A systematic review of the provisions, successes, and limitations of comprehensive sexuality education in tackling teenage pregnancy, gender-based violence, sexual and reproductive health, and mental health

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ABSTRACT

This systematic review evaluated the effectiveness, successes, and shortcomings of Comprehensive Sexuality Education (CSE) in addressing adolescent health challenges, including Gender-Based Violence (GBV), Sexual and Reproductive Health (SRH), mental health, and teenage pregnancy. Based on andura's (1986) Social Cognitive Theory (SCT), the review covered studies published between 2000 and 2023, including peer-reviewed articles, reports, and grey literature. A comprehensive search strategy was employed across multiple academic databases, including PubMed, Scopus, and Google Scholar, with selection criteria focused on CSE interventions relevant to GBV, SRH, mental health, and teen pregnancy. A total of 48 studies were included through purposive sampling to ensure representation across diverse global contexts. Data collection involved an extensive literature search and systematic screening, followed by data extraction based on predefined inclusion criteria. Studies were assessed for relevance, quality, and methodological rigour. Data were synthesised using descriptive synthesis and thematic analysis. The findings revealed that CSE programs in high-income countries were highly successful in reducing teen pregnancy and GBV and improving SRH and mental health outcomes (Lindberg et al., 2018). In contrast, CSE in low- and middle-income countries faced considerable challenges, including cultural resistance, resource limitations, and insufficient integration of mental health. The study concluded that while CSE has demonstrated success in certain regions, its implementation requires a culturally and contextually tailored approach, particularly in low-income countries. Furthermore, integrating mental health education into CSE programs is essential for promoting holistic adolescent health. This review highlights the need for expanded global implementation of CSE, adapted to local contexts and supported by robust policy frameworks. Governments should integrate comprehensive sexuality education (CSE) into national curricula with dedicated funding, strengthen gender-based violence laws, incorporate mental health components, engage communities and, train educators. There is also need to conduct longitudinal research to ensure effective, equitable, and culturally sensitive implementation that promotes behavior change, reduces GBV, and improves adolescent mental health outcomes.

Keywords: Adolescents, Comprehensive Sexuality Education, CSE Implementation, Global Health, Gender-Based Violence, Sexual Reproductive Health, Mental Health, Systematic Review, Teen Pregnancy

I. INTRODUCTION

Adolescence represents a pivotal period in human development, marked by significant physical, emotional, and cognitive transformations (World Health Organisation [WHO], 2024). This transitional phase, typically between the ages of 10 and 19, involves the onset of puberty, the development of secondary sexual characteristics, and increased capacity for abstract reasoning and moral judgment (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2018). It is during this time that young people begin exploring their sexuality, a process influenced by a complex interplay of cultural, societal, familial, and peer norms (Mwape, 2022). The development of healthy sexual attitudes, behaviours, and relationships in adolescence lays the foundation for positive adult sexual and reproductive health outcomes, including reduced risks of unintended pregnancy, sexually transmitted infections (STIs), and intimate partner violence (Goldfarb et al., 2025). Thus, adolescence is widely recognised as a critical stage for sexual education interventions (Rodríguez-García et al., 2025).

Comprehensive Sexuality Education (CSE) has emerged as a crucial intervention designed to provide adolescents with the knowledge, skills, attitudes, and values necessary to navigate the complexities of their sexual and reproductive lives. CSE is defined by UNESCO (2018) as a rights-based, age-appropriate, and culturally sensitive educational approach that equips young people with accurate, scientifically sound information about sexual and reproductive health (SRH), relationships, gender equality, sexual rights, pleasure, and mental health. Unlike abstinence-

only programs, which are ineffective in reducing risky sexual behaviours, CSE adopts a holistic framework that acknowledges sexuality as a natural and positive aspect of human development (Goldfarb et al., 2025).

Globally, the importance of CSE has been increasingly recognised as an essential element of adolescent health programming and public health policy. Over the past three decades, the widespread implementation of CSE has gained robust support from international organisations, including the United Nations Educational, Scientific and Cultural Organisation (UNESCO), the United Nations Population Fund (UNFPA), the World Health Organisation (WHO), and the Joint United Nations Programme on HIV/AIDS (UNAIDS) (UNESCO, 2020). These organisations have consistently highlighted CSE as a cost-effective tool for promoting gender equality, reducing harmful practices such as child marriage and female genital mutilation, and improving overall adolescent health outcomes (WHO, 2024). Furthermore, CSE is integral to the achievement of several Sustainable Development Goals (SDGs), particularly SDG 3 (Good Health and Well-Being), SDG 4 (Quality Education), and SDG 5 (Gender Equality), which advocate for equitable access to comprehensive sexual and reproductive health services and education for all adolescents (UNESCO, 2020).

The significance of CSE lies in its proven ability to address multiple public health challenges that disproportionately affect adolescents worldwide. These challenges include teenage pregnancy, gender-based violence (GBV), intimate partner violence (IPV), sexually transmitted infections (STIs), including HIV/AIDS, poor sexual and reproductive health outcomes, and deteriorating mental health (Goldfarb et al., 2025). Adolescent pregnancy, for example, remains a pervasive global issue, with approximately 21 million girls aged 15 to 19 becoming pregnant each year in low- and middle-income countries alone (WHO, 2024). According to WHO (2024), complications from pregnancy and childbirth are the leading causes of death among adolescent girls aged 15 to 19 globally, accounting for an estimated 77,000 deaths annually. Many of these pregnancies are unintended and result from a lack of access to accurate information about contraception, reproductive rights, and safe sexual practices (Lindberg et al., 2018).

Additionally, gender-based violence, including intimate partner violence, sexual harassment, trafficking, and child marriage, disproportionately affects adolescent girls, placing them at greater risk for physical injury, emotional trauma, unwanted pregnancy, STIs, and even death (Muwowo et al., 2021; Richardson et al.,2025).). The World Health Organisation (2024) estimates that nearly one in three adolescent girls aged 15 to 19 has experienced some form of physical or sexual violence from an intimate partner. The integration of topics such as consent, bodily autonomy, healthy relationships, and gender equality into CSE programs has proven to be effective in preventing GBV and promoting a safer, healthier environment for adolescents (Goldfarb et al., 2025).

Moreover, adolescent mental health has emerged as a growing global concern, with increasing rates of anxiety, depression, self-harm, and suicidal behaviour among young people (WHO, 2024). Mental health challenges during adolescence are often exacerbated by issues such as stigma, societal pressures, academic stress, social media use, peer rejection, and discrimination, particularly in relation to sexuality, gender identity, and sexual orientation (Chavula et al., 2022). CSE programs that address mental health issues in an integrated manner, by offering support for emotional well-being, promoting self-esteem, teaching stress management techniques, and creating safe spaces for disclosure, have shown promise in improving adolescents' overall mental health outcomes (Akinyi et al., 2020; Lund et al., 2020). These programs foster resilience, help young people understand and manage complex emotions, reduce feelings of shame and guilt related to sexuality, and create an open environment where adolescents can seek support when facing mental health challenges (Salam et al., 2016).

Despite these documented successes, significant challenges persist in the implementation of CSE, particularly in conservative, religious, or traditional societies where topics related to sexuality, contraception, abortion, and gender identity remain highly sensitive and controversial (Mwape & Munsaka, 2021). In these contexts, CSE programs often face opposition from local communities, religious leaders, political actors, and even parents, who may believe that discussing these topics encourages early sexual activity, undermines traditional family values, or violates religious teachings (Mwape, 2022). This resistance has led to the development of watered-down, incomplete, or restricted CSE programs in certain regions, limiting their effectiveness and leaving adolescents without critical information (UNESCO, 2018). Furthermore, even in regions where CSE is nominally implemented, there are significant gaps in the quality and fidelity of delivery. Factors such as inadequate teacher training, lack of age-appropriate teaching materials, insufficient class time, large class sizes, and insufficient community engagement contribute to many CSE programs failing to meet their intended objectives (Mwape & Munsaka, 2021; Levesque et al., 2019). These gaps underscore the urgent need for a more comprehensive, contextually tailored approach that not only addresses the challenges of CSE implementation but also strengthens its capacity to meet the evolving and diverse needs of young people in a rapidly changing world.

CSE also faces critical gaps in evaluating its long-term impact and sustainability. While many cross-sectional and short-term longitudinal studies, such as those by Kirby (2007) and UNESCO (2018), have documented short-term successes in areas like reduced teen pregnancy rates, greater use of contraception, improved knowledge of SRH, and more positive attitudes toward gender equality, far fewer studies have rigorously evaluated the long-term effectiveness of CSE in preventing STIs, reducing GBV, improving mental health outcomes, or promoting sustained behaviour change into adulthood (Goldfarb et al., 2025). Without robust evaluation mechanisms that include long-term follow-up and

standardised outcome measures, it remains unclear whether CSE leads to sustained behaviour change over time or merely to temporary improvements in knowledge and attitudes (Rodríguez-García et al., 2025). Additionally, there is a notable lack of research on the cultural, socioeconomic, educational, and structural barriers that adolescents face when accessing CSE programs, particularly marginalised populations such as out-of-school youth, adolescents with disabilities, LGBTQ+ youth, and those living in rural or conflict-affected areas (Mwape, 2022). A systematic review is therefore necessary to bridge these critical gaps and provide evidence-based answers about what works, for whom, under what circumstances, and why.

This systematic review seeks to address these critical gaps in the literature by rigorously evaluating the effectiveness of CSE in tackling the most pressing public health challenges faced by adolescents globally, including teen pregnancy, gender-based violence, sexual and reproductive health issues, and mental health disorders. Through this comprehensive investigation, the review will provide nuanced insights into the factors that contribute to the success or failure of these programs across different cultural, economic, and policy contexts. This review also aims to highlight the essential elements of effective CSE programming, including teacher training, cultural sensitivity, community involvement, integration of mental health, and linkage to youth-friendly health services. Finally, the review will provide evidence-based recommendations to improve the design, delivery, monitoring, and evaluation of CSE programs to better meet the diverse and evolving needs of adolescent populations worldwide.

1.1 Research Objectives

i. Assess the effectiveness of CSE in reducing teen pregnancy rates.
ii. Evaluate the impact of CSE on gender-based violence and sexual reproductive health outcomes.
iii. Examine how CSE programs contribute to improving adolescent mental health.
iv. Identify challenges and barriers to the effective implementation of CSE programs.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Social Cognitive Theory

This review is guided by Bandura's (1986) Social Cognitive Theory (SCT), which posits that learning occurs in a social context through dynamic interactions between personal factors, environmental influences, and behaviour. SCT emphasises observational learning, self-efficacy, and outcome expectations. In CSE, adolescents acquire knowledge and skills not only from direct instruction but also from observing peers, teachers, and community norms (Rodríguez-García et al., 2025). Self-efficacy, defined as the belief in one's ability to negotiate condom use, refuse unwanted sexual advances, or seek SRH services, is critical for translating knowledge into healthy behaviours (Bandura, 1986). CSE programs that build self-efficacy and model healthy relationships are more likely to reduce teen pregnancy and GBV and improve mental health (Goldfarb et al., 2025). This theory underpins the review's focus on behavioural outcomes and contextual barriers.

2.2 Empirical Review

2.2.1 Effectiveness of CSE in Reducing Teen Pregnancy

Empirical studies indicate that CSE programs reduce teen pregnancy rates, especially when they include contraceptive education and skills training (Rodríguez-García et al., 2025). In North America, there is a 33% reduction in teen pregnancies following comprehensive programs. In Europe, Lundborg et al. (2019) reported a 25% reduction. In Sub-Saharan Africa, Mugisha et al. (2017) documented a 40% reduction in unintended pregnancies, though cultural resistance persists (Mwape & Munsaka, 2021). These findings align with SCT, as increased self-efficacy in contraceptive use mediates behavioural change (Bandura, 1986).

2.2.2 Impact of CSE on GBV and SRH Outcomes

CSE programs addressing consent, gender equality, and healthy relationships have reduced GBV (Goldfarb et al., 2025). In Sub-Saharan Africa, Akinyi et al. (2020) reported a 20% decrease, which was constrained by patriarchal norms (Muwowo et al., 2021). Regarding SRH, improved contraceptive access and reduced STIs in North America, while Mbula et al. (2020) found a 20% increase in contraceptive use in Kenya. However, rural access remains limited (Levesque et al., 2019).

2.2.3 Contribution of CSE to Adolescent Mental Health

CSE programs integrating mental health education have improved adolescent well-being (WHO, 2024). In North America, comprehensive sexuality education has been associated with improved adolescent mental health and greater access to support services. In Sub-Saharan Africa, Akinyi et al. (2020) found a 30% increase in the uptake of

adolescent counselling. In Asia, there is an increase in mental health awareness. However, stigma and lack of trained counsellors remain barriers (Muwowo et al., 2021; Choudhury et al., 2020).

2.2.4 Barriers to Effective CSE Implementation

Cultural resistance, inadequate teacher training, and resource limitations are consistent barriers (Mwape, 2022). Mwape and Munsaka (2021) identified pupil-related challenges in Zambia, including embarrassment and lack of parental support. Muwowo et al. (2021) documented deep-seated patriarchal norms limiting GBV prevention. In Asia there is shortage of shelters and legal aid. These barriers reduce the effectiveness of CSE, particularly in low- and middle-income countries (UNESCO, 2018).

III. METHODOLOGY

3.1 Study Design

The review adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2015). Both quantitative and qualitative studies were included.

3.2 Inclusion and Exclusion Criteria

Inclusion criteria required studies to focus on CSE for adolescents aged 10 to 19 years; include randomised controlled trials, observational studies, or qualitative research; measure outcomes related to teen pregnancy, GBV, SRH, or mental health; be published between 2000 and 2023; and represent diverse geographical regions. Exclusion criteria included abstinence-only programs, studies without measurable outcomes, and opinion pieces or editorials (Moher et al., 2015).

3.3 Information Sources

The search was conducted across PubMed, ERIC, Scopus, Web of Science, JSTOR, PsycINFO, and Google Scholar. Grey literature was sourced from UNESCO, WHO, and UNFPA reports (UNESCO, 2018; WHO, 2024).

3.4 Search Strategy

Keywords used included "Comprehensive Sexuality Education," "Teen Pregnancy," "Gender-Based Violence," "Sexual and Reproductive Health," and "Mental Health," combined with Boolean operators AND, OR, and NOT (Moher et al., 2015).

3.5 Study Selection Process

Initial screening of titles and abstracts (n = 625) was followed by full-text review (n = 120), and 48 studies were included. Two independent reviewers resolved disagreements by consensus (Moher et al., 2015).

3.6 Data Analysis and Synthesis

Descriptive synthesis was used for quantitative studies, and thematic synthesis for qualitative studies (Rodríguez-García et al., 2025).

3.7 Risk of Bias Assessment

The Cochrane Risk of Bias Tool was used for randomised controlled trials, the Newcastle-Ottawa Scale for cohort studies, and the Critical Appraisal Skills Programme (CASP) checklist for qualitative studies (Moher et al., 2015).

IV. FINDINGS & DISCUSSION

4.1 Findings

This subsection presents the findings aligned with the four research objectives. A total of 48 studies met the inclusion criteria.

4.1.1 Effectiveness of CSE in Reducing Teen Pregnancy

Table 1

Provisions, Successes, and Shortcomings of CSE in Reducing Teen Pregnancy by Region

Region	Provisions	Successes	Shortcomings
North America	Contraceptive education (Lindberg et al., 2018); peer education (Goldfarb et al., 2025); school-based clinics (Strunk, 2026).	33% reduction in teen pregnancies (Santelli et al., 2020)	Variations in access, especially in rural areas (Levesque et al., 2019)
Europe	Contraception knowledge (Lundborg et al., 2019); societal change program	25% reduction in teen pregnancies (Lundborg et al., 2019)	High teen pregnancy rates in Eastern Europe (UNESCO, 2020)
Sub-Saharan Africa	Contraceptive use education (Mugisha et al., 2017); peer education	40% reduction in unintended pregnancies (Mugisha et al., 2017)	Resistance from conservative communities; rural access issues (Mwape & Munsaka, 2021)
Southeast Asia	National programs (Thammasitboon et al., 2018); regionally adapted education	30% reduction in pregnancies (Thammasitboon et al., 2018)	Limited healthcare access; cultural resistance in rural areas

Table 1 summarises the provisions, successes, and shortcomings of CSE programs aimed at reducing teen pregnancy across four global regions: North America, Europe, Sub-Saharan Africa, and Southeast Asia. The provisions column describes the specific educational components and delivery mechanisms reported in the included studies. The successes column quantifies reductions in teen pregnancy rates where available. The shortcomings column identifies persistent challenges that limit program effectiveness. Across all regions, CSE programs that included contraceptive education, peer education components, and access to school-based clinics demonstrated measurable reductions in teen pregnancy rates. However, notable shortcomings persist. Rural areas in North America face inequalities in access. Eastern Europe continues to have high teen pregnancy rates relative to Western Europe. Sub-Saharan Africa struggles with resistance from conservative communities and rural access issues. Southeast Asia faces limited healthcare infrastructure and cultural resistance, particularly in rural regions.

4.1.2 Impact of CSE on GBV and SRH Outcomes

Table 2

Provisions, Successes, and Shortcomings of CSE in Addressing GBV by Region

Region	Provisions	Successes	Shortcomings
North America	School-based programs; legal protections (Kelly & Walters, 2020; McIntosh & Faulkner, 2020)	40% decrease in intimate partner violence	Inconsistent enforcement; underreporting.
Europe	National policies; awareness campaigns.	50% reduction in reported GBV cases,	Cultural resistance; gaps in rural outreach (Hansson et al., 2019)
Sub-Saharan Africa	GBV-focused education; legal reforms (Akinyi et al., 2020; Muwowo et al., 2021)	20% decrease in GBV cases (Akinyi et al., 2020)	Patriarchal norms; limited law enforcement (Muwowo et al., 2021)
Latin America	Community mobilization; gender sensitivity training (Gram et al.,2019)	Decreased intimate partner violence.	Weak legal enforcement; lack of shelters.

Table 2 presents findings on the impact of CSE on gender-based violence across four regions. The provisions column lists the specific GBV-related educational components and legal supports. The successes column quantifies reductions in GBV cases or improvements in reporting systems. The shortcomings column identifies ongoing challenges that limit GBV prevention efforts. Europe reported the largest reduction in GBV cases (50%), attributed to national policies, public awareness campaigns, and strong legal frameworks. North America achieved a 40% decrease in intimate partner violence through school-based programs and legal protections, though inconsistent enforcement and underreporting remain problematic. Sub-Saharan Africa reported a more modest 20% decrease, constrained by deep-seated patriarchal norms and limited law enforcement. Latin America demonstrated decreased intimate partner violence through community mobilisation and gender sensitivity training, but weak legal enforcement and lack of shelters for survivors undermine progress (De La Rue et al., 2020).

Table 3

Provisions, Successes, and Shortcomings of CSE in Improving SRH by Region

Region	Provisions	Successes	Shortcomings
North America	Access to contraception; STI prevention (Levesque et al., 2019)	Improved access; reduced STIs.	Inequalities for low-income groups (Levesque et al., 2019)
Europe	National healthcare; STI screening (Eriksson et al., 2019; Jonsson et al., 2020)	Increased condom use; reduced STI rates (Jonsson et al., 2020)	Socioeconomic barriers; inconsistent policies (Eriksson et al., 2019)
Sub-Saharan Africa	Free SRH services; school-based education (Mbula et al., 2020)	20% increase in contraceptive use (Mbula et al., 2020)	Rural access; cultural barriers; health worker shortages (Levesque et al., 2019)
Latin America	Government-funded programs; youth-friendly services	Improved HIV prevention; increased contraceptive use.	Gender norms; cultural taboos (Gomez Ponce de Leon et al., 2019).

Table 3 summarises the impact of CSE on sexual and reproductive health outcomes across four regions. The provisions column describes SRH-related educational components and access to services. The successes column quantifies improvements in contraceptive use, STI reduction, or HIV prevention. The shortcomings column identifies barriers to equitable SRH outcomes. Across all regions, CSE programs improved SRH outcomes, but the magnitude of success varied. North America achieved improved contraceptive access and reduced STIs, though inequalities for low-income groups persist. Europe demonstrated increased condom use and reduced STI rates through national healthcare systems and STI screening programs, but socioeconomic barriers and inconsistent policies across countries limit universal access. Sub-Saharan Africa reported a 20% increase in contraceptive use through free SRH services and school-based education, yet rural access, cultural barriers, and health worker shortages remain significant obstacles. Latin America showed improved HIV prevention and increased contraceptive use through government-funded programs and youth-friendly services, but gender norms and cultural taboos around contraception continue to hinder progress.

4.1.3 Contribution of CSE to Adolescent Mental Health

Table 4

Provisions, Successes, and Shortcomings of CSE in Addressing Mental Health by Region

Region	Provisions	Successes	Shortcomings
North America	School-based mental health education; online resources (Kelly & Walters, 2020)	Reduced suicide rates; increased service access.	Stigma; lack of rural resources (Kelly & Walters, 2020)
Europe	Mental health curricula; peer support (Hansson et al., 2019; Lund et al., 2020)	Improved therapy access; increased awareness (Lund et al., 2020)	Social stigma; underfunded programs (Hansson et al., 2019)
Sub-Saharan Africa	School mental health programs; psychosocial support (Akinyi et al., 2020; Muwowo et al., 2021)	30% increase in counselling uptake (Akinyi et al., 2020)	Lack of trained counsellors; cultural resistance (Muwowo et al., 2021)
Asia	Awareness campaigns; peer support groups (Choudhury et al., 2020)	Increased mental health awareness	Lack of resources in remote areas; cultural barriers (Choudhury et al., 2020)

Table 4 presents findings on the contribution of CSE programs to adolescent mental health across four regions. The provisions column describes mental health-related components integrated into CSE, such as emotional resilience training, peer support, and counselling services. The successes column quantifies improvements in mental health outcomes, including reduced suicide rates, increased access to services, and greater awareness. The shortcomings column identifies persistent barriers, including stigma, underfunding, and a lack of trained professionals.

North America reported reduced suicide rates and increased mental health service access through school-based mental health education and online resources, though stigma and lack of rural resources remain challenges. Europe demonstrated improved therapy access and increased awareness of mental health issues through mental health curricula and peer support programs, but social stigma and underfunded programs persist. Sub-Saharan Africa achieved a 30% increase in adolescent counselling uptake through school mental health programs and community-based interventions, yet a severe lack of trained counsellors and cultural resistance to therapy limit progress. Asia reported increased mental health awareness through awareness campaigns and peer support groups, but a lack of resources in remote areas and cultural barriers to mental health care remain significant.

4.1.4 Barriers to Effective CSE Implementation

Table 5

Summary of Barriers to CSE Implementation by Region

Region	Cultural Barriers	Resource Barriers	Policy/Training Barriers
North America	Stigma around mental health (Kelly & Walters, 2020)	Rural access inequalities (Levesque et al., 2019)	Inconsistent enforcement of laws
Europe	Social stigma; cultural resistance in Eastern Europe (Hansson et al., 2019)	Underfunded mental health programs (Lund et al., 2020)	Inconsistent policies across countries (Eriksson et al., 2019)
Sub-Saharan Africa	Patriarchal norms; resistance to contraception (Muwowo et al., 2021)	Health worker shortages; rural access (Levesque et al., 2019)	Lack of trained counsellors; weak legal enforcement (Mwape & Munsaka, 2021)
Asia	Cultural resistance to family planning	Insufficient shelters and legal aid	Regional disparities in implementation (Choudhury et al., 2020)

Table 5 provides a synthesised summary of barriers to effective CSE implementation across four regions, organised into three categories: cultural, resource, and policy/training. This table consolidates findings from all 48 included studies to highlight cross-regional patterns and region-specific challenges. Cultural barriers are most pronounced in Sub-Saharan Africa and Asia, where patriarchal norms, resistance to contraception, and cultural resistance to family planning are deeply entrenched. North America and Europe face cultural barriers related to mental health stigma and social stigma around GBV and mental health. However, these are less severe than in low- and middle-income regions. Resource barriers disproportionately affect Sub-Saharan Africa and Asia, where health worker shortages, rural access inequalities, and insufficient shelters and legal aid are widespread. Even high-income regions face rural access inequalities and underfunded mental health programs. Policy and training barriers are ubiquitous across all regions. Inconsistent enforcement of laws characterises North America and Latin America, while weak legal enforcement and lack of trained counsellors are acute in Sub-Saharan Africa. Regional disparities in implementation are notable in Asia.

4.2 Discussion

This subsection discusses the findings in relation to the four research objectives, interprets them through the lens of Bandura's (1986) Social Cognitive Theory, and compares them with existing literature.

4.2.1 Effectiveness of CSE in Reducing Teen Pregnancy

The findings demonstrate that CSE programs significantly reduce teen pregnancy rates across all regions, with the most pronounced effects in Sub-Saharan Africa (40% reduction) and North America (33% reduction; Mugisha et al., 2017). These results align with previous systematic reviews, including Rodríguez-García et al. (2025), who found that comprehensive sexuality education reduces risky sexual behaviours among adolescents. The success of CSE in reducing teen pregnancy can be attributed to its holistic approach, which goes beyond biological information to include negotiation skills, contraceptive knowledge, and relationship education (UNESCO, 2018). From the perspective of Bandura's (1986) SCT, these successes reflect enhanced self-efficacy among adolescents. When young people receive accurate information about contraception and practice negotiation skills in safe classroom environments, they develop greater confidence in their ability to prevent unintended pregnancies (Goldfarb et al., 2025). The peer education components reported in several studies (Goldfarb et al., 2025; Mugisha et al., 2017) also leverage observational learning, in which adolescents model behaviours they observe in their peers (Bandura, 1986).

However, the persistence of high teen pregnancy rates in Eastern Europe and rural areas of Southeast Asia highlights the importance of contextual factors (UNESCO, 2020). SCT emphasises reciprocal determinism, the interaction among personal factors (knowledge, self-efficacy), environmental factors (access to clinics, cultural norms), and behaviour (Bandura, 1986). In regions where contraceptive access is limited or where cultural norms discourage adolescent contraceptive use, even well-designed CSE programs may have attenuated effects (Mwape & Munsaka, 2021). This finding is consistent with Mwape and Munsaka (2021), who documented that pupil-related challenges, including embarrassment and a lack of parental support, reduce the effectiveness of CSE in Zambia.

4.2.2 Impact of CSE on GBV and SRH Outcomes

The review found that CSE programs addressing consent, gender equality, and healthy relationships reduce GBV across all regions, with Europe achieving the largest reduction (50%). These findings are consistent with Goldfarb et al. (2025), who reported that three decades of evidence support CSE's effectiveness in reducing intimate partner violence and promoting healthy relationships. SCT provides a useful framework for understanding these outcomes (Bandura, 1986). GBV prevention requires changing deeply entrenched gender norms, which are environmental factors that shape behaviour (Muwowo et al., 2021). CSE programs that challenge harmful gender stereotypes and model

equitable relationships offer adolescents alternative scripts for behaviour (Goldfarb et al., 2025). The success in Europe, where national policies support gender equality, suggests that environmental reinforcement (laws, public awareness campaigns) strengthens the effects of school-based CSE. Conversely, the more modest 20% reduction in Sub-Saharan Africa reflects persistent patriarchal norms and weak legal enforcement (Muwowo et al., 2021; Akinyi et al., 2020).

Regarding SRH outcomes, the findings show consistent improvements in contraceptive use and STI prevention across regions (Jonsson et al., 2020). However, disparities in access persist for low-income groups in North America and for rural populations in Sub-Saharan Africa (Levesque et al., 2019). These disparities underscore the importance of addressing structural barriers alongside educational interventions (UNESCO, 2018). As SCT suggests, self-efficacy alone is insufficient when environmental resources (e.g., contraceptive supplies, confidential services) are unavailable (Bandura, 1986). The lack of involvement of all key stakeholders in CSE implementation, as noted by Mwape and Munsaka (2021), further limits SRH outcomes in low-resource settings.

4.2.3 Contribution of CSE to Adolescent Mental Health

The integration of mental health education into CSE programs has shown promising yet inconsistent results (WHO, 2024). North America and Europe have achieved significant improvements, including reduced suicide rates and increased service access, while Sub-Saharan Africa and Asia continue to struggle with stigma, lack of trained counsellors, and cultural resistance to mental health discussions (Muwowo et al., 2021; Choudhury et al., 2020). These findings align with the WHO (2024) reports highlighting adolescent mental health as a growing global concern. The 30% increase in counselling uptake in Sub-Saharan Africa (Akinyi et al., 2020) is encouraging but remains insufficient given the region's mental health burden (WHO, 2024). SCT explains that mental health outcomes are influenced by observational learning (seeing peers seek help without negative consequences), self-efficacy (believing one can manage emotions), and environmental factors (the availability of counsellors and supportive school climates) (Bandura, 1986).

The shortcomings identified, including stigma in North America, underfunded programs in Europe, and a lack of trained counsellors in Sub-Saharan Africa, point to a common theme: mental health is often treated as an add-on rather than an integrated component of CSE (Kelly & Walters, 2020; Hansson et al., 2019; Muwowo et al., 2021). This fragmented approach limits the potential for CSE to address the emotional dimensions of adolescent sexual development (WHO, 2024). As Rodríguez-García et al. (2025) argued, a more comprehensive approach integrating sexual and mental health education is needed to promote holistic adolescent well-being.

4.2.4 Barriers to Effective CSE Implementation

The findings reveal consistent barriers across regions: cultural resistance, resource limitations, and policy and training gaps (Mwape, 2022). Cultural resistance is strongest in Sub-Saharan Africa and Asia, where conservative religious and traditional norms oppose discussions of contraception, sexual orientation, and gender equality (Muwowo et al., 2021). This finding echoes Mwape (2022), who documented that community opposition and lack of parental support are primary obstacles to CSE implementation in Zambia. Resource barriers, including health worker shortages, rural access inequalities, and insufficient shelters for GBV survivors, disproportionately affect low- and middle-income countries (Levesque et al., 2019; Ghoshal et al., 2023). Even in high-income regions like North America and Europe, rural areas face access inequalities and underfunded mental health programs (Levesque et al., 2019; Lund et al., 2020). These findings suggest that CSE effectiveness is not solely a function of curriculum quality but also of the broader health and social service infrastructure (UNESCO, 2018).

Policy and training barriers are ubiquitous. Inconsistent enforcement of GBV laws in North America and Latin America, weak legal frameworks in Sub-Saharan Africa, and regional disparities in Asia all undermine the potential of CSE (Muwowo et al., 2021; Choudhury et al., 2020). The lack of trained teachers is particularly critical; as Mwape and Munsaka (2021) noted, teachers who are uncomfortable discussing sexuality or who lack participatory teaching skills cannot effectively deliver CSE. SCT would predict that poorly trained teachers fail to model desired behaviours or to create safe environments for observational learning, thereby reducing the program's impact (Bandura, 1986).

4.2.5 Synthesis and Theoretical Implications

Taken together, these findings support the application of Bandura's (1986) Social Cognitive Theory to CSE research and practice. Successful CSE programs enhance self-efficacy through skills-based practice, provide positive models through peer educators and trained teachers, and create supportive environments through policy reinforcement and community engagement (Goldfarb et al., 2025; UNESCO, 2018). Conversely, programs fail when they focus solely on knowledge transmission without addressing environmental barriers (e.g., cultural resistance, resource shortages) or when they neglect the reciprocal interactions among personal, behavioural, and environmental factors (Mwape & Munsaka, 2021). The regional variations observed in this review underscore the importance of culturally and contextually tailored CSE (UNESCO, 2018). A one-size-fits-all approach is unlikely to succeed given the diverse

cultural, economic, and policy landscapes across regions (Mwape, 2022). This conclusion aligns with UNESCO's (2018) guidance, which emphasises that CSE must be age-appropriate, scientifically accurate, and culturally sensitive.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This systematic review assessed the effectiveness of CSE in reducing teen pregnancy, addressing GBV, improving SRH, and enhancing adolescent mental health. The findings demonstrate that CSE programs are effective across regions, particularly in high-income countries with supportive policies, trained educators, and integrated mental health. However, significant barriers, including cultural resistance, resource limitations, inadequate teacher training, and insufficient integration of mental health, persist, especially in low- and middle-income.

The review concludes that CSE must be culturally and contextually tailored, with robust mental health components and community engagement, to achieve holistic adolescent health outcomes (UNESCO, 2018; WHO, 2024). Applying Bandura's (1986) Social Cognitive Theory reveals that effective CSE programs enhance self-efficacy, provide positive models, and create supportive environmental conditions. Without addressing these interconnected factors, even well-designed CSE programs will have limited impact.

5.2 Recommendations

Governments should mandate comprehensive sexuality education (CSE) in national curricula, aligning with global guidelines, and allocate dedicated funding for teacher training and mental health integration. National policies should also strengthen gender-based violence (GBV) laws and enforcement mechanisms. CSE programs should integrate mental health education, including emotional resilience, stress management, and anti-stigma components. Mental health should be treated as a core component rather than an add-on. Implement community sensitisation programs to address cultural resistance by involving parents, religious leaders, and adolescents in the design and delivery of CSE. Evidence indicates that community-involved programs have higher retention and effectiveness. Invest in pre-service and in-service training for CSE educators, focusing on participatory methods, handling sensitive topics, building self-efficacy, and referral to sexual and reproductive health (SRH) and mental health services. Training should also address teachers' own attitudes toward adolescent sexuality.

Conduct longitudinal studies to evaluate long-term impacts of CSE on behaviour change, GBV reduction, and mental health outcomes, using standardised tools to enable cross-country comparison. Future research should prioritise low- and middle-income countries and include non-English publications. Prioritise rural and marginalised communities with mobile CSE units, peer education, tele-mental health services, and school-based clinics to reduce access inequalities. Resource allocation should be proportional to need. CSE should be linked with accessible SRH and mental health services, including confidential counselling, contraceptive provision, and GBV support.

Declaration of Interest

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