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A FAMILY-BASED MODEL FOR PREVENTING CHILD MARRIAGE IN PRECONCEPTION SERVICES FOR COASTAL TEENAGERS : A LITERATURE REVIEW

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ABSTRACT

Child marriage remains a major public health, gender equity, and adolescent rights concern because it accelerates early pregnancy, school discontinuation, intimate partner violence, and inadequate preconception readiness. These risks may be intensified in coastal communities by economic insecurity, occupational mobility, limited service access, and gendered social relations. This review aimed to synthesize recent evidence and formulate a family-based child marriage prevention model within preconception services for coastal adolescents. An integrative literature review was conducted using open-access Scopus-indexed articles published from January 2021 to July 2026. Studies addressing child marriage, family and social norms, adolescent preconception or sexual and reproductive health services, and coastal or fishing-community contexts were selected through structured screening. Twenty-five articles were included, critically appraised using design-appropriate Joanna Briggs Institute tools, and analyzed through narrative thematic synthesis. The findings showed that child marriage is shaped by interacting economic, educational, parenting, gender-norm, community, and service-access factors. Seven model domains were identified: family risk assessment; communication and parenting strengthening; educational and economic support; social norm transformation; adolescent-friendly preconception services; biopsychosocial risk screening; and adaptation to coastal settings. No included study directly evaluated an integrated family-based preconception model for coastal adolescents. A multilevel, adolescent-centered model that engages families safely, protects confidentiality and autonomy, and connects midwifery services with schools, social

protection, and community systems is therefore required. Local validation and feasibility testing should precede implementation.

Keywords: *Adolescents; Child; Marriage; Prevention; Preconception*

INTRODUCTION

Child marriage, defined as marriage occurring before the age of 18 years, remains a major public health, gender inequality, and child rights concern with long-term intergenerational consequences. Evidence indicates that child marriage is influenced by interacting individual, interpersonal, family, community, and structural factors, including adolescent and parental education, economic conditions, family characteristics, residence, and gender-related social norms (Pourtaheri et al., 2023). A cross-national analysis involving more than 1.2 million adolescent girls across 106 countries further demonstrates that adolescent marriage, early motherhood, and limited educational opportunities remain interconnected vulnerabilities despite global declines (Hailu & Beyene, 2025). Therefore, preventing child marriage remains essential to promote adolescent health, educational continuity, and gender equality.

From a midwifery perspective, child marriage is not only a social and legal issue but also a preconception health concern. Marriage during adolescence may accelerate sexual initiation, early pregnancy, and transition to motherhood before adolescents achieve adequate physical, psychological, and social readiness. Child marriage is associated with school dropout, reduced autonomy, and increased vulnerability to intimate partner violence (Hailu & Beyene, 2025). Meanwhile, preconception health risks, including anemia, nutritional problems, mental health issues, infections, and unhealthy behaviors, are frequently unidentified before pregnancy occurs (Gebretsadik et al., 2025).

In this review, child marriage prevention and preconception care are conceptualized as two interconnected but distinct approaches. Child marriage prevention refers to interventions aimed at preventing marriage before the age of 18 years by addressing factors that influence marriage decisions, including family conditions, education discontinuation, economic vulnerability, gender norms, and community expectations. In contrast, preconception care refers to a set of promotive, preventive, and clinical interventions provided before pregnancy occurs to improve health readiness and reduce biological, psychological, and social risks related to future pregnancy. Therefore, preconception care is positioned as a complementary health service component within a broader child marriage prevention framework rather than as a substitute for interventions addressing social and structural determinants of early marriage (Pourtaheri et al., 2023).

The family represents a critical context in preventing child marriage because it may function as both a protective and risk factor. Parents influence adolescents through values formation, social expectations, decision-making processes, resource availability, and



communication patterns. Evidence shows that parental education, employment, socioeconomic conditions, family structure, and interpersonal relationships contribute to marriage decisions, while parental roles as educators are associated with adolescent behaviors related to early marriage prevention (Pourtaheri et al., 2023). However, improving knowledge alone may be insufficient when decisions are shaped by poverty, gender norms, family expectations, social pressure, and perceptions of marriage as a form of protection. Therefore, family-based approaches should emphasize empowerment and supportive environments while maintaining adolescent autonomy, safety, and rights (Salim et al., 2023).

The need for a family-based prevention approach is particularly relevant in coastal communities, where adolescents may experience specific vulnerabilities related to income instability, seasonal livelihoods, parental mobility, limited service accessibility, and strong social networks. Studies in fishing communities indicate that health-related decisions are influenced by social networks, local leaders, mobility patterns, and community preferences (Mukoka et al., 2025). Coastal vulnerabilities may also intersect with gender relations, transactional relationships, unplanned pregnancies, and single-parent family formation (Kyei-gyamfi, 2025). Although these findings cannot be generalized to all coastal populations, they highlight the importance of adapting prevention strategies to local livelihoods, family structures, community norms, and service accessibility rather than applying models developed in non-coastal settings.

Previous interventions to delay or prevent child marriage have included life skills education, school retention support, economic assistance, community dialogue, adolescent empowerment, and social norm interventions. However, their effectiveness varies, particularly in changing the social expectations that sustain early marriage. Evidence suggests that multilevel approaches involving adolescents, parents, men, community leaders, and health institutions are more appropriate for addressing complex determinants of child marriage (Greene et al., 2024). In addition, adolescent access to sexual and reproductive health and preconception services remains constrained by stigma, confidentiality concerns, limited information, provider attitudes, cost, distance, and inadequate family support (Mawson et al., 2025). Therefore, effective prevention models require integration of family communication, adolescent-friendly services, risk screening, violence prevention, educational support, and referral pathways (Wirtu & Dheresa, 2025).

Despite increasing evidence regarding child marriage determinants, social norm interventions, adolescent reproductive health services, preconception care, and coastal community characteristics, these areas remain largely examined separately (Gottert et al., 2025). Existing child marriage studies primarily focus on prevalence, risk factors, and social norms; preconception studies emphasize biomedical readiness and health risks; while coastal studies often address mobility, service access, and economic-gender relations. No synthesis has yet integrated family roles, adolescent preconception services, and coastal



socio-ecological characteristics into a single child marriage prevention framework (Mawson et al., 2025).

Therefore, this study aims to synthesize recent evidence on child marriage determinants, family roles, preconception service needs, social norm strategies, and coastal service characteristics to develop a conceptual Family-Based Child Marriage Prevention Model within Preconception Services for Coastal Adolescents. This framework is expected to support evidence-based, sustainable, gender-sensitive, and context-specific midwifery interventions that protect adolescent rights and future reproductive health.

METHODS

Research design and research questions.

This study employed an integrative literature review design using structured literature searching and narrative thematic synthesis. The review process followed PRISMA 2020 guidelines, while the search strategy was reported according to PRISMA-S guidelines (Page et al., 2021; Rethlefsen et al., 2021). The research question was formulated using the Population–Concept–Context framework: How can determinants, intervention components, implementation mechanisms, and outcomes of family-based child marriage prevention models be integrated into preconception services for adolescents in coastal community contexts?

Operational Definition of Key Concepts.

Child marriage prevention was defined as strategies or interventions aimed at reducing marriage before 18 years by addressing family, educational, economic, social norm, and community determinants. Preconception care was defined as promotive, preventive, and clinical services provided before pregnancy to improve adolescent reproductive readiness through health promotion, risk assessment, counseling, and referral related to nutrition, anemia, mental health, sexually transmitted infections, contraception, pregnancy intention, and violence prevention. In this review, preconception care was positioned as a complementary component within child marriage prevention rather than a substitute for addressing social and structural determinants. Adolescents experiencing unwanted or unplanned pregnancy were considered within the broader reproductive health context but were not the primary target population of this model.

Study population, sample, context, and period.

The unit of analysis consisted of Scopus-indexed scientific articles addressing child marriage, family roles, social norms, adolescent sexual and reproductive health, preconception services, or coastal community contexts. A purposive selection process identified 25 eligible articles published between January 2021 and July 2026. Scopus was used as the primary database. Searches were conducted in titles, abstracts, and keywords



using Boolean operators, quotation marks, and truncation. The search strategy included three main concepts: (1) child marriage, early marriage, adolescents, parents, and social norms; (2) adolescent preconception and sexual and reproductive health; and (3) coastal community-related child marriage and reproductive health. Studies were limited to English or Indonesian articles, article or review types, and open-access publications.

Eligibility Criteria.

Articles were included if they were Scopus-indexed, available in full text, published within the specified timeframe, and provided evidence related to at least one model domain: child marriage determinants, family roles, social norms, adolescent preconception services, prevention strategies, or coastal community contexts. Primary studies, systematic reviews, scoping reviews, modeling studies, and conceptual papers supporting model development were eligible. Studies from non-coastal settings were retained when they provided transferable evidence regarding family mechanisms, social norm transformation, or preconception service components. Articles were excluded if they were duplicates, unavailable in full text, not indexed in Scopus, outside the timeframe, irrelevant to the research questions, or in the form of conference proceedings, theses, dissertations, book chapters, news articles, or editorials.

Study Selection and Data Extraction.

Search results were exported to reference management software, and duplicates were removed. Screening was conducted in two stages: title/abstract screening followed by full-text assessment based on eligibility criteria. Reasons for full-text exclusion were recorded, and the selection process was presented using a PRISMA flow diagram. Data were extracted using a standardized Excel sheet containing author, year, country, study design, population characteristics, family determinants, social norms, preconception service components, intervention strategies, coastal adaptation, outcomes, key findings, and limitations.

Evidence Quality Assessment.

Methodological quality was assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Tools according to study design, including cross-sectional, qualitative, cohort, quasi-experimental, and systematic review studies. Quality assessment was used to support interpretation and determine the strength of evidence rather than as the sole criterion for study exclusion. Conceptual studies were used for contextual understanding and were not considered evidence for causal conclusions.

Data analysis.

Data were analyzed using deductive and inductive narrative thematic synthesis. Findings from included studies were coded and grouped into analytical domains related

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to family determinants and social norms, adolescent preconception needs, intervention components, coastal service adaptation, and implementation outcomes. The synthesized findings were mapped into a conceptual model consisting of contextual factors, intervention components, mechanisms of change, and expected outcomes related to child marriage prevention and adolescent preconception health. Meta-analysis was not conducted due to heterogeneity in study designs, populations, interventions, outcome measures, and service contexts.

Ethical considerations.

Ethical approval was not required because this review analyzed publicly available published studies and did not involve direct participation of human subjects or identifiable health data. Scientific integrity was maintained through transparent reporting, appropriate citation, and accurate representation of the original findings.

RESULTS

Article Selection and Characteristics

The literature selection process followed the PRISMA 2020 framework. The initial search identified 37 records from the Scopus database. After removing duplicates, 35 records remained for title and abstract screening. Seven records were excluded due to insufficient relevance to child marriage prevention, adolescent reproductive health, family involvement, social norms, or related service contexts. Subsequently, 28 full-text articles were assessed for eligibility, and three articles were excluded because they did not provide sufficient evidence for the development of the proposed model. Finally, 25 articles were included in the narrative thematic synthesis Figure 1.



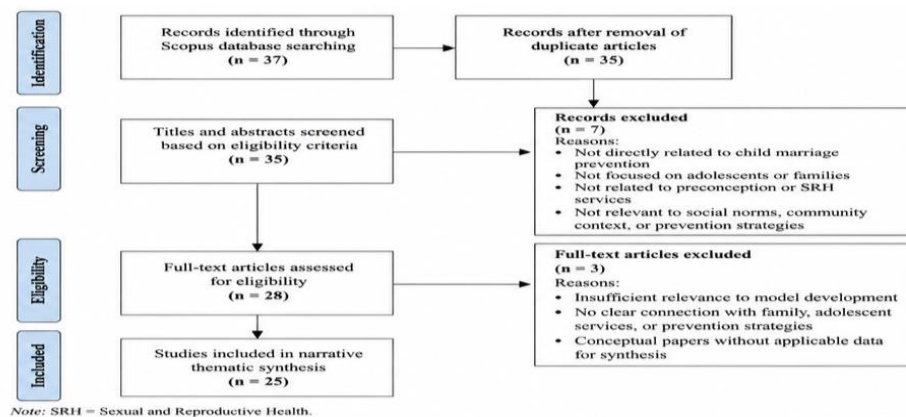


Figure 1. PRISMA 2020 Flow Diagram of Literature Selection Process

The included studies were analyzed through narrative thematic synthesis to identify determinants, intervention components, implementation contexts, and potential domains of the family-based child marriage prevention model.

Table 1. Article Selection Process Based on PRISMA 2020 Framework

PRISMA Stage	Selection Process	Number of Articles
Identification	Records identified through Scopus database searching	37
Screening	Records after removal of duplicate articles	35
Screening	Titles and abstracts screened based on eligibility criteria	35
Screening	Records excluded after title and abstract screening	7
Eligibility	Full-text articles assessed for eligibility	28
Eligibility	Full-text articles excluded after full-text assessment	3
Included	Studies included in narrative thematic synthesis	25

The 25 included articles were published between 2021 and 2026. One article was published in 2021, six in 2024, seventeen in 2025, and one in 2026. No eligible articles published in 2022 or 2023 met the inclusion criteria. Twelve studies focused on single-country contexts, while thirteen involved regional, cross-country, multi-country, modeling, or perspective approaches. The included studies represented several countries, including Niger, Iran, Zambia, Ethiopia, South Africa, Uganda, Ghana, Sierra Leone, Malawi, and Indonesia through a Southeast Asian modeling study. Study designs varied and included systematic reviews, scoping reviews, meta-analyses, cross-sectional studies, qualitative

studies, cluster randomized trials, cohort studies, mixed-methods studies, and economic modeling studies.

Based on thematic relevance, the included articles were grouped into four interconnected clusters: (1) child marriage determinants and social norms; (2) family and community strengthening; (3) adolescent preconception and sexual and reproductive health services; and (4) service characteristics in coastal and fishing communities. Only three studies directly involved fishing or coastal communities, and none specifically examined a family-based child marriage prevention model integrated with preconception services for coastal adolescents. This gap supported the development of the proposed conceptual model.

Table 2. Characteristics and Key Findings Of The Reviewed Articles

No.	Source and context	Design/sample	Key findings
1	Greene et al. (2024); multinational	Systematic review; 12 intervention studies	Social norm interventions influence child marriage outcomes; emphasizes multilevel approaches.
2	Id, A., Mahdizadeh et al. (2025); global	Perspective article	Child marriage determinants vary by local education, economic, gender, and service contexts.
3	Sripad et al. (2024); Niger	Cross-sectional survey; 2.726 women and 1.136 men.	Gender perceptions, community approval, and protection beliefs influence early marriage.
4	Pourtaheri et al. (2024); Iran	Qualitative; 36 stakeholders and informants.	Family values, parenting, social support, and interpersonal factors influence marriage decisions
5	Han et al. (2025); multinational	Systematic review and meta-analysis	Child marriage is associated with increased intimate partner violence risk.
6	Hailu dan Beyene (2025); 106 countries	Bayesian analysis; 1.29 million girls	Shows global patterns of adolescent marriage and early childbearing vulnerabilities.
7	D, E. M. P., Olum et al. (2021); Zambia	Phenomenology	Education barriers, poverty, parental support, and community engagement are key factors.



No.	Source and context	Design/sample	Key findings
8	Rethlefsen et al. (2021); Ethiopia	Community 711 women	Parental education, poverty, and family conditions associated with child marriage.
9	Crawford et al. (2025); South Sudan	Systematic scoping review; 52 sources	Identifies gaps in evidence related to vulnerable adolescents and implementation..
10	Wirtu, D. (2025); 12 Sub-Saharan African countries	Scoping review; 40 interventions	Combination interventions, parenting, life skills, and leader engagement are important.
11	Cluver et al. (2025); South Africa	Kohort longitudinal; 1.044 adolescent mothers	Nonviolent parenting, food security, and youth-friendly clinics provide protective effects
12	Namuwonge et al. (2025); Uganda	Cluster randomized trial; 1.260 girls	Family groups combined with empowerment improve adolescent outcomes.
13	Sidamo et al. (2025); Ethiopia	75 adolescents and 10 service providers	Highlights barriers in SRH literacy, stigma, outreach, and service coordination.
14	Mawson et al. (2025); Global	Systematic review 42 studies	Identifies stigma, confidentiality, provider attitudes, and access barriers.
15	Page, M. J. al. (2021); Latin America	Systematic review; 20 studies	Supports cross-sector collaboration and culturally appropriate adolescent services.
16	Salim et al. (2023); LMICs	Scoping review protocol	Maps adolescent SRH interventions delivered through community and technology.
17	Silva et al. (2024); global	Policy and program reflection	Positions reproductive health services as supporting fertility intentions and SDGs.
18	Gebretsadik et al. (2025); Sub-Saharan Africa	Systematic review; 83 articles	Identifies preconception risks including anemia, nutrition, mental health, and violence.



No.	Source and context	Design/sample	Key findings
19	Poix et al. (2025); LMICs	Economic modeling	Demonstrates social and economic benefits of addressing preconception risks.
20	Gottert et al. (2025); multinational	Systematic review of reviews	Supports male engagement and gender-transformative approaches.
21	Boakye et al. (2025); Ghana	Cross-sectional; 330 students	Shows adolescent SRH knowledge and contraceptive factors.
22	Zech et al. (2025); Sierra Leone	Mixed-methods; fishing communities	Supports differentiated health services adapted to fishing communities.
23	Kyei-Gyamfi dan Kyei-Arthur (2025); coastal Ghana	Mixed-methods; fishing communities	Highlights coastal economic-gender vulnerabilities and family impacts.
24	Mukoka et al. (2025); Malawi	Qualitative study of fishermen	Shows importance of social networks, mobility, and community-based services.
25	Wickramaarachchi et al. (2026); five Southeast Asian countries	Economic modeling for 2024–2030	Demonstrates potential impact of scaling evidence-based interventions.

Synthesis of Literature Review Findings

Family determinants and social norms.

The findings indicate that child marriage arises through the interaction of economic conditions, education, family structure and relationships, knowledge of the legal age of marriage, gender norms, and the expectations of reference groups. A study in Niger revealed differences in the justifications used by men and women to rationalize early marriage, while a qualitative study in Iran identified traditional parenting styles, family values, family breakdown, poor problem-solving skills, and peer pressure as interpersonal factors (Sripad et al., 2024). In rural Ethiopian communities, parental poverty, low paternal education, limited media exposure, and lack of awareness regarding the legal marriage age are associated with child marriage (Wickramaarachchi et al., 2026).

The Impact of Child Marriage.

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A cross-national analysis of 106 countries shows that adolescent marriage, early motherhood, and educational limitations are intertwined vulnerabilities, although the direction of change varies across countries (Namuwonge et al., 2025). A qualitative study in Zambia identified that poverty, gender norms, and low parental support amplify the impact of early marriage on school dropout rates and educational attainment (Crawford et al., 2025). A meta-analysis by (Han et al., 2025) shows that women who marry before the age of 18 are more likely to experience intimate partner violence than women who marry as adults.

Family and community strengthening components.

A scoping review of 40 interventions in Sub-Saharan Africa found that the most commonly used strategies were life skills, community dialogues, school-based programs, parenting, training for youth-friendly service providers, media or digital technology, and engagement of community leaders (Silva et al., 2024). Combination interventions that integrate SRHR information with reflection on gender norms and power dynamics are more consistently associated with improved outcomes. In a cluster-randomized trial in Uganda, economic empowerment combined with multi-family group sessions increased self-esteem at the 24-month follow-up, whereas economic empowerment alone did not show a significant difference (Namuwonge et al., 2025). A review by Gottert et al. (2025) also demonstrates the consistent benefits of gender-transformative and multilevel approaches that position men as clients, partners, and agents of change.

Preconception care and adolescent reproductive health.

Barriers to accessing services arise at the individual, family, community, provider, and system levels. A study in Ethiopia identified low SRH literacy, family stigma, social norms, logistical shortages, health workers' behaviors, and limited adolescent involvement in decision-making (Sidamo et al., 2025). A synthesis of 42 studies by (Boakye et al., 2025) added feelings of shame, difficulty navigating services, and the needs assessment process by health workers as barriers. Among vulnerable adolescents in Latin America, economic, regulatory, and institutional barriers interact with stigma; facilitators include preventive education, cross-sectoral collaboration, and community networks (Id et al., 2024).

The need for preconception screening.

A review of 83 articles in Sub-Saharan Africa found wide variations in risks related to nutrition, anemia, unplanned pregnancy, substance use, chronic diseases, sexually transmitted infections, psychosocial distress, and intimate partner violence (Gebretsadik et al., 2025). Modeling across 15 countries estimated that adolescent pregnancy, short birth intervals, pre-pregnancy violence, being overweight, and female genital mutilation collectively contributed to 20.7% of the analyzed perinatal deaths (Poix & Donnell, 2025). Among school-aged adolescents in Ghana, early sexual activity is associated with gaps in

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contraceptive use, making contraceptive literacy, counseling, and access to contraceptives relevant components of preconception care (Boakye et al., 2025).

Adaptation to coastal contexts.

Three studies in fishing communities show that mobility, work networks, fish landing sites, transactional sex, risk perceptions, and social structures influence service use and family vulnerability. Fishing communities in Sierra Leone prefer services provided by nurses near fish landing sites (Boakye et al., 2025). A study in coastal Ghana identified the burden of single-parent caregiving and intergenerational cycles associated with “fish-for-sex” (Boakye et al., 2025), while a study in Malawi showed that fishermen’s health decisions are embedded within social networks (Mukoka et al., 2025). These three studies provide evidence on implementation contexts but do not evaluate the prevention of child marriage.

Intervention outcomes and return on investment.

Modeling across five Southeast Asian countries, including Indonesia, indicates that increasing the coverage of comprehensive sexuality education in schools, cash assistance, educational support, life skills, livelihood training, and community dialogues has the potential to prevent unplanned adolescent pregnancies and child marriage. Increasing the coverage of all interventions to 95% by 2030 is projected to prevent 1.3 million unplanned adolescent pregnancies and 1.1 million child marriages, with a long-term benefit-cost ratio of 9.7 if the interventions are sustained (Wickramarachchi et al., 2026).



Table 3. Synthesis Results of the Components of the Family-Based Child Marriage Prevention Model

Model domain	Synthesis results components	Expected intermediate outcomes
Family risk identification	Poverty, parental education, parenting styles, family structure, knowledge of the legal age, decision-making, violence, and reference group expectations.	Family risk profiles and individualized support plans.
Strengthening communication and parenting	Nonviolent parenting, positive family relationships, multi-family groups, problem-solving support, and strengthening adolescents' self-esteem.	Improved parent-adolescent communication, self-efficacy, and adolescent safety.
Education and economic empowerment	School retention, financial or cash assistance, life skills, and livelihood training to alleviate economic pressure regarding marriage decisions.	School retention, financial or cash assistance, life skills, and livelihood training to reduce economic pressures on marriage decisions. School dropout rates, economic dependence, and pressure to marry early decrease.
Norm Transformation and Community Engagement	Community dialogue, engagement of fathers/men, local and religious leaders, the media, and identification of normative reference groups.	Attitudes, descriptive norms, injunctive norms, and marriage behavior are measured separately.
Adolescent-friendly preconception care	Confidential, youth-respecting, stigma-free services that involve adolescents in decision-making and provide counseling and referrals.	Access, acceptance, SRH literacy, contraceptive use, and preconception readiness increase.
Preconception risk screening	Nutrition, anemia, chronic and infectious diseases, mental health, substance use, intimate partner violence, sexual activity, contraception, and pregnancy plans.	Risks are identified earlier and addressed through midwifery services or referrals.

Adaptation of coastal services	Services located near community activity sites, flexible schedules, local volunteers or networks, technology, and responsiveness to mobility and economic-gender dynamics.	The reach, continuity, and acceptability of services among adolescents and coastal families have increased.
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Identified evidence gaps

None of the 25 sources directly tested a family-based child marriage prevention model integrated into preconception services for coastal adolescents. Evidence on norm change and child marriage prevention primarily comes from non-coastal contexts, while coastal evidence focuses on access to HIV services, fishermen's social networks, and transactional sexual relationships. Evidence on preconception services also addresses women of reproductive age in general more than unmarried adolescents. Thus, the review identified seven model domains, but the effectiveness of these integrated models cannot yet be determined from the available literature.

DISCUSSION

Overall, the findings of this review indicate that child marriage cannot be understood solely as a consequence of adolescents' lack of knowledge. This practice is shaped by the interplay of family economic conditions, education, parenting styles, gender relations, peer pressure, school retention, and access to health care. This pattern aligns with a socio-ecological perspective, which posits that marriage decisions result from factors at the individual, interpersonal, community, and systemic levels acting in concert. Therefore, prevention models that rely solely on providing education to adolescents are likely to yield limited changes unless accompanied by changes in the family and community environments that shape these decisions (Wickramaarachchi et al., 2026) (D et al., 2021).

The role of the family within the model must be interpreted critically, as the family can function as both a source of protection and a source of pressure. Parental education, economic conditions, family structure, communication patterns, knowledge of the legal marriage age, and problem-solving skills influence the decisions made regarding adolescents (Kyei-gyamfi, 2025). On the other hand, findings by Namuwonge et al. (2025) and Cluver et al. (2025) show that family strengthening, nonviolent parenting, food security, and psychosocial support can improve several adolescent outcomes. Thus, the term "family-based" should not imply increasing parental control over adolescents' bodies and life choices. Families need to be positioned as partners who strengthen adolescents' capacities, while adolescents' voices, safety, confidentiality, and choices remain at the center of women-centered services.

In this model, family-based prevention should be understood as a process of empowerment rather than an approach that transfers decision-making authority from



adolescents to families. The primary goal is to strengthen families' capacity to provide protection, emotional support, communication, and resources while maintaining adolescents as active agents in decisions regarding education, relationships, marriage, and reproductive health. Therefore, health providers, particularly midwives, should not only deliver information but also facilitate family empowerment and adolescent empowerment through counseling, participatory decision-making, risk assessment, and referral support. This approach enables families to become supportive environments while ensuring that adolescents' autonomy, safety, confidentiality, and rights remain central to preventive care (Namuwonge et al., 2025; Cluver et al., 2025).

Findings regarding social norms explain why increased knowledge is not always followed by delayed marriage. Greene et al. (2024) found that changes in marriage outcomes are more frequently observed than changes in norms, while Sripad et al. (2024) demonstrated that beliefs about what is approved by neighbors or reference groups can influence the justification for child marriage. This means that models need to distinguish between personal attitudes, descriptive norms regarding what is generally considered to be done, injunctive norms regarding what is considered to be approved, and actual marriage behavior. This distinction is important for evaluation because families may state that they do not support child marriage but still follow the practice when they anticipate social sanctions or a loss of honor if they act differently. Community dialogue must therefore involve the groups that actually serve as decision-makers, not just formal figures who do not always influence families (Id et al., 2024).

Integrating preconception care within a child marriage prevention framework broadens the focus of adolescent health interventions beyond delaying marriage alone by providing opportunities for early identification and management of reproductive health risks before marriage and pregnancy occur. Evidence regarding anemia, nutritional problems, infections, mental health, unplanned pregnancies, substance use, and intimate partner violence indicates that preconception risks are biopsychosocial in nature and cannot be adequately assessed through physical examinations alone (Gebretsadik et al., 2025). The link between child marriage and intimate partner violence also underscores the need for screening regarding safety, power dynamics, and social support in adolescent health services (Han et al., 2025). Therefore, preconception care can be used to assess health readiness, educational plans, intentions regarding marriage and pregnancy, risks of violence, and needs for protection and referral. This interpretation aligns with life-course midwifery care, in which improving adolescent reproductive health readiness and preventing maternal complications begin before conception, not only after pregnancy has occurred (Zech et al., 2025).

Although families are important, their involvement must be balanced with the principles of youth-friendly care. Barriers identified by Sidamo et al. (2024), Mawson et al. (2025), indicate that access is not merely the availability of facilities, but a process in which adolescents recognize their needs, feel worthy of seeking help, are accepted by providers,



and are able to continue receiving care. Stigma, concerns about confidentiality, feelings of shame, staff communication, costs, and difficulties navigating referrals can prevent adolescents from utilizing available services. Consequently, family counseling should not eliminate private consultation spaces for adolescents. Midwives need to explain the limits of confidentiality, seek consent or involve adolescents according to their age and capacity, use non-judgmental communication, and involve the family in an appropriate manner when family support is beneficial and does not increase the risk.

The coastal context adds a dimension to implementation that is not fully captured by facility-based service models. Studies of fishing communities show that labor mobility, fish landing sites, seasonal rhythms, social networks, and economic-gender relations influence vulnerability as well as decisions to use services (Kyei-Gyamfi & Kyei-Arthur, 2025; Mukoka et al., 2025; Zech et al., 2025). The implication of these findings is not that all coastal adolescents face the same risks, but rather that service design must be grounded in local mapping. Flexible schedules, service points located near community activities, trusted community health workers or mentors, and follow-up via technology can be considered to reduce loss to follow-up. However, the three coastal studies in this review did not examine the prevention of child marriage; therefore, these adaptations are contextual implications that still require validation in collaboration with adolescents, families, midwives, schools, and local leaders.

Coastal Adaptation of the Family-Based Child Marriage Prevention Model

The family-based child marriage prevention model developed in this review is specifically adapted to coastal contexts by considering livelihood patterns, mobility characteristics, social networks, and service accessibility challenges that may differ from non-coastal communities. In coastal areas, family decision-making regarding adolescents may be influenced by unstable household income, seasonal employment patterns, parental mobility related to fishing activities, limited access to health and educational facilities, and strong dependence on community networks. Therefore, the coastal adaptation of this model does not represent a different prevention strategy, but rather an adjustment of intervention delivery to ensure that family empowerment, adolescent support, and health services are responsive to local conditions (Kyei-Gyamfi & Kyei-Arthur, 2025).

Compared with non-coastal settings, where adolescents may have more stable access to schools, health facilities, and social support systems, coastal communities may require more flexible and community-based approaches. The implementation of the model in coastal areas requires consideration of service timing according to fishing and livelihood schedules, outreach strategies near community activity locations, involvement of trusted community networks, and communication approaches that accommodate parental mobility. These contextual adaptations are important because access barriers are not only



related to physical distance but also to economic activities, social relationships, and community structures (Mukoka et al., 2025; Zech et al., 2025).

Within the proposed model, the coastal-specific component is primarily reflected in the seventh domain, namely adaptation of coastal services, but it also influences other domains. Family risk identification should consider livelihood insecurity and parental availability; communication and parenting interventions should accommodate family mobility patterns; education and economic empowerment should address the risk of school discontinuation due to economic pressures; social norm transformation should involve influential coastal networks; and adolescent-friendly preconception services should be delivered through accessible and culturally acceptable platforms. Thus, the uniqueness of the coastal model lies not in replacing the core prevention components, but in modifying their implementation mechanisms according to the ecological and social characteristics of coastal communities (Mukoka et al., 2025; Zech et al., 2025).

Components of the Family-Based Child Marriage Prevention Model

The review's findings also indicate that single interventions are insufficient to address layered causes. (Silva et al., 2024) found that approaches combining life skills, community dialogue, parenting support, youth-friendly services, media, and leader engagement tend to yield more consistent results. Namuwonge et al. (2025) demonstrated that economic empowerment becomes more meaningful when combined with multi-family meetings, while Gottert et al. (2025) advocate for the involvement of men through a gender-transformative and multilevel approach. These findings point to a model consisting of interconnected intervention packages: strengthening family communication, ensuring educational continuity, providing economic support, changing social norms, offering preconception services, and establishing referral systems. The involvement of fathers, prospective partners, and male role models is important, but it must be directed toward reducing power imbalances, not reinforcing the rights of others to determine adolescent girls' marriages.

The seven domains identified in this review should be interpreted as the core components of the proposed family-based child marriage prevention model rather than merely as descriptive findings from the literature. Each component represents an intervention target that addresses a specific pathway contributing to child marriage. Family risk identification functions as an initial assessment component to recognize economic vulnerability, parenting conditions, family expectations, and potential pressures toward early marriage. Strengthening communication and parenting focuses on improving family capacity to provide support, positive communication, and non-violent decision-making environments for adolescents (Cluver et al., 2025).

Educational and economic support addresses structural pressures that may encourage families to consider early marriage as a coping strategy, particularly when adolescents face risks of school discontinuation or financial insecurity. Social norm transformation aims to



modify community expectations regarding adolescent marriage through engagement with families, men, community leaders, and influential social networks. Adolescent-friendly preconception services and biopsychosocial risk screening ensure that adolescents receive confidential, respectful, and comprehensive health support, including assessment of reproductive risks, mental health, violence, and pregnancy intention (Beyene, 2025).

The adaptation of coastal services represents the contextual component of the model, ensuring that prevention strategies are aligned with the livelihood patterns, mobility, social networks, and accessibility challenges of coastal communities. Therefore, the uniqueness of this model lies in the integration of seven interconnected components that operate simultaneously at the family, adolescent, community, health service, and contextual levels. Implementation should not prioritize a single component but strengthen the interaction among components to create an environment that enables adolescents to delay marriage and continue their educational and reproductive life plans (Wickramaarachchi et al., 2026).

In the context of Indonesian policy, these findings support the implementation of Law of the Republic of Indonesia No. 16 of 2019, which sets the minimum marriage age for both women and men at 19 years. Changing the age limit is an important legal foundation, but the review's results indicate that regulation alone is insufficient if families continue to face economic pressures, community norms, school dropout, and barriers to services. Prevention must therefore be translated into accessible promotive and preventive measures before marriage plans emerge. The modeling by Wickramaarachchi et al. (2026), which includes Indonesia, reinforces the argument that a combination of educational support, economic assistance, life skills, sexual and reproductive health education, and community dialogue has the potential to provide broader health and social benefits than sectoral approaches.

The findings' contribution to midwifery practice is evident in their alignment with the seven competency areas outlined in the Decree of the Minister of Health of the Republic of Indonesia No. HK.01.07/MENKES/320/2020 on Professional Standards for Midwives. Screening for the risks of child marriage and preconception care relates to scientific foundations and clinical skills; counseling for adolescents and families relates to effective communication and health promotion; protecting confidentiality, safety, and the rights of adolescents relates to ethical and legal considerations; while coordination with schools, social services, child protection agencies, village governments, and community organizations relates to management and leadership. Thus, midwives play a role not only in providing reproductive health information but also in identifying risks, developing care plans together with adolescents, facilitating referrals, and ensuring continuity of care (Crawford et al., 2025).

For women-centered services, the resulting model offers a shift from an approach focused on "preventing adolescents from marrying" to one focused on "expanding adolescent girls' capacity to determine their future in a healthy and safe manner." This



shift in orientation is crucial to ensure that programs do not stigmatize adolescents who are already married or pregnant. Unmarried adolescents require protection, education, and access to preconception care, while married adolescents still require contraceptive services, prevention of repeat pregnancies, screening for violence, mental health support, and continued education. Midwifery practices need to provide service pathways for both groups, so that the prevention of child marriage does not become a reason to reject or judge adolescents who have already experienced marriage or pregnancy (Gottert et al., 2025).

Conceptually, this synthesis positions family and social factors as the initial context; family strengthening, education, economic factors, norms, and preconception services as activities; improved communication, self-efficacy, social support, access, and changing expectations as mechanisms; and delayed marriage, delayed first pregnancy, continued schooling, and reduced risk of violence as outcomes. This framework is the study's primary contribution, as it connects the previously separate literatures on child marriage, preconception, and coastal communities. However, the relationships among these elements remain conceptual. The model cannot yet be considered effective until it undergoes an assessment of local needs, content validation by experts and stakeholders, acceptability testing, feasibility testing, and an evaluation of outcomes among adolescents and coastal families (Greene et al., 2024).

Implementation Pathway of the Family-Based Child Marriage Prevention Model

The implementation pathway of the proposed family-based child marriage prevention model follows a multilevel prevention mechanism that addresses the pathways leading to child marriage. The model begins with early identification of family and adolescent risk factors, including economic vulnerability, school discontinuation risk, restrictive gender norms, inadequate parent–adolescent communication, and exposure to violence. These risks are subsequently addressed through family empowerment strategies, educational support, social norm transformation, and adolescent-friendly health services. Through these interconnected components, the model aims to strengthen adolescents' agency, increase family support for delaying marriage, and reduce social pressures that encourage early marriage (Greene et al., 2024).

At the family level, the model does not position parents as decision-makers who control adolescents' choices but as partners who provide protection, emotional support, and resources. Strengthening communication, positive parenting, and family problem-solving capacity is expected to improve adolescents' ability to negotiate decisions related to education, relationships, marriage, and pregnancy. At the community level, engagement with fathers, men, religious leaders, community leaders, and social networks is intended to modify the expectations and norms that legitimize child marriage. At the health system level, midwives provide adolescent-friendly preconception services, risk



screening, counseling, and referrals that support adolescents in making informed and safe decisions (Greene et al., 2024).

Therefore, the prevention mechanism of this model is not based on a single intervention but on the interaction of family empowerment, adolescent capacity strengthening, supportive community norms, and accessible health services. The expected pathway is that strengthened family support and adolescent agency will contribute to delayed marriage, continued education, improved reproductive health readiness, and reduced vulnerability to early pregnancy and violence. However, because this model was developed from literature synthesis, its effectiveness in preventing child marriage requires validation and implementation testing in coastal communities

This study's strength lies in its use of up-to-date evidence spanning various research designs and levels of analysis, enabling a more comprehensive mapping of clinical, family, community, and service system factors. The focus on open-access articles also enhances the traceability of sources. However, several limitations should be noted. Empirical evidence is concentrated in low- and middle-income countries in Africa, meanwhile, direct evidence from Indonesia and coastal communities is very limited. Heterogeneity in study design, population, interventions, and outcomes precludes the pooling of effect sizes. Restrictions to Scopus-indexed, open-access articles in English or Indonesian may introduce publication bias and access bias. Additionally, one source was a protocol and two were policy perspectives or reflections; therefore, these sources were used only for conceptual mapping and were not treated as evidence of effectiveness (Cluver et al., 2025).

Taking these strengths and limitations into account, the review's findings support the development of a multilevel model for preventing child marriage that is centered on adolescent girls, safely involves families, is integrated with preconception services, and is tailored to the socio-ecological conditions of coastal communities. The contribution to midwifery lies in positioning midwives as liaisons between clinical assessment, family communication, norm change, social protection, and cross-sectoral referrals. The next phase of research needs to assess the relevance of each component in the context of Indonesia's coastal regions and test whether the model is acceptable, can be implemented consistently, and leads to changes in access to services, family support, marriage norms, school retention, and delayed marriage (Greene et al., 2024)

CONCLUSION

This literature review concludes that preventing child marriage among coastal adolescents requires a multilevel, adolescent-centered model integrating family empowerment, preconception services, educational and economic support, social norm transformation, and cross-sectoral collaboration. The proposed model consists of seven interconnected components: family risk identification; strengthening communication and parenting; educational and economic support; social norm transformation; adolescent-



friendly preconception services; biopsychosocial risk screening; and coastal service adaptation. This framework guides midwives and stakeholders in developing context-specific strategies to reduce pathways leading to child marriage. Future research should validate the model and assess its acceptability, feasibility, and effectiveness in improving family support, access to preconception services, school retention, and delayed marriage.

IMPLICATIONS FOR MIDWIFERY PRACTICE

The findings of this review confirm that midwives play a strategic role in preventing child marriage through adolescent-centered preconception care that safely involves families. Midwives can integrate assessment of child marriage risk, nutritional status, anemia, mental health, violence, sexual behavior, contraceptive use, educational plans, and readiness for marriage and pregnancy into adolescent services. Counseling should maintain confidentiality, provide a non-judgmental approach, and involve families only when it supports adolescents' safety, choices, and best interests.

In implementing the family-based model, midwives should focus on two interconnected targets: strengthening family capacity as a supportive environment and strengthening adolescents as active decision-makers. Therefore, services should include family communication strengthening, adolescent empowerment counseling, assessment of family support and potential pressure, and facilitation of informed decisions related to education, marriage, and pregnancy. Based on the seven model components, midwives can develop comprehensive preventive strategies through family risk assessment, parenting and communication strengthening, collaboration for educational and economic support, community-based social norm transformation, adolescent-friendly preconception services, biopsychosocial risk screening, and adaptation of services to coastal community characteristics. These interventions require collaboration with schools, social services, child protection agencies, local governments, and community organizations.

For midwifery education, this model supports strengthening competencies in adolescent-family communication, rights-based preconception care, risk screening, violence prevention, gender-sensitive practice, and cross-sectoral collaboration. In maternal and child health services, implementation requires clear screening and referral pathways, flexible service approaches, confidentiality protection, trained providers, and contextual adaptation based on coastal community needs. Future implementation should begin with local needs assessment and validation involving adolescents, families, midwives, and stakeholders to ensure feasibility, acceptability, and protection of adolescent rights.



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ETHICAL STATEMENT AND CONFLICT OF INTEREST

This study is a literature review that utilizes scientific articles that have been published and are publicly available. The study did not involve human participants, patients, respondents, specimen collection, or the use of identifiable individual health data. Therefore, approval from a research ethics committee and an ethics approval number are not required. The author declares that there are no conflicts of interest related to the conduct or publication of this study.

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