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Beyond Knowledge: A Qualitative Exploration of Sexual Health Interventions and Adolescent Pregnancy Prevention in Rural Bolobedu, South Africa

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Abstract

Background: Adolescents in low- and middle-income countries (LMICs) continue to face substantial challenges related to sexual and reproductive health (SRH), including high rates of unintended pregnancy, sexually transmitted infections (STIs), and limited access to accurate reproductive health information and services. Rural provinces of South Africa, such as Limpopo, are no exception, with notably higher pregnancy rates. Aim: This study aimed to explore adolescent girls' perceptions and experiences associated with school-based comprehensive sexuality education (CSE) programs and their perceived role in pregnancy prevention in Bolobedu, Limpopo province, South Africa. Methods: A qualitative, descriptive, and contextual design was employed. Data were collected through individual interviews and field notes from adolescent girls aged 14–19 years who were accessing contraceptives or had given birth. Content analysis was conducted using Tesch's method. Findings: Results suggest that the quality and contents of CSE programs varied widely, leading to CSE intervention programs not being successfully implemented, leading to poor uptake and no behavior change. Implications: While research on CES programs shows that the CSE programming varies and can be vital to reducing adolescent pregnancy, its success depends on the quality of the implementation, which leads to behavior change. The research finds that the adoption of Comprehensive Sexual Education in schools and communities is vital to tackling the high incidence of adolescent pregnancy. However, its success depends on the quality of implementation, facilitator training, and resource availability.

Keywords: adolescent; pregnancy; education; comprehensive sexual education

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1. Introduction

Adolescents and young people (aged 10–19 years) represent a distinct demographic with unique healthcare needs, especially in the field of sexual and reproductive health and rights (SRHR). This developmental time of transition is marked by increased autonomy, yet many people lack the resources, support, or ability to make fully informed sexual and reproductive decisions. This challenge is particularly significant in low- and middle-income countries (LMICs), as systemic barriers and socioeconomic factors exacerbate SRHR inequality [1].

The burden of SRHR issues among adolescents in LMICs is significant, with high rates of coerced sex, teenage pregnancy, and early marriage [1]. Further illustrating the scope

of the issue, a study in Zambia found that married girls aged 15–19 have an unmet need for family planning, with 14% having an unmet need for spacing births and 7% having an unmet need for Informed consent, and factors such as age, partners educational level, partners opposition to contraceptives and number of living children were some of the determinants that causes a backdrop in contraceptive use [2]. South Africa shares this alarming tendency. A review of national data found that between 2010 and 2019, pregnancy rates among adolescent females were 3–4%, with a considerable rise in incidence in the later grades of secondary school (Grades 10–12). These rates are significantly higher in rural areas, such as Limpopo and Mpumalanga [3]. Limpopo province is situated in the northern part of South Africa with a rural population of over 6.4 million people. It predominantly features a youthful population with the highest fertility rate of 2.94 and 3.03 children per woman in the country, but experiences net out-migration as residents move to more economically active provinces, and approximately 51.6% of households in the province are headed by women who rely on social grants [4].

These Comprehensive Sexual Health interventions aim to empower individuals to make informed decisions, promote healthy relationships, and prevent STIs, HIV, and unintended pregnancies by addressing topics like consent, gender equality, and reproductive health. UNESCO [5] indicates that they equip children and young people with knowledge, skills, attitudes, and values that empower them to realize their health, well-being, and dignity; develop respectful social and sexual relationships; consider how their choices affect their own well-being and that of others; and understand and ensure the protection of their rights throughout their lives. Many interventions have been studied to improve sexual and reproductive health (SRH) knowledge and attitudes. These interventions, such as contraceptive services, STI testing and treatment, antenatal care, and CTOP, aim to prevent adolescents from the risk of sexually transmitted infections (STIs), unwanted pregnancy, and abortion. However, there is still much to be learned about how adolescents translate sexual and reproductive education to practical use or behavior-led educational intervention, so that it positively contributes to their sexual health and well-being. While previous studies in the province of Limpopo have focused on the causes and effects of adolescent pregnancy, little is known about perceptions and the lived experiences of adolescent girls of Comprehensive Sexuality Education (CSE), especially in rural areas. Furthermore, little is known about how adolescents apply this knowledge in practice and how they view the role of CSE in teenage pregnancy prevention, despite the fact that numerous sexual and reproductive health interventions have sought to enhance knowledge and attitudes. This disconnect emphasizes the necessity to explore the experiences and perceptions of adolescent girls in rural villages of regarding CSE and its role in preventing pregnancy in Bolebedu village, Limpopo province.

The lack of comprehensive sex education contributes to adolescents' limited understanding of SRH [5].

There are various advanced and creative methods for providing CSE that encourage adolescents to interact and respond, and adolescent girls who receive CSE adopt positive attitudes and norms and make responsible choices. However, in rural settings, due to poor resources, sexual health education is provided in the traditional method of lecturing, which is not engaging and does not yield results. The authors further suggest that effective sexual health interventions include watching videos, accessing educational materials through apps, participating in school discussions and demonstrations, playing educational games, and engaging in interactive family sessions. enhances adolescents' knowledge and attitudes towards reproductive health [6,7]. In rural settings among black communities, communication about sexuality is very limited or absent due to traditional cultural beliefs that elders do not talk to children about sex, resulting in teenagers searching for information

by themselves and sometimes being ill-informed. Mngomezulu et al. [8] report that in rural settings, parent–teen communication is hindered by cultural influences, parental unavailability, conflicting messages from parents and the media, and age differences, while Munyai et al. [9] indicated that role shifting in imparting sexuality education and limited parent–child relationships are primary factors associated with child/adolescent pregnancy.

The consequences of adolescent pregnancy are severe and multifaceted. Aside from the high health risks, young mothers endure severe social effects such as stigmatization, lower status in the household and community, rejection, and greater vulnerability to violence from family, friends, and partners [2]. The health consequences can be severe, as maternal health risks are inversely related to age. Research from Indonesia reported that the prevalence of severe maternal outcomes was 75% among mothers under 15 years of age and 47.8% among those aged 16–19, underscoring the extreme vulnerability of the youngest adolescents [10].

Given this complex landscape, providing comprehensive sexuality education (CSE) is paramount and requires a robust, multi-sectoral approach. However, the successful implementation of CSE interventions depends on numerous essential factors, including the availability of training resources, curriculum, competent educators, and long-term funding. Furthermore, key stakeholders, including teachers, students, political leaders, and the public, play a significant role in the effective integration of CSE into educational and community contexts [11]. Studies investigating the effectiveness of CSE have reported an associated decrease in adolescent pregnancy [6,7]. However, missing are studies exploring how and why the educational messaging included in CSE programming might be an effective means of reducing some adolescent pregnancies in Limpopo province. Therefore, this study seeks to explore adolescent girls' perceptions and experiences of comprehensive sexuality education and its perceived role in pregnancy prevention in rural Bolobedu, Limpopo province.

Problem Statement

Adolescent pregnancy continues to be a pressing public health challenge in rural South Africa, with particularly high rates reported in provinces such as Limpopo [2]. Barron et al. [2] highlighted that the statistics of teenage pregnancy rose to 60% (relative increase) between 2017 and 2021 during COVID, and it is mostly found in rural provinces, such as Limpopo. The relatively high incidence of child/adolescent pregnancy among female adolescents in Limpopo province raises several questions, including the general knowledge relation to secular health, understanding the demands of pregnancy and motherhood, and the personal and community relations the adolescent will have after giving birth [12–15]. However, the Department of Basic Education (DBE) introduced the Curriculum and Assessment Policy Statement (CAPS) in schools to prepare and equip learners to transition safely to adulthood. Comprehensive Sexual Education (CSE) was introduced as Life Orientation, which is offered starting at primary schools from grades 7–9, focusing on different aspects of sexuality such as puberty, puberty-related changes, developing self-esteem, peer pressure, and the basics of HIV/STI prevention, and progresses to high school with grades 10 to 12 focusing on intimate relationships, goal setting for the future, sexual rights, preventing sexual abuse, and navigating reproductive health services [16]. It is clear that a substantial number of female adolescents are not following recommended birth control protection due to prevailing misinformation from churches, poor parent–child communication, a lack of youth-friendly services, and poor and uncoordinated school health services. While Comprehensive Sexuality Education (CSE) programs were designed to address this issue, their limited impact suggests learning more about what adolescents learn from the programming messaging is needed.

2. Methodology

This study employed a qualitative, descriptive, and contextual research design. This approach aims to develop a holistic understanding of a phenomenon within its natural setting, requiring researchers to engage deeply with the data and adopt an interpretive stance [17,18]. The exploratory, descriptive, and contextual design was selected to facilitate an in-depth exploration of the adolescent girls' perceptions and experiences of comprehensive sexuality education (CSE) programs and their perceived role in pregnancy prevention among adolescent girls in Bolobedu, Limpopo province.

2.1. Population and Sampling

The research population consisted of adolescent girls residing in Bolobedu villages within the Greater Tzaneen municipality. The accessible population comprised adolescent girls who were either seeking contraceptive services or who had recently given birth. Inclusion criteria required that participants were adolescent girls aged 14 to 19 years who were currently enrolled in a school offering the CAPS Life Orientation curriculum (which all public schools in the area do) and who had either (a) sought contraceptive services at a local health facility or (b) given birth within the past 12 months. This purposive sampling strategy was designed to capture perspectives of adolescents with direct experience of reproductive health services or pregnancy, as these individuals could speak most meaningfully to whether CSE influenced their sexual health decisions.

All participants were enrolled in or had completed the standard Life Orientation curriculum as mandated by the South African Department of Basic Education's Curriculum and Assessment Policy Statement (CAPS). This curriculum serves as the primary vehicle for CSE delivery in schools. Participants attended seven different secondary schools within the Bolobedu area. While all schools followed the national CAPS framework, the quality and completeness of CSE delivery varied by school and individual teacher. The study did not evaluate "program completion" as a binary variable because CSE is not delivered as a discrete program with defined completion criteria; rather, it is integrated into the Life Orientation curriculum across multiple grades. Table 1 includes participants' current grade level, which serves as a proxy for cumulative CSE exposure (Grades 7–9 focus on puberty and basic prevention; Grades 10–12 cover intimate relationships, sexual rights, and reproductive health services).

Table 1. Demographic information of the participants.

Participant Identifier	Age	Educational Level	Reproductive Status
A	17	Grade 11	1 child
B	18	Grade 12	No child
C	17	Grade 11	No child
D	14	Grade 8	Pregnant
E	19	Grade 11	1 child
F	17	Grade 12	1 child
G	19	Completed grade 12	1 child
H	19	Completed grade 12	No child
I	16	Grade 10	Pregnant
J	18	Grade 12	Pregnant
K	18	Grade 11	2 children
L	18	Grade 12	No child
M	16	Grade 10	1 child
N	18	Complete grade 12	No child

2.2. Ethical Considerations

The work was ethically assessed and authorized by the University of Venda Ethics Committee under ethical clearance number (SHS FHS/23/PDC/08/0602) on 6 February 2024. The study was conducted in accordance with the University's requirements for informed consent, including obtaining parental consent and minor assent. The Helsinki Declaration on principles to be observed when conducting studies involving human subjects was adhered to throughout the study.

Recruitment

After receiving the ethical clearance, the researchers requested permission from the tribal authority. After the approval letter had been granted by the tribal authorities, participants were recruited through community forums and community gatherings such as "khoro" for participation in the study. Those who showed interest were further approached at their households and provided with information pertaining the study and its purpose. A purposive sampling strategy was employed.

Participants who could communicate in local languages or English were included. The researchers selected 20 adolescent girls whom they believed had experienced CSE exposure; some withdrew during the study, leaving a final sample of 14, and others were no longer interested. Six recruited participants voluntarily declined to participate. The final sample size was determined by data saturation, the point at which no new themes emerged in subsequent interviews with the study participants [18]. In this study, saturation was reached with participant 12, but two additional participants were interviewed to verify that no new information emerged.

2.3. Data Collection

Data was collected from local health facilities and surrounding communities using semi-structured individual interviews. All interviews were conducted by the first author (TM), a trained female researcher with experience in qualitative methods and adolescent sexual health services. The semi-structured interview guide covered the following main topics: (1) participants' awareness of sexual health interventions available in their school and community; (2) specific content recalled from Life Orientation classes; (3) perceived sufficiency and quality of information received; (4) sources of sexual health information beyond formal programs; (5) barriers to applying knowledge; and (6) suggestions for improving CSE delivery. Questions were open-ended and non-directive. Interviews lasted 35–60 min (average: 48 min). Interviews were conducted in private rooms at local health facilities or community centres to ensure confidentiality. No financial incentives were offered to avoid undue influence. Field notes were utilized to capture contextual observations. All interviews were audio-recorded with participants' written consent. Interviews were conducted in English, and recordings were transcribed verbatim. Participant identifiers were removed and replaced with codes (A–N) before analysis.

The interview guide was developed based on a review of the existing CSE evaluation literature and the International Technical Guidance on Sexuality Education [19]. The guide was pilot-tested with three adolescent girls (aged 16–18) from a neighboring village, who were not included in the final sample. Regarding reflexivity and positionality: The first author (TM) is a female researcher from Limpopo province, familiar with local cultural norms regarding sexuality. While this insider status facilitated rapport, it also risked assumptions of shared understanding. To mitigate this, TM maintained a reflexive journal throughout data collection and analysis, documenting personal reactions, assumptions, and decisions. Peer debriefing sessions with co-authors (who are external to the Bolobedu com-

munity) challenged interpretations and sought alternative explanations. No supervisors or co-authors were present during interviews to avoid power imbalances.

2.4. Data Analysis

This process followed Tesch's eight-step method of analysis, which involved familiarization with the data through reading and rereading, generating initial codes and placing them along the margins, grouping common concepts to generate themes, reviewing the themes, and defining and confirming them. The analysis was conducted by the research leader (TM) under the supervision of DUR, and the final analysis was validated by TKM.

2.5. Trustworthiness

The following are measures considered to ensure the trustworthiness of this study. Credibility was ensured through in-depth interviews with participants and repeated visits, which enabled a deeper understanding of the problem under study. Again, the researcher set aside personal biases, assumptions, and preconceived notions to accurately reflect on participants' lived experiences and perceptions regarding CSE rather than imposing their own worldview, and also member checking was used to ensure credibility.

Transferability was ensured by the explanation of the background information and the detailed context of the research methodology.

Dependability was achieved by having one research team member (TK) validate the analysis to ensure that themes corresponded with items in the transcripts. Thereafter, an independent external coder also analyzed the transcripts to assess the reliability of themes and subthemes and reach a consensus. Confirmability was achieved through audiotapes, transcripts, and field note records. Confirmability was addressed through reflexive journaling (as described above) and maintaining clear links between participant quotations and analytical claims. A code-recode procedure was used: the first author coded all transcripts, then recoded them after 4 weeks.

2.6. Findings

The analysis yielded one primary theme, "Knowledge Regarding Sexual Health Intervention Programmes," which encompassed three sub-themes detailing the depth, sources, and limitations of adolescents' understanding, as well as a predominant focus on pregnancy prevention.

2.7. Theme 1: Knowledge Regarding Sexual Health Intervention Programs

Participants demonstrated a general awareness that sexual health intervention programs exist, primarily sourced from school-based Life Orientation classes and local health facilities. However, this knowledge was frequently fragmented and focused on specific interventions rather than constituting a comprehensive understanding of sexual and reproductive health (SRH).

Several participants could articulate specific strategies they had been taught. For instance, one participant highlighted the ABC approach (Abstain, Be Faithful, Condomize) and its dual benefits: "The sexual education intervention that I know is to abstain from sexual intercourse, it is good to apply the ABC method. . . because it will prevent you from diseases and unwanted pregnancies. . . to concentrate on having a better future through education." (Participant B, 18 years, grade 12).

Knowledge extended to biological aspects of sexuality and practical hygiene, as one participant noted regarding menstruation: "Menstruation is one of the sexual interventions that I know. . . you have to take care of yourself and ensure good hygiene, use clean pads or tampons and bathe frequently. . ." (Participant C, 17 years, grade 11).

Furthermore, participants displayed knowledge of contraceptives as a key intervention, with an understanding of their purpose for preventing pregnancy and sexually transmitted infections (STIs), including the concept of dual protection: "We are taught at health facilities to use contraceptives. . . The types of contraceptives that they taught us about are condom use and the use of injections. It is important to use both, as dual protection prevents both disease and pregnancy." (Participant I, 16 years, grade 10).

This knowledge was seen as empowering, fostering a sense of trust that they could apply it to make healthy decisions. Participants also correctly identified major SRH risks, such as HIV/AIDS and other STIs, and understood their potential consequences, including school dropout and infertility. Despite this awareness, a critical finding was that the provided information was consistently reported as insufficient, leading to the first sub-theme.

2.8. Sub-Theme 1.1: Insufficient Information on Different Sexual Intervention Programs

The knowledge that adolescents have about sexuality is insufficient. When it comes to sexual education, the information given is not comprehensive enough. For example, teachers sometimes withhold information when teaching about sex; some are afraid to provide the information explicitly as they are not trained on how to approach learners when it comes to sexuality education. Healthcare providers also give basic information about sexuality.

One participant said:

"Even though at school there is Life Orientation that teaches about sexuality education, the information is not very educational. They teach about the basics of sex; they don't go into details." (Participant C, 17 years, grade 11).

This insufficiency was particularly evident regarding contraceptive knowledge. Awareness was largely limited to condoms, pills, and injections, with little understanding of how they work, their side effects, or the full range of available alternatives.

"I know about the use of condoms and to abstain. . . about contraceptives, I don't know much. . . I heard that there is an injection, but I don't know how it works." (Participant G, 19 years, completed grade 12).

The problem was compounded by healthcare workers perceived as focusing on only a few methods and sometimes exhibiting negative attitudes, discouraging adolescents from seeking further information.

"The nurses' attitude also contributed to me being a mother at a young age because they did not give me enough information, and they insulted us when we went for preventative medicines. . . some teenage girls end up losing interest in going to the clinics." (Participant D, 14 years, grade 8).

Participants suggested that the distribution of pamphlets and other informational materials was inadequate and that when provided, these materials were often not adolescent-friendly or engaging.

2.9. Sub-Theme 1.2: Barriers to Translating Knowledge into Practice

Participants described receiving sexual health information but facing obstacles to acting on it. These barriers included perceived low personal relevance: I didn't think it would happen to me, peer pressure that overrode knowledge, lack of skills to negotiate condom use with partners, fear of side effects, and access barriers such as distance to clinics, and stockouts of preferred methods. The socio-ecological model thus provides a more useful framework than individual-level "barriers" for understanding adolescent pregnancy in this setting.

Participants openly admitted to facing barriers that prevented them from acting on the messages they received:

"I'm very aware of sexual education intervention. . . but I don't take them seriously; I ignore it. For example, on the TV. . . I think it is just for entertainment." (Participant D, 14 years, grade 8).

This was further supported by the confession that distributed materials are often discarded unread. "The health-care providers do give us pamphlets, but we don't read. . . we immediately throw away the pamphlet, as soon as we go out from the clinic." (Participant D, 14 years, grade 8).

Participants attributed this disconnect to a failure to internalize the personal relevance of the information, leading to risky sexual behaviors despite being aware of the potential consequences of pregnancy and STIs. ". . .as adolescents we face barriers that make it hard to act on what we know, which is why teenage pregnancy continues to happen." (Participant F, 17 years, grade 12).

2.10. Sub-Theme 1.3: Pregnancy Prevention as a Common Intervention

Within the scope of their knowledge, pregnancy prevention emerged as the most recognized and common goal of sexual health interventions. The concept of delaying sexual debut was promoted, but the practical focus was overwhelmingly on a limited set of contraceptives.

Participants consistently reported that injections and condoms were the most discussed and available methods at public health facilities, creating the perception that other effective methods did not exist or were inaccessible. "Injections and Condoms are the only contraceptives that I know and that are available at clinics. The other ones they don't talk about them, meaning they are not available." (Participant A, 17 years, grade 11 and Participant I, 16 years, grade 10).

This narrow focus on a few contraceptive options was linked to the limited stock in government health institutions, which in turn restricted the information healthcare workers could provide, thereby perpetuating a cycle of insufficient knowledge focused primarily on pregnancy avoidance rather than comprehensive SRH.

3. Discussion

This study sought to explore adolescent girls' perceptions and experiences of comprehensive sexuality education (CSE) and its perceived role in pregnancy prevention in rural Bolobedu, Limpopo. The findings from this study reveal a different view where adolescents possess general awareness of sexual health interventions yet report that the information received is insufficient, and not engaging. This points to a deeper problem with how CSE content is delivered, perceived, and internalized. The findings revealed a troubling disconnect: based on their responses, a number of participants appeared to lack the comprehensive understanding necessary to make informed choices. When sexual and reproductive health information is inadequate, it can impede overall healthy development in youths, potentially leading to various sexual health problems and negative outcomes. Therefore, sex education to increase knowledge on sexual risks and behaviors, and ultimately support healthy behavior change and choices, is critical [20].

Interestingly, participants showed familiarity with basic concepts like the ABC model and specific contraceptive methods, consistent with previous studies suggesting that adolescents in secondary schools have some foundational knowledge about STIs and pregnancy prevention [21]. This foundational understanding is encouraging, as knowledge is essential for making healthy sexual decisions. Additionally, several girls mentioned biological processes such as menstruation, which supports Hennegan et al. [22] in their assertion that understanding anatomy is a vital part of sexual health education.

However, the results also highlighted a critical shortcoming due to the barriers preventing translation of knowledge into practice, as adolescents report not taking the information seriously, for example, by not reading clinic pamphlets and viewing media content as only for entertainment. The understanding of sexual health among participants was often superficial, primarily revolving around messages about abstinence, condoms, and injections. Ocran et al. [23] assert that abstinence-based programs have little positive influence on sexual and reproductive health outcomes, including HIV/AIDS, and neither delay sex nor have any positive effects on sexual behavior [21]. Comprehensive sexuality education (CSE) should give young people accurate, age-appropriate information about sexuality and their sexual and reproductive health. According to the WHO [24], CSE should include, but is not limited to, relationships; respect, consent, and bodily autonomy; anatomy, puberty, and menstruation; contraception and pregnancy; and sexually transmitted infections, including HIV [25]. Comprehensive sexual education should develop their life skills to be able to make informed decisions.

Participants indicated that the school focuses on sex and does not provide intensive information; this may be because teachers do not have concrete information regarding sexual reproductive health. Teachers' lack of sex education training is a barrier to the effective delivery of sex education classes. Teachers' knowledge is often influenced by cultural barriers and a lack of preparedness, which can hinder their effectiveness. Munyai et al. [7] indicate that cultural values and taboos weaken the quality of learning and teaching sexuality education, finding it difficult to deal with delicate cultural issues when teaching and learning about sexual health issues [26]. Furthermore, Wakjira & Habedi [27] highlighted that even where relevant sections are present in a sexual education curriculum, they are often skipped by unprepared teachers.

Ocran et al. [23] reported that educators in Ghana showed a high preference for abstinence and tolerance for 'ABC' education, irrespective of whether students become pregnant and are at risk; they were generally reluctant to recommend more comprehensive education, suggesting that more comprehensive education corrupts students or promotes risky behavior [21].

Venketsamy & Kinear [28] argue that Life Skills CAPS need to be addressed and aligned with the International Technical Guidelines on Sexuality Education (ITGSE), and that teachers need to be adequately trained in the content and teaching methodologies of CSE in the early grades [29]. Furthermore, this is supported by the Department of Basic Education (DBE) [30] policy on HIV and STIs, as well as the policy for learners, educators, school support staff, and officials. The authors suggest that basic information on reproductive organs, biological processes, and sexual health and hygiene should form part of the curriculum, with consideration of future technologies [31,32].

Adolescents need comprehensive sexual and reproductive health counselling about delaying sexual activity. And for those who choose to be sexually active, they need education about contraceptive methods and condoms for sexually transmitted infection (STI) prevention. School curricula alone cannot achieve this; it requires collaboration with health facilities through the school health program. This finding stands in stark contrast to the comprehensive nature of CSE that health professionals advocate for, which should address a wide range of topics, from contraceptive access to reproductive health information [33]. The belief among participants that injections and condoms were the only contraceptive options points to a systemic failure in providing the thorough information needed for effective fertility control and STI prevention, as identified by Teal & Edelman [34].

There are various hormonal contraceptive methods, such as emergency contraceptives, the oral contraceptive pill, injections and implants, as well as non-hormonal contraceptives methods that prevent sperm from reaching an egg, such as barrier methods (condoms,

diaphragms), the copper IUD, and other (natural/calendar method) options of fertility awareness-based methods tracking ovulation, and healthcare providers should be able to educate adolescents on them to make informed choices.

Upadhyay et al. [35] reported that participants in their study indicated having missed at least one oral contraceptive pill prior to becoming pregnant, and the pill was the method of choice because it was the method participants knew the most, and felt most comfortable with, and had the least amount of perceived negative side effects [36]. Faini et al. [37] also indicate that adolescent girls became pregnant because of a lack of knowledge about SRH, and do not understand contraceptives; those who used contraceptives did so incorrectly and inconsistently [38].

A key consideration in interpreting these findings is that participants were exposed to CSE through the national CAPS framework, which provides standardized learning outcomes across all public schools. However, presentation of the CSE curriculum appears to have varied widely, making an assessment of the instruction and information of the material difficult to assess across participants. Participants from different schools reported differential exposure to specific topics. For example, participants from three schools reported receiving information about long-acting reversible contraceptives, while those from four other schools reported no such content. This variation reflects differences in teacher training, comfort levels with sensitive topics, and school-level prioritization of CSE content. The findings should therefore be understood as reflecting experiences with a common curriculum that is inconsistently delivered, rather than a single, uniformly implemented intervention.

Access to information, education, and services is crucial for promoting sexual and reproductive health and rights (SRHRs) among young people. However, many young people lack education and have limited access to SRHR services [25]. Ivanova et al. [39] also indicate that, although sexual and reproductive health services are considered a human right, in low- and middle-income countries, accessibility to these services is affected by different socio-demographic factors, such as age and educational status. The theme of "Insufficient and Inconsistent Information" highlights this knowledge gap. Many participants reported that the Life Orientation courses in school and counselling in clinics were lacking in depth. This reflects findings by Kirby et al. [40], which suggest that while abstinence, being faithful, and condom use are promoted, practical application is difficult without clear, consistent education [41]. Brittain et al. [42], indicate that healthcare providers, who are in the position to provide advice and treatment, are uncomfortable discussing sex-related matters with unmarried young people and they counsel adolescents on alternative, highly effective methods that do not require active patient management, such as injections, IUDs, and/or implants. Providers should thoughtfully address young women's beliefs about potential negative side effects [43].

Additionally, the negative attitudes of some healthcare workers being judgmental to adolescents when seeking reproductive health services and parents' reluctance to discuss these topics create obstacles to accessing the necessary information. Adolescents indicated that such topics are not discussed with parents, since it is seen as a shame and taboo to talk with elders about sexuality, and most parents are also not informed. Attitudes toward sexuality are significantly influenced by prejudice, taboo, and cultural characteristics that prevent young people from acquiring adequate reproductive health knowledge. Such an environment fosters misconceptions, as seen in the myths surrounding contraceptive side effects, which deter young people from using them. Putri et al. [5] indicate that various factors influencing reproductive health attitudes in adolescents include gender, parents' education level, parents' income, and level of reproductive health knowledge [44]. Further-

more, various studies have described healthcare providers as having a judgmental attitude toward adolescents, fearing that they would be lectured and scolded publicly [44–47].

In addition, participants did not trust healthcare providers to maintain their privacy, as these providers were among the community members involved in orchestrating their public shame and humiliation [8]. This aligns with broader trends that link a lack of knowledge and confusing messages to high rates of teenage pregnancy in South Africa. The implications of these findings are significant. This suggests that current efforts to implement CSE in this context, and likely in other similar rural, low-resource settings, are falling short of their goals. Having a curriculum or providing clinic services is not enough; the quality, depth, and delivery method are crucial. To strengthen these programs, research must move beyond measuring knowledge acquisition and instead examine how accurately CSE is implemented in schools, the types of messages adolescents are exposed to, and whether these resonate with their lived experiences. As participants themselves noted, information is frequently disregarded as irrelevant, underscoring that the challenge lies not with adolescents but in the messaging. Addressing this disconnect between program intent and adolescent reception is essential for designing interventions that truly support sexual health outcomes.

Sexual health interventions are any activities that target adolescents and are undertaken to prevent unintended pregnancies, delay their sexual debut, increase uptake and continued use of contraception, and educate girls and boys on the risks of unintended pregnancies.

These interventions require a concerted effort of the school and health facilities to win the battle of poor sexual health literacy among adolescent boys and girls. Cultural norms and context determine what and how they define sexual health education, necessitating a change in attitude and mindset. Agyei & Kaura [48] are of the opinion that these can be achieved by creating a supportive home environment and comprehensive sexual health education [49]. Furthermore, the authors contend that sexual health education should start at home, in communities, and should not only focus on sex and the potential consequences of engaging in unsafe sex but also address contextual factors such as social norms, empowerment, skill training, and personal development.

Putri et al. [5] indicate that there are several types of interventions to improve knowledge and attitudes about reproductive health, namely education, smartphone-based methods, school-based approaches, games, and family-based techniques, where mothers are provided with a family workbook to use with their teenagers at home, which is designed to support parents' mastery of effective communication about sexual health [50]. These interventions can improve attitudes and knowledge about sexual and reproductive health, especially positive attitudes and critical thinking about media messages regarding sexual and reproductive health. Okeke et al. [51] suggest that, to plan and implement strategies that effectively respond to adolescents' SRH needs, while considering contextual differences, it is imperative to define and describe these needs from the perspectives of adolescents and other stakeholders who determine and/or influence adolescents' SRH.

3.1. Implications for Practice

This study emphasizes the urgent need for a multi-sectoral approach to develop policies for CSE implementation, which includes mandatory educator training, sensitization of healthcare workers to create adolescent-friendly services, community engagement to empower parents, and investment in youth-friendly facilities. Key areas for future research include interventional studies on effective training models for low-resource settings, investigations of techniques to enhance parental participation, and longitudinal studies examining the relationship between CSE quality and long-term health outcomes.

3.2. Limitations

A significant limitation concerns sampling bias. Purposive sampling of adolescents already engaged with reproductive health services or pregnancy experience limits transferability to the general adolescent population. Consequently, the findings cannot be generalized. Social desirability bias: Participants may have underreported sexual activity or overreported knowledge to appear "responsible" to the interviewer, who was known as a community member. A prior assessment of the topics covered was not conducted to determine what participants understood and the relevance and application of the topics. A future study might include that to determine knowledge gaps.

Interviewer bias: Despite reflexive practices, the first author's assumptions about CSE effectiveness may have influenced probing or interpretation.

Exclusion of boys: The study excluded adolescent males, who also receive CSE and whose perspectives on pregnancy prevention including their role in contraceptive decision-making are essential for understanding CSE influence.

The sample size was small and was likely not representative of all adolescent girls in the region; data on reproductive health extend to include knowledge about contraception, sexually transmitted diseases, and unwanted/unplanned pregnancy. There is limited data available on CTOP services within the CSE, which also requires further investigation, and this is of utmost importance. Another limitation was the geographic setting: the study was conducted in Bolobedu, a section of a local municipality in Mopani district, which consists of five subdistricts.

4. Conclusions

This study concludes that CSE has a considerable influence on adolescent girls' knowledge, attitudes, and actions, with major findings demonstrating a noticeable drop in pregnancy rates among those who receive it. However, the study reveals that partial knowledge is insufficient; the detected gaps and inconsistencies in the CSE obtained by adolescents in Bolobedu expose them to misinformation, risky sexual behavior, and unwanted pregnancy. As a result, while the study emphasizes the critical importance of implementing CSE in schools and communities to address high adolescent pregnancy rates, it also calls for coordinated efforts to transform CSE from a superficial exercise to a truly comprehensive, consistent, and supportive program, which is required to fully empower adolescents and improve their sexual and reproductive health outcomes.

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