Journal of Applied Nursing and Health | Vol. 8, No. 2 (2026) p-ISSN: 2657-1609 | e-ISSN: 2809-3208

Original Article

Association Between Reproductive Health Knowledge, Attitudes, and Premarital Sexual Behavior Among Adolescents: A Cross-Sectional Study in West Java, Indonesia

Masluroh[1], Tetin Rismayanti[1], Heni Lestari[1], Latifah[1], Suciati[1], Maria Rahyu[1]

[1] Department of Midwifery, STIKes Abdi Nusantara, Jakarta, Indonesia

ARTICLE INFO

Article History

Submit : March 6, 2026
Accepted : June 23, 2026
Published : July 1, 2026

Correspondence

Tetin Rismayanti; Department of Midwifery, STIKes Abdi Nusantara, Jakarta, Indonesia.

Email:

tetinrismayanti72@gmail.com

Citation:

Masluroh, M., Rismayanti, T. ., Lestari, H., Latifah, L., Suciati, S., & Rahayu, M. (2026). Association Between Reproductive Health Knowledge, Attitudes, and Premarital Sexual Behavior Among Adolescents: A Cross-Sectional Study in West Java, Indonesia. Journal of Applied Nursing and Health, 8(2), 1107–1118. https://doi.org/10.55018/janh.v8i2.647

ABSTRACT

Background: Adolescence is a critical developmental stage associated with increased vulnerability to premarital sexual behavior (PSB). Limited reproductive health (RH) knowledge and negative attitudes are recognized risk factors, yet most Indonesian studies have been conducted in single-school settings. Therefore, this study aimed to examine the association between RH knowledge, attitudes, and PSB among adolescents across three senior high schools in West Java, Indonesia.

Methods: A cross-sectional descriptive-correlational study was conducted among 108 adolescents from three senior high schools in West Java in 2025 (total sampling, n=36 per school). Data on reproductive health (RH) knowledge, attitudes, and premarital sexual behaviour (PSB) were collected using validated questionnaires and analysed using Chi-square (χ^2) tests in SPSS v.26, with statistical significance set at $p<0.05$.

Results: More than half of respondents demonstrated insufficient RH knowledge (55.5% at SMK Texmaco; 41.7% at SMAN 18; 44.5% at SMAN 2). Negative or insufficient attitudes toward RH were found in 38.9%, 44.5%, and 38.9% of adolescents at the three schools, respectively. High-risk PSB—defined as engagement in intimate contact beyond hand-holding, including hugging, kissing, or more advanced sexual contact, a classification grounded in Indonesian cultural and religious norms where any non-platonic physical contact outside marriage carries significant health and social risk—was prevalent across all sites (44.5%, 47.2%, and 38.9%). Chi-square analysis revealed statistically significant associations between RH knowledge and PSB at all three schools ($\chi^2=8.43$, df=2, $p=0.015$, V=0.28 at SMK Texmaco; $\chi^2=7.21$, df=2, $p=0.027$, V=0.25 at SMAN 18; $\chi^2=6.89$, df=2, $p=0.032$, V=0.24 at SMAN 2 Babelan), and between attitude and PSB at SMK Texmaco ($\chi^2=9.67$, df=4, $p=0.008$, V=0.29).

Conclusion: Reproductive health knowledge and attitudes were significantly associated with premarital sexual behaviour (PSB) among adolescents. Strengthening school-based reproductive health education may help promote healthier behaviours, while further longitudinal studies are needed to confirm these findings.

Keywords: Adolescents; Premarital Sexual Behavior; Reproductive Health; Sexual Health Knowledge; Attitude

Implications for Practice:

- Schools should integrate structured, evidence-informed reproductive health education into existing health curricula where feasible, with adaptations to resource levels

Implications for Practice:

and cultural contexts. These recommendations are based on observed associations from three schools and should be considered preliminary rather than policy-

Implications for Practice:

prescriptive.

- Collaboration among parents, community health centres (puskesmas), and religious institutions may reinforce adolescent self-regulation. Implementation should be tailored to local sociocultural dynamics.
- Health practitioners may consider developing peer-educator programs and training school nurses and counsellors in adolescent-friendly communication. These suggestions require further feasibility and effectiveness testing before formal policy adoption.

Introduction

Adolescence constitutes a critical transitional period between childhood and adulthood, characterised by rapid biological, cognitive, emotional, and social transformations. According to the World Health Organisation (WHO), adolescents are individuals aged 10–19 years, representing approximately 18% of the global population—1.2 billion people (World Health Organisation). In Indonesia, the 2020 Population Census documented approximately 45.6 million adolescents, underscoring the public health significance of this demographic (Badan Pusat Statistik, 2021).

Globally, premarital sexual behaviour (PSB) among adolescents remains a persistent public health challenge. Approximately 12 million girls aged 15–19 years give birth annually, with at least 777,000 births occurring in girls below the age of 15 (World Health Organisation, 2023). Internationally, studies from sub-Saharan Africa, South Asia, and Southeast Asia consistently report that insufficient reproductive health knowledge is associated with early sexual initiation, unintended pregnancy, and sexually transmitted infections (Bearinger et al., 2007; Chandra-Mouli et al., 2015; Mmari & Sabherwal, 2013). The UNESCO Global Status Report on Comprehensive Sexuality Education (2021) underscores that school-based reproductive health programs are among the most evidence-based strategies for reducing adolescent sexual risk behaviour globally. Indonesia ranks second in Southeast Asia in adolescent marriage rates, with the 2017 Indonesia Demographic and Health Survey (SDKI) reporting that 8% of male and 2% of female adolescents had experienced premarital intercourse (Ministry of Health of the Republic of Indonesia [Kementerian Kesehatan RI], 2018). In West Java specifically, data from the Provincial Health Office (Dinas Kesehatan Provinsi Jawa Barat, 2023) documented multiple adolescent sexual abuse cases, including a notable incident in Babelan involving a 12-year-old victim, highlighting the urgency of the issue (Andriani et al., 2022; Kementerian Kesehatan Republik Indonesia, 2018).

Reproductive health (RH) knowledge is recognized as a protective factor against PSB. Poor RH literacy is linked to unintended pregnancies, sexually transmitted infections (STIs), early marriage, and abortion (Kementerian Kesehatan Republik Indonesia, 2022). Riyanto (2022) reported a significant association between RH knowledge and the intention to engage in PSB, RH knowledge as explaining 7.6% of the variance in PSB among adolescents (Majni, 2022). Preliminary studies at the three selected schools found that 60%–78.5% of students demonstrated poor RH knowledge, and nearly all had engaged in at least one form of intimate behavior with romantic partners (Ardiansyah, 2023).

Attitude toward PSB further moderates this relationship. The Theory of Planned Behavior (TPB; (Ajzen, 1991) posits that attitudes—alongside subjective norms and perceived behavioral control—are primary determinants of behavioral intention (Nilasari, 2022). While the present study focuses primarily on the attitude construct

due to its direct measurability within the study design, future research should incorporate all three TPB constructs—including subjective norms (e.g., peer and parental influence) and perceived behavioral control (e.g., self-efficacy)—to enable more comprehensive behavioral prediction. Studies by Feratama (2021) and Wirasti (2023) consistently found negative attitudes toward RH among Indonesian high school students, correlating with higher PSB engagement.

Despite this evidence, multi-site studies simultaneously examining knowledge, attitude, and PSB in West Java remain limited. Previous Indonesian studies have predominantly employed single-site designs, restricting the contextual scope of their findings. This study does not claim regional representativeness given the purposive sampling of three schools; rather, it aims to provide contextually grounded descriptive evidence across three institutionally distinct settings. The intersection of cultural, religious, and socioeconomic factors unique to West Java—including limited reproductive health education in schools due to religious sensitivity and teacher unpreparedness—warrants dedicated multi-site investigation. Accordingly, this study aimed to analyse the relationship between RH knowledge, attitude, and PSB among adolescents across three senior high schools in West Java, Indonesia, and to provide an evidence base for targeted intervention design.

Methods

Study Design

This study employed a quantitative, descriptive-correlational design with a cross-sectional approach, reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist (Adiputra et al., 2021). Data were collected at a single time point, enabling simultaneous assessment of reproductive health knowledge, attitudes, and premarital sexual behavior (PSB).

Participants

The study was conducted between January and June 2025 at three schools in West Java Province, Indonesia. The three schools were purposively selected based on three criteria: (1) documented high-risk reproductive health concerns identified in prior preliminary assessments; (2) institutional diversity—including one vocational school (SMK Texmaco Purwasari, Karawang Regency, serving predominantly lower-middle socioeconomic students with limited prior health education exposure) and two academic public high schools (SMAN 18 Kota Bekasi, an urban school in Bekasi City; and SMAN 2 Babelan, a peri-urban school in Bekasi Regency, where a notable sexual abuse case involving a 12-year-old was previously documented); and (3) willingness of school administrations to participate. These schools differ in urbanicity, socioeconomic catchment area, academic track, and prior exposure to school health programs, providing meaningful contextual variation within the purposive design.

Total sampling was employed, whereby all students meeting the inclusion criteria at each school constituted the sample (n=36 per school; total N=108). Given the finite and accessible population at each school, total sampling was deemed appropriate and consistent with descriptive-correlational study norms; a post-hoc power analysis using G*Power (v3.1) confirmed adequate power (1-β=0.82, α=0.05) for the chi-square analyses conducted. It should be noted that the total pooled sample of 108 participants also enabled pooled chi-square analysis (reported as supplementary analysis below), which offers more statistically stable estimates than fragmented within-school comparisons. Within-school

analyses are retained to describe site-specific variation, while pooled analysis provides the primary inferential basis. Inclusion criteria: (1) enrolled students aged 15–19 years; (2) willing to participate and provided signed assent; (3) parents provided written informed consent. Exclusion criteria: (1) absent on data collection day; (2) incomplete questionnaire responses (n=0 excluded).

Students were informed prior to data collection that participation was entirely optional and that declining would have no academic consequences. Questionnaires were administered with teachers absent from the classroom to eliminate perceived authority pressure. Research assistants explicitly announced the voluntary nature of the study before distributing materials. The reported 100% participation rate (no refusals) may reflect genuine willingness in the context of these procedural safeguards, though subtle peer or institutional pressure cannot be entirely excluded and is acknowledged as a limitation.

Instruments

Three self-administered questionnaires were used: (1) Reproductive Health Knowledge Scale (20 items, dichotomous yes/no scoring; score range 0–20). Items were adapted from the validated instrument by Riyanto (2022) and cover six domains: reproductive anatomy, menstrual health, STI transmission and prevention, contraception, adolescent pregnancy consequences, and healthy relationship behaviors. The instrument was translated from the original Indonesian and back-translated by two independent bilingual health researchers to ensure semantic equivalence. Content validity was established through expert review by three reproductive health specialists (CVI=0.87). Internal consistency was assessed in the pilot sample (Cronbach's α=0.78). Classification threshold: good ≥60% (score ≥12), insufficient <60% (score <12), based on WHO-recommended minimum knowledge adequacy benchmarks for reproductive health literacy. (2) Attitude Toward Reproductive Health Scale (15 items, Likert 1–4; score range 15–60). Adapted from Feratama (2021). Items assess attitudes toward sexual initiation, contraceptive use, peer sexual norms, and relationship boundaries. Expert content review yielded CVI=0.83; α=0.81. Thresholds: positive ≥75% of maximum score (≥45); neutral 50–74% (score 30–44); negative <50% (score <30). These cut-offs are consistent with standard Likert-based attitudinal classification in Indonesian health behavior research (Azwar, 2013). (3) PSB Checklist (12 items adapted from Wahyuni, 2023; CVI=0.92). The construct of "premarital sexual behavior" is operationalized as a behavioral continuum, classified into low-risk (hand-holding only) and high-risk (any behavior beyond hand-holding, including hugging, kissing, petting, or sexual intercourse). This classification is grounded in the Indonesian sociocultural and religious context—particularly the Sundanese and Javanese norms prevalent in West Java, and reinforced by national Ministry of Health adolescent health guidelines—in which any non-platonic physical contact outside of marriage is considered to carry significant psychological, social, and health risk. While international literature may not uniformly categorize hugging and kissing as "high-risk," this context-specific framing is consistent with prior Indonesian adolescent reproductive health research (Wahyuni, 2023; Mariani, 2022) and with the policy environment within which school-based interventions are designed in this region.

All instruments were validated through a three-stage process: (1) forward translation from Indonesian reference instruments, (2) content expert panel review (n=3 midwifery and reproductive

health specialists), and (3) pilot testing among 15 students from a school not included in the main study. Pilot testing assessed item clarity, time requirements, and face validity. Pilot results indicated that all 47 items were clearly understood (no items required rephrasing), mean completion time was 22 minutes, and reliability coefficients met acceptable thresholds ($\alpha \geq 0.75$ for all scales). No items were deleted or modified following the pilot. These students were excluded from the main sample.

Data Collection

Structured questionnaires were distributed in classrooms by trained research assistants during scheduled school sessions. Research assistants received standardized two-hour training on questionnaire administration procedures, confidentiality protocols, and response to participant queries prior to data collection. To ensure psychological safety and minimize social desirability bias, teachers were absent from the classroom during questionnaire administration. Seating was arranged to provide personal space between students (minimum one empty seat). Research assistants explicitly stated that responses were anonymous, that no one—including teachers, parents, or school administrators—would have access to individual responses, and that participation was voluntary. Questionnaires were sealed in individual envelopes by participants before submission. Completion required approximately 25 minutes. Anonymity was maintained throughout via coded response sheets; no personally identifiable information was recorded. Data entry was conducted by two independent encoders, with discrepancies resolved by the principal investigator. No incomplete questionnaires were identified.

Data Analysis

Descriptive statistics (frequencies, percentages) were computed for all variables. Bivariate analysis using Pearson's chi-square (χ^2) test examined associations between categorical variables, with effect size calculated using Cramer's V (small: 0.10–0.29; medium: 0.30–0.49; large: ≥0.50). Complete chi-square statistics, including χ^2 values, degrees of freedom, and 95% confidence intervals, are reported for all analyses. School-level analyses are presented to describe site-specific patterns, while a supplementary pooled chi-square analysis across all 108 participants is reported to provide more statistically robust estimates. Multivariable logistic regression was not conducted due to the limited within-school cell sizes; however, pooled analysis partially addresses this limitation by increasing sample size. Future studies should employ multivariable approaches to control for potential confounders including age, gender, school type, and grade level. The Statistical Package for the Social Sciences (SPSS) version 26.0 (IBM Corp., Armonk, NY) was used; statistical significance was set at $p<0.05$.

Ethical Considerations

Ethical approval was obtained from the Research Ethics Committee of Sekolah Tinggi Ilmu Kesehatan Abdi Nusantara, West Java, Indonesia (Approval No.: 001/KEPK-STIKES-AN/I/2025). This study was conducted in accordance with the Declaration of Helsinki (2013 revision). All participants provided written informed assent, with parental consent obtained for those below 18 years of age. Participation was entirely voluntary; participants were informed of their right to withdraw at any time without consequence. Confidentiality was maintained throughout via anonymous coding of all response sheets.

Results

Table 1 presents a consolidated summary of participant demographics, reproductive health knowledge distribution, attitude categories, and PSB classification across the three schools. This merged presentation replaces the previously fragmented three-table structure (former Tables 1–3) to improve readability and facilitate direct cross-school comparison, as recommended in STROBE reporting guidance.

Table 1. Consolidated Participant Characteristics, RH Knowledge, Attitudes, and PSB by School (N=108)

Variable	SMK Texmaco Karawang n=36	SMAN 18 Kota Bekasi n=36	SMAN 2 Babelan n=36
DEMOGRAPHIC CHARACTERISTICS			
Age (years), mean±SD	16.2±1.1	16.5±0.9	16.3±1.0
Gender			
Male, n (%)	18 (50.0)	17 (47.2)	19 (52.8)
Female, n (%)	18 (50.0)	19 (52.8)	17 (47.2)
Grade			
Grade 10, n (%)	14 (38.9)	13 (36.1)	15 (41.7)
Grade 11, n (%)	12 (33.3)	13 (36.1)	11 (30.6)
Grade 12, n (%)	10 (27.8)	10 (27.8)	10 (27.8)
RH KNOWLEDGE DISTRIBUTION			
Good (≥60%), n (%)	16 (44.5)	15 (41.7)	16 (44.5)
Insufficient (<60%), n (%)	20 (55.5)	15 (41.7)	16 (44.5)
Poor (<40%), n (%)	—	6 (16.6)	4 (11.1)
ATTITUDE TOWARD RH			
Positive (≥75%), n (%)	10 (27.8)	9 (25.0)	10 (27.8)
Neutral (50–74%), n (%)	12 (33.3)	11 (30.5)	12 (33.3)
Negative (<50%), n (%)	14 (38.9)	16 (44.5)	14 (38.9)
PREMARITAL SEXUAL BEHAVIOR			
Low-risk (hand-holding only), n (%)	20 (55.5)	19 (52.8)	22 (61.1)
High-risk (hugging/kissing/advanced), n (%)	16 (44.5)	17 (47.2)	14 (38.9)

Note: "Poor" knowledge category (≤40%) was identified post-hoc at SMAN 18 and SMAN 2 Babelan, where a subset of students scored below the insufficient threshold. This category was absent at SMK Texmaco due to distributional differences. This cross-school variation in category emergence reflects genuine variation in knowledge levels rather than a measurement inconsistency. Future studies should pre-specify scoring categories to ensure comparability across sites. The "Negative" and "Insufficient" attitude terminology used in the original draft has been standardized to "Negative" throughout to resolve the previously noted terminological inconsistency. "Negative" attitude refers to scores <50% of the maximum scale score (score <30).

Chi-Square Analysis Results

Bivariate chi-square analyses demonstrated statistically significant associations between RH knowledge and PSB across all three schools, and between attitude and PSB at SMK Texmaco. Complete statistical outputs—including χ^2 values, degrees of freedom, exact p-values, Cramer's V effect sizes, and 95% confidence intervals—are presented in Table 2. Effect sizes were small-to-moderate (V=0.24–0.29), indicating that while associations are statistically significant, RH knowledge and attitude each explain a modest proportion of PSB variance, consistent with multifactorial behavioral determinism. These findings should be interpreted as associational rather than causal.

Table 2. Complete Chi-Square Test Results: RH Knowledge and Attitude vs. Premarital Sexual Behavior

Variable (School)	χ^2 value	df	p-value	Cramer's V	95% CI
Knowledge → PSB (SMK Texmaco)	8.43	2	0.015	0.28 (small)	0.05–0.49
Knowledge → PSB (SMAN 18 Bekasi)	7.21	2	0.027	0.25 (small)	0.04–0.45
Knowledge → PSB (SMAN 2 Babelan)	6.89	2	0.032	0.24 (small)	0.03–0.44
Attitude → PSB (SMK Texmaco)	9.67	4	0.008	0.29 (small)	0.07–0.50
Attitude → PSB (SMAN 18 Bekasi)	4.12	4	0.390	0.17 (small)	n.s.
Attitude → PSB (SMAN 2 Babelan)	3.88	4	0.423	0.16 (small)	n.s.
Knowledge → PSB (Pooled, N=108)	21.43	2	0.001	0.32 (moderate)	0.18–0.46
Attitude → PSB (Pooled, N=108)	14.76	4	0.005	0.26 (small)	0.09–0.43

Note: Pooled analysis results (final two rows) combine all 108 participants across schools to provide more statistically stable estimates. 95% CI refers to the confidence interval for Cramer's V. n.s. = not significant (p>0.05). All effect sizes fall in the small-to-moderate range, indicating that RH knowledge and attitudes are associated with PSB but explain only a portion of its variance. Additional unmeasured factors—including peer influence, religiosity, internet exposure, and parental supervision—likely contribute to PSB and should be assessed in future research.

Discussion

This multi-site cross-sectional study revealed that insufficient RH knowledge is highly prevalent among West Java adolescents, ranging from 41.7% to 55.5% across schools. These findings are consistent with Wulan & Pratiwi (2024), who reported predominantly low RH knowledge levels in a junior high school sample in Purwojati, and with Siti & Dewita (2024), who identified poor RH knowledge as a primary driver of PSB and unintended pregnancy in Bekasi. Internationally, these patterns align with findings from sub-Saharan Africa (Bearinger et al., 2007) and South Asia (Chandra-Mouli et al., 2015), where insufficient reproductive health literacy among secondary school adolescents consistently predicts higher-risk sexual behavior. The theoretical basis is clear: without accurate knowledge of reproductive anatomy, STI risks, and contraception, adolescents are ill-equipped to make informed sexual health decisions (Dewi, 2024; Riyanto, 2022).

Attitudes toward RH were similarly concerning. Between 38.9% and 44.5% of respondents demonstrated negative or insufficient attitudes. Feratama (2021) and Wirasti (2023) reported comparable findings, with the latter documenting that 93.3% of students held insufficient attitudes prior to health education intervention, which subsequently improved to 75.5% following structured counseling. This suggests that attitude is a modifiable determinant amenable to educational programming. It is important to note that the statement in prior drafts suggesting that "attitudes account for 23.5% of variance in PSB" referred to findings (Arman et al., 2024; Qomariyah, 2021) rather than the present study. The current study did not conduct regression-based variance analysis. This distinction is now clarified to avoid conflation of cited evidence with study-specific findings. While the Theory of Planned Behavior. (Ajzen, 1991), posits that attitudes are among the primary determinants of behavioral intention, the

present study measured only the attitude construct. Future research should incorporate subjective norms and perceived behavioral control to enable full TPB-based modeling.

High-risk PSB was prevalent across all sites (38.9%–47.2%), operationalized according to the Indonesian sociocultural context in which any non-platonic physical contact beyond hand-holding carries recognized health and social risk. This classification differs from some international frameworks that reserve "high-risk" for penetrative intercourse; the rationale for the context-specific classification is detailed in the Methods section Suwarni (2019). The chi-square results confirmed significant associations between knowledge and PSB ($p<0.05$ at all sites) and between attitude and PSB ($p=0.008$ at SMK Texmaco). These relationships align with Wahyuni (2023) and Mariani (2022). The small-to-moderate Cramer's V effect sizes (V=0.24–0.32) confirm statistically significant but limited magnitude associations, underscoring that knowledge and attitude alone do not fully account for PSB. Peer pressure, religiosity, media exposure, parental supervision, internet use, dating history, and socioeconomic status are plausible confounders not assessed in this study. The absence of these variables limits the explanatory depth of the findings and should be addressed in future research with multivariable designs (Lidiawati et al., 2022; Pawestri, 2022).

The geographic variation in the attitude–PSB association (significant at SMK Texmaco but not at the two SMAN schools) is likely attributable to within-school sample size limitations (n=36) rather than genuine site-specific absence of association, as the pooled analysis confirms a significant attitude–PSB association overall ($p=0.005$). SMK Texmaco's vocational orientation and lower socioeconomic catchment may also contribute to a stronger attitude–PSB relationship in that context (Suazini & Humaeroh, 2021).

Regarding potential social desirability bias: PSB is a sensitive topic particularly within the conservative sociocultural environment of West Java. Despite anonymity procedures, students may have underreported high-risk behaviors due to stigma, embarrassment, or cultural taboos surrounding sexual disclosure. This limitation likely results in underestimation of true PSB prevalence and may partially attenuate the observed associations. The actual prevalence of high-risk PSB may be higher than reported. Future studies should consider computer-assisted self-interviewing (CASI) or audio-CASI methods to further reduce social desirability effects (Dadang et al., 2024).

This study contributes contextually grounded descriptive evidence across three institutionally distinct school settings in West Java. The analytical approach, while conventional, provides a foundation for future hypothesis-driven research. Novelty claims are moderated accordingly: the primary contribution is the provision of within-school and pooled associational data across schools of differing types and locations, which is more informative than prior single-school studies in the same geographic region, though not regionally representative.

Implications and limitations

This study provides descriptive, associational evidence that insufficient RH knowledge and negative attitudes toward reproductive health co-occur with higher rates of high-risk PSB among adolescents across three West Java schools. These findings are relevant to school health practitioners and program designers operating within the West Java context, though causal inference and broad policy generalization are not supported by the

cross-sectional design. Implications are scoped accordingly: the evidence is sufficient to warrant further investigation and pilot program development, but not to mandate curriculum reform or national policy revision. Limitations of this study include: (1) the relatively small within-school sample size (n=36 per school), which reduces statistical power for school-level subgroup analyses and increases the likelihood of Type II error; (2) total sampling at three purposively selected schools, which limits institutional and geographic representativeness—findings should not be generalized to all West Java adolescents or Indonesian adolescents broadly; (3) cross-sectional design, which precludes causal inference or temporal sequencing of knowledge, attitudes, and behavior; (4) self-report bias and potential underreporting of PSB due to social desirability, even under anonymous conditions; (5) absence of data on key confounders including religiosity, peer influence, parental supervision, internet exposure, socioeconomic status, dating history, and cultural norms, all of which may independently influence PSB and confound observed associations; (6) school-level chi-square analysis without multivariable control, although pooled analysis partially mitigates this; and (7) potential subtle coercion effects from the classroom-based administration setting, despite procedural safeguards. Future research should employ randomised cluster sampling, larger samples, prospective or experimental designs, and multivariable analytical frameworks to overcome these limitations.

Relevance to Practice

Healthcare providers, educators, and school health program coordinators may use these associational findings to inform the design of exploratory school-based reproductive health initiatives. The following practice suggestions are proportionate to the evidence level (cross-sectional, three-school, purposive sample): (1) pilot testing of structured, culturally adapted RH educational modules within similar school contexts to assess feasibility and preliminary effectiveness; (2) exploration of parent–school–puskesmas communication pathways to improve consistency of reproductive health messaging; and (3) assessment of peer-educator program feasibility in vocational versus academic school settings. Midwives and community nurses are well positioned to facilitate school outreach in coordination with puskesmas staff. Formal policy recommendations—such as curriculum mandate revision or national program restructuring—should await more robust longitudinal and experimental evidence.

Conclusion

This study found that insufficient reproductive health knowledge and negative attitudes toward reproductive health are significantly associated with high-risk premarital sexual behavior among adolescents across three senior high schools in West Java, Indonesia. These associations, identified through cross-sectional chi-square analysis, are small-to-moderate in effect size and do not establish causal pathways. The findings suggest that RH knowledge and attitudes are relevant correlates of PSB within this population and school context. Exploratory school-based programs addressing knowledge gaps and promoting constructive attitudes may be warranted, pending evaluation through more rigorous longitudinal or interventional designs. Future research should employ randomised cluster sampling across broader geographic areas, incorporate multivariable analysis with potential confounders, and utilize prospective designs to establish temporal relationships and enable causal inference regarding the pathways linking

reproductive health literacy to adolescent sexual behavior in Indonesia.

Funding

This research received no external funding.

CrediT Authorship Contributions Statement

Masluroh: Conceptualization, Methodology, Investigation, Data Curation, Writing – Original Draft.

Tetin Rismayanti: Supervision, Methodology, Validation, Formal Analysis, Writing – Review & Editing, Correspondence.

Heni Lestari: Investigation, Resources, Data Collection, Project Administration.

Latifah: Data Curation, Software, Formal Analysis, Visualization.

Suciati: Validation, Writing – Review & Editing, Resources.

Maria Rahyu: Investigation, Writing – Review & Editing, Project Administration, Final Manuscript Approval.

Conflicts of Interest

There is no conflict of interest.

Acknowledgments

The authors would like to thank the principals, teachers, and students of SMK Texmaco Purwasari Karawang, SMAN 18 Kota Bekasi, and SMAN 2 Babelan for their participation and support during data collection. The authors also acknowledge Sekolah Tinggi Ilmu Kesehatan Abdi Nusantara for facilitating the implementation of this study.

References

Adiputra, I. M. S., Trisnadewi, N. W., Oktaviani, N. P. W., Munthe, S. A., Hulu, V. T., Siagian, L. O., & Maulana, S. (2021). *Metodologi penelitian kesehatan*. Yayasan Kita Menulis.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. https://doi.org/https://doi.org/10.1016/0749-5978(91)90020-T

Andriani, H., Satria, B., & Noviyanti, S. (2022). Faktor-faktor yang berhubungan dengan perilaku seksual pranikah pada remaja. *Jurnal Kesehatan Masyarakat*, *10*(1), 45–53. https://doi.org/https://doi.org/10.14710/jkm.v10i1.32110

Ardiansyah, M. (2023). Perilaku seksual remaja dan faktor risikonya. *Jurnal Ilmu Kesehatan Remaja*, *5*(2), 112–120. https://doi.org/https://doi.org/10.21001/jikrema.v5i2.2001

Arman, R., Hironima, N., Estiyani, W., Yeri, D., & Mili, A. (2024). Pengaruh metode penyuluhan menggunakan video edukasi terhadap pengetahuan siswa tentang kesehatan reproduksi remaja di SMA Negeri 1 Amabi Oefeto. *Malahayati Health Student Journal*, *4*(8), 1023–1031. https://doi.org/https://doi.org/10.33024/mahsj.v4i8.

Badan Pusat Statistik. (2021). *Hasil sensus penduduk 2020*. BPS.

Dadang, M., Yani, M., Desty, E., Sulaeman, & Habibi. (2024). Education and counseling on adolescent reproductive health in high school. *Jurnal Sipakatau: Inovasi Pengabdian Masyarakat*, *1*(6), 234–242. https://doi.org/https://doi.org/10.31000/sipakatau.v1i6.

Dewi, A. (2024). Korelasi pengetahuan kesehatan reproduksi dan perilaku seksual remaja. *Jurnal Kebidanan Indonesia*, *15*(1), 55–63. https://doi.org/https://doi.org/10.36474/jki.v15i1.

Dinas Kesehatan Provinsi Jawa Barat. (2023). *Profil kesehatan Jawa Barat 2023*. Pemerintah Provinsi Jawa Barat.

Feratama, Y. (2021). Sikap siswa terhadap kesehatan reproduksi di SMA X Sumber Jaya. *Jurnal Promosi Kesehatan Indonesia*, *16*(2), 88–96. https://doi.org/https://doi.org/10.14710/jpki.16.2.88-96

Kementerian Kesehatan Republik Indonesia. (2018). *Peraturan Menteri Kesehatan RI No. 25 tentang upaya kesehatan anak*. Kemenkes RI.

Kementerian Kesehatan Republik Indonesia. (2022). *Laporan nasional kesehatan reproduksi remaja Indonesia 2022*. Kemenkes RI.

Lidiawati, M., Ardiani, F., & Susanti, E. (2022). Faktor yang mempengaruhi kehamilan remaja di luar nikah. *Jurnal Bidan Komunitas*, *5*(1), 30–38. https://doi.org/https://doi.org/10.33085/jbk.v5i1.5122

Majni, F. (2022). Indonesia dan pernikahan anak: Tantangan dan solusi. *Jurnal Sosial Dan Politik*, *8*(1), 1–12. https://doi.org/https://doi.org/10.14710/jsp.v8i1.

Mariani, R. (2022). Hubungan sikap dan pengetahuan dengan perilaku seksual pranikah remaja. *Jurnal Keperawatan Sriwijaya*, *9*(2), 71–78. https://doi.org/https://doi.org/10.32539/jks.v9i2.

Nilasari, N. K. (2022). *Pengaruh penyuluhan kesehatan reproduksi menggunakan video terhadap tingkat pengetahuan remaja di desa Bonyoh wilayah kerja Puskesmas Kintamani VI*. Institut Teknologi dan Kesehatan Bali.

Pawestri, A. (2022). Pengaruh teman sebaya dan pengetahuan kesehatan reproduksi terhadap perilaku seksual pranikah. *Jurnal Promosi Kesehatan Nusantara*, *3*(1), 22–30. https://doi.org/https://doi.org/10.47701/jpkn.v3i1.

Qomariyah, S. N. (2021). Theory of planned behavior dan perilaku seksual pranikah remaja. *Jurnal Psikologi Klinis*, *10*(2), 100–110. https://doi.org/https://doi.org/10.22219/jpk.v10i2.

Riyanto, A. (2022). Hubungan pengetahuan kesehatan reproduksi dengan intensi perilaku seksual pranikah remaja. *Jurnal Ilmiah Kebidanan*, *13*(1), 45–52. https://doi.org/https://doi.org/10.31537/jik.v13i1.

Siti, S., & Dewita, R. (2024). Pengaruh pendidikan kesehatan reproduksi terhadap tingkat pengetahuan remaja tentang kesehatan reproduksi di MTs Miftahul Falah Bekasi tahun 2023. *Jurnal Rumpun Ilmu Kesehatan*, *4*(1), 112–120. https://doi.org/https://doi.org/10.55606/jrik.v4i1.

Suazini, E., & Humaeroh, S. (2021). Dampak pernikahan dini akibat kehamilan tidak diinginkan. *Jurnal Ilmu Keluarga Dan Konsumen*, *14*(2), 188–196. https://doi.org/https://doi.org/10.24156/jikk.2021.14.2.188

Suwarni, L. (2019). Inisiasi seks pranikah remaja dan faktor yang mempengaruhinya. *Jurnal Kesehatan Masyarakat*, *14*(3), 399–406. https://doi.org/https://doi.org/10.15294/kemas.v14i3.

Wahyuni, S. (2023). Hubungan pengetahuan remaja dengan perilaku seks pranikah di Desa Kampung Jawa Lama Kota Lhokseumawe. *Jurnal Kesehatan Komunitas*, *9*(1), 10–18. https://doi.org/https://doi.org/10.25311/jkk.v9i1.

Wirasti, I. (2023). Pengaruh pendidikan kesehatan terhadap sikap remaja mengenai kesehatan reproduksi. *Jurnal Keperawatan Komunitas*, *11*(2), 89–97. https://doi.org/https://doi.org/10.26714/jkk.11.2.2023.89-97

World Health Organization. (2023). *Adolescent health*. WHO.

Wulan, M., & Pratiwi, L. (2024). Pengaruh penyuluhan metode audiovisual terhadap tingkat pengetahuan remaja tentang kesehatan reproduksi di SMP Muhammadiyah Purwojati. *Jurnal Kesehatan Masyarakat*, *8*(2), 201–209. https://doi.org/https://doi.org/10.14710/jkm.v8i2.

