication type was a peer-reviewed journal article published in English. Studies were excluded if they were qualitative studies, systematic reviews, conference abstracts, editorials, or commentaries, or if they did not explicitly address psychological aspects of adolescent sexual and reproductive health.

Study Selection

All retrieved records were imported into reference management software, and duplicate articles were removed. Titles and abstracts were screened for eligibility, followed by full-text assessment based on the predefined inclusion and exclusion criteria. Any uncertainties during the selection process were resolved through careful discussion and re-evaluation of the articles to ensure consistency with the study objectives.

Data Extraction

A standardized data extraction form was developed to systematically capture key characteristics of each included study. Extracted information included the author and year of publication, country and study setting, study design, sample size, intervention characteristics, psychological outcomes (such as knowledge, attitudes, self-efficacy, behavioral intention, and communication skills), key findings, and journal ranking (Scopus quartile or SINTA index).

Data Synthesis

From 245 identified records, 11 studies met the inclusion criteria and were included in the final synthesis. The data extracted from this research were synthesized descriptively and presented in both tabular and narrative formats. Research was classified by intervention type (school-based, digital, family-based, or community-based) and by the psychological outcomes evaluated. No assessment of methodological quality was conducted, as the primary objective of this scoping

review was to delineate the extent and characteristics of the current evidence rather than to assess study quality.

RESULT

Critical Appraisal Results

Table 2.
JBI Critical Appraisal Results of Included Studies

Author, Year	JBI Critical Appraisal Score	Study Design
Akande et al (2024)	84.6% (11/13)	Cluster RCT
Darabi & Yaseri (2022)	76.9% (10/13)	Cluster RCT
Gómez et al (2022)	84.6% (11/13)	Cluster RCT
Guilamo-Ramos et al (2023)	76.9% (10/13)	RCT (Protocol)
Lohan et al (2022)	92.3% (12/13)	Cluster RCT
Ma et al (2022)	77.8% (7/9)	Quasi-experimental
Mccrimmon et al (2024)	84.6% (11/13)	RCT
Millanzi et al (2022)	92.3% (12/13)	School-based RCT
Saragih et al (2025)	77.8% (7/9)	Quasi-experimental
Seif et al (2019)	88.9% (8/9)	Quasi-experimental
Wirsiy et al (2022)	84.6% (11/13)	RCT

The methodological quality of the included studies was assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Tools. Most randomized controlled trials demonstrated high methodological quality, with scores ranging from 76.9% to 92.3%. Quasi-experimental studies also demonstrated moderate to high quality, with scores ranging from 77.8% to 88.9%. Overall, the included studies were considered to have acceptable methodological rigor for inclusion in this scoping review.

Characteristics of Included Studies

The scoping review encompassed 11 intervention studies conducted in Africa, Asia, Europe, and North America. These studies employed randomized controlled trials and quasi-experimental designs (Table 3). Although most studies were conducted in schools, several interventions were delivered via digital platforms and family-based programs. The heterogeneity in study design and implementation was evident in substantial variation in sample sizes, which ranged from 120 to over 8,000 adolescents. The majority of studies were published in high-impact journals indexed in Scopus (Q1-Q2), with one study published in a national journal indexed in SINTA 2. This data suggests that there is a growing global and regional interest in adolescent sexual and reproductive health interventions.

Overall, the intervention outcomes demonstrated consistent improvements in adolescents' knowledge, attitudes, and preventive behaviors related to sexual and reproductive health. Behavioral and psychological outcomes, including communication skills, sexual decision-making, and self-efficacy, were frequently reported, particularly in school-based and digital interventions. In addition, numerous studies documented decreases in unsafe sexual behaviors and enhancements in gender attitudes and condom utilization. Positive effects were observed in the communication between parents and adolescents regarding sexual health through family-based and caregiver-based interventions. The efficacy of multi-component and theory-based interventions in improving both psychological and behavioral outcomes associated with the sexual and reproductive health of adolescents is underscored by these studies.

Table 3.

Overview of Intervention-Based Evidence on Adolescent Sexual and Reproductive Health

Author (Year)	Country/Sett ing	Objective	Method (Design, Sample, Intervention)	Key Findings (Outcomes)	Journal (Rank)
Akande et al (2024)	Nigeria (in-school adolescents)	To evaluate the effectiveness of an mHealth intervention on adolescent SRH	Cluster RCT; n≈1.128 adolescents; mobile-based SRH education intervention	Improved SRH knowledge, attitudes, and preventive behaviors	<i>Reproductive Health</i> (Q1)
Darabi & Yaseri (2022)	Iran (schools)	To improve menstrual health using TPB	Cluster RCT; n≈578 adolescent girls; TPB-based menstrual health education program	Improved menstrual knowledge, attitudes, and practices	<i>Journal of Pediatric and Adolescent Gynecology</i> (Q2)
Gómez et al (2022)	Colombia (schools)	To assess the sexual risk-reduction intervention	Cluster RCT; n≈1,004 adolescents; school-based sexual risk-reduction program	Reduced risky sexual behaviors and increased condom use	<i>AIDS and Behavior</i> (Q1)
Guilamo-Ramos et al (2023)	USA (family-based online program)	To evaluate an online family-based sexual health intervention	RCT protocol; planned n≈750 families; online parent adolescent sexual health program	Expected improvement in parent–adolescent communication and SRH outcomes	<i>Trials</i> (Q1)
Lohan et al (2022)	UK & Ireland (schools)	To reduce adolescent pregnancy using gender-transformative education	Cluster RCT; n>8,000 adolescents; gender-transformative sexuality education (JACK trial)	Improved gender attitudes and reduced pregnancy risk behaviors	<i>The Lancet Public Health</i> (Q1)
Ma et al (2022)	China (schools)	To evaluate SRH education among adolescents	Quasi-experimental; n≈452 adolescents; school-based SRH education intervention	Increased SRH knowledge, attitudes, and self-efficacy	<i>Public Health Nursing</i> (Q2)
Mccrimmon et al (2024)	USA (online)	To evaluate a brief online sexual health program	RCT; n≈246 adolescents; brief online sexual health education program	Improved sexual decision-making and communication skills	<i>Health Education & Behavior</i> (Q1/Q2)
Millanzi et al (2022)	Tanzania (schools)	To assess problem-based reproductive health education	School-based RCT; n≈660 adolescents; problem-based learning reproductive health materials	Improved communication, negotiation skills, and safer sexual behaviors	<i>PLOS ONE</i> (Q2)
Saragih et al (2025)	Indonesia (schools)	To evaluate training and counseling for sexual risk prevention	Quasi-experimental; n≈120 adolescents; sex education training and counseling program	Reduced risky sexual behavior and increased SRH knowledge	<i>Jurnal Promkes</i> (SINTA 2)
Seif et al (2019)	Zanzibar, Tanzania	To improve caregiver adolescent SRH communication	Quasi-experimental; n≈1,055 caregivers/adolescents; caregiver communication intervention	Enhanced caregiver–adolescent communication and SRH knowledge	<i>Reproductive Health</i> (Q1)
Wirsiy et al (2022)	Cameroon (adolescent girls)	To evaluate the SMS-based intervention on SRH	RCT; n≈312 adolescent girls; mobile SMS SRH education intervention	Increased knowledge and improved SRH practices	<i>Contraception and Reproductive Medicine</i> (Q1/Q2)

DISCUSSION

Summary of Findings

Intervention-based evidence on adolescent sexual and reproductive health (SRH) is depicted in this comprehensive review, with an emphasis on psychological perspectives. The results suggest that

adolescents' self-efficacy, communication skills, attitudes, knowledge, and preventive behaviors regarding sexual and reproductive health (SRH) are consistently enhanced by school-based, digital, and family-based interventions. Theory-based interventions, including those rooted in the Theory of Planned Behavior and gender-transformative approaches, have been shown to significantly improve psychological and behavioral outcomes among adolescents in randomized controlled trials and quasi-experimental studies (Darabi & Yaseri, 2022). The potential of technology-driven strategies in adolescent health promotion is underscored by evidence of the positive effects of digital and mHealth interventions in increasing SRH knowledge and reducing risky sexual behaviors (Akande et al., 2024; Mccrimmon et al., 2024).

The review further highlights the critical role of psychological determinants in shaping adolescent SRH outcomes. Evidence shows that mental health, psychosocial factors, and communication dynamics are closely linked to sexual risk behaviors, reproductive outcomes, and access to SRH services (Musindo et al., 2023; Wirsy et al., 2022). Interventions that integrate psychosocial components, including parent-adolescent communication and empowerment-based education, have been shown to improve decision-making, negotiation skills, and safer sexual practices (Gómez et al., 2022; Guilamo-Ramos et al., 2023; Millanzi et al., 2022). Overall, these findings suggest that multi-component and psychologically informed interventions are effective strategies to promote adolescent sexual and reproductive health across diverse sociocultural contexts.

Psychological Impacts of SRH Interventions

The psychological effects of adolescent sexual and reproductive health interventions are substantial, with a particular emphasis on the enhancement of communication skills, self-efficacy, attitudes, and knowledge. Adolescents' perceptions, intentions, and confidence in engaging in safe sexual behaviors have been significantly enhanced by school-based, theory-driven interventions that are rooted in behavioral frameworks, including the Theory of Planned Behavior and gender-transformative education (Darabi & Yaseri, 2022; Lohan et al., 2022). By providing interactive learning platforms and accessible, age-appropriate information, digital and mHealth interventions also enhance psychological readiness and decision-making (Akande et al., 2024; McCrimmon et al., 2024). These results suggest that psychologically informed interventions are essential for the development of adolescents' cognitive and affective domains in relation to sexual and reproductive health.

The efficacy of SRH interventions is further influenced by psychosocial factors, including family communication, social norms, and mental health status. The sexual behaviors and access to SRH services of adolescents are influenced by mental health conditions, stigma, and sociocultural barriers, as evidenced by systematic and scoping reviews (Janighorban et al., 2022; Vanderkruijk et al., 2021). Adolescents' negotiation skills, risk perception, and safer sexual practices are enhanced by interventions that incorporate psychosocial and communication components, particularly those that involve caregivers and families (Gómez et al., 2022; Guilamo-Ramos et al., 2023; Millanzi et al., 2022). Overall, these results emphasize the significance of integrating psychological and psychosocial components into adolescent SRH interventions to improve both mental and behavioral health outcomes.

Effectiveness of Intervention Strategies

School-based interventions are among the most widespread and effective strategies for enhancing the sexual and reproductive health outcomes of adolescents, according to the results of this scoping review. Structured curricula, interactive learning, and behavioral theory frameworks are all components of school-based programs that have been shown to significantly enhance adolescents' knowledge, attitudes, self-efficacy, and preventive behaviors regarding sexual and reproductive health (SRH) (Darabi & Yaseri, 2022; Ma et al., 2022; Millanzi et al., 2022). Positive changes in gender attitudes, communication skills, and reductions in unsafe sexual behaviors and adolescent

pregnancy-related risks are also positively influenced by gender-transformative and risk-reduction education programs (Gómez et al., 2022; Lohan et al., 2022). These findings indicate that schools provide a strategic platform for delivering comprehensive, theory-driven SRH interventions.

However, digital and family-based interventions also show potential to improve adolescents' SRH outcomes. In settings with limited health services, mHealth and online interventions enhance adolescents' access to information, decision-making skills, and preventive behaviors (Akanke et al., 2024; McCrimmon et al., 2024). Family-based programs enhance parent–adolescent communication and support adolescents in cultivating healthier sexual behaviors and psychosocial outcomes (Guilamo-Ramos et al., 2023). The potential of digital health strategies to address SRH and gender-based violence among adolescents in low- and middle-income countries is further supported by evidence from umbrella and scoping reviews (Agyepong et al., 2024; Huang et al., 2022). Multi-component interventions that integrate school-based education, digital platforms, and family engagement are generally the most effective methods for improving the sexual and reproductive health outcomes of adolescents.

CONCLUSION

This scoping review emphasizes that adolescents' knowledge, attitudes, self-efficacy, communication skills, and preventive behaviors in sexual and reproductive health are significantly enhanced by school-based, digital, and family-based interventions. SRH outcomes are significantly influenced by psychological and psychosocial factors, including social norms, mental health, and parent-adolescent communication. The most effective interventions are theory-driven and multi-component, particularly those that incorporate digital approaches. However, there are still deficiencies in the areas of mental health and long-term behavioral outcomes, as well as in low- and middle-income countries.

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