

Determinants of adolescent reproductive health service quality in rural Asia: a systematic review

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Submitted:

March 28th, 2024

Accepted:

June 24th, 2025

Published:

June 30th, 2025

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Abstract

Purpose: The purpose of this systematic review is to identify and synthesize the determinants of adolescent reproductive health service quality in rural Asian settings, to inform improvements in service delivery.

Methods: This study is a systematic review conducted in accordance with PRISMA guidelines to retrieve studies on factors affecting the quality of adolescent reproductive health services in rural Asia. After screening and eligibility assessment, 15 reviewed articles published between 2020 and 2024 met the predefined inclusion criteria and were selected for analysis. These studies encompassed both quantitative and qualitative research designs. Relevant data on determinants of service quality were systematically extracted and analyzed using narrative synthesis to identify, categorize, and summarize recurring themes across the selected literature.

Results: The findings reveal that the reviewed studies identified a range of socio-cultural, geographical, and economic factors influencing the quality of adolescent reproductive health services. Socio-cultural factors emerged as prominent determinants, with issues such as stigma, traditional norms, and limited community support discouraging adolescents from utilizing available services. Geographical barriers included long distances to health facilities, inadequate transportation infrastructure, and the scarcity of services in remote areas, all of which constrain adolescents' access to consistent and high-quality care. Economic challenges were also significant, encompassing both direct and indirect costs that often limit the ability of adolescents and their families to seek and sustain reproductive health services. These findings suggest that an interplay of cultural, spatial, and financial constraints often influences the quality of services in rural Asia. **Conclusion:** Improving the quality of adolescent reproductive health services in rural Asia requires an integrated approach that addresses socio-cultural, geographic, and economic barriers. Key strategies include promoting community engagement, enhancing service accessibility in remote areas, and reducing financial constraints. These efforts are crucial to ensuring equitable access and better reproductive health outcomes for adolescents in rural settings.

Keywords: adolescent health; Asia; reproductive health services; rural areas; youth-friendly services

INTRODUCTION

Adolescent sexual and reproductive health (SRH) in developing regions, particularly in rural parts of Asia, remains a critical public health concern. Global initiatives such as the Sustainable Development Goals have emphasized the importance of achieving universal access to SRH services by 2030. However, substantial disparities in adolescents' SRH knowledge and service utilization persist, especially in rural settings [1].

Asia is home to one of the largest youth populations globally, with approximately one-fifth of the population consisting of adolescents [2]. A significant proportion of these adolescents reside in rural areas, where health services are limited and often culturally inappropriate. Providing high-quality reproductive health services in these contexts is vital to preventing adverse health outcomes such as unintended pregnancies and sexually transmitted infections.

The quality of SRH services plays a central role in determining whether adolescents can access and benefit from care. According to Chandra-Mouli et al. [3], international frameworks for adolescent-friendly health services emphasize dimensions such as accessibility, competent and respectful providers, confidentiality, privacy, and non-discriminatory care. Over the past two decades, various programs across Asia have sought to implement youth-friendly service models to enhance adolescents' experiences with the healthcare system. However, as noted by Ambresin et al. [4], evidence supporting the effectiveness of these models remains limited. One key challenge is the lack of standardized definitions and indicators of youth-friendliness, which hinders the consistent ability to monitor and evaluate service quality across various settings.

This inconsistency has contributed to ongoing weaknesses in service provision. Studies have shown that adolescents often encounter inadequate privacy protections, breaches of confidentiality, and judgmental attitudes from providers, all of which discourage service use [5]. Qualitative research in Asia and the Pacific highlights how shame, stigma, and restrictive social norms can leave adolescents "trapped in a legacy of shame" when attempting to access reproductive health services [6]. In more conservative communities, fear of being judged or exposed may deter adolescents, particularly unmarried girls, from visiting clinics altogether. These dynamics erode trust in healthcare systems and further reduce the likelihood of adolescents seeking timely care.

These challenges are even more pronounced in rural areas. Rural adolescents often face long distances to the nearest facility and limited transportation options, unlike their urban counterparts [7]. When they do access care, they may encounter unwelcoming environments, with providers lacking training in adolescent-centered communication or infrastructure that compromises privacy. The situation is exacerbated by chronic shortages of trained staff, medical supplies, and facility-level resources in many rural health systems [8]. As a result, adolescents in rural Asia frequently report unsatisfactory experiences and limited access to accurate, relevant health information.

While global research on adolescent reproductive health has expanded, few studies have systematically synthesized the evidence specific to rural Asia. Most existing literature either addresses broad strategies for youth-friendly services or focuses on isolated challenges within individual countries. This fragmented landscape has left a critical gap in understanding how various determinants, ranging from service availability and provider competence to socio-cultural barriers, shape service quality in rural contexts across Asia. Therefore, this systematic review aims to address that gap by identifying and analyzing the key factors that influence the quality of adolescent reproductive health services in rural areas of Asia. In doing so, this study contributes to clarifying the state of the art in adolescent reproductive health service delivery. It offers insights for more inclusive and responsive healthcare interventions in underserved regions.

METHODS

This study employed a Systematic Literature Review (SLR) to identify and synthesize the determinants influencing the quality of adolescent reproductive health services in rural areas of Asia. The review process followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure methodological transparency and rigor.

The literature search was conducted through four academic databases: Google Scholar, PubMed, ScienceDirect, and ResearchGate. The search utilized specific keywords, such as "Quality of Adolescent Reproductive Health Services" and "Quality of Adolescent Reproductive Health Services Rural Asia," employing Boolean operators to refine and expand the scope of results. This strategy aimed to capture a broad yet relevant set of publications addressing the research objective.

Articles were included if they were published between 2020 and 2024, focused on the quality of adolescent reproductive health services in rural areas of Asia, written in English or Indonesian, and available in full-text and open access. Studies were excluded if they addressed non-rural populations, were conducted outside the Asian region, or did not discuss service quality determinants.

After screening titles, abstracts, and full texts, a total of 15 articles met the inclusion criteria and were selected for analysis. The final set of studies employed both quantitative and qualitative designs to facilitate a comprehensive exploration of the issue. Data were extracted using a structured form to document study characteristics and reported determinants of service quality. A narrative synthesis approach was then applied to organize the findings thematically and identify patterns and key influencing factors across the selected literature.

RESULTS

After a literature search across the Google Scholar, PubMed, ScienceDirect, and ResearchGate databases, the articles were filtered again according to predetermined inclusion criteria; 15 articles were identified as suitable for further review. The stages of search results and article selection are displayed using the PRISMA diagram in Figure 1, which outlines the systematic process of article selection conducted in this review. During the identification phase, a total of 17,953 articles were retrieved from four databases: 11,900 from Google Scholar, 43 from PubMed, 364 from ScienceDirect, and 5,646 from ResearchGate. In the screening stage, titles and abstracts of 17,953 articles were initially assessed, resulting in the selection of 385 articles for inclusion. At this stage, 17,568 records were excluded based on irrelevance to the research topic.

In the eligibility phase, full texts of 105 articles were examined in detail to determine their alignment with the inclusion criteria. From this pool, 43 articles were excluded because they did not meet the eligibility requirements, such as not focusing on the quality of adolescent reproductive health services or not being situated in rural Asian contexts.

Finally, a total of 15 articles met all criteria and were included in the qualitative synthesis. These articles formed the evidence base for the thematic analysis of determinants affecting the quality of adolescent reproductive health services in rural areas of Asia.

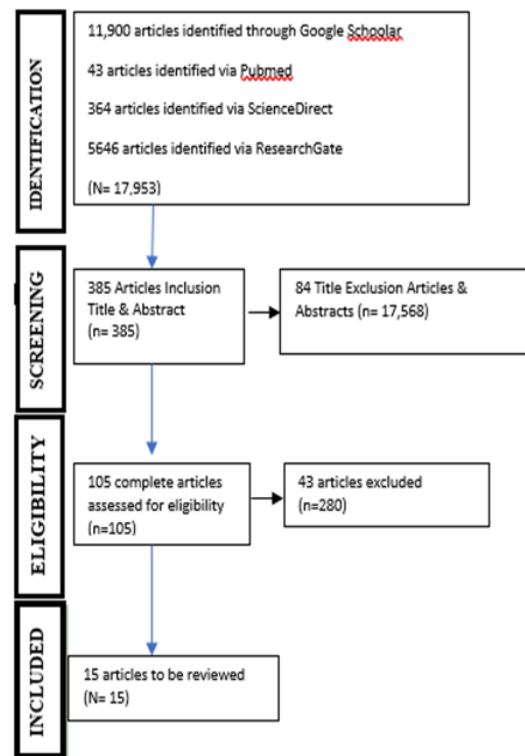


Figure 1. PRISMA diagram of the search process for the article

Adolescent reproductive health services are essential for promoting the well-being and development of young people. Despite their importance, evidence from diverse contexts across Asia reveals persistent challenges in accessing and utilizing these services. Barriers such as geographic isolation, limited financial resources, entrenched cultural norms, and insufficient awareness continue to hinder adolescents, particularly those in rural settings, from receiving appropriate care. This review synthesizes findings from studies conducted in countries including Nepal, South Korea, India, Sri Lanka, Bangladesh, and other parts of the Asia-Pacific region. The reviewed literature explores a range of interrelated factors influencing adolescents' access to reproductive health services, such as knowledge levels, service affordability, infrastructure quality, stigma, and gender-related expectations. These insights underscore the urgent need to address both cultural and structural barriers, enhance adolescent-friendly service provision, and increase awareness to ensure more equitable reproductive health outcomes.

The synthesis of findings presented in the following thematic sections is based on the reviewed articles outlined in Table 1. This table summarizes the key characteristics of each study, including their country of origin, study design, and focus area.

1. Knowledge and awareness of reproductive health services

Many studies consistently highlight limited knowledge as a barrier to adolescent reproductive health service utilization. One study [9] found that although more than half of adolescents understood basic reproductive anatomy, significant knowledge gaps remained regarding sexually transmitted infections, contraception, and abortion, contributing to a service utilization rate as low as 5%. Similarly, another study [10] reported that only 14.6% of adolescents had good knowledge of sexual and reproductive health, even though the majority expressed a need for such services, but ultimately did not access them. Other research [11,12,20] has shown that adolescents in rural areas, particularly girls, often lack awareness of available services, which limits their utilization despite the presence of specific programs.

2. Socio-cultural norms and stigma

Cultural barriers and stigma were found to strongly influence adolescents' willingness to access services. In specific refugee communities, for example, cultural constraints and limited mobility discouraged adolescent girls from utilizing available reproductive health services, despite generally positive attitudes toward care [13]. A broader synthesis of studies [6] identified recurring themes such as shame, low autonomy, and traditional gender norms as key deterrents to service use. This is further supported by evidence from rural Nepal [14], where stigma, limited decision-making power, and fear of social judgment were significant barriers preventing adolescents from seeking care.

3. Physical accessibility and geographical barriers

Geographical constraints remain a recurring theme in adolescent reproductive health access. Studies have noted disparities between rural and urban adolescents, particularly in terms of transportation difficulties and limited access to facilities [11]. Additional evidence suggests that long distances, inadequate sanitation facilities, and the absence of adolescent-friendly spaces are factors that further reduce adolescents' willingness to seek care [15].

4. Support systems: family, peers, and health workers

The role of supportive environments in promoting adolescent reproductive health service utilization was highlighted in several studies. Adolescents were more likely to seek services when they were provided free of charge and when essential infrastructure such as toilets and comfortable waiting areas was available [15]. In

addition, positive family communication and encouragement from health workers were found to be crucial in motivating adolescents to access care [9], [16]. In contrast, environments where confidentiality was not ensured or where providers exhibited judgmental attitudes served as significant deterrents [17].

5. Health system readiness and provider capacity

Provider-level limitations also emerged as a significant barrier to inclusive adolescent reproductive health services. One study [18,21] underscored the challenges in delivering care to adolescents with disabilities, citing gaps in provider knowledge, procedural skills, and communication competencies, thus highlighting the urgent need for targeted training and system-level adaptation. Similarly, other findings [17] reported persistent shortages of trained personnel and inadequate adolescent-focused service delivery, particularly in remote and underserved regions.

6. Demographic and socioeconomic factors

Some studies explored how demographic factors influence the utilization of reproductive health services. One study [19] found that education level, employment status, and perceptions of service quality significantly affected service uptake among rural adolescent girls. Similarly, other research [13,16] indicated that female adolescents and younger age groups were generally less likely to access services, often due to gender-based stigma and limited personal agency.

7. Service quality, privacy, and perceived safety

Adolescents' perceptions of service quality, especially in terms of privacy and confidentiality, played a critical role in shaping their willingness to use reproductive health services. Studies have emphasized that the absence of private consultation spaces and fear of being exposed were significant barriers to access [16,20]. Trust in healthcare environments was closely tied to how safe and non-judgmental adolescents perceived the services to be.

DISCUSSION

The analyzed articles are those published between 2020 and 2024. The findings of this study suggest that economic factors, affordability, and limited resources — both in terms of healthcare facilities and trained human resources — are key factors influencing adolescents' satisfaction with accessing youth-friendly reproductive health services.

Table 1. Characteristics of reviewed articles

Author	Title	Country	Study Design	Study Focus
A1 (2021) [15]	Utilization of adolescent-friendly health services and its associated factors among higher secondary students in the mid-western Himalayan mountainous district of Nepal	Nepal	Cross-sectional	Utilization of adolescent-friendly health services
A2 (2020) [11]	Factors affecting reproductive health promotion behavior among late adolescent girls in South Korea: A cross-sectional descriptive study	South Korea	cross-sectional descriptive study	Psychosocial factors influencing health behavior
A3 (2019) [12]	Adolescent Reproductive Health Services in Nepal: Results from a Systematic Literature Review	Nepal	Systematic literature review	Access and quality of ARH services
A4 (2022) [19]	Disparities between Knowledge and Utilization of Reproductive Healthcare Services among Adolescents in Slums of Balasore, Odisha	India	Cross-sectional	Factors influencing service utilization
A5 (2024) [23]	A Study on the Practice of Reproductive Health Care Facilities and Family Planning Decisions of the Rural Adolescents in an area of Bogura District, Bangladesh	Bangladesh	Qualitative	Barriers to RH services
A6 (2024) [9]	A Descriptive Study to Assess the Health Seeking Awareness and Utilization of Adolescents' Reproductive Health Services Among School Adolescents in Rural Communities	India	Descriptive (non-experimental)	Health-seeking awareness and service use
A7 (2024) [13]	Knowledge, Attitude & Practice of Rohingya Adolescent Girls About Sexual Reproductive Health (SRH) Services Available from Adolescent Friendly Health Corner (AFHC) in Rohingya Camps, Cox's Bazar, Bangladesh	20 Bangladesh (Rohingya Camps)	Quantitative descriptive	KAP about SRH and use of AFHC
A8 (2020) [17]	Adolescents' Perception of Reproductive Health Care Services in Sri Lanka	Sri Lanka	Qualitative	Perceptions of RH services
A9 (2024) [6]	Understanding Barriers to Young People's Utilisation of Sexual and Reproductive Health Services in Asia-Pacific Countries: A Qualitative Systematic Review and Thematic Synthesis	Asia-Pacific	Qualitative systematic review	Barriers to SRH utilization
A10 (2023) [16]	Utilisation of Adolescent Reproductive and Sexual Health Services in a Rural Area of West Bengal: A Mixed-Method Study	India (West Bengal)	Mixed-method	Utilization and barriers of ARSH services
A11 (2024) [18]	Understanding Challenges and Enhancing the Competency of Healthcare Providers for Disability-Inclusive Sexual and Reproductive Health Services in Rural Nepal	Nepal	Qualitative thematic	Disability-inclusive SRH challenges
A12 (2024) [10]	Knowledge, Barriers, and Perceived Needs of Adolescent Sexual and Reproductive Health Services Among Higher Secondary School Students in Chitwan District	Nepal	Cross-sectional	Knowledge and barriers in SRH service use
A13 (2023) [21]	Promotion of Reproductive Healthcare Services Among Adolescent Girls in Rural Bihar: A Social Work Perspective	India (Bihar)	Descriptive analysis & review	Promotion of RH services
A14 (2022) [14]	"Our Mothers Do Not Tell Us": A Qualitative Study of Adolescent Girls' Perspectives on Sexual and Reproductive Health in Rural Nepal	Nepal	Qualitative	Barriers from the individual to the systemic level
A15(2020) [22]	Experience in implementing adolescent-friendly health services in rural districts of Bangladesh.	Bangladesh	Cross-sectional	Nutrition and RH knowledge/practices

Economic and geographical factors in access to reproductive health services

Economic hardship remains a fundamental barrier to reproductive health access. Adolescents in rural and marginalized communities often cannot afford services or transportation. Several studies [7,23] reported that limited financial resources, long distances to health facilities, and poor infrastructure discouraged adolescents, especially girls, from seeking care.

Geographical constraints further compound these economic challenges. Evidence from rural South Korea and Nepal highlights how remoteness, poor transportation, and geographical isolation prevent timely and affordable access to health services [11], [12]. These findings underscore the interplay between location and affordability in shaping health-seeking behaviors.

Nevertheless, some studies suggest that the introduction of mobile clinics or community-based outreach programs, particularly in certain parts of India, led to an improvement in service uptake despite persistent economic and geographic barriers [7]. This highlights the importance of adaptable service delivery models in enhancing access for underserved populations.

Adolescents' knowledge and awareness gap of reproductive health

The level of knowledge among adolescents directly affects their utilization of reproductive health services. While several studies found a generally low level of awareness [10], this was not consistent across genders. One study [20] noted that boys were more likely to lack awareness compared to girls, who often shared information through peer groups, highlighting the gendered dynamics of informal knowledge exchange within adolescent communities.

Other findings reported that although many adolescents had a basic understanding of reproductive anatomy, significant gaps remained in their knowledge of contraception, prevention of sexually transmitted infections, and awareness of available services [9,15]. This partial understanding reflects the limitations of current reproductive health education, which often focuses on biological facts without addressing practical or behavioral aspects of reproductive health.

One study [10] also found that while 65.4 percent of adolescents expressed a need for reproductive health services, only a small proportion accessed them. This gap indicates that knowledge alone does not guarantee service utilization, particularly when adolescents also face stigma, embarrassment, or concerns about confidentiality. Even when they know where and how to access services, fear of judgment from family

members, peers, or providers may prevent them from doing so.

Moreover, existing evidence suggests that formal education channels do not consistently and effectively deliver comprehensive and actionable information. This highlights the value of peer-led education models and community-based outreach programs, which several studies have shown to foster trust and improve knowledge retention. For instance, peer educator involvement was reported to significantly enhance adolescents' confidence in discussing reproductive health matters, especially in rural and conservative settings [9].

These findings collectively emphasize the need to strengthen adolescent reproductive health education not only by increasing factual knowledge but also by creating safe, supportive, and interactive learning environments. Integrating life skills education, confidentiality assurances, and peer support systems into school and community programs could help bridge the gap between knowledge and actual service use.

Social and cultural barriers to using reproductive health services

Social and cultural norms significantly impact adolescents' access to and utilization of reproductive health services, particularly in rural areas of Asia. Several studies consistently emphasize how stigma, restrictive gender norms, and limited autonomy hinder service uptake, while also revealing nuanced differences depending on the context.

One study [13] on Rohingya refugee communities in Bangladesh found that deeply embedded cultural barriers, compounded by humanitarian constraints and poor access to accurate information, strongly discouraged adolescent girls from utilizing available reproductive health services. The lack of privacy and community approval was particularly detrimental in refugee camp settings, where social surveillance is high and services are not perceived as youth-friendly.

In a different context, a study conducted in West Bengal, India [16], reported that only 29.4 percent of adolescents had ever accessed reproductive health services, citing social stigma, absence of parental dialogue, and concerns about confidentiality as dominant barriers. This aligns with findings from Nepal [14], where multiple levels of constraints, including gender norms, family restrictions, community beliefs, and healthcare system inadequacies, collectively restricted adolescent girls' access to care.

However, unlike the findings from refugee communities [13], which emphasized structural barriers in displaced settings, the study from Nepal [14]

highlighted the internal sociocultural environment and advocated for multi-level intervention. The recommendation for a social ecological approach broadens the framing of the issue, calling for changes not only in service delivery but also in household-level gender dynamics and institutional policies.

While most studies pointed to social stigma as a deterrent, the level of parental openness and family engagement varied across settings. For instance, one study [16] noted a near absence of parent–adolescent communication. In contrast, other research has found that in contexts where peer or family support exists, adolescents are more likely to seek services despite cultural resistance. This contrast suggests that family engagement may act as either a barrier or a facilitator, depending on local dynamics and the presence of enabling environments.

Taken together, these findings suggest that while social and cultural barriers are universally acknowledged, their manifestation is highly context-specific. Therefore, interventions should avoid a one-size-fits-all approach and instead be tailored to the unique sociocultural and institutional landscape of each setting. Addressing stigma must involve not only adolescents but also gatekeepers such as parents, community leaders, and service providers to foster a supportive and confidential environment conducive to adolescent reproductive health access.

The role of education and healthcare professionals in improving access to services

Education, both for adolescents and healthcare professionals, plays a crucial role in improving access to and the quality of reproductive health services. One study in Nepal [18] highlighted the challenges and the need to enhance healthcare providers' competencies in delivering reproductive health services to individuals with disabilities. It identified biased perceptions about the needs of women with disabilities and poor communication skills among healthcare professionals as significant obstacles to providing inclusive services.

Another study [22] found that education and healthcare professionals play a crucial role in improving adolescents' access to health services in rural Bangladesh. Teachers contributed by providing information on sexual and reproductive health, reducing stigma, and encouraging students, particularly girls, to seek care. Meanwhile, healthcare providers trained in adolescent-friendly service delivery offered non-judgmental, confidential, and gender-sensitive support, which significantly increased adolescents' comfort in accessing services. The collaboration between schools and health facilities helped integrate education with service provision,

creating a supportive environment that strengthened awareness, trust, and service utilization among rural youth.

Implications for public health practice

The findings of this review have significant implications for public health policy and programming. First, reproductive health education must begin early and be culturally sensitive, especially in conservative or conflict-affected communities. Peer-to-peer education and digital platforms can help bypass stigma and improve reach. Second, integrating adolescent reproductive health into broader primary care services, including community outreach and school health programs, could normalize use and reduce stigma. Third, policies should mandate adolescent-friendly standards and subsidize services, particularly in rural and low-income areas. Lastly, involving families and communities through participatory approaches can help shift cultural norms and sustain behavior change.

This review's strength lies in its systematic approach and inclusion of studies from diverse contexts across South and Southeast Asia, providing a broad perspective on shared barriers. However, there are also limitations to consider. The inclusion criteria were restricted to open-access and English-language publications, potentially excluding relevant studies in local languages. In addition, most included studies were descriptive or cross-sectional, limiting the ability to infer causality. There was also inconsistency in how youth-friendly services were defined and evaluated across the literature, which may affect the comparability of the findings. Despite these limitations, the synthesized evidence provides a strong foundation for informing multi-sectoral strategies that are both inclusive and responsive to adolescent reproductive health needs.

Recommendations for improving access and service quality

Based on the findings of this review, improving access to and the quality of adolescent reproductive health services in rural and underserved areas requires an integrated, multisectoral approach. Governments and stakeholders should expand service delivery through mobile clinics, community-based youth health posts, and strengthened basic health infrastructure in remote regions. Comprehensive reproductive health education must be incorporated into school curricula and supported by peer-led outreach programs, particularly to reach adolescents in conservative or information-poor settings. These efforts should be accompanied by training healthcare

providers in adolescent-friendly services, with a focus on gender sensitivity, disability inclusion, and ensuring confidentiality in interactions between adolescents and providers.

Moreover, interventions must be tailored to local sociocultural contexts through a social ecological approach that actively engages families, community leaders, and educational institutions. Parental and community involvement can act either as a barrier or an enabler, depending on prevailing norms, making advocacy and intergenerational dialogue essential to reduce stigma and support adolescent autonomy. In the long term, policy reforms that mainstream adolescent health within local development plans and national health strategies are critical, including the development of specific monitoring indicators to assess service quality and inclusiveness. Cross-sectoral collaboration and the use of digital platforms can further enhance the reach of reproductive health information and services for previously underserved adolescent populations.

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