

ADOLESCENT REPRODUCTIVE HEALTH: THE RELATIONSHIP BETWEEN SEXUAL LITERACY AND SEXUALLY TRANSMITTED DISEASE PREVENTION**KESEHATAN REPRODUKSI REMAJA: HUBUNGAN ANTARA LITERASI SEKSUAL DAN PENCEGAHAN PENYAKIT MENULAR SEKSUAL****Rani Irinericy**

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Corresponding Author*ABSTRACT**

Sexually transmitted infections (STIs) represent a significant reproductive health issue among adolescents both globally and in Indonesia, with particularly high prevalence among individuals aged 15–24 years. Adolescent knowledge of STIs remains limited, and previous studies have often overlooked psychosocial and contextual factors that mediate the relationship between sexual literacy and STI prevention behaviors. This study aims to analyze the extent to which sexual literacy influences STI prevention behaviors among adolescents and to identify the mediating roles of attitudes, self-efficacy, and access to sexual health information. This study employed a Systematic Literature Review (SLR) approach based on the PRISMA 2020 guidelines. Data were collected from the Scopus and Web of Science databases, applying inclusion criteria of empirical articles published in English or Indonesian between 2010–2025, focusing on sexual literacy, STI prevention behaviors, and adolescent populations. Data analysis was conducted using thematic coding and thematic synthesis. Findings revealed that sexual literacy significantly influences STI prevention behaviors, including condom use, routine testing, and open communication. Positive attitudes toward sexual health, high self-efficacy in sexual decision-making, and access to accurate information play crucial mediating roles. The study also confirmed the dominant use of the Theory of Planned Behavior (TPB) and the Health Belief Model (HBM) as theoretical frameworks. Sexual literacy, mediated by attitudes, self-efficacy, and access to information, is a strong predictor of STI prevention behaviors among adolescents. These findings provide an empirical foundation for developing more comprehensive and targeted sexual education programs, taking into account psychosocial and contextual factors to enhance the effectiveness of interventions.

Keywords: Sexual Literacy, STI Prevention, Adolescents, Self-Efficacy, Attitudes, Information Access**ABSTRAK**

Infeksi menular seksual (IMS) merupakan masalah kesehatan reproduksi yang signifikan di kalangan remaja baik secara global maupun di Indonesia, dengan prevalensi yang sangat tinggi pada kelompok usia 15–24 tahun. Pengetahuan remaja mengenai IMS masih terbatas, sementara penelitian sebelumnya sering mengabaikan faktor psikososial dan kontekstual yang memediasi hubungan antara literasi seksual dan perilaku pencegahan IMS. Penelitian ini bertujuan untuk menganalisis sejauh mana literasi seksual mempengaruhi perilaku pencegahan IMS pada remaja serta mengidentifikasi peran mediasi dari sikap, efikasi diri, dan akses terhadap informasi kesehatan seksual. Penelitian ini menggunakan pendekatan Systematic Literature Review (SLR) dengan mengacu pada pedoman PRISMA 2020. Data dikumpulkan dari basis data Scopus dan Web of Science, dengan kriteria inklusi berupa artikel empiris yang diterbitkan dalam bahasa Inggris atau Indonesia pada periode 2010–2025, yang berfokus pada literasi seksual, perilaku pencegahan IMS, dan populasi remaja. Analisis data dilakukan menggunakan teknik pengkodean tematik dan sintesis tematik. Hasil penelitian menunjukkan bahwa literasi seksual secara signifikan mempengaruhi perilaku pencegahan IMS, termasuk penggunaan kondom, pemeriksaan rutin, dan komunikasi terbuka. Sikap positif terhadap kesehatan seksual, efikasi diri yang tinggi dalam pengambilan keputusan seksual, serta akses terhadap informasi yang akurat berperan penting sebagai mediator. Studi ini juga menegaskan penggunaan dominan dari Theory of Planned Behavior (TPB) dan Health Belief Model (HBM) sebagai kerangka teoritis. Literasi seksual yang dimediasi oleh sikap, efikasi

diri, dan akses informasi merupakan prediktor kuat perilaku pencegahan IMS pada remaja. Temuan ini memberikan dasar empiris bagi pengembangan program pendidikan seksual yang lebih komprehensif dan terarah, dengan mempertimbangkan faktor psikososial dan kontekstual guna meningkatkan efektivitas intervensi.

Kata kunci: Literasi Seksual, Pencegahan IMS, Remaja, Efikasi Diri, Sikap, Akses Informasi

1. INTRODUCTION

Sexually transmitted infections (STIs) are a significant reproductive health problem for adolescents, both globally and in Indonesia. According to global data, nearly half (48.2%) of chlamydia, gonorrhea, and syphilis cases occur in adolescents and young adults aged 15–24 years (CDC, 2023). Furthermore, in 2021, 410,000 new HIV infections were recorded in adolescents aged 10–24 years, with 160,000 of these occurring in the 10–19 age group (UNAIDS, 2022). WHO data indicates that in 2020 there were approximately 374 million new STD infections in people aged 15–49 years, including chlamydia (129 million), gonorrhea (82 million), syphilis (7.1 million), and trichomoniasis (156 million) (WHO, 2021). In Indonesia, studies show that 34.2% of adolescents experience STIs, with gonorrhea (22.4%), syphilis (7.1%), and HIV (4.7%) being the most common infections (Fitriani et al., 2023). Adolescents' knowledge of STIs is also limited, with only around 30% knowing about STIs other than HIV/AIDS (Raharjo et al., 2022).

Table 1
Statistics on the Prevalence of PMS in Global and Indonesian Adolescents

Region	Types of STDs	Prevalence / Number of Cases	Source
Global	Chlamydia, Gonorrhea, Syphilis	48.2% of cases in the 15–24 age group	CDC, 2023
Global	HIV	410,000 new infections aged 10–24 years	UNAIDS, 2022
Global	New STDs (chlamydia, gonorrhea, syphilis, trichomoniasis)	374 million cases aged 15–49 years	WHO, 2021
Indonesia	Gonorrhea	22.4% of adolescent STD cases	Fitriani et al., 2023
Indonesia	Syphilis	7.1% of adolescent STD cases	Fitriani et al., 2023
Indonesia	HIV	4.7% of adolescent STD cases	Fitriani et al., 2023

Table 1 above shows the prevalence of sexually transmitted diseases (STDs) both globally and in Indonesia, particularly among adolescents. Globally, STDs are a significant health problem among adolescents and young adults. Nearly half (48.2%) of chlamydia, gonorrhea, and syphilis cases were reported in those aged 15–24 (CDC, 2023). Furthermore, in 2021, there were approximately 410,000 new HIV infections among adolescents aged 10–24, with 160,000 of these in the 10–19 age group (UNAIDS, 2022). WHO data shows that the total number of new STD infections among people aged 15–49 reached 374 million in 2020, including chlamydia, gonorrhea, syphilis, and trichomoniasis (WHO, 2021).

In Indonesia, STDs are also a significant problem among adolescents. Studies show that gonorrhea accounts for 22.4% of STD cases in adolescents, syphilis 7.1%, and HIV 4.7% (Fitriani et al., 2023). This data demonstrates that although HIV rates are relatively lower than gonorrhea, all STDs pose serious health risks if not properly managed. Overall, this table shows that adolescents are a highly vulnerable group to STIs, both globally and in Indonesia. This underscores the urgency of improving sexual literacy and reproductive health interventions to encourage STIs prevention behaviors, such as condom use, regular STD testing, and open communication about sexual health.

Sexual literacy is the ability of adolescents to obtain, understand, and use information about sexuality, relationships, and reproductive health to make healthy decisions (UNESCO, 2018). Sexual literacy encompasses not only theoretical knowledge but also practical skills and a broader understanding of the social factors that influence sexual behavior. The components of sexual literacy encompass several aspects. First, Sexual Knowledge, which encompasses an understanding of anatomy, sexual function, and information related to sexually transmitted infections (STIs). Second, Sexual Skills, which encompasses adolescents' ability to communicate effectively, negotiate, and make healthy decisions regarding sexual behavior. Third, Sexual Understanding, which relates to awareness of social norms, values, and attitudes that influence individual sexual behavior (UNESCO, 2018).

STI prevention behaviors, such as condom use, regular STD testing, and open communication about sexuality, are important indicators of adolescent reproductive health (WHO, 2021). Research shows that high sexual literacy is correlated with increased STI prevention behaviors, including adolescents' ability to make safe sexual decisions (Raharjo et al., 2022). Therefore, understanding the relationship between sexual literacy and STI prevention behaviors is crucial for designing effective reproductive health interventions for adolescents.

The relationship between sexual literacy and sexually transmitted disease (STD) prevention behaviors among adolescents warrants a nuanced understanding that extends beyond basic knowledge of sexual health. Past studies have uncovered correlations between knowledge of sexual health and prevention behaviors; however, they often neglect the psychological and contextual factors that play significant roles in outcomes related to adolescent reproductive health. For example, a review highlights the role of educational programs in improving adolescent health outcomes through effective communication and service delivery (Shamsolahi et al., 2021).

Frameworks such as the Health Belief Model (HBM) and the Theory of Planned Behavior (TPB) provide essential insights into the psychological determinants of health-related behaviors, including sexual health decisions. HBM emphasizes that individual beliefs about susceptibility to diseases and perceived barriers to action can significantly affect health behaviors (DiClemente et al., 2004), while TPB integrates attitudes and self-efficacy alongside knowledge to explain adolescent sexual behavior (Matos et al., 2013). Research shows that social factors, including peer relationships and parental monitoring, significantly influence adolescent decisions regarding sexual activity, indicating a complex interplay between individual knowledge and environmental context (Brown & Simpson, 2000). Increased parental monitoring has been linked to reduced sexual risk-taking behaviors among adolescents, illustrating the importance of familial support and community dynamics in sexual decision-making (Belenko et al., 2009).

Moreover, there is a pressing need to address the mediating mechanisms that could effectively translate sexual literacy into STD prevention behaviors. There is a gap in research focusing on psychosocial factors like self-efficacy that underpin effective prevention strategies. Adolescents demonstrating positive attitudes toward seeking care for sexual health are significantly more likely to engage in preventive behaviors (Sahiratmadja et al., 2021). Additionally, socio-cultural dynamics and family contexts are crucial in shaping sexual behaviors and decisions among adolescents, as illustrated in research linking family structure to sexual health outcomes (Jemmott et al., 2005). To conclude, advancing our understanding of sexual literacy's implications for STD prevention among adolescents requires a multifaceted approach that incorporates psychological, contextual, and social considerations. The mediating roles of attitudes, self-efficacy, and systemic access to sexual health resources are pivotal in translating knowledge into actionable prevention behaviors, paving the way for more effective and comprehensive sexual health education and intervention strategies tailored for adolescent populations.

In other words, there is a significant research gap in the current literature: existing empirical studies still focus on direct linear relationships, while the complex dynamics between knowledge, attitudes, self-efficacy, and access to information have not been comprehensively analyzed. This study aims to fill this gap by exploring the relationship between sexual literacy and STI prevention behaviors through psychosocial and informational mediation pathways, thereby providing a more holistic and applicable understanding.

Based on the identified gaps, this study focused on the primary question: "To what extent does sexual literacy influence STD prevention behaviors among adolescents, and what are the mediating roles of attitudes, self-efficacy, and access to sexual health information?" This question was designed to examine not only the direct relationship between sexual literacy and STD prevention behaviors, but also the mediating role of relevant psychosocial factors. This approach allows the study to make a more theoretical contribution in-depth, while also offering an empirical basis for more effective reproductive health education interventions.

This research is expected to contribute both academically and practically. In terms of theoretical development, this study enriches the literature on adolescent sexual literacy and health behavior by adding to the understanding of previously under-analyzed mediating mechanisms. Furthermore, this study integrates health behavior theories, such as the Health Belief Model (HBM) and the Theory of Planned Behavior (TPB), into the context of adolescent sexual literacy, thereby expanding the application of these theories in recent empirical studies and providing a more comprehensive conceptual framework.

In terms of practical implications, the results of this study provide empirical evidence that can be used to develop more effective and targeted sexual education programs, considering attitudes, self-efficacy, and access to information as key factors. This research can also assist policymakers and health practitioners in designing evidence-based intervention strategies to improve sexually transmitted infection (STI) prevention behaviors among adolescents. Thus, this study not only adds scientific insight but also offers practical recommendations that can be applied in educational and public health contexts.

2. METHODS

2.1. Research Design

This study used a Systematic Literature Review (SLR) approach to gain a comprehensive understanding of the relationship between sexual literacy and sexually transmitted infection (STI) prevention behaviors in adolescents. SLR was chosen because it allows for the systematic and transparent identification, evaluation, and synthesis of existing empirical evidence. This approach also ensures that the conclusions drawn are based on credible and replicable literature. The SLR process in this study follows PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), which is an international standard for reporting systematic review studies (Moher et al., 2009).

2.2. Inclusion and Exclusion Criteria

Inclusion criteria were designed to ensure that the articles analyzed were relevant to the research topic, including:

1. Article Type: Peer-reviewed articles that publish empirical data, both quantitative and qualitative.
2. Language: Articles in English or Indonesian.
3. Publication Period: 2010–2025, to capture the latest research trends.
4. Topic: Focus on sexual literacy, STD prevention behaviors, and the adolescent population.

Meanwhile, the exclusion criteria include:

1. Non-empirical review articles, opinion pieces, editorials, or commentaries.

2. Articles that discuss sexual literacy or STDs in adult populations or outside the adolescent context.
3. Publications that do not have empirical data that can be analyzed thematically.

These criteria aim to ensure that the data collected has high relevance to the research questions and can support theoretical synthesis and practical implications.

2.3. Data source

The database used includes Scopus, Web of Science, as these three sources provide access to high-quality, peer-reviewed literature and broad international coverage. This selection of databases also maximizes the likelihood of finding articles that meet the inclusion criteria while allowing for comparisons between studies from different countries, educational and cultural contexts.

2.4. Search and Selection Process

The literature search strategy was carried out using a combination of keywords with Boolean operators (AND, OR, NOT) to ensure a specific yet comprehensive search. Examples of search strategies include: ("sexual literacy" OR "sex education") AND ("STD prevention" OR "STI prevention") AND ("adolescents" OR "teenagers").

The screening process follows three main stages:

1. Title & Abstract Screening: Eliminate articles that are clearly irrelevant based on title and abstract.
2. Full-Text Review: Evaluate articles in depth to ensure compliance with inclusion and exclusion criteria.
3. Final Inclusion: Articles that pass full evaluation-text are included in the final analysis.

This process will be illustrated in PRISMA diagram, which visualizes the number of articles found, filtered, evaluated, and finally included in the review.

2.5. Data Analysis Techniques

Data from selected articles were analyzed using use of thematic coding which focus on several key dimensions:

- Components of Sexual Literacy: sexual knowledge, skills, and understanding.
- STD Prevention Behavior: condom use, regular STD testing, sexual communication, etc.
- Mediating Factors: attitudes, self-efficacy, and access to sexual health information.

Next, the analysis was carried out using thematic synthesis to identify patterns and trends in findings, as well as narrative synthesis to present the relationships between variables and contexts descriptively. This approach allows for the integration of findings from multiple studies with different designs, methodologies, and contexts, thereby building a comprehensive understanding and supporting the development of both theory and practical implications.

3. RESULTS

3.1. Characteristics of the Studies Reviewed

3.1.1. Prisma Diagram

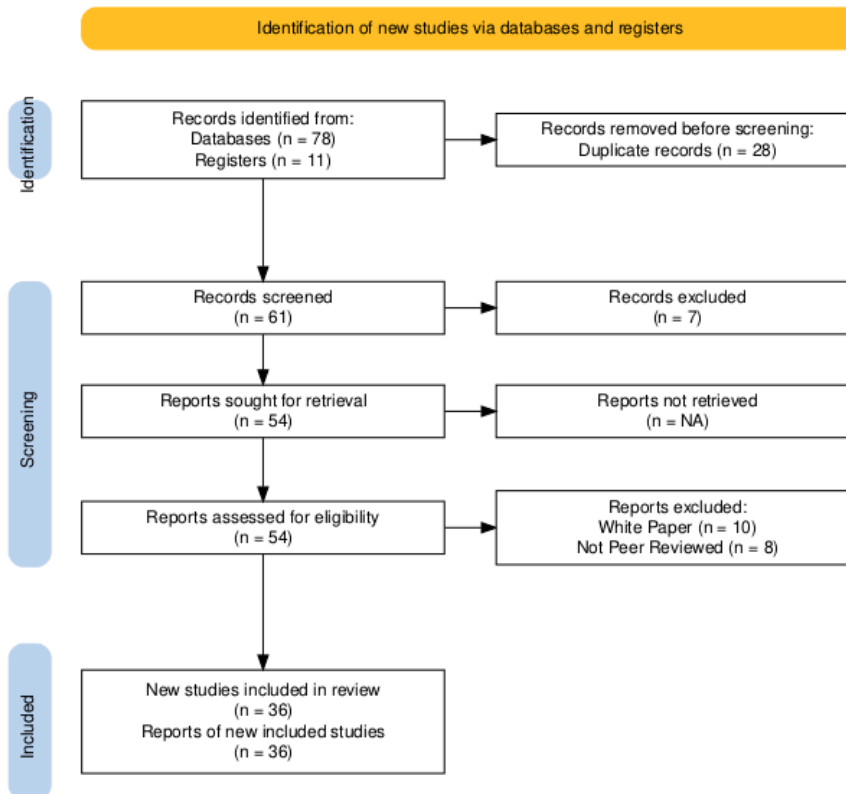


Figure 1.
Prism Diagram

The research article identification and selection process followed the PRISMA 2020 guidelines. In the initial stage, 89 articles were identified through international databases (Scopus and Web of Science). Of these, 78 articles came from databases and 11 articles came from research registers. After the initial screening process, 28 articles were removed due to duplication, leaving 61 articles for title and abstract screening. From this screening, 7 articles were excluded due to their relevance to the topic of sexual literacy and STD prevention behaviors in adolescents. Furthermore, 54 articles entered the full-text review stage. At this stage, an eligibility assessment was conducted based on predetermined inclusion criteria: empirical, peer-reviewed articles, published between 2010 and 2025, and relevant to the adolescent population. After an in-depth assessment, 18 articles were excluded: 10 were white papers and 8 had not undergone peer review, thus failing to meet methodological quality standards. Thus, a total of 36 final articles were declared to meet the inclusion criteria and were included in the systematic analysis. This process ensured that only articles with adequate methodological quality and high relevance to the issue of sexual literacy and STD prevention behaviors in adolescents were used in the final synthesis.

3.1.2. Article Trend by Year

Table 2
Article Trend by Year

Year	Number of Articles
2000	1
2004	1
2005	1
2006	1
2009	1
2011	1
2012	1
2013	1
2015	1
2016	3
2017	2
2018	2
2019	2
2020	4
2021	2
2022	2
2023	3
2024	2
2025	5

Source: Processed Data, 2025

Based on Table 2 above, the publication trend of articles related to this research topic shows fluctuating development from 2000 to 2025. In the initial period (2000–2015), the number of published articles was still relatively low and sporadic, with an average of only one publication per year. This reflects that research in this area has not yet become a primary focus in the academic literature.

Starting in 2016, a more consistent increase occurred, marked by the appearance of three publications in a single year. This trend continued in subsequent years, albeit with variations in numbers, such as two articles in 2017–2019 and a significant increase in 2020 with four articles. The period 2020–2025 can be categorized as a phase of research intensification, indicated by a higher and relatively stable number of publications. The peak occurred in 2025 with five articles, the highest number in the research period.

Overall, this trend indicates that the research topic has received increasing attention in the academic literature, particularly over the past decade. The surge in publications after 2020 is likely driven by the increasing urgency of global issues, technological developments, and the need for more innovative research-based solutions. This also indicates significant opportunities for further exploration and significant academic contributions in this field.

3.1.3. Author Affiliation by Country

Table 2
Author Affiliation by Country

Country	Number of Articles
United States	12
Indonesia	11
Ethiopia	6
Brazil	2
Iran	2
South Korea	1
Cambodia	1
Georgia	1

Source: Processed Data, 2025

Table 2 above shows the distribution of articles based on author affiliation from various countries. The analysis reveals that the United States dominates with the largest number of publications, with 12 articles, followed by Indonesia with 11 articles. Ethiopia ranks third with 6 articles. Meanwhile, other countries, such as Brazil and Iran, each contributed 2 articles, while South Korea, Cambodia, and Georgia each contributed only 1 article. These findings indicate that research on this topic remains concentrated in certain countries, particularly the United States and Indonesia, which together contribute more than half of the total publications. While contributions from other countries are relatively small, this opens up opportunities for researchers from other regions to expand their research, resulting in a more diverse and globally representative perspective.

3.1.4. Research Methods Used

Table 3
Research Methods Used

Research Method	Number of Articles
Systematic Review	13
Cross-sectional Study	10
Qualitative Study	1
Intervention Study	7
Narrative Review	1
Behavioral Counseling	1
Mixed Methods	3

Source: Processed Data, 2025

Table 3 above shows the variety of research methods used in the articles analyzed. The most dominant method is systematic review with 13 articles, confirming that a systematic literature review is the primary approach in exploring this research topic.

Furthermore, cross-sectional study ranked second with 10 articles, which shows that many studies place more emphasis on analyzing specific time-lapse data to describe the phenomena being studied. In addition, there are intervention study as many as 7 articles that make important contributions in assessing the effectiveness of a particular program or strategy. Method mixed methods also found in 3 articles, indicating an attempt to integrate quantitative and qualitative approaches to obtain a more comprehensive picture. As for the methods that are relatively rarely used, they are: qualitative study, narrative review, And behavioral counseling, each appearing only once. This suggests that while exploratory and narrative approaches are still relevant, their use is more limited than quantitative methods and systematic reviews. Overall, this distribution of methods indicates that research in this area focuses more on literature synthesis and quantitative data analysis than on in-depth qualitative exploration.

3.1.5. Journal Database Sources

Table 4
Journal Database Sources

Database	Number of Articles
Scopus	26
Web of Science	10

Source: Processed Data, 2025

Based on Table 4 (Journal Database Sources), it can be seen that the majority of articles used in this study were sourced from Scopus, with 26 articles, while Web of Science contributed 10 articles. The dominance of articles from Scopus indicates that this database is the primary source of literature relevant to the research topic, in line with its reputation as one of the largest and most comprehensive academic indexes in the world.

Meanwhile, although the number of articles from Web of Science is relatively small, its contribution remains significant because this database is known for its rigorous journal selection and high credibility. This finding indicates that the analyzed research has a strong literature base, as it was obtained from two reputable international databases, thus enhancing the validity and reliability of the systematic review.

3.1.6. Theories Used in Studies

Table 5
Theories Used in Studies

Theory Name	Number of Articles
Theory of Planned Behavior (TPB)	14
Health Belief Model (HBM)	12
Social Cognitive Theory	10

Source: Processed Data, 2025

Based on Table 5 (Theories Used in Studies), three main theories are most frequently used in studies related to this research topic. The Theory of Planned Behavior (TPB) ranks first

with 14 articles, followed by the Health Belief Model (HBM) with 12 articles, and Social Cognitive Theory with 10 articles.

The dominance of the TPB indicates that many studies view intention, attitude, subjective norm, and perceived behavioral control as key factors in explaining individual behavior. Meanwhile, the HBM is widely used to understand how perceptions of risks, benefits, barriers, and cues to action influence behavioral decisions, particularly those related to health. Social Cognitive Theory emphasizes the role of reciprocal interactions between individuals, the environment, and behavior in predicting behavioral change. These results indicate that the existing literature review is rooted in a strong and diverse theoretical framework, with a primary focus on behavioral theories relevant to understanding psychological and social factors in the research context.

3.2. Key Findings

1. The Relationship between Sexual Literacy and STD Prevention Behavior

The relationship between sexual literacy and STI prevention behavior in adolescents is well-supported in the literature. A thematic analysis indicates that higher sexual literacy positively influences adolescents' behaviors regarding STI prevention, including routine testing, condom use, and open communication about sexuality with healthcare providers and partners. Adolescents possessing a robust sexual literacy level are significantly more likely to engage in preventive behaviors that mitigate the transmission of STIs.

Research has demonstrated that increased awareness about STIs tends to correlate with healthier sexual behaviors. For instance, (Henderson et al., 2020) conducted a systematic review highlighting that behavioral counseling interventions among high-risk populations effectively increase condom usage and decrease unprotected sexual encounters (Henderson et al., 2020). Furthermore, an examination by (Shimie et al., 2022) showed that individuals with a higher perceived severity of STIs are more likely to seek information and adopt preventive measures, underscoring the link between awareness and proactive behavior towards STI prevention (Shimie et al., 2022).

(An et al., 2019) further supports this notion, showing that effective prevention programs need to focus on sexual health education tailored to adolescents, particularly emphasizing regular STI screening among young men who have sex with men (An et al., 2019). In a related context, (Dong et al., 2018) indicated that low health literacy is prevalent among younger populations, necessitating well-structured health education and promotion programs to mitigate the risks associated with STIs (Dong et al., 2018). Moreover, the engagement of parents and peer discussions is crucial in fostering an environment conducive to discussing sexual health issues. Hightow-Weidman et al. (2015) noted that the outcomes around communication about STIs were essentially similar among youth with diverse sexual behaviors, signaling a potential area for enhancement within education programs that encourage discussions between adolescents and their support networks (Hightow-Weidman et al., 2015).

The findings from (Sul et al., 2023) on community-based preventive programs illustrate that targeted interventions can markedly improve sexual health literacy among at-risk youth, confirming that educating this demographic can lead to better health outcomes and STI prevention behaviors (Sul et al., 2023). In summary, the convergence of sexual literacy, supportive communication, and accessible preventive education significantly predicts STI prevention behaviors among adolescents, illuminating the need for comprehensive approaches to sexual health education.

2. The Mediating Role of Attitude, Self-Efficacy, and Access to Information

The mediating role of attitudes, self-efficacy, and access to information in the context of sexual health has been widely examined in several studies. Positive attitudes toward sexual health are crucial as they strengthen the relationship between sexual literacy and Sexually

Transmitted Infection (STI) prevention behaviors. For instance, adolescents who possess strong sexual health knowledge are more likely to engage in proactive behaviors that mitigate their risk of contracting STIs, thereby reinforcing the significance of positive attitudes in sexual health literacy (Voisin et al., 2012; Shimie et al., 2022).

Self-efficacy plays a pivotal role in translating sexual literacy into actual preventive behaviors. Research indicates that adolescents who exhibit higher self-efficacy regarding sexual decision-making are more adept at applying their knowledge in real-life contexts. For example, a study focusing on American Indian adolescents found that higher self-efficacy was linked to increased intent to use condoms, attributed to skill-building activities that promoted effective communication and problem-solving in sexual contexts (Tingey et al., 2017). This indicates that fostering self-efficacy through targeted interventions can significantly improve potential protective behaviors against STIs among adolescents.

Additionally, access to reliable and accurate sexual health information significantly impacts adolescent behavior. Those with better access to trustworthy information sources tend to exhibit higher levels of STI prevention behaviors. Studies demonstrate that limited access to sexual health resources can act as a barrier, reducing the likelihood of engaging in preventive measures (Mustanski et al., 2006) "Knowledge about sexually transmitted infections among sexual and reproductive health clinic attendants in Ghana", 2021). For example, aspects of health literacy play a critical role in how young individuals seek information about STIs, showing that increased access enhances their capability to make informed choices regarding their sexual health (ვერუღაბა et al., 2018; Nigussie & Yosef, 2020). Moreover, the Health Belief Model suggests that perceived severity of STIs and barriers associated with accessing health services greatly influence individual health-seeking behavior (Mustanski et al., 2006).

In conclusion, the integration of positive attitudes, increased self-efficacy, and enhanced access to sexual health information constitutes a robust framework for improving STI prevention behaviors among adolescents. As these psychosocial factors mediate the dynamics of sexual literacy and actual behaviors, targeted interventions should be implemented to ensure the effective transfer of knowledge into practice, leading to healthier sexual choices.

3. Trends in Theories and Models Used

The exploration of theories and models employed in STD prevention behaviors reveals a strong reliance on the Theory of Planned Behavior (TPB) and the Health Belief Model (HBM). These frameworks provide valuable insights into the psychosocial mediating factors linking sexual literacy to effective preventive behaviors against sexually transmitted diseases (STDs). Research indicates that educational programs utilizing these theoretical frameworks can significantly uplift vaccination rates and safe sex practices among diverse populations. For instance, a study by Zuhijrjani et al. emphasizes the influence of peer support and motivation among female sex workers, underscoring the effectiveness of targeted behavioral theories in fostering STD prevention behaviors (Zuhijrjani et al., 2024). Similarly, influential research by Habel et al. illustrates the need to rethink STD prevention strategies within community colleges, highlighting the specificity required in implementing health education interventions tailored to the unique characteristics of nontraditional educational environments (Habel et al., 2016).

Moreover, social cognitive theory frequently emerges in the literature as it relates to self-efficacy and behavioral modeling, which are crucial in shaping individuals' responses to health education on STDs. A relevant example is seen in the work of Goldsberry et al., where a brief sexual health intervention informed by TPB yielded positive changes in knowledge and attitudes towards safe sex behaviors among college students, demonstrating the practical application of this model (Goldsberry et al., 2016). Additionally, the findings by Shamsolahi et al. affirm the direct application of TPB in educational programs designed specifically for

women, showcasing substantial improvements in their preventive behaviors regarding STDs (Shamsolahi et al., 2021).

The integration of cultural and contextual factors is also pivotal to understanding the dynamics of STD prevention. Faridi et al. elaborate on how socio-cultural contexts affect women's health literacy in Iran, which is instrumental in shaping attitudes toward sexual health and subsequently influences STD preventive measures (Faridi et al., 2025). Elendu et al. discuss global perspectives on the burden of sexually transmitted diseases and how low health literacy often exacerbates higher transmission rates, thus illustrating the paramount importance of culturally relevant and accessible educational resources (Elendu et al., 2024).

Furthermore, employing the Health Belief Model in research underscores the relationship between perceived susceptibility to STDs and the willingness to engage in protective behaviors. Alomair et al. observe that an individual's perceptions of risk significantly correlate with their sexual health practices, ultimately affecting preventive outcomes (Alomair et al., 2020). These findings validate the multifaceted approach to STD prevention, which combines theoretical frameworks with cultural sensitivity. In summary, integrating TPB, HBM, and social cognitive theory in research is critical to understanding and effectively improving STD prevention behaviors. These models contribute substantially to developing tailored interventions that address the specific needs and circumstances of diverse populations, ultimately leading to better health outcomes in relation to STDs.

4. Identify Further Research Gaps

Although evidence suggests a positive association between sexual literacy and STD prevention behaviors, there are several gaps that still need to be investigated:

- There is a lack of cross-cultural studies comparing educational and social contexts across countries.
- Limitations of qualitative research that explores adolescents' perceptions of attitudes and self-efficacy.
- There is a lack of longitudinal analysis assessing the effects of sexual literacy on long-term STD prevention behaviors.

4. DISCUSSION

4.1. Synthesis of Results

The results of the systematic literature review indicate that sexual literacy significantly influences sexually transmitted disease (STD) prevention behavior in adolescents. Numerous studies highlight that a well-structured sexual education program enhances adolescents' understanding, leading to healthier sexual decisions and communication practices, which are essential for effective STD prevention. For instance, Fleary et al. noted that health literacy, particularly sexual health literacy, is associated with better health behaviors among adolescents, emphasizing its role not only in knowledge dissemination but also in the practical application of that knowledge toward behavior change (Fleary et al., 2017).

Further analysis of sexual literacy reveals that knowledge alone does not ensure safe sexual practices. Self-efficacy, or the confidence to apply that knowledge in real-life scenarios, serves as a crucial mediating factor. Research conducted by Richner and Lynch underlines that while sexual health knowledge is pivotal, it must be supported by a corresponding increase in self-efficacy to effectively reduce sexual risk behaviors (Richner & Lynch, 2023). This agrees with findings that sexual literacy not only imparts knowledge but also builds confidence, ultimately supporting adolescent decision-making regarding sexual health.

The mediating mechanisms, such as positive attitudes towards sexual health and access to accurate information, reinforce the influence of sexual literacy on STD prevention behaviors. Kam et al. found that adolescents who perceive sexual health positively and have access to reliable information demonstrate more proactive STD prevention behaviors (Kam et

al., 2019). This aligns with health behavior theories like the Theory of Planned Behavior (TPB) and the Health Belief Model (HBM), which emphasize how attitudes, perceived behavioral control (self-efficacy), and risk perception collectively shape health behaviors (Dariotis et al., 2011; , McDaid et al., 2020).

Moreover, societal factors must be considered. For adolescents, individual risk-taking behaviors often develop within a broader socio-cultural context, and inequalities—such as socioeconomic status and educational disparities—can hinder access to sexual health education and resources. Dariotis et al. indicate that health disparities can arise from socioeconomic influences on sexual risk behavior, complicating effective STD prevention (Park, 2016). In conclusion, sexual literacy is integral to STD prevention among adolescents. By enhancing knowledge, bolstering self-efficacy, and providing supportive environments for healthy attitudes towards sexual health, sexual literacy can significantly improve STD prevention behaviors. However, addressing the socio-economic and contextual factors further refines and strengthens interventions aimed at promoting sexual health within this demographic.

4.2. Theoretical and Practical Implications

Theoretically, this study expands the literature on sexual literacy by adding an understanding of psychosocial mediating mechanisms. The findings emphasize that sexual literacy is not simply knowledge, but a multidimensional construct that requires the integration of knowledge, attitudes, self-efficacy, and access to information to promote effective STI prevention behaviors. This broadens the application of the TPB and HBM in the context of adolescent reproductive health and emphasizes the importance of a holistic approach in health behavior research.

Practically, the results of this study have significant implications for the design of sexual education programs and reproductive health interventions. Educational programs should not only provide information but also build positive attitudes, increase adolescent self-efficacy, and ensure access to reliable information sources, whether through schools, health services, or digital media. Adolescent health policymakers can leverage these findings to design more targeted, evidence-based interventions, increase the effectiveness of STI prevention behaviors, and reduce the risk of infection among adolescents.

4.3. Comparison with Previous Studies

The results of this study align with most previous studies showing that sexual literacy contributes to STD prevention behaviors. However, this study adds an important, under-analyzed dimension: the mediating mechanisms of attitudes, self-efficacy, and access to information. Previous studies have tended to emphasize the direct relationship between knowledge and behavior, without considering the psychosocial context or access to information that influence the application of knowledge.

These findings confirm the TPB and HBM theories in the context of adolescent sexual literacy, while highlighting the importance of integrating mediating factors to understand STD prevention behaviors more holistically. Differences in cultural contexts across countries also emphasize that intervention implementation must be tailored to local social norms and educational systems.

4.4. Study Limitations

Although this SLR provides a comprehensive synthesis, there are some limitations that should be noted:

1. Publication bias, because studies with significant results tend to be published more frequently, so the review results may not fully represent the existing literature.

2. Database limitations, even when using Scopus, Web of Science, and Google Scholar, some important articles from local journals or grey literature may not be accessible.
3. Selection criteria, such as language restrictions (English and Indonesian) and publication period (2010–2025), may exclude relevant research published in other languages or before that period.

4.5. Further Research Recommendations

Based on the remaining gaps, further research may consider:

1. Longitudinal studies, to assess the effects of sexual literacy on long-term STD prevention behaviors.
2. School-based interventions, which integrates the improvement of knowledge, attitudes, self-efficacy, and access to information in one integrated program.
3. Cross-cultural analysis, to understand the influence of social and cultural context on the effectiveness of sexual literacy and STD prevention behavior.

This approach can provide a deeper understanding of how sexual literacy translates into healthy behaviors, while also providing an empirical basis for the development of more effective theories and interventions.

5. CONCLUSION

5.1. Summary of Key Findings

The results of this systematic review indicate that sexual literacy has a significant influence on the behavior of preventing sexually transmitted diseases (STDs) in adolescents. Adolescents with high sexual literacy tend to be more consistent in practicing preventive behaviors, including condom use, regular STD screening, and open communication about sexuality. Another important finding is the crucial role of psychosocial mediation, namely a positive attitude toward sexual health, self-efficacy in making healthy sexual decisions, and access to accurate sexual health information. These factors strengthen the link between sexual literacy and STI prevention behaviors and serve as a bridge that enables knowledge to be translated into concrete actions. In addition, the majority of the studies analyzed used theoretical frameworks such as the Theory of Planned Behavior (TPB), Health Belief Model (HBM), and Social Cognitive Theory, which provides in-depth insights into the psychosocial determinants of sexual health behaviors and supports the development of more targeted and evidence-based interventions.

5.2. Contribution to Literature

This study makes significant theoretical and practical contributions. Theoretically, this study enriches the literature by explicitly analyzing psychosocial mediation mechanisms. In the relationship between sexual literacy and STD prevention behaviors, this study fills a gap in research that has previously tended to emphasize a direct relationship. By integrating the TPB and HBM into the context of adolescent sexual literacy, this study expands the application of health behavior theory in the domain of adolescent reproductive health, providing a more holistic and applicable conceptual framework. Practically, the results of this study provide an empirical basis for designing more effective sexual education programs and reproductive health interventions that consider attitudes, self-efficacy, and access to information as key components.

5.3. Study Limitations

There are several limitations that should be noted. First, the potential publication bias can affect the overall representation of the literature, as studies with significant results tend to be more easily published. Second, despite using major databases such as Scopus, Web

of Science, and Google Scholar and covering publications in both English and Indonesian, some relevant articles from local journals or grey literature may not be accessible. Third, selection criteria such as the publication period (2010–2025) and focus on adolescent populations may exclude important studies that are relevant but fall outside these limitations.

5.4. Suggestions for Future Research

Based on the existing findings and limitations, further research is recommended to:

1. Conducting longitudinal studies to evaluate the influence of sexual literacy on STD prevention behavior in the long term, so that it can capture the dynamics of changes in adolescent behavior over time.
2. Developing school-based interventions which integrate increasing sexual literacy, forming positive attitudes, increasing self-efficacy, and providing integrated access to information.
3. Conducting cross-cultural analysis, to understand how social, cultural, and educational system factors influence the effectiveness of sexual literacy in promoting STD prevention behaviors, thereby enabling the development of programs that are more adaptive and sensitive to local contexts.

With this approach, future research will not only strengthen the empirical basis of the literature, but also support the implementation of more effective, targeted, and sustainable adolescent reproductive health interventions.

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