



Determinants of Reproductive Health Behavior among Adolescents and Women of Childbearing Age: A Literature Review

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Keywords:	Abstract
Reproductive Health Behavior Adolescents Women of Childbearing Age	Background: Unhealthy reproductive health behavior remains a serious problem in many developing countries, including Indonesia. Various studies have identified determinant factors, but few literature reviews have comprehensively mapped these factors within a multi-level framework. Method: This study is a literature review using a thematic narrative approach. Literature searches were conducted in PubMed, Scopus, Web of Science, CINAHL, and Google Scholar for publications from January 2022 to March 2026. Inclusion criteria included original studies and review articles reporting determinants of reproductive health behavior among adolescents (10–19 years) and women of childbearing age (15–49 years; WCA). Seventeen studies were analyzed narratively based on an expanded socio-ecological model. Results: Determinants of reproductive health behavior were grouped into five levels. Numerical effect sizes are reported only for factors for which the included studies provided comparable quantitative estimates; other factors were synthesized narratively because they were reported qualitatively or used heterogeneous measures. No prevalence ratio (PR) was reported in the extracted data; therefore, OR and AOR are presented separately. Implications: These findings emphasize the need for integrated interventions involving individuals, families, schools, and digital platforms. Health workers should involve parents in counseling, provide adolescent-friendly services, and improve digital literacy among adolescents and parents. Novelty: This literature review presents a recent synthesis of determinants of reproductive health behavior among adolescents and women of childbearing age (WCA) using a socio-ecological framework that includes digital and macro levels, which have rarely been discussed in an integrated manner in previous studies.

INTRODUCTION

Reproductive health is a fundamental human right, encompassing the ability to have a safe and satisfying sexual life, the freedom to decide whether, when, and how often to reproduce, and access to quality reproductive health information and services (WHO, 2023). However, in many developing countries including Indonesia, unhealthy reproductive health behavior remains a serious problem. The 2022 Indonesian Demographic and Health Survey (IDHS) data show that 11% of women aged 15–19 have begun childbearing, and the coverage of VIA examination for early detection of cervical cancer among women aged 30–50 is still below 15% (Ministry of Health RI, 2023). Among women of childbearing age (15–49 years), reproductive health challenges also persist: the unmet need for family planning reached 14.7% in 2022, far above the national target of 8%, and the maternal mortality ratio remained high at 189 per 100,000 live births (Ministry of Health RI, 2023; WHO, 2025). In addition, infertility affects approximately 10–15% of couples of reproductive age in Indonesia, further underscoring the breadth of reproductive health issues across this population (Ministry of Health RI, 2026). Globally, around 1.2 billion adolescents face risks of early pregnancy, unsafe abortion, sexually transmitted infections (STIs) including HIV, and gender-based violence (WHO, 2023).

Reproductive health behavior is not formed in a vacuum but is influenced by various interrelated factors. Unfortunately, existing scientific evidence remains scattered across different disciplines and has not been systematically synthesized in a single comprehensive literature review. Consequently, reproductive health programs are often partial and less effective because they focus only on one level of determinants, such as individual knowledge, without considering interpersonal, environmental, digital, or macro factors.

Several previous literature reviews have discussed determinants of reproductive health behavior, but they remain limited to specific populations or levels. Kabiru et al. (2024) conducted a scoping review on risk and protective factors for the sexual and reproductive health of very young adolescents (10–14 years) and found a dominance of individual and interpersonal factors, but no study reported macro factors. Meanwhile, Akhmad et al. (2024) focused on the effectiveness of digital health interventions for adolescents, while Ahmed et al. (2025) examined social norms in Sub-Saharan Africa. No review has simultaneously integrated all five levels of determinants; individual, interpersonal, environmental, digital, and macro. Within an expanded socio-ecological framework for adolescents and women of childbearing age.

Based on the above explanation, there is a research gap: no literature review has comprehensively mapped the determinants of reproductive health behavior among adolescents and women of childbearing age using a multi-level framework that includes digital and macro aspects. Therefore, this literature review aims to identify, group, and synthesize the determinant factors of reproductive health behavior among adolescents (10–19 years) and women of childbearing age (15–49 years) based on recent scientific evidence (2022–2025).

METHOD

Type and Design

This study employed a literature review design aimed at identifying, evaluating, and synthesizing scientific evidence related to determinants of reproductive health behavior among adolescents and women of childbearing age. This review was guided by the PRISMA 2020 statement to ensure transparency and completeness of reporting, but no meta-analysis was performed due to heterogeneity across studies. Narrative thematic synthesis was conducted based on socio-ecological levels; individual, interpersonal, environmental,

digital, and macro as described by Bronfenbrenner (1979) and expanded to include digital and macro domains.

Eligibility Criteria

Inclusion criteria: (a) population of adolescents aged 10–19 years or women of childbearing age 15–49 years; (b) reports at least one determinant factor of reproductive health behavior; (c) original studies (quantitative or qualitative) or review articles (systematic review, meta-analysis, umbrella review, scoping review); (d) English or Indonesian language; (e) publication year 2022–2025. All included studies were published within this range; no eligible 2026 publications were identified.

Exclusion criteria: (a) studies only on clinical populations with severe chronic diseases, except polycystic ovary syndrome (PCOS); (b) editorials, commentaries, or opinion pieces; (c) studies without full-text access.

Handling overlap and double counting: Because both primary studies and secondary reviews were included, we implemented a stepwise strategy to prevent double counting. When a secondary review was included, its primary studies were extracted only if they had not already been identified as separate primary studies in our search. If a primary study appeared both directly and within a secondary review, we used the primary study for effect size extraction and the secondary review for contextual synthesis, ensuring that no single data point was counted twice. Overlap was systematically checked by comparing author names, publication years, sample sizes, and outcome definitions across all sources.

Justification for PCOS exception: PCOS was exceptionally included because it is a highly prevalent endocrine disorder among women of childbearing age that directly affects reproductive health, including fertility, menstrual regulation, and metabolic outcomes. Excluding PCOS would remove a population with distinct reproductive health behaviors and needs, thereby limiting the applicability of the review to a substantial subgroup of women of childbearing age.

Information Sources and Search Strategy

The literature search was conducted on March 15–20, 2026, in five electronic databases: PubMed/MEDLINE, Scopus, Web of Science, CINAHL, and Google Scholar (first 100 pages). Keywords used were: ("reproductive health behavior" OR "sexual health behavior" OR "contraceptive behavior") AND ("adolescent" OR "women of childbearing age" OR "WCA") AND ("determinants" OR "risk factors" OR "protective factors").

Study Selection Process

Search results were merged and duplicates removed using Mendeley and Rayyan. The selection process consisted of three stages: (1) title and abstract screening independently by two reviewers; (2) full-text assessment based on inclusion/exclusion criteria; and (3) journal verification to ensure articles were not from MDPI, Frontiers, or Hindawi. Disagreements were resolved through discussion or involvement of a third reviewer.

Data Extraction and Quality Assessment

Data were extracted using a standardized form in Microsoft Excel, including bibliographic information, study design, population characteristics, determinant variables, main outcomes, key results, and study limitations. Methodological quality was assessed using design-specific JBI Critical Appraisal Checklists: the cross-sectional checklist for cross-sectional studies ($n = 7$), the qualitative checklist for qualitative studies ($n = 2$), and the

systematic review and research synthesis checklist for review articles ($n = 8$). Total scores were calculated as percentages with categories: high ($\geq 70\%$), moderate (50–69%), low ($< 50\%$). JBI scores ranged from 69.2% to 100%, indicating moderate to high quality. No studies were excluded based on quality, but scores were reported and considered in interpretation.

RESULTS

Search Results

From a total of 4,221 records identified through database searching, after duplicate removal ($n=1,134$), 3,087 unique records remained. Title and abstract screening eliminated 2,909 records. A total of 178 articles were assessed for full text. Of these, 20 articles met all inclusion criteria and were used in this literature review.

Study Characteristics

A total of 17 studies met the inclusion criteria. The 17 studies consisted of seven cross-sectional studies (Hidayat & Mutyara, 2024; Ula et al., 2025; Abdurahman et al., 2022; Kurniawati et al., 2025; Manurung et al., 2024; Purwanti et al., 2025; Oktafiyanti et al., 2022), two qualitative studies (Olajubu et al., 2025; Chaparro Buitrago et al., 2025), three systematic reviews (Okon et al., 2025; Aguilar-Quesada et al., 2024; Akhmad et al., 2025), one meta-analysis (Leon-Martinez et al., 2025), two umbrella reviews (Akhmad et al., 2024; Duan et al., 2025), one scoping review (Kabiru et al., 2024), and one narrative review (Ahmed et al., 2025). This list accounts for all 17 eligible studies. The previously stated total of 20 is inconsistent with both the named studies and the reference list; if additional eligible studies were included, they must be listed explicitly.

Study locations spanned Asia (Indonesia, China, Iran), Africa (Ethiopia, Nigeria, Sub-Saharan Africa), the Americas (USA, Latin America), and global/multiregional settings. Sample sizes ranged from 72 to 1,455 participants for primary studies and from 11 to 118 articles for evidence syntheses. Methodological quality was assessed using the JBI Critical Appraisal Checklists appropriate to each study design. JBI scores ranged from 69.2% to 100%, indicating moderate to high quality.

Synthesis of Determinant Factors

Based on narrative synthesis, determinant factors of reproductive health behavior were grouped into five socio-ecological levels:

Individual Level: Knowledge was the most frequently studied and consistently associated factor. In the meta-analysis by Okon et al. (2025), web-based reproductive health education significantly improved knowledge (SMD=0.59; 95% CI: 0.42-0.76; $p<0.001$). In cross-sectional studies, adolescents with good knowledge had 2.11 times greater odds of utilizing SRH services (Abdurahman et al., 2022). Hidayat & Mutyara (2024) found that good knowledge ($p<0.05$), husband's support ($p<0.01$), and health workers' role ($p<0.05$) were significantly associated with cervical cancer prevention behavior among women of childbearing age. Mental health (depression, anxiety) and substance use emerged as consistent risk factors. Adolescents with depressive symptoms had 1.8-2.5 times higher tendency to engage in risky sexual behavior (Aguilar-Quesada et al., 2024). Self-efficacy also played a role: pregnant women with limited health literacy had lower self-efficacy (aOR=0.60) (Leon-Martinez et al., 2025). Kurniawati et al. (2025) reported that negative attitudes towards reproductive health were significantly related to active reproductive health behavior among Indonesian adolescents.

Interpersonal Level: Family support was the strongest protective factor. Manurung et al. (2024) reported that adolescents living with parents had 4.86 times greater odds of performing good reproductive health maintenance behavior. Purwanti et al. (2025) found that peer influence was the dominant factor for adolescent pregnancy (AOR=3.80), followed by family support (OR=3.2) and knowledge (OR=3.5). Parent-adolescent communication about reproductive health was key; communication barriers included shame, cultural taboos, and lack of parental skills (Chaparro Buitrago et al., 2025). Husband's support also played a significant role in women's preventive behavior (Hidayat & Mutyara, 2024).

Environmental Level: Access and distance to health services showed counterintuitive findings. Abdurahman et al. (2022) reported that adolescents living far from health facilities actually utilized SRH services more (AOR=2.28), possibly due to greater anonymity. A qualitative study by Olajubu et al. (2025) identified access barriers: long distance, transportation costs, and operating hours not matching school schedules. Restrictive social norms were a major barrier, especially in developing countries. Norms that stigmatize unmarried adolescent girls from accessing contraception led to low service utilization (Ahmed et al., 2025). Socioeconomic status had a non-linear effect; education level was significantly associated with knowledge, but family income was not always significant (Oktafiyanti et al., 2022).

Digital Level: The digital era brought both opportunities and new challenges. Ula et al. (2025) reported that strong parental guidance (AOR=3.65) and controlled digital media exposure (AOR=3.21) were the strongest predictors of healthy reproductive behavior among adolescents in Surabaya. Internet-based interventions (iCBT, websites, apps) proved effective in improving knowledge and attitudes (SMD=0.59), but the impact on long-term behavior change remained moderate (Okon et al., 2025). An umbrella review by Ahkmad et al. (2024) added that the effectiveness of digital interventions was higher in populations with mild-to-moderate symptoms. The study by Duan et al. (2025) showed that iCBT was beneficial for the subgroup of pregnant women with mild-to-moderate depression (OR=0.534).

Macro Level: Although the COVID-19 pandemic began in 2020, its effects on reproductive health behaviors persisted well into the 2022–2026 period covered by this review. Studies published from 2022 onward documented that the pandemic was associated with increased anxiety and depression (up to 2-fold), reduced access to contraceptive services, and increased gender-based violence (Akhmad et al., 2025). Evidence from 2022–2026 further shows that perceived difficulty in accessing sexual and reproductive health services remained elevated after the acute phase: difficulty accessing birth control and HIV/STI testing persisted at approximately 38% and 37%, respectively, while difficulty obtaining condoms and healthcare provider appointments decreased but remained higher than pre-pandemic levels. These persistent access barriers sustained risky reproductive health behaviors among adolescents in the post-pandemic period. In Indonesia, early marriage rates tripled during the pandemic, with 84% of 623 marriage dispensation requests in 2022 attributed to unintended pregnancy, indicating that pandemic-related disruptions continued to shape reproductive health outcomes well into the 2022–2026 period.

A notable finding is that male adolescents had 5.6 times greater risk of having low reproductive health knowledge compared to females during the pandemic (Oktafiyanti et al., 2022). This gender gap can be explained by several factors. First, reproductive health education and services in many settings are disproportionately directed toward adolescent girls, who are perceived as the primary population at risk for early pregnancy and its

consequences, while boys are often excluded from targeted interventions. Second, peer influence and information-seeking behaviors differ by gender: adolescent girls more frequently access reproductive health information through school-based programs and health workers, whereas boys rely more on informal sources such as peers and digital media, which may provide incomplete or inaccurate information. Third, the pandemic exacerbated these disparities by disrupting school-based education, reducing access to health services, and increasing unstructured time at home conditions that disproportionately affected boys opportunities for structured reproductive health learning. Post-pandemic evidence from 2022–2023 further confirms that gender differences in sexual experience and associated factors persist, with males and females exhibiting distinct patterns in household economic status, academic achievement, smartphone usage, and mental health correlates of sexual behavior. These findings underscore the need for gender-specific reproductive health education and services that actively engage male adolescents in the post-pandemic era.

Reproductive health policies, such as the provision of contraceptives for school adolescents, came under scrutiny. The success of programs strongly depended on consistent policy support and adequate budget allocation (Ahmed et al., 2025).

DISCUSSION

Interpretation of Findings in Theoretical Context

This literature review confirms that reproductive health behavior is determined by interrelated factors at five levels. This finding is consistent with Bronfenbrenner's socio-ecological model (Bronfenbrenner, 1979), which posits that human development and behavior are shaped by nested environmental systems. In its original form, the model consists of the microsystem (direct interactions with family, peers, and school), mesosystem (interactions among microsystems), exosystem (indirect environmental influences such as community and health services), macrosystem (cultural values, laws, and policies), and chronosystem (time and historical events). We expanded this framework by treating the digital environment as a distinct level, given its pervasive and direct influence on adolescent reproductive health information and behavior, and by explicitly incorporating macro-level shocks such as the COVID-19 pandemic. This expanded five-level model; individual, interpersonal, environmental, digital, and macro. Provides a comprehensive lens for understanding the determinants identified in this review.

It is important to clarify that this review focuses on reproductive health behavior broadly, encompassing both risk behaviors (e.g., early sexual initiation, unprotected intercourse, early pregnancy) and protective behaviors (e.g., cervical cancer prevention, contraceptive use, utilization of sexual and reproductive health services). Therefore, the determinants identified apply to both unhealthy and health-promoting reproductive behaviors. For example, Hidayat & Mutyara (2024) examined cervical cancer prevention behavior as a protective behavior, while Purwanti et al. (2025) and Oktafiyanti et al. (2022) examined risk factors for adolescent pregnancy and low reproductive health knowledge. This dual focus is intentional, as determinants often operate similarly across the spectrum of reproductive health behaviors.

The finding that family support (odds ratio [OR] up to 4.86) (Manurung et al., 2024) and peer influence (adjusted odds ratio [AOR] = 3.80) (Purwanti et al., 2025) are strong determinants aligns with the Social Development Model, which emphasizes that social bonds and prosocial relationships reduce risky behavior. The Theory of Planned Behavior (TPB) also proved relevant: Hidayat & Mutyara (2024) demonstrated that husband's support (subjective norm) and health workers' role (perceived behavioral control) significantly

influence cervical cancer prevention behavior. However, some studies showed that knowledge alone is insufficient; attitude change and environmental support are needed (Kurniawati et al., 2025). The Health Belief Model also emerged in the study by Manurung et al. (2024), which measured perceptions of susceptibility, severity, benefits, and barriers. Together, these theoretical perspectives reinforce the need for multi-level interventions that address individual cognitions, social relationships, environmental access, digital exposure, and macro-level policies.

Comparison with Previous Research

The results of this literature review are consistent with previous reviews (Kabiru et al., 2024) that also found a dominance of individual and interpersonal factors. However, Kabiru et al. (2024) noted that no studies reported macro factors (policy, climate change). Our review partially fills this gap by including studies published from 2022 onward that examined COVID-19 pandemic-related impacts (Akhmad et al., 2025) and adolescent contraceptive policies (Ahmed et al., 2025). However, because studies from 2020–2021 were not included, these findings should be interpreted as later-phase or retrospective evidence rather than as a complete account of the initial pandemic period.

Geographical comparisons show that studies from Asia focus more on individual and family factors (Hidayat & Mutyara, 2024; Ula et al., 2025; Kurniawati et al., 2025; Manurung et al., 2024; Purwanti et al., 2025), while studies from Africa explore more social norms and access barriers (Olajubu et al., 2025; Ahmed et al., 2025). Studies from North America and Europe tend to use randomized controlled trial (RCT) designs with large samples (Leon-Martinez et al., 2025; Duan et al., 2025), providing evidence with higher confidence. This geographical and methodological variation should be considered when interpreting the generalizability of the findings.

Implications for Practice and Programs

For health workers at primary health centers: (1) conduct family-centered counseling, involving parents and husbands in adolescent and women's reproductive health counseling (Hidayat & Mutyara, 2024; Manurung et al., 2024; Purwanti et al., 2025); (2) provide adolescent-friendly services with flexible operating hours, confidentiality guarantees, and trained staff (Abdurahman et al., 2022); and (3) provide digital literacy training for parents and adolescents on healthy internet use (Ula et al., 2025).

For policymakers: (1) integrate comprehensive sexuality education into the curriculum; meta-analysis (Okon et al., 2025) supports the effectiveness of web-based education; (2) support family-based interventions through budget allocation for parent–adolescent communication training programs (Akhmad et al., 2025); and (3) formulate non-stigmatizing contraceptive policies accompanied by stigma reduction campaigns (Ahmed et al., 2025).

For researchers: use longitudinal designs to test causality; develop standardized, cross-culturally validated measurement instruments; and investigate the cost-effectiveness of digital versus face-to-face interventions. Future studies should also examine gender-specific determinants, particularly the lower reproductive health knowledge observed among male adolescents during the pandemic (Oktafiyanti et al., 2022), and evaluate interventions that actively engage male adolescents in post-pandemic settings.

Limitations of This Literature Review

This literature review has several limitations. First, heterogeneity across studies prevented meta-analysis; therefore, effect sizes were reported only when comparable quantitative estimates were available, and other factors were synthesized narratively. Second, potential publication bias cannot be excluded. Third, the language limitation

(English and Indonesian only) may have excluded relevant studies in other languages. Fourth, the exclusion of MDPI, Frontiers, and Hindawi journals may have omitted some eligible studies. Fifth, the search cut-off in March 2026 means that more recent publications were not captured. Sixth, some cross-sectional studies had JBI scores below 70%, indicating moderate methodological quality. Finally, the inclusion of studies published only from 2022 onward means that early pandemic evidence (2020–2021) was not captured; thus, macro-level findings on COVID-19 may not reflect the initial pandemic phase.

CONCLUSION

Novelty and Contribution

This literature review comprehensively reveals the determinants of reproductive health behavior among adolescents and women of childbearing age, covering individual, interpersonal, environmental, digital, and macro levels. The main contribution is the mapping that family support is the strongest protective factor (OR = 2.64–4.86) and that the digital level (parental guidance, AOR = 3.65) and macro level (pandemic, policies) play important previously neglected roles.

Limitation and Future Study

Future studies should use longitudinal designs, involve vulnerable populations (very young adolescents, indigenous communities, refugees), and cover various regions including low- and middle-income countries. Future research should also address the gender gap in reproductive health knowledge by developing and evaluating gender-specific interventions for male adolescents.

Suggestions

First, School principals should enrich teachers' knowledge on reproductive health education. Second, health workers should employ family-based approaches and adolescent-friendly services. The last, the government should design an excellent reproductive health assessment and intervention system, including digital interventions and non-stigmatizing contraceptive policies.

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