

# EXPLORING ADOLESCENTS' NEEDS IN SEXUAL AND REPRODUCTIVE HEALTH LITERACY WITH CULTURAL SENSITIVITY: A MIXED-METHODS STUDY

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## ABSTRACT

Inadequate access to culturally sensitive sexual and reproductive health (SRH) information increases adolescents' vulnerability to misinformation, risky sexual behaviors, and underutilization of SRH services, particularly in sociocultural contexts where sexuality remains taboo. This study examines sexual and reproductive health literacy (SRHL), risky sexual behaviours and the socio-cultural and institutional factors shaping adolescent SRH experiences. A convergent parallel mixed-methods study was conducted among 994 adolescents aged 11-21 years in Pekanbaru, Indonesia (May-October 2025). Quantitative data were collected using demographic forms, a modified SRHL questionnaire, and a validated Adolescent Sexual Behavior Degree Index, while qualitative data were obtained through focus group discussions and in-depth interviews with teachers, school counselors, healthcare providers, and community leaders. Quantitative data were analyzed descriptively and using chi-square tests, while qualitative data using Colaizzi's thematic analysis. Most adolescents had inadequate SRHL (92.5%), and 53.3% reported high-risk sexual behaviours. No significant association was found ( $p = 0.083$ ). Themes included adolescent vulnerability, limited school capacity to address complex adolescent issues; and gaps in educational strategies related to digital media influence, and cultural modernization. These findings highlight the need for culturally grounded, comprehensive SRH education and cross-sector collaboration, with nurses playing a key role in supporting informed adolescent health decision-making.

Keywords: *Adolescent; cultural sensitivity; health literacy; sexual and reproductive*



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## BACKGROUND

Adolescents constitute a strategic population in global health development, with more than 1.2 billion individuals aged 10–19 years worldwide (World Health Organization, 2025). Despite their demographic significance, adolescents continue to face substantial challenges in accessing accurate and culturally appropriate sexual and reproductive health (SRH) information. Sexual and reproductive health literacy (SRHL) is critical in enabling adolescents to make informed decisions about their bodies, relationships, and overall well-being (Alhussaini et al., 2025). SRHL encompasses not only the ability to access, understand, evaluate, and apply health information but also the motivation and competence to act responsibly within specific sociocultural contexts (Yalazi et al., 2025).

Evidence consistently demonstrates that higher SRHL is associated with reduced engagement in risky behaviours, including premarital sexual activity, smoking, alcohol consumption, and substance use (Aprilia et al., 2025; Debella et al., 2024; Nkrumah et al., 2024). Nevertheless, adolescent SRH outcomes remain a global concern. Although adolescent birth rates have declined in many regions, the prevalence of sexually transmitted infections (STIs), unintended pregnancies, and substance-related risky sexual behaviours remains high, particularly in low- and middle-income countries (Centers for Disease Control and Prevention, 2024; Lohan et al., 2025).

In Indonesia, existing evidence indicates that adolescents generally have low levels of SRHL. Studies report limited understanding of reproductive anatomy, contraception, and consent, often reinforced by strong social taboos and the

absence of comprehensive sexuality education within school curricula (Arifah et al., 2022; van Reeuwijk et al., 2023; Wardiati et al., 2023). Access to reproductive health information is further constrained by gender norms, family communication barriers, and sociocultural expectations (Saparini et al., 2023; Tampubolon et al., 2025a). Although digital SRH education initiatives show promise, their effectiveness remains dependent on alignment with local beliefs and culturally appropriate communication styles (Nilasari et al., 2024).

Cultural sensitivity has been recognized as a key determinant of successful SRH interventions. Standardized approaches frequently fail to address local norms, religious values, and gender dynamics that shape adolescents' perceptions and behaviours (Kelecha et al., 2024). Cross-cultural studies demonstrate that culturally adapted SRH interventions foster greater trust, relevance, and engagement among adolescents (Ellin et al., 2025; Rukh-E-Qamar et al., 2022). However, within the Indonesian context, research incorporating cultural sensitivity into the framework of adolescent SRHL remains limited. Most studies rely on quantitative designs focusing on knowledge levels or behavioural prevalence, with insufficient exploration of the underlying sociocultural mechanisms influencing these outcomes. Mixed-methods research that connect empirical finding with contextual perspectives from families, schools, and communities is notably scarce.

In response to these gaps, the present study aims to examine the prevalence of adolescent sexual and reproductive health literacy and risky sexual behaviours. Additionally, it seeks to assess the existing sexual and reproductive health education system, including the roles of schools and families, and how these structures interact with local cultural sensitivities. This approach is intended to identify misalignments between adolescents' needs and current educational interventions, thereby informing more culturally responsive and sustainable strategies for promoting adolescent reproductive health.

## METHOD

### Design

This study employed a Convergent Parallel Mixed Methods design (Creswell & Plano Clark, 2011, as cited in Creamer, 2024) and was conducted from May to October 2025 in a peri-urban area of Pekanbaru City. Quantitative and qualitative data were collected concurrently and subsequently integrated to provide a comprehensive understanding of adolescent sexual and reproductive health literacy, risky sexual behaviours, and the sociocultural context influencing school-based health education.

### Participants/ sample

The quantitative component included adolescents aged 11 to 21 years residing in the catchment area of the Umban Sari Public Health Center in Pekanbaru City. Inclusion criteria encompassed adolescents of both sexes who were willing to participate. This study area was selected due to its high prevalence of risky behaviours among adolescents. A total sampling technique was applied, yielding in 994 respondents. Recruitment was conducted in collaboration with schools through School Health Unit (UKS) coordinators and guidance and counselling teachers.

The qualitative component involved 22 participants, comprising secondary school teachers, school counselors, primary healthcare providers, and community leaders. Participants were selected through purposive sampling based on their experience in adolescent education programs,

adolescent health service delivery, or community-based adolescent initiatives.

### Data collection

Quantitative data were collected using a self-administered survey consisting of a demographic questionnaire, the Sexual and Reproductive Health Literacy (SRHL) questionnaire, and the Adolescent Sexual Behaviours questionnaire. Demographic data included age, sex, internet access, access to health services, and the use of AI technologies. SRHL was measured using the Health Literacy Measure for Adolescents (HELMA), which consists of 22 items rated on a five-point Likert scale (0 = never to 4 = always). Scores were categorized as inadequate (0-44), problematic (45-58), sufficient (59-73), and excellent (74-88). Sexual behaviours were assessed using the 20-item Adolescent Sexual Behavior Degree Index developed by Chaerani & Erlinda (2020), originally validated, and tested for reliability among Indonesian adolescents. The instrument demonstrated good psychometric properties, with a Cronbach's alpha coefficient of 0.87, indicating high internal consistency.

Qualitative data were collected through one focus group discussion (FGD) and in-depth interviews. The FGD involved 20 participants, comprising school teachers and primary healthcare staff. In addition, in-depth interviews were conducted with two community leaders for source triangulation. Thus, a total of 22 participants were included in the qualitative phase. All qualitative sessions were audio-recorded and transcribed verbatim.

### Validity and reliability/ trustworthiness

The SRHL questionnaire demonstrated strong validity and reliability, with a Cronbach's alpha ( $\alpha$ ) value of 0.973. Similarly, the adolescent sexual behaviours instrument was valid and reliable, with a Cronbach's alpha ( $\alpha$ ) of 0.979 (Chaerani & Erlinda, 2020). The 95% confidence intervals for the proportions of sexual behaviours categories were calculated using the Wilson score method.

The trustworthiness of the qualitative data was ensured through member checking, whereby transcript summaries and preliminary findings were returned to participants to verify the accuracy and credibility of the data.

### Data analysis

Quantitative data were analyzed using univariate statistics to describe demographic characteristics, SRHL levels, and adolescent sexual behaviours. Bivariate analysis was performed to identify the relationship between SRHL and adolescent sexual behaviours, employing the Chi-square test, while ensuring the assumptions of independence and expected cell frequencies were met.

Qualitative data from the focus group discussions (FGDs) and interviews were analyzed using Colaizzi's phenomenological method. This process involved repeated reading of transcripts, extraction of significant statements, formulation of meanings, clustering into themes, and development of a comprehensive description. An audit trail was maintained throughout the analysis to ensure transparency. The coding was conducted using Open Code version 4.03 to systematically analyze all data. The coded data were then organized into categories based on similarities in meaning, which were subsequently developed into major themes. Quantitative and qualitative findings were integrated during the interpretation phase to identify convergence, complementarity, and provide contextual explanations of adolescent SRHL and sexual behaviours.

### Ethical consideration

This study received ethical approval from the Research Ethics Committee of the Faculty of Nursing at Universitas Riau, under approval number 2929/UN19.5.1.8/KEPK.FKp/2025. The consent process utilized obtaining both parental consent and child assent forms. The Parental consent form was provided to parents to ensure adherence to ethical principles, legal requirements, and the protection of the child's rights and safety. After obtaining parental permission, adolescent respondents were asked to sign the Child Assent form as a written consent to participate. The questionnaire was administered only after all ethical approval procedures had been completed. For qualitative participants, an informed consent form was provided and signed prior to conducting the FGDs and interviews.

### RESULT

A total of 994 adolescents participated in the quantitative phase of the study. Respondent characteristics are summarized in Table 1. Most participants were middle adolescents aged 14–17 years (80.48%,  $n = 800$ ), and the majority were female (62.78%,  $n = 624$ ). The Minang ethnic group constituted the largest proportion of respondents (46.68%,  $n = 464$ ). Most parents had completed high school as their highest level of education (fathers: 57.64%; mothers: 59.65%), and most adolescents (71.22%,  $n = 708$ ) came from families with monthly incomes below the City Minimum Wage (< Rp. 3,600,000).

Regarding access to technology, most respondents reported having internet access (80.38%,  $n = 799$ ) and perceived access to healthcare services as easily accessible (71.52%,  $n = 711$ ). More than one-third reported using artificial intelligence technologies, with ChatGPT being the most frequently used platform (37.72%,  $n = 375$ ). Overall, respondents demonstrated relatively good access to digital technology despite predominantly coming from lower-middle socioeconomic backgrounds.

As shown in Table 2, SRHL levels were predominantly low. The majority of adolescents (92.5%,  $n = 919$ ) were classified as having inadequate SRHL, comprising 591 males and 328 females. An additional 5.6% ( $n = 56$ ) were categorized as problematic, while only 1.9% ( $n = 19$ ) demonstrated sufficient literacy. No respondents reached the excellent literacy category. These findings indicate widespread difficulties among adolescents in this study in understanding and applying basic reproductive health information.

The distribution of adolescent sexual behaviours is presented in Table 3. More than half of the respondents were classified as exhibiting heavy sexual behaviours (53.30%; 95% CI: 50.11%–56.30%), while 46.70% displayed light sexual behaviours (95% CI: 43.70%–49.89%). This indicates that a substantial proportion of adolescents engage in higher-risk sexual behaviours.

The association between SRHL and sexual behaviours is presented in Table 4. Among adolescents exhibiting light sexual behaviours ( $n = 465$ ), 90.49% were classified as having inadequate SRHL, compared to 94.16% among those exhibiting heavy sexual behaviours ( $n = 529$ ). Although adolescents with light sexual behaviours demonstrated slightly higher proportions of problematic and sufficient literacy, the association between SRHL and sexual behaviours was not statistically significant ( $\chi^2$  test,  $p = 0.083$ ). The effect size was small (Cramér's  $V = 0.07$ ), indicating a weak association. These findings suggest that SRHL alone

did not significantly differentiate between sexual behaviour categories in this study population.

In the qualitative phase, 20 participants (18 school teachers and two community health center nurses) took part in the FGD to discuss adolescent problems and the needs for school-based adolescent health services. In addition, two community leaders were interviewed for source triangulation, bringing the total number of qualitative participants to 22.

### Theme 1: Vulnerability in Adolescent Sexual and Reproductive Behaviors

This theme highlights adolescents' vulnerability to sexual and reproductive health issues stemming from interconnected physical, psychological, and social factors. Teachers reported observable health problems, including poor nutritional status, pallor, frequent absenteeism, and sleepiness during class. Reproductive health-related concerns encompassed dating behaviors, exposure to pornography, LGBT identity exploration, and menstrual discomfort. Although schools provide puberty education through guidance and counseling sessions, teachers noted that misunderstandings among students persist.

*"We explain the bodily changes during puberty so that they do not misunderstand" (Teacher, FGD)*

*"Some students are now more open about their sexual behaviors, but they still misunderstand." (Teacher, FGD)*

*"Many students are stressed due to family conflicts and school workload." (School Counselor, Interview)*

### Theme 2: Limited School Capacity to Respond to the Complexity of Adolescent Issues

Participants reported that schools have limited capacity to address the complex issues of adolescent mental health and reproductive behavior. Although guidance and counseling services follow structured procedures for assessment and follow-up, interventions remain largely reactive and are insufficiently integrated with school health units or community health centers. Heavy workloads, limited resources, and weak cross-sector collaboration further hinder the provision of comprehensive support.

*"We begin with an initial interview, problem identification, and follow-up, including involving parents if necessary." (School Counselor, FGD)*

*"When students confide personal matters, they must not be disclosed. That is our ethical principle." (Teacher, FGD)*

*"We, at the Community Health Center are ready to support schools through routine check-ups and health promotion." (Nurse, FGD)*

*"We need integrated counselling services involving school counselors, school health units, and the Community Health Center." (School Counselor, FGD)*

Psychosocial pressures such as academic stress, family conflict, and limited communication with parents, exacerbate adolescents' mental health challenges. Additionally, unfiltered exposure to digital media contributes to risky behaviors such as early dating and pornography consumption. Unfortunately, the school's approach to addressing these issues remains fragmented and has not been informed by a comprehensive assessment of psychosocial needs.

*"Parents are still reluctant to discuss reproductive health." (P1, Community Leader, Interview)*

*"We need training in culturally and gender-sensitive*

*counselling.” (School Counselor, FGD)*

### **Theme 3: Gaps in Educational Strategies in Addressing the Influence of Digital Media and Cultural Modernization**

This study reveals a gap between school educational approaches and the social realities faced by adolescents in the digital era. Social media and influencers have become primary sources of information and lifestyle guideline for adolescents, often perceived as more trustworthy than formal authorities such as teachers. This situation demonstrates the limited competitiveness of conventional educational approaches in shaping adolescents’ understanding and promoting healthy behaviors.

*“Students today trust social media content more than teachers.” (School Counselor, Interview)*

However, cultural informants emphasized that modernization does not necessarily undermine local values. When adapted through digital platforms, cultural values can support healthy identity formation and reproductive behaviors. Storytelling, folktales, and culturally rooted digital content were identified as potential strategies, although such initiatives remain limited in scope.

*“Malay values emphasize the responsibility of maintaining personal dignity... but currently there are no direct programs or educational initiatives on reproductive health from the cultural institution.” (P2, Community Leader, Interview)*

*“Adolescent reproductive education can be delivered through storytelling, folktales, and traditional narrative styles.” (P1, Community Leader, Interview)*

*“Malay-culture-based influencers on social media can also serve as role models for adolescents.” (P2, Community Leader, Interview.)*

This study underscores the crucial role of nursing in addressing adolescents’ low SRHL through culturally sensitive education, advocacy, and cross-sector collaboration. Strengthening nurses’ capacity to deliver comprehensive, rights-based, and contextually appropriate reproductive health education is essential to support informed decision-making and improve adolescent health outcomes.

#### **Mixed-Methods Integration**

The integrated findings indicate that adolescents’ sexual behaviours cannot be explained by SRHL alone. Although SRHL levels were predominantly inadequate and more than half of the adolescents reported engaging in heavy sexual behaviours, the statistical association between these two variables was weak.

Qualitative data suggest that behaviours were shaped by broader contextual influences, including psychosocial pressures, family dynamics, peer relationships, and significant exposure to digital media. In addition, limited school capacity and fragmented collaboration with health services hinder the delivery of comprehensive reproductive health education. Cultural informants further noted that local values could support healthy behaviours if incorporated into culturally relevant and digitally accessible approaches. Collectively, these findings highlight the need for integrated, culturally sensitive, and digitally responsive school health interventions.

## **DISCUSSION**

This study revealed that most adolescents possess inadequate SRHL, highlighting serious gaps in their ability to

access, comprehend and effectively utilize health information. Rather than merely reflecting a lack of knowledge, these findings indicate structural weaknesses in the integration of health literacy within Indonesia’s education system.

A study conducted in Pekanbaru reported that most adolescents demonstrated inadequate reproductive health literacy (Tampubolon et al., 2026), at levels lower than those observed in national and international research, underscoring the need for comprehensive, accessible, and skills-oriented literacy interventions.

Despite these educational gaps, most respondents reported good internet access and growing engagement with digital platforms, including the use of artificial intelligence tools such as ChatGPT. This trend reflects adolescents’ increasing reliance on digital media for health-related information. However, without adequate digital health literacy, such access may expose them to misinformation and culturally incongruent content (Giovanelli & Roundfield, 2025; Stauch et al., 2024). These findings emphasize the urgency of integrating critical and culturally sensitive digital literacy into adolescent SRH education frameworks.

The limited scope of formal health education, as reported by Kistiana et al. (2023), underscores that literacy involves not only curriculum content but also the pedagogical approach. The current model tends to emphasize biological aspects and moral restrictions rather than fostering critical understanding and self-efficacy in health-related decision-making. Teachers and peer interactions also play a critical role in shaping adolescents’ understanding of reproductive health information within school environments (Ramadhaniati et al., 2023). Teachers and peer interactions also play a critical role in shaping adolescents’ understanding of reproductive health information within school environments (Shibuya et al., 2023).

The lack of a significant association between SRHL and sexual behaviors ( $p = 0.083$ ) suggests that adolescent risk-taking is influenced by multidimensional factors beyond cognitive knowledge. This finding resonates with recent studies highlighting that affective and social influences — such as peer norms, emotional regulation, and exposure to online content—mediate the relationship between knowledge and behavior (Debella et al., 2024; Kelecha et al., 2024). Therefore, interventions that focus solely on providing information are insufficient. A comprehensive approach that integrates both psychosocial and digital dimensions is necessary to translate literacy into behavioral competence.

A key contribution of this study lies in contextualizing SRHL within the socio-cultural fabric of Minangkabau adolescents. Unlike many studies that treat culture as a background variable, this research demonstrates how cultural norms actively shape perceptions of sexuality, modesty, and moral responsibility. The identification of malu (modesty) as both a protective and restrictive factor adds nuance to the global discourse on culturally grounded sexual education. This duality aligns with emerging evidence that culturally sensitive frameworks can enhance community acceptance and learner engagement (Rukh-E-Qamar et al., 2022).

Furthermore, the study underscores the inadequacy of current school-based responses in addressing the complex psychosocial realities faced by adolescents. As Nilasari et al. (2024) and Ellin et al. (2025) note, SRHL cannot be developed in isolation from mental health and digital literacy.

Teachers' limited training and discomfort in discussing sexuality perpetuate moralistic and avoidance-based education, which inadvertently drives adolescents toward unverified digital sources. This study advocates for a paradigm shift toward integrative and participatory models that bridge educational institutions, healthcare providers, and digital platforms to create safer and more dialogical learning environments. Strengthening puberty literacy in schools requires empowering students as peer educators and implementing developmentally appropriate, evidence-based learning strategies that effectively respond to adolescents' needs (Tampubolon et al., 2025b).

The dynamic influence of digital media presents both challenges and opportunities. While misinformation remains a concern, digital platforms can be harnessed to promote interactive, values-based sexual education. Evidence from cross-national studies indicates that social media-based interventions improve engagement and retention of sexual health information when adapted to adolescents' linguistic and cultural contexts (Goldfarb & Lieberman, 2021). By positioning cultural values such as dignity and community responsibility as guiding principles, Indonesia can develop hybrid models of SRHL that balance modernization with cultural integrity.

This study has several limitations that should be acknowledged. First, the cross-sectional design limits the ability to infer causality between literacy levels and behavioral outcomes. Second, reliance on self-reported data may introduce bias due to social desirability, especially concerning sexual topics. Future research should expand to multiple provinces, employ longitudinal or mixed-method designs, and evaluate the effectiveness of culturally grounded digital interventions for enhancing SRHL.

## CONCLUSION AND RECOMMENDATION

This study provides evidence that SRHL among Indonesian adolescents remains critically low and is influenced by socio-cultural and digital contexts. The findings highlight the need to move away from normative, prohibitive instruction toward dialogical, culturally grounded, and psychologically supportive education. Strengthening teacher capacity, fostering cross-sector collaboration, and implementing culturally adapted digital approaches are essential to improving adolescents' SRHL and resilience.

School and community nurses can support SRHL improvement by delivering culturally sensitive education through UKS, providing confidential adolescent-friendly services at primary health centers, training teachers in SRH communication and psychosocial screening, collaborating with youth and cultural leaders to develop digital materials, and monitoring outcomes using pre- and post-intervention SRHL assessments.

### Declaration of Interest

None declared.

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## REFERENCES

Alhussaini, N. W. Z., Elshaikh, U., Abdulrashid, K., Elashie,

S., Hamad, N. A., & Al-Jayyousi, G. F. (2025). Sexual and reproductive health literacy of higher education students: A scoping review of determinants, screening tools, and effective interventions. *Global Health Action*, 18(1). <https://doi.org/10.1080/16549716.2025.2480417>

Aprilia, M., Handayani, S., & Mulyanti, S. (2025). Adolescent' Reproductive Health Knowledge and Risky Sexual Behavior: A Correlational Study. 12(2), 92–98.

Arifah, I., Safari, A. L. D., & Fieryanjodi, D. (2022). Health Literacy and Utilization of Reproductive Health Services Among High School Students. *Jurnal Promosi Kesehatan Indonesia*, 17(2), 79–85. <https://doi.org/10.14710/jpki.17.2.79-85>

Chaerani, E., & Erlinda, E. (2020). Uji validitas dan reliabilitas indeks derajat perilaku seksual remaja (Laporan akhir penelitian). *Politeknik Kesehatan Kementerian Kesehatan Pangkalpinang*.

Centers For Disease Control and Prevention. (2024). Youth Risk Behavior Survey Data Summary & Trends Report: 2013—2023. U.S Department of Health and Human Services.

Creamer, E.G. (2024) *Visual Displays in Qualitative and Mixed Method Research: A Comprehensive Guide*. Taylor & Francis. Available at: <https://books.google.co.id/books?id=L2IHEQAAQBAJ>.

Debella, A., Tamire, A., Bogale, K., Berhanu, B., Mohammed, H., Deressa, A., Gamachu, M., Lami, M., Abdisa, L., Getachew, T., Hailu, S., Eyeberu, A., Heluf, H., Legesse, H., Mehadi, A., Dilbo, J. H., Wkuma, L. A., & Birhanu, A. (2024). Sexual and reproductive health literacy and its associated factors among adolescents in Harar town public high schools, Harari, Ethiopia, 2023: A multicenter cross-sectional study. *Frontiers in Reproductive Health*, 6. <https://doi.org/10.3389/frph.2024.1358884>

Ellin, M. R., Hamid, S. H. A., & Arifin, S. R. Mo. (2025). A culturally-sensitive approach to sexual and Reproductive Health Education: A Critical Review of a Parenting Sexuality Book. *Journal of Health and Quality of Life*.

Giovanelli, A., & Roundfield, K. D. (2025). Adolescent Vulnerability to Consumer Chatbots — Artificial Agents and Genuine Risk. 8(10), 2025–2027. <https://doi.org/10.1001/jamanetworkopen.2025.39028>

Goldfarb, E. S., & Lieberman, L. D. (2021). Three Decades of Research: The Case for Comprehensive Sex Education. *Journal of Adolescent Health*, 68(1), 13–27. <https://doi.org/10.1016/j.jadohealth.2020.07.036>

Kelecha, Y. T., Mehamud, B. M., Goda, H. S., & Toma, T. M. (2024). Reproductive and sexual health literacy and associated factors among late-adolescent high school students in Arba Minch and Sawla towns, Southern Ethiopia, 2023: A cross-sectional study. *BMJ Open*, 14(8), e086034. <https://doi.org/10.1136/bmjopen-2024-086034>

Kistiana, S., Fajarningtiyas, D., & Lukman, S. (2023). Differentials in Reproductive Health Knowledge among Adolescents in Indonesia. *Media Kesehatan Masyarakat Indonesia*. <https://doi.org/10.30597/mkmi.v19i1.23641>

- Lohan, M., Brennan-Wilson, A., Bradshaw, M., Bastien, S., Banati, P., Garry, J., Gómez, A. Ló., Moreau, C., Yu, C., Mmari, K., Rahman, M. M., Kabiru, C. W., & Tomlinson, M. (2025). Global research priority-setting exercise on the sexual and reproductive health and rights of young adolescents. *The Lancet Child and Adolescent Health*, 9(10), 724–734. [https://doi.org/10.1016/S2352-4642\(25\)00190-7](https://doi.org/10.1016/S2352-4642(25)00190-7)
- Nilasari, H., Indriatmi, W., Gunardi, H., Kayika, I. P. G., Kekalih, A., Siregar, K. N., Kurniawan, K., Lesmana, E., & Haswinsky, R. A. (2024). Developing an online reproductive health module on sexually transmitted infections for Indonesian adolescents: A qualitative mixed methods study. *Medical Journal of Indonesia*, 33(4), 245–253. <https://doi.org/10.13181/mji.oa.247635>
- Nkrumah, J., Abuosi, A., Baku, A., Yarney, L., Abekah-Nkrumah, G., & Tettey, C. R. (2024). Adolescent sexual and reproductive health literacy needs: A sub-national level assessment in Ghana. *Health Promotion International*, 39 3. <https://doi.org/10.1093/heapro/daae065>
- Ramadhaniati, Fitri, Kurniati, Neng, Asmariyah, Asmariyah, & Yulyani, Linda. (2023). The Involvement Of Teachers And Peers In Providing Knowledge On Adolescent Reproductive Health At State Vocational High School 2 Bengkulu City In 2023. *Jurnal Eduhealth*, 14(2).
- Rukh-E-Qamar, H., Khan, R., Ranade, R., Yang, C., Phung, N., Kakish, I., Dumitrache, A., Djigo, M., Erdogan, Y., Al-Leswas, S., & Masroor, U. (2022). One Size Does Not Fit All: Importance of Culturally Sensitive Sexual and Reproductive Health Education for Immigrant Communities | Harvard T.H. Chan School of Public Health. <https://hsph.harvard.edu/maternal-health-task-force/news/one-size-does-not-fit-all-importance-of-culturally-sensitive-sexual-and-reproductive-health-education-for-immigrant-communities/>
- Saparini, S., Simbolon, D., & Ningsih, L. (2023). Knowledge and Access to Adolescent Reproductive Health Information in Indonesia. *Jurnal Promosi Kesehatan Indonesia*, 19(1), 1–10. <https://doi.org/10.14710/jpki.19.1.1-10>
- Shibuya, F., Estrada, C. A., Sari, D. P., Takeuchi, R., Sasaki, H., Warnaini, C., Kawamitsu, S., Kadriyan, H., & Kobayashi, J. (2023). Teachers' conflicts in implementing comprehensive sexuality education: A qualitative systematic review and meta-synthesis. *Tropical Medicine and Health*, 51(1), 18. <https://doi.org/10.1186/s41182-023-00508-w>
- Stauch, L., Renninger, D., Rangnow, P., Hartmann, A., Fischer, L., & Okan, O. (2024). Digital health literacy of children and adolescents and its association with sociodemographic factors: Representative study findings from Germany Table of Contents.
- Tampubolon, N. R., Tampubolon, M. M., & Sari, N. Y. (2025a). Exploring Adolescent Mental Health Issues and Primary Service Needs in Wetland Areas: A Mixed-Method Study. *Jurnal Keperawatan Soedirman*, 20(1), 51. <https://doi.org/10.20884/1.jks.2025.20.1.14570>
- Tampubolon, M. M., Tampubolon, N. R., & Al Aminuddin, A. A. (2025b). Penguatan Literasi Kesehatan Remaja SMP Tentang Pubertas dan Kendali Dorongan Seksual Melalui Pojok Informasi "Wajarkah." *Jurnal Kreativitas Pengabdian Kepada Masyarakat (PKM)*, 8(11), 5553–5564.
- Tampubolon, M. M., Tampubolon, N. R., Sari, N. Y., & Arneliwati, A. (2026). Reproductive Health Literacy Among Adolescents in Pekanbaru: A Cross-Sectional Study. *Jurnal Ners*, 10(1), 2406–2412. <https://doi.org/10.31004/jn.v10i1.52882>
- van Reeuwijk, M., Rahmah, A. & Mmari, K. (2023) 'Creating an Enabling Environment for a Comprehensive Sexuality Education Intervention in Indonesia: Findings From an Implementation Research Study', *Journal of Adolescent Health*, 73(1), pp. S15–S20. <https://doi.org/10.1016/j.jadohealth.2022.07.016>.
- Wardiati, W., Septiani, R., Agustina, A., Ariscasari, P., Arlianti, N., & Mairani, T. (2023). Reproductive Health Literacy of Adolescents at Public Islamic School: A Cross-Sectional Study in Indonesia. *Al-Sihah: The Public Health Science Journal*. <https://doi.org/10.24252/al-sihah.v15i1.33133>
- World Health Organization. (2025). Competency and outcomes framework for adolescent health and well-being. World Health Organization.
- Yalazi, R. Ö., Tarus, H. A., Gündüz, C. S., & Demirci, N. (2025). The Development of the Sexual Health Literacy Scale. *Sexuality & Culture*, 29(4), 1733–1746. <https://doi.org/10.1007/s12119-025-10344-1>