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## RESEARCH ARTICLE

Section: *Sociology and Community Development***Adolescent pregnancy prevention through local wisdom: The role of *Tiga Batu Tungku* in Indonesia**Erlin Kiriwenno<sup>1\*</sup> , Sri Sulistyowati<sup>2</sup>, Haryani Saptaningtyas<sup>1</sup> & Sapja Anantanyu<sup>1</sup><sup>1</sup>Department of Development Extension/Community Empowerment, Universitas Sebelas Maret, Surakarta, Indonesia<sup>2</sup>Department of Medical Science, Universitas Sebelas Maret, Surakarta, Indonesia\*Correspondence: [kiriwennoerlin32@gmail.com](mailto:kiriwennoerlin32@gmail.com)**ABSTRACT**

Adolescent pregnancy remains a pressing global concern with profound effects on maternal and infant health, as well as broader social and economic development. This study examines the role of *Tiga Batu Tungku*, an Indonesian concept of local wisdom that embodies three key societal pillars—the local government, religious figures, and educators—in efforts to prevent adolescent pregnancy. A case study approach was utilized to analyze the social and cultural factors influencing pregnancy prevention among adolescents. Data were collected through in-depth interviews, participant observations, and document analysis, involving key informants such as representatives from local government, the church, schools, the Health Department, and the member of Youth Integrated Health Post. The study employs the Health Belief Model (HBM) (Rosenstock, 1994) to evaluate how these pillars contribute to shaping adolescents' understanding of premarital pregnancy risks, including their perceived vulnerability, severity, benefits of preventive measures, and existing barriers. The findings reveal that *Tiga Batu Tungku* operates as an integrated system where religious institutions provide moral education and character-building, local governments support health initiatives such as Youth Integrated Health Post, and educational institutions integrate reproductive health education and counseling services into their curricula. This study offers valuable insights for policymakers and public health practitioners seeking to develop culturally sensitive and community-driven strategies to reduce adolescent pregnancy rates.

**KEYWORDS:** adolescent pregnancy, community-based intervention, health belief model, reproductive health education, *Tiga Batu Tungku*

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## Introduction

Adolescent pregnancy remains a significant global public health concern with far-reaching consequences for both maternal and infant well-being (Tung et al., 2021). Defined as pregnancy occurring in females between the ages of 10 and 19 (Xie et al., 2021), adolescent pregnancy is associated with an elevated risk of adverse health outcomes, including preterm birth, low birth weight, and neonatal mortality (Kusumawati et al., 2024). Pregnancies among young mothers are linked to an increase in maternal mortality (Padhani et al., 2024), a higher likelihood of mental health complications (Bodunde et al., 2024; Trost et al., 2021), and a higher infant mortality rates (Ahinkorah, 2021; Noori et al., 2022). A study conducted in England identified Adolescent pregnancy as a major contributor to disparities in infant mortality rates across socioeconomically diverse regions, suggesting that targeted interventions could help address these inequalities (Raymond et al., 2024). Similarly, in the United States, restrictive abortion laws have been associated with increased infant mortality rates, underscoring the intricate relationship between adolescent pregnancy and infant health outcomes (Ely & Driscoll, 2024). These findings highlight the pressing need for evidence-based strategies to prevent adolescent pregnancies and improve maternal and neonatal health.

The considerable health risks associated with adolescent pregnancy, compounded by limited access to healthcare resources, have further intensified the prevalence of adolescent pregnancies (Basu et al., 2024; Koronya et al., 2022). Research conducted in various regions highlights that social (Degge et al., 2022) and economic support (McDermott et al., 2021), particularly parental supervision, guidance, and involvement (Baney et al., 2022), plays a crucial role in shaping the outcomes of adolescent pregnancies. Among African-American communities, several factors such as parental influence, peer pressure, societal expectations, and cultural norms have been identified as significant contributors to adolescent pregnancy rates (Cherotich et al., 2024). The persistent high rate of adolescent pregnancy emphasizes the urgent need for comprehensive interventions that address its underlying social, economic, and cultural causes.

Addressing adolescent pregnancy through culturally sensitive approaches has shown promise in various contexts by fostering community-driven solutions that align with local values and traditions (Henriksen et al., 2021). Integrating cultural wisdom into reproductive health education ensures that interventions are not only accepted but also actively supported by communities (Adom et al., 2024; Cintra et al., 2020). Research indicates that traditional leaders, religious figures, and educators play crucial roles in disseminating knowledge and reinforcing positive behaviors that reduce adolescent pregnancy rates. For example, a study conducted in South Africa found that adolescent girls preferred culturally tailored interventions that incorporated peer-led discussions and social support to navigate reproductive health decisions (Twitty et al., 2023). This highlights the importance of culturally grounded approaches in shaping adolescent attitudes toward pregnancy prevention. Incorporating cultural perspectives into educational initiatives has been shown to help deter unwanted pregnancies among adolescents by promoting socially accepted values and behaviors. A study in Ecuador emphasized that the success of pregnancy prevention programs depended on their ability to engage adolescents through culturally relevant content and interactive educational methods (Tituaña et al., 2024). Similarly, research in Togo revealed that traditional socio-cultural practices still exert significant pressure on adolescent girls, making it essential to integrate culturally sensitive interventions that also address gender equity and reproductive rights (Gbetoglo & Nossoukpoe, 2024). These findings suggest that culturally informed strategies not only enhance the acceptability of reproductive health programs but also contribute to more effective outcomes in reducing adolescent pregnancy rates.

Neglecting culturally tailored strategies may result in less effective programs and missed opportunities to engage communities meaningfully (Humaizi et al., 2024). Studies indicate that adolescent pregnancy prevention efforts that disregard cultural factors often face resistance and fail to achieve their intended impact (Brown et al., 2020). Conversely, interventions designed with community involvement and cultural sensitivity tend to foster a greater sense of ownership among adolescents and their families. For instance, an initiative in Brazil demonstrated that engaging adolescent mothers in culturally adapted programs improved their reproductive health knowledge and encouraged responsible decision-making (Cintra et al., 2020). Therefore, integrating cultural perspectives into adolescent pregnancy prevention strategies remains a crucial component in ensuring sustainable and impactful interventions.

In Indonesia, the *Tiga Batu Tungku* concept—a traditional framework involving the collaboration of

traditional leaders, religious figures, and educators—has been instrumental in adolescent pregnancy prevention. The *Tiga Batu Tungku* concept is a traditional Indonesian framework that symbolizes the balance and unity of three fundamental societal pillars: local government, religious figures, and educators. The term itself translates to “Three Stones of the Hearth,” referring to the three stones used in traditional Indonesian kitchens to support cooking pots. Just as these stones must work together to maintain balance and stability in cooking, the *Tiga Batu Tungku* framework represents the collective role of these three institutions in maintaining social harmony, including efforts to address critical issues such as adolescent pregnancy prevention (Susanti et al., 2023). In the context of adolescent pregnancy prevention, *Tiga Batu Tungku* ensures that interventions are culturally relevant and widely accepted. Traditional leaders play a crucial role in policy-making at the village or community level, ensuring that reproductive health initiatives align with local customs and values. Religious figures provide moral and ethical guidance, emphasizing the importance of responsible behavior and family values (Deswinda et al., 2020). Educators, on the other hand, equip young people with scientific and practical knowledge about reproductive health, ensuring they have access to accurate and age-appropriate information. By working together, these three entities create a comprehensive approach that not only educates adolescents but also fosters community support for reproductive health programs.

Several studies have examined culturally adapted approaches to adolescent pregnancy prevention, yet gaps remain. Maness et al. (2023) qualitatively analyzed six federally funded programs for African American and Hispanic youth, highlighting cultural elements but not their effectiveness in reducing pregnancy rates. Additionally, the study focuses solely on U.S. minority groups, limiting its applicability to broader cultural contexts and leaving questions about its relevance in diverse settings. Deswinda et al. (2020) examined internal and external factors influencing adolescent pregnancy prevention behavior in Indonesia. The study identified factors such as knowledge, attitudes, peer influence, and parental roles as significant. However, it did not delve deeply into culturally specific frameworks like the *Tiga Batu Tungku* model, leaving a gap in understanding how traditional Indonesian cultural structures can be leveraged in prevention efforts. Asare et al. (2022) conducted a research on socio-cultural determinants of adolescent pregnancy in Ghana, identifying factors such as poverty, peer influence, low education, dysfunctional families, and inadequate sexual health education. The study also noted the decline of traditional practices but did not explore culturally tailored interventions.

This study aims to fill existing research gaps by examining the implementation and effectiveness of the *Tiga Batu Tungku* model in Indonesia, a culturally specific framework that integrates traditional leaders, religious figures, and educators, analyzed through the lens of the Health Belief Model (HBM) by Rosenstock (1994). HBM emphasizes four key concepts: perceived susceptibility, perceived severity, perceived benefits, and perceived barriers. This research evaluates how these elements influence adolescents’ perceptions of premarital pregnancy risks and explores the cultural and structural factors shaping their reproductive health behaviors. Unlike prior studies, it offers a holistic, community-driven analysis of culturally integrated adolescent pregnancy prevention strategies.

## **Materials and Methods**

### **Research Design**

This research investigates the role of the *Tiga Batu Tungku* framework, a collaborative model involving local government authorities, religious leaders, and educators, in mitigating the issue of adolescent pregnancy. Grounded in traditional principles, the *Tiga Batu Tungku* concept underscores the significance of collective responsibility in addressing community-based social challenges. The study specifically examines the application of this framework in an Indonesian region where the practice remains deeply embedded in local culture. Data collection and analysis were conducted between June and August 2024, focusing on the strategies and outcomes of this tripartite collaboration in preventing adolescent pregnancies.

This study utilized a combination of data collection methods, including interviews, participant observation, and documentation, to gather comprehensive insights. Semi-structured interviews were conducted with key stakeholders, such as local governments, religious leaders, educational representatives, government health officials and members of Youth Integrated Health Post (known as *Posyandu Remaja* in Indonesia), to explore their perspectives on adolescent pregnancy prevention in Indonesia. Each interview lasted approximately 30 minutes and was conducted face-to-face at times convenient for both participants and researchers. Ethical

considerations were rigorously observed throughout the process. Prior to participation, informed consent was obtained, ensuring that participants were fully aware of the study's objectives and how their data would be used. Participants were also informed of their right to withdraw from the study at any point if they perceived potential risks or discomfort. To maintain confidentiality and adhere to ethical standards, pseudonyms were used in place of participants' real names, thereby protecting their identities.

The researcher conducted observations focused on the role of *Tiga Batu Tungku*. During the observation phase, the researcher actively engaged in monitoring and documenting the collaborative activities and interactions among the three key stakeholders of the *Tiga Batu Tungku* framework: local government officials, religious leaders, and educators. This involved attending community meetings, awareness campaigns, and educational sessions focused on adolescent pregnancy prevention. The researcher observed how these stakeholders communicated, coordinated efforts, and implemented strategies to address the issue within the community. Detailed field notes were taken to capture the dynamics of these interactions, including the roles each stakeholder played, the messages conveyed to adolescents, and the community's response to these initiatives. Additionally, the researcher paid close attention to the cultural and contextual factors influencing the implementation of the *Tiga Batu Tungku* approach, ensuring a nuanced understanding of its practical application and effectiveness.

In analyzing the documentation data, which included reports from the Adolescent Health Care Program for 2021 and 2022, the researcher systematically reviewed and extracted relevant information to gain insights into Adolescent pregnancy trends, prevention strategies, and program outcomes. The researcher carefully examined the reports to identify key data points, such as the prevalence of adolescent pregnancies, the types of interventions implemented, and the effectiveness of these initiatives in reducing pregnancy rates. Additionally, the researcher compared the data across the two years to identify patterns, progress, or challenges in addressing the issue. To ensure accuracy and depth, the researcher cross-referenced the findings from the Adolescent Health Care Program reports with data collected through interviews and observations, integrating all sources to build a comprehensive understanding of how the *Tiga Batu Tungku* framework and other efforts contributed to adolescent pregnancy prevention.

Thematic analysis was employed to identify and develop themes from the data collected through interviews, participant observation, and documentation. Guided by the Health Belief Model (HBM) framework proposed by Rosenstock (1994), this study examined how the *Tiga Batu Tungku* approach influences adolescents' perceptions of premarital pregnancy risks. Specifically, the analysis focused on their perceived susceptibility, the severity of the issue, the benefits of preventive actions, and the barriers they face. The thematic analysis process followed a structured approach, which included transcribing the interviews, observation results, and documents; thoroughly reading and re-reading the data; coding and identifying patterns; constructing themes; reviewing and refining these themes; and finally, reporting the findings. During the initial stage of analysis, the data were familiarized by transcribing them from Indonesian into English. This task was undertaken by a bilingual researcher fluent in both languages to ensure precision and consistency. The translation process carefully balanced literal and free translation techniques to preserve the original meaning and context of the participants' reflections while rendering them accessible and coherent in English. This methodological rigor ensured that the nuances of the participants' responses were accurately captured and interpreted within the study's analytical framework.

## Participants

The participants for this study were selected using purposive sampling, guided by predetermined criteria that aligned with the institutional values of the *Tiga Batu Tungku* local wisdom, which formed the foundational framework for the research. The selection criteria required participants to be affiliated with local government, religious, or educational institutions and to possess the knowledge, experience, and resources necessary to support the implementation of the *Tiga Batu Tungku* approach in preventing adolescent pregnancies. A total of 45 participants were chosen, including the representatives from the local governments, pastors, teachers, midwives, and members of Youth Integrated Health Post (*Posyandu Remaja*). This diverse group of participants ensured a comprehensive representation of stakeholders involved in the *Tiga Batu Tungku* framework, enabling the study to capture multifaceted perspectives on the collaborative efforts to address adolescent pregnancy.



Table 1 below presents the details of the participants.

**Table 1.** Participants' Demographics

Category	Details	Number of Participants
Age Range	10–19 years (Adolescents)	25
	30–50 years (Program coordinators, officials)	15
Jobs/Occupations	- Midwives	10
	- Health Department Officials	5
	- Teachers	10
	- Religious Leaders (Pastor)	5
	- Member of Youth Integrated Health Post	15
Gender	Female	35
	Male	10

## Results and Discussion

This section presents the findings based on the Health Belief Model (HBM) framework by Rosenstock (1994), evaluating how the *Tiga Batu Tungku* (a collaborative governance model involving the government, religious institutions, and education) contributes to shaping adolescents' understanding of premarital pregnancy risks. The findings are categorized into perceived vulnerability, perceived severity, perceived benefits of preventive measures, perceived barriers, and the role of *Tiga Batu Tungku* in addressing these concerns. To achieve this, qualitative data were collected through interviews with key stakeholders, observation notes, and document analysis. Data were then coded and categorized to identify emerging themes. Below is the details of each theme.

### Perceived vulnerability: Awareness of premarital pregnancy risks

This section presents the findings related to perceived vulnerability, focusing on adolescents' awareness of premarital pregnancy risks and the factors influencing their perceptions. The interviews aimed to uncover adolescents' awareness levels, knowledge gaps, and barriers to reproductive health education. Below is **Table 2**, presenting some responses from interviewees on adolescents' awareness of premarital pregnancy risks.

**Table 2.** Some Responses on Adolescents' Awareness of Premarital Pregnancy Risks

Code	Participant	Direct Quotation	Key Response	Subtheme
A1	Health Official	<i>"Many adolescents are not aware of reproductive health risks. They lack information on contraception and the consequences of premarital pregnancy."</i>	Lack of comprehensive reproductive health knowledge increases vulnerability to adolescent pregnancy.	Risk of Adolescent Pregnancy
A2	Adolescent Mother	<i>"I usually learn about reproductive health from social media, but I don't know which information is true."</i>	Social media exposes adolescents to misleading or inappropriate content about reproductive health.	Influence of Social Environment
A3	Member of Youth Integrated Health Post	<i>"Parents often avoid talking about reproductive health, thinking it will encourage bad behavior."</i>	Inadequate parental supervision and avoidance of reproductive health discussions contribute to risky behaviors.	Influence of Social Environment
A4	Youth Integrated Health Post Coordinator	<i>"Adolescents who attend Youth Integrated Health Post (known as Posyandu Remaja in Indonesia) have better awareness, but participation remains low due to stigma."</i>	Adolescents who access structured reproductive health services gain better awareness, but social stigma remains a barrier.	Influence of Social Environment

The data analysis indicates that adolescents generally have low awareness of reproductive health risks. According to UNFPA (2020), adolescents with low awareness are at higher risk of engaging in unprotected sex, leading to increased rates of unintended pregnancies and sexually transmitted infections. Studies by Haberland and Rogow (2015) emphasize that adolescents in areas where reproductive health education is absent or inadequate

exhibit significantly lower awareness levels. Adolescents with limited awareness often lack adequate knowledge about reproductive health risks and hold misconceptions, such as believing that pregnancy cannot occur during the first sexual encounter. They are generally unaware of the reproductive health services available to them and do not know where to seek reliable guidance. As a result, they tend to rely on social media, peers, or widespread myths for information, rather than consulting verified and credible sources.

The findings of this study indicate that a lack of awareness regarding reproductive health among adolescents is primarily attributed to insufficient formal education on the subject, cultural taboos, and inadequate parental guidance. Interviews revealed that many adolescents do not perceive themselves to be at risk of pregnancy, largely due to limited exposure to comprehensive reproductive health education. While certain schools integrate reproductive health topics within Biology and Religious Studies, the coverage is often superficial and lacks depth. Additionally, the absence of a standardized curriculum leads to inconsistencies in the knowledge imparted to students. This aligns with the findings of Haberland and Rogow (2015), who highlight that the lack of comprehensive reproductive health education contributes to misinformation and engagement in risky behaviors. Kyu et al. (2024) also found that cultural taboos significantly hinder students' sexual and reproductive health literacy, leading to reliance on online sources and reluctance to seek professional healthcare due to feelings of shame and fear. Consequently, this educational gap leaves many adolescents uninformed about crucial aspects of reproductive health, prompting them to rely on peers and social media for information, where they are frequently exposed to myths and inaccurate details.

Cultural norms and traditional beliefs significantly influence adolescents' perceptions of reproductive health. Many parents feel uncomfortable discussing these topics with their children, leaving adolescents to turn to unreliable sources for information. A systematic review by Mullis et al. (2020) highlight several barriers to effective parent-adolescent communication on sexual and reproductive health. These include parents' limited knowledge, feelings of discomfort, and cultural beliefs that discourage open conversations on such matters. This finding is consistent with Nketia (2022), who found that socio-cultural norms and parental discomfort prevent open discussions on topics like contraception, further limiting adolescents' understanding of reproductive health. Improving parental communication skills and addressing cultural taboos are essential for raising adolescents' reproductive health awareness and reducing related risks. Additionally, low adolescent participation in reproductive health initiatives is often linked to stigma and misinformation, which prevents access to accurate information. As Zaabi et al. (2021) explain, socio-cultural taboos and a lack of adolescent-friendly services hinder open parent-adolescent discussions on sexual health in many communities. By strengthening education, encouraging parental involvement, and improving access to reliable information, communities can create a more supportive environment that empowers adolescents to make responsible choices about their reproductive health.

### Perceived severity: The consequences of premarital pregnancy

This section presents the findings related to how adolescents perceive the severity of premarital pregnancy. The interviews focused on how adolescents perceive the consequences of premarital pregnancy and what influences these perceptions. Table 3 provides a summary of key findings from participants regarding the perceived severity of adolescent pregnancy.

**Table 3.** Summary of Interview Responses on Perceived Severity of Premarital Pregnancy

Code	Participant	Direct Quotation	Key Response	Subtheme
S1	Teacher	<i>“Pregnant students face social stigma in school. Some prefer to drop out due to shame and bullying.”</i>	Adolescent mothers often experience bullying and social exclusion, leading to school dropout.	Bullying
S2	Health Official	<i>“Many adolescents do not realize the health risks of pregnancy, including high maternal mortality and malnutrition in babies.”</i>	Adolescent pregnancy increases maternal mortality risks and negatively impacts infant health.	Health Complications
S3	Religious Leader	<i>“Early pregnancy affects the entire family. Parents worry about the family’s reputation and financial burden.”</i>	Families experience financial and social pressure due to adolescent pregnancy, impacting overall well-being.	Social Stigma

S4	Member of Youth Integrated Health Post	<i>"I never thought about the consequences of pregnancy before. I only realized later that school becomes difficult after having a baby."</i>	Many adolescents do not anticipate the long-term educational and life challenges of early pregnancy.	Health Complications
S5	Local Government	<i>"Teen mothers struggle to find jobs. Without education, their future is uncertain."</i>	Lack of education due to early pregnancy limits employment opportunities and financial stability.	Social Stigma
S6	Local Government	<i>"There is a belief that pregnant adolescents bring shame to the family, which is why some are forced into early marriage."</i>	Cultural norms and societal expectations contribute to forced early marriages as a response to adolescent pregnancy.	Social Stigma

The analysis of interview responses indicates that adolescents often fail to fully comprehend the serious consequences of premarital pregnancy. While some acknowledge that early pregnancy can be problematic, they tend to underestimate its full impact. A significant proportion of adolescents lack awareness of the medical risks associated with early pregnancy, primarily due to inadequate reproductive health education.

One of the most profound consequences of adolescent pregnancy is the social stigma and disruption of education that young mothers experience. Pregnant adolescents frequently face discrimination from peers, teachers, and even family members. In certain instances, schools discourage them from continuing their education despite existing legal protections. Fear of stigma and bullying often compels young mothers to drop out voluntarily, thereby restricting their future opportunities. In addition to social stigma, adolescents frequently underestimate the severe health risks associated with early pregnancy. Research indicates that adolescent mothers face a significantly higher risk of maternal mortality due to childbirth complications (Sylla et al., 2024; Wahyudi et al., 2023). Moreover, infants born to adolescent mothers are more susceptible to malnutrition and stunted growth (Grønvik & Sandøy, 2018). The likelihood of pregnancy-related infections and postpartum depression is also elevated, yet many young mothers fail to seek timely medical care, exacerbating the risks for both themselves and their children. These health risks often remain unknown to adolescents due to deficiencies in reproductive health education.

Economic hardship is another major challenge faced by adolescent mothers, which is frequently underestimated. Dropping out of school significantly diminishes their employment prospects, leading to prolonged financial instability. Many adolescent mothers become economically dependent on their families or partners, perpetuating a cycle of economic hardship (Leung et al., 2023). In some cases, families pressure young mothers into early marriages to preserve the family's honor; however, this does not necessarily improve their financial circumstances. Despite these severe consequences, many adolescents remain unaware of the long-term effects of early pregnancy due to insufficient discussions in educational settings, cultural stigma, and the overall lack of comprehensive reproductive health education.

### Perceived benefits of preventive measures

The study employed interviews to capture adolescents' perspectives on the benefits of reproductive health education and the obstacles they face in accessing preventive measures. The interviews focused on adolescents' awareness of preventive measures, their perceived benefits, and the cultural, religious, and systemic barriers preventing them from utilizing these measures. **Table 4** provides a summary of key findings from participants regarding adolescents' perception of preventive measures and the factors influencing their views.

**Table 4.** Summary of Interview Responses on Perceived Benefits of Preventive Measures

Code	Participant	Direct Quotation	Key Response	Subtheme
PB1	Member of Youth Integrated Health Post	"I want to learn about reproductive health, but it's hard to ask questions because people might judge me."	Adolescents hesitate to seek reproductive health information due to fear of social judgment.	Health Promotion and Counseling

PB2	Member of Youth Integrated Health Post	“I heard about contraception from my friends, but I don’t know if the information is correct.”	Adolescents rely on peer-shared information, which may not always be accurate.	Health Promotion and Counseling
PB3	Member of Youth Integrated Health Post	“Some of my friends don’t come to the health post because they think it’s only for sick people.”	Misinformation and stigma discourage adolescents from attending health programs.	Community Engagement
PB4	Member of Youth Integrated Health Post	“We had a session about reproductive health, but many of my friends skipped because they thought it wasn’t important.”	Low adolescent engagement in reproductive health education due to lack of perceived relevance.	Community Engagement
PB5	Member of Youth Integrated Health Post	“My parents never talk about reproductive health, so I just look for information on social media.”	Limited parental discussion pushes adolescents to seek information from potentially unreliable sources.	Community Engagement
PB6	Member of Youth Integrated Health Post	“Some of my classmates are interested in learning about this, but they don’t want others to know.”	Adolescents may be curious but fear stigma in openly discussing reproductive health topics.	Health Promotion and Counseling

The analysis of interview responses reveals that many adolescents perceive contraceptive use as immoral, as they are taught that pregnancy prevention should be achieved solely through abstinence. Another significant challenge is the limited access to contraceptive services. Many adolescents experience feelings of shame or fear when considering visiting health centers due to concerns about judgment from healthcare providers and community members. In some cases, health facilities fail to offer adolescent-friendly services, further discouraging young individuals from seeking guidance on contraception. This finding aligns with Harrington et al. (2021), who assert that fear of social stigma and judgment prevents adolescents from accessing contraceptive services, thereby increasing their susceptibility to unplanned pregnancies. Furthermore, the lack of open communication between parents and teachers leaves many adolescents without the essential information needed to make informed decisions regarding their reproductive health.

### Perceived barriers to prevention

The study utilized interviews to gather insights into the barriers adolescents face in accessing reproductive health education and services. The interviews focused on cultural, institutional, and systemic obstacles that prevent adolescents from fully utilizing reproductive health programs. Table 5 summarizes the key responses from participants regarding barriers to accessing reproductive health education and services.

**Table 5.** Summary of Interview Responses on Perceived Barriers to Prevention

Code	Participant	Direct Quotation	Key Responses	Subtheme
B1	Member of Youth Integrated Health Post	<i>“Talking about reproductive health at home is uncomfortable. It’s not something we usually discuss.”</i>	Adolescents feel uncomfortable discussing reproductive health within their families.	Limited awareness
B2	Midwife	<i>“Many adolescents fear being judged if they visit health centers for reproductive health services.”</i>	Fear of stigma prevents adolescents from seeking reproductive health services.	Limited awareness
B3	Member of Youth Integrated Health Post	<i>“I don’t go to Posyandu Remaja because I don’t see the need for it, and my friends don’t go either.”</i>	Low adolescent participation in Posyandu Remaja due to perceived irrelevance.	Limited Participation

The analysis of interview responses highlights cultural and religious constraints as significant barriers to reproductive health education. This finding is consistent with Achigibah et al. (2024), who argue that religious teachings primarily emphasize abstinence while offering minimal guidance on safe sex practices or contracep-



tion, thereby leaving adolescents uninformed and reinforcing misconceptions and risky behaviors. In many communities, reproductive health remains a taboo topic, restricting adolescents' access to accurate information. Furthermore, this study found that parents frequently avoid discussions on sexual health due to cultural beliefs that associate such conversations with encouraging promiscuity, further limiting adolescents' understanding of essential reproductive health issues (Achigibah et al., 2024). Furthermore, low participation in preventive programs exacerbates these challenges. Initiatives such as *Youth Integrated Health Post* face difficulties in attracting adolescent participation, despite ongoing efforts to promote awareness and engagement. This is consistent with Kurniawati et al. (2020), who explain that many adolescents fail to recognize the relevance of reproductive health education, leading them to disregard or deliberately avoid such programs. Additionally, the lack of adolescent-friendly healthcare services results in many young individuals either not receiving proper guidance or hesitating to seek medical advice due to fear of social stigma. Consequently, preventive programs remain underutilized, as adolescents often fail to perceive their immediate value, while social and cultural pressures further discourage participation.

### The role of *Tiga Batu Tungku* in adolescent pregnancy prevention

The study employed interviews to explore the role of *Tiga Batu Tungku* in addressing adolescent reproductive health education and premarital pregnancy prevention. Interviews focused on how each sector contributes to reproductive health education. Table 6 summarizes key responses from participants regarding the contributions of each sector in adolescent pregnancy prevention.

**Table 6.** Summary of Interview Responses on the Role of *Tiga Batu Tungku* in Adolescent Pregnancy Prevention

Code	Participant	Key Responses (Activities by Each Part of <i>Tiga Batu Tungku</i> )	Direct Quotation
T1	Religious Leader (Church Representative)	- Conducts religious education and moral guidance to instill values in adolescents.	<i>"In the church, we have various programs dedicated to the guidance and development of children and adolescents."</i>
		- Organizes youth programs and Bible study sessions addressing responsible relationships and sexual behavior.	<i>"During church activities, we provide Bible study sessions and youth discussions on relationships, sexual behavior, and future planning."</i>
		- Integrates topics like pre-marital sex, self-respect, and future planning into church discussions.	<i>"We discuss issues such as pre-marital sex, self-respect, and life planning in our church education programs to guide adolescents toward responsible behavior."</i>
		- Collaborates with schools and health services to provide reproductive health education from a spiritual perspective.	<i>"We work closely with schools and health institutions to provide reproductive health education while incorporating spiritual and moral values."</i>
		- Supports adolescents through pastoral counseling and family strengthening programs.	<i>"Church programs also include pastoral counseling for adolescents and their families to strengthen family relationships and provide guidance on youth issues."</i>
T2	Village Government Representative	- Supports Posyandu Remaja (Youth Health Post) by providing facilities and allocating village funds for health programs.	<i>"We, as the village government, allocate village funds to provide iron supplements (Tablet Tambah Darah, TTD) for adolescents and support youth health programs such as Posyandu Remaja."</i>
		- Encourages community discussions and awareness campaigns on adolescent health and pregnancy prevention.	<i>"We hold discussions and awareness campaigns in village meetings to educate the community about the risks of adolescent pregnancy."</i>
		- Uses traditional leaders and village meetings to spread awareness about the risks of teenage pregnancy.	<i>"Traditional leaders play a role in disseminating information in village meetings to ensure that adolescent health issues are addressed."</i>
		- Implements public health policies that align with national adolescent health programs.	<i>"Our village follows national health policies to ensure adolescent health programs are effectively implemented."</i>
		- Engages parents through community-based education on adolescent development and reproductive health.	<i>"We involve parents in educational programs to help them understand and support adolescent reproductive health initiatives."</i>

T3	Educa- tional In- stitution Repre- sentative (School Teacher)	- Integrates reproductive health education into subjects like Biology, Religious Education, and Civics.	<i>"The integration of reproductive health education into our curriculum is already in place. For instance, Christian religious education in Grade XI includes topics on Christian marriage, love as the foundation of family life, and the importance of preparation for marriage. Additionally, moral education (Pancasila and Civic Education) fosters character-building and instills human rights awareness. The biology curriculum also includes reproductive health topics, ensuring that students receive holistic education on this matter."</i>
		- Invites health professionals from Puskesmas (Community Health Centers) for school-based awareness sessions.	<i>"We collaborate with the local health center (Puskesmas) by inviting health professionals to provide awareness sessions for students on reproductive health and pregnancy prevention."</i>
		- Encourages counseling services and peer discussions about adolescent issues through school guidance counselors.	<i>"We provide counseling services and encourage peer group discussions to create a safe space where students can talk about their concerns regarding relationships and reproductive health."</i>
		- Works with government and religious institutions to provide a holistic approach to youth well-being.	<i>"Our school actively collaborates with both government and religious institutions to ensure that students receive a well-rounded education on adolescent health and values."</i>
		- Strengthens school policies on moral education, responsible relationships, and life skills to help prevent early pregnancies.	<i>"We have strengthened school policies that focus on moral education, responsible relationships, and life skills, as these are critical for preventing adolescent pregnancies and guiding students towards responsible adulthood."</i>

The findings indicate that the *Tiga Batu Tungku* framework—comprising religious institutions, village government, and educational institutions—plays a significant role in adolescent pregnancy prevention by combining moral guidance, community support, and structured education. Religious institutions focus on instilling moral values and character-building through religious teachings, youth programs, and pastoral counseling. The village government allocates funds and provides infrastructure for adolescent health programs, including Posyandu Remaja (Youth Health Posts), but faces challenges in youth participation and parental involvement. Educational institutions integrate reproductive health education into formal curricula, collaborate with health professionals, and provide counseling services to promote responsible adolescent behavior. These collaborative efforts demonstrate the interdependence of social, cultural, and health institutions in addressing adolescent pregnancy as a public health concern. However, the effectiveness of these interventions is often hindered by limited community engagement, cultural barriers, and inadequate resource allocation.

The findings of this study align with several previous research studies that emphasize the importance of a multi-sectoral approach to adolescent pregnancy prevention. First, Smith et al. (2019) highlight that community-based interventions involving religious leaders, educators, and policymakers significantly reduce adolescent pregnancy rates in rural settings, as moral and educational support strengthens adolescents' decision-making capacities. Second, Rahmawati and Setiawan (2021) found that parental and community engagement, particularly through traditional village leadership, improves adolescent reproductive health outcomes, reinforcing the role of village governments in shaping adolescent health policies. Third, Kim et al. (2022) discuss the impact of integrating reproductive health education into school curricula and emphasize that peer-led discussions and school-based health programs are crucial in reducing early pregnancies, a finding that corresponds with the role of educational institutions within the *Tiga Batu Tungku* framework. Collectively, these studies confirm that a collaborative approach, involving religious, governmental, and educational institutions, is essential in creating a supportive environment for adolescent reproductive health.

The *Tiga Batu Tungku* framework effectively integrates cultural, educational, and governmental interventions to address adolescent pregnancy, ultimately contributing to the reduction of maternal and infant mortality. By preventing early pregnancies, this model helps mitigate high-risk childbirth complications, stunted child development, and increased maternal mortality rates, which are commonly associated with adolescent pregnancies. This study contributes to existing literature by demonstrating that a culturally embedded, community-based approach—rooted in traditional structures such as *Tiga Batu Tungku*—can be an effective public health strategy. Thus, strengthening interdisciplinary collaboration and enhancing community participation within this

framework could significantly impact maternal and child health outcomes in Indonesia.

## **Conclusion**

This research aimed to examine the role of Tiga Batu Tungku (religious institutions, village government, and educational institutions) in preventing adolescent pregnancy as a strategy to reduce maternal and infant mortality. The findings reveal that Tiga Batu Tungku operates as an integrated system where religious institutions provide moral education and character-building, village governments support health initiatives such as Posyandu Remaja, and educational institutions integrate reproductive health education and counseling services into their curricula. Despite these efforts, challenges such as low adolescent participation, cultural barriers, and limited parental engagement hinder the effectiveness of adolescent pregnancy prevention programs. The implications of this study suggest that a multi-sectoral, community-based approach is essential for improving adolescent reproductive health. Strengthening collaboration among religious leaders, policymakers, educators, and healthcare providers could enhance the effectiveness of pregnancy prevention efforts. Additionally, increasing parental involvement and addressing cultural taboos related to reproductive health education may lead to better engagement and awareness among adolescents.

However, this study has several limitations. First, it focuses on a specific cultural and geographical context in Indonesia, which may limit its generalizability to other settings. Second, the study primarily relies on qualitative interview data, which may introduce subjectivity and response bias. Third, the lack of longitudinal data makes it difficult to assess the long-term impact of the Tiga Batu Tungku framework on adolescent pregnancy rates. For future research, it is recommended that scholars conduct comparative studies in different regions to assess the effectiveness of similar traditional structures in preventing adolescent pregnancy. Additionally, quantitative studies with larger sample sizes and statistical analyses could provide more robust evidence on the impact of community-based interventions. Finally, future researchers should explore policy interventions and innovative strategies, such as digital education programs and peer-led reproductive health initiatives, to improve adolescent pregnancy prevention efforts.

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### **Conflicts of Interest**

The authors declare no conflict of interest.

### **Authorship and Level of Contribution**

All authors contributed to the literature review, data collection, data analysis, and interpretation of the findings.



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