Developing a Social Learning-Based Educational Model to Improve Pregnancy and Baby Care Behavior in Adolescent Mothers

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Abstract

Adolescent pregnancy remains a serious public health issue, especially in developing countries. Many young mothers struggle because they lack the knowledge, emotional readiness, and support systems needed to maintain a healthy pregnancy and care for their babies. In Indonesia, these challenges are made worse by limited reproductive health education and the presence of social stigma. Padang, West Sumatra, faces similar concerns, with relatively high rates of adolescent pregnancy. The region's predominantly Muslim population and the Minangkabau culture; known for its strong emphasis on family and community values, play a significant role in shaping adolescent reproductive health behaviors. This study aims to design an educational model based on social learning theory to improve pregnancy and baby care practices among adolescent mothers in West Sumatra. A convergent mixed-methods design was used. Quantitative data came from structured questionnaires completed by 76 pregnant adolescents, while qualitative insights were gathered through interviews and focus group discussions with 11 informants, including adolescent husbands, family caregivers, midwives, and psychologists. The analysis showed that knowledge alone was not enough to encourage positive maternal behavior. Emotional readiness, stress management, family communication, and future planning were all significantly linked to better pregnancy care ($p < 0.05$). Qualitative findings further highlighted the importance of group-based training, interactive modules, accessible materials, and family involvement in strengthening adolescents' readiness and caregiving skills. The proposed educational model, grounded in social learning principles, offers a culturally sensitive and practical approach to empower adolescent mothers. If applied in community and clinical settings, it has the potential to improve maternal and child health outcomes and reduce the long-term risks associated with adolescent pregnancy.

Keywords: ***Adolescent Pregnancy, Educational Model, Social Learning Theory, Maternal Behavior, Baby Care.***

INTRODUCTION

Adolescent pregnancy is one of the most persistent public health challenges worldwide, especially in low- and middle-income countries where access to education, healthcare, and reproductive services is limited (World Health Organization, 2022), Each year, about 16 million girls aged 15-19 give birth, with most cases occurring in resource-constrained settings.

This situation greatly increases the risk of complications for both mothers and babies, including preeclampsia, preterm birth, low birth weight, and postpartum depression (Powers & Takagishi, 2021). In Indonesia, early pregnancy is a growing concern that threatens the health and future of young women. National data show that 45.1% of women experience their first

pregnancy before age 20, while in West Sumatra the figure is 33.7% (Ministry of Health, 2022). These numbers are more than statistics; they represent young lives shaped by limited knowledge, social stigma, and gaps in reproductive health services. Many adolescent mothers lack the emotional maturity, financial stability, and educational background needed to ensure a healthy pregnancy and provide proper infant care (Yousefi et al., 2025). Alarmingly, about two-thirds of adolescent pregnancies are unintended, leaving young mothers vulnerable to shame and stigma (Hoseini et al., 2024; Hwang et al., 2022). This social pressure often discourages them from seeking prenatal care or participating in community activities, further isolating them during a critical stage of life (Montazeri et al., 2025; Webb et al., 2021).

Adolescent mothers often face serious challenges because of limited education, restricted access to healthcare information, and little decision-making power. These limitations increase the risk of complications, illness, and even death for both mother and baby (Gayatri et al., 2023; Lebnia et al., 2025; Shee et al., 2021; World Health Organization, 2025). Beyond physical health, adolescent pregnancy also brings emotional and psychological difficulties, making it essential to provide strong support systems that address the complex needs of young mothers. Research consistently shows that emotional and social support; from families, peers, and communities, plays a crucial role in helping pregnant adolescents cope and care for themselves and their babies (Dutta et al., 2022; Flaherty et al., 2024; Sohrabi et al., 2021; Song et al., 2023; Susanti et al., 2022).

Stress management is essential for improving outcomes in adolescent pregnancy, benefiting both mother and child. Stress in this context often arises from social stigma, family rejection, and the loss of educational opportunities (Susanti et al., 2022). Managing stress helps young mothers build coping skills, strengthen psychological resilience, and maintain healthier behaviors during pregnancy (Bao et al., 2024; Ladekarl et al., 2025; Phiri et al., 2023).

Another important factor is self-efficacy, the belief in one's ability to manage challenges. Self-efficacy plays a key role in both preventing adolescent pregnancy and supporting those who experience it. Research shows that parenting practices and family dynamics strongly influence the development of self-efficacy in adolescents, which in turn shapes their sexual and reproductive health outcomes (Doherty et al., 2025; Gu et al., 2021; Homer et al., 2022; Jeong et al., 2025; Perriman et al., 2022).

Indonesia has introduced many programs under its maternal and child health framework, but most interventions still fail to meet the unique developmental and psychological needs of adolescents. Traditional health education methods often based on one-way communication and general messaging are not very effective for this age group.

Adolescents learn better through peer interaction, visual tools, and interactive platforms (Jenny McLeish et al., 2021).

Another limitation is that many educational models overlook the role of families and communities, even though they strongly shape adolescent behavior. This is where Bandura's social learning theory provides a useful foundation. The theory emphasizes learning through observation, modeling, reinforcement, and social interaction. Adolescents tend to copy behaviors that are rewarded within their peer groups or family structures, making group-based and experiential learning especially powerful.

Recent studies show that interventions built on social learning principles; when designed with cultural sensitivity and active adolescent engagement; can significantly improve reproductive health outcomes and caregiving practices (Bradford et al., 2022; Kuipers et al., 2024). Despite this growing evidence, little is known about how a structured, culturally responsive social learning model could specifically improve pregnancy and infant care behaviors among adolescent mothers in West Sumatra. This study therefore, aims to develop and propose an educational model grounded in social learning theory to help adolescent mothers manage their pregnancies and care for their infants more effectively.

METHODS

This study used a convergent mixed-methods design, combining both quantitative and qualitative approaches to examine pregnancy and baby care behaviors among adolescent mothers. The quantitative part focused on identifying behavioral patterns and statistical relationships, while the qualitative part explored the social and psychological factors that influence maternal health (Fàbregues et al., 2023).

The research took place in Padang City, West Sumatra, Indonesia, from May to August 2024. All pregnant adolescents who met the inclusion criteria and attended participating primary care clinics or community health posts during this period were invited to join. The inclusion criteria were: (1) pregnant at any gestational age, (2) under 20 years old, (3) living in Padang City during the study, (4) willing to participate with written informed consent, and (5) free from pregnancy complications. Participants were excluded if they later developed complications or withdrew consent. In total, 76 adolescents were enrolled. For the qualitative phase, 11 informants were purposively selected, including one developmental psychologist, three adolescent husbands, two mothers, three midwives, and two adolescent mothers.

Quantitative data were collected using a 30-item structured questionnaire measuring knowledge, emotional readiness, stress management, family communication, and future

planning. The instrument was developed based on social learning theory and prior literature, covering topics such as pregnancy and baby care, emotional support, stress regulation, confidence building, and role adaptation. Content validity was confirmed by five experts in midwifery, public health, and maternal education. The item-level CVI (I-CVI) ranged from 0.86 to 1.00, while the scale-level CVI (S-CVI/Ave) was 0.93, showing excellent validity. A pilot test with 20 adolescents demonstrated high reliability (Cronbach's $\alpha = 0.89$) (Kuipers et al., 2024). Data collection was conducted during routine antenatal visits at community health centers and midwifery clinics, with trained assistants distributing self-administered questionnaires after obtaining consent.

The qualitative phase involved in-depth interviews and focus group discussions (FGDs) guided by key constructs of social learning theory, modeling, reinforcement, and environmental influences(Fuente et al., 2023). Interviews and FGDs were conducted privately, audio-recorded with consent, and transcribed verbatim. The FGD included six participants who discussed shared experiences, social support, and educational needs.

Quantitative data were analyzed using SPSS version 25.0. Descriptive statistics summarized participant characteristics, while Chi-square tests examined associations between knowledge and care behavior (significance set at $p < 0.05$) (Field, 2024). Qualitative data were analyzed thematically: transcripts were independently coded, themes identified, and interpretations compared across sources for triangulation (Sakaguchi et al., 2025). Finally, the integration of both quantitative and qualitative findings informed the development of an adolescent-friendly educational model based on social learning principles. This study was approved by the Ethics Committee of the Faculty of Medicine, Andalas University (No. 907/UN.16.2/KEP-FK/2024, May 23, 2024). Participation was voluntary, and confidentiality was strictly maintained throughout the research process.

RESULT

Table 1. Characteristic Respondents (*n* = 76)

Characteristic	f	%
Adolescent Mother Education		
Junior high school	52	68,4
Senior high school	24	31,6
Husband Education		

Junior high school	59	68,4
Senior high school	17	31,6
Employment Status		
Doesn't work	4	5,3
Work	72	94,7
Adolescent age criteria		
Middle adolescent	26	34,2
Advanced adolescent	50	65,8
Husband age, Yo		
Not ideal (<19)	14	18,4
Ideal (>19)	62	81,6
Total	**76**	**100**

In Table 1, Most adolescent mothers (68.4%) only completed junior high school, indicating limited formal education. 94.7% were unemployed, reflecting socioeconomic vulnerability. 65.8% were late adolescents (17–19 years), meaning they are in the critical transition phase between adolescence and adulthood. Among their partners, 81.6% were over 19 years, indicating an age gap that could affect power dynamics in decision making.

Table 2. Relationship between Knowledge and Behavior in Pregnancy and Baby Care (n = 76)

Variable	Category	Poor Behavior	Good Behavior	Total	*P-value*
Knowledge about pregnancy, childbirth, and baby care	Lack	25 (62.5%)	15 (37.5%)	40 (100%)	<0.000
	Good	20 (55.6%)	16 (44.4%)	36 (100%)	
Building emotional support	Lack	23 (56.1%)	18 (43.9%)	41 (100%)	<0.000
	Good	22 (62.9%)	13 (37.1%)	35 (100%)	
Stress management	Lack	26 (60.5%)	17 (39.5%)	43 (100%)	<0.000
	Good	19 (57.6%)	14 (42.4%)	33 (100%)	
Preparing for emotional changes	Lack	25 (58.1%)	18 (41.9%)	43 (100%)	<0.000
	Good	20 (60.6%)	13 (39.4%)	33 (100%)	
Developing self-confidence	Lack	27 (64.3%)	15 (35.7%)	42 (100%)	<0.000
	Good	18 (52.9%)	16 (47.1%)	34 (100%)	
Creating a birth plan	Lack	19 (55.9%)	15 (44.1%)	34 (100%)	<0.000
	Good	26 (61.9%)	16 (38.1%)	42 (100%)	
Communication with partner/family	Lack	28 (71.8%)	11 (28.2%)	39 (100%)	<0.000
	Good	17 (46.0%)	20 (54.1%)	37 (100%)	
Recognizing and accepting role changes	Lack	21 (53.8%)	18 (46.2%)	39 (100%)	<0.000
	Good	24 (64.9%)	13 (35.1%)	37 (100%)	
Seeking professional help	Lack	23 (59.0%)	16 (41.0%)	39 (100%)	<0.000
	Good	22 (59.5%)	15 (40.5%)	37 (100%)	
Planning for the future	Lack	29 (70.7%)	12 (29.3%)	41 (100%)	<0.000
	Good	16 (45.7%)	19 (54.3%)	35 (100%)	

In table 2, Communication with partner/family showed the strongest association; Adolescents with poor communication had 71.8% poor behavior, while those with good communication showed 54.1% good behavior (p = 0.000). Planning for the future also showed strong predictive value; Among those who did not plan, 70.7% had poor behavior vs. 54.3%

good behavior in the planning group (p = 0.000). Knowledge levels significantly influenced care behavior; Among those with low knowledge, 62.5% demonstrated poor care behavior.

Table 3. Characteristic Informant

Informan	Characteristic
Informant-1 Psychologists	A Female, 38 years old, has expertise in developmental psychology
Informant-2 Husband	A male, 22 years old, fisherman
Informant-3 Husband	A male, 30 years old, trader
Informant-4 Husband	A male, 22 years old, self-employed
Informant-5 Mother	A Female, 50 years old, entrepreneur
Informant-6 Mother	A Female, 42 years old, housewife
Informant-7 Pregnant adolescent	A Female, 15 years old, housewife
Informant-8 Pregnant adolescent	A Female, 17 years old, housewife
Informant-9 Pregnant adolescent	A Female, 18 years old, housewife
Informant-10 Midwife/MCH Program Manager at the Health Center	A Female, 35 years old, has expertise in midwifery care
Informant-11 Midwife/Adolescent mother Program Manager	A Female, 35 years old, has expertise in midwifery care, has expertise in Adolescent mother care

In Table 3, Informants included a psychologist, three adolescent husbands, two maternal caregivers, three healthcare workers, and three adolescent mothers. Ages ranged from 15 to 50 years, representing perspectives across generations. The involvement of both health professionals and family members enriches the triangulation of qualitative insights.

Table 4. Interview and Focus Group Discussion Matrix with Representative Quotations and Interpretation

In-depth interviews	Focus Group Discussion	Emerging Theme	Representative Quotations	Interpretation	Conclusion	Solution
Social learning through groups/communities can reduce stress and increase self-confidence	Effective social learning for adolescents pregnancy to be able to have a healthy pregnancy and care for their babies	Social learning through peer groups reduces stress	*When I join with other young mothers, I feel calmer because I know I'm not alone."* (Inf-7) *"Learning together gives them confidence; they see peers who succeed and feel they can too."* (Inf-1)	Social learning provides emotional reassurance and practical modeling, reducing isolation and improving confidence.	There is a strong need to provide a comfortable and supportive educational environment for pregnant adolescents.	Group training and counseling programs should be facilitated regularly.
pregnant adolescent understand better through direct interaction	In accordance with their development, adolescents	Adolescents respond better to interactive methods	*"If I only read, I don't always understand. But when the midwife shows directly, it stays in my mind."* (Inf-8) *"adolescents absorb*	Concrete and interactive teaching matches adolescent developmental needs, leading to better	Interactive learning methods should be designed to align with adolescent cognitive and	Learning with interactive methods such as role-play, visual aids, and peer-led discussions.

In-depth interviews	Focus Group Discussion	Emerging Theme	Representative Quotations	Interpretation	Conclusion	Solution
and examples.	learn more easily through concrete examples		*knowledge better with role-play, pictures, or demonstrations."* (Inf-10)	comprehension and retention.	emotional development.	
pregnant adolescent feel more comfortable learning from each other's experiences through interactive media and discussion groups.	Adolescents are more interested in learning with their peers, and interactive media is most suitable for adolescents.	Preference for visual, accessible materials	*"I like watching short videos from my phone. It's easy and I can repeat it anytime."* (Inf-9) *"Peer stories on social media help them feel connected and motivated."* (Inf-11)	Accessible visual media empowers adolescents to learn independently and comfortably in familiar formats.	Learning media is needed that is easily accessible to adolescent mothers	Accessible teaching materials
Community strengthening and psychological support	Communities play an important role in providing emotional support and opportunities to learn from the experiences of other pregnant adolescent.	Families and communities are key support systems	*"My mother reminds me of what the midwife says; without her I might forget."* (Inf-8) *"Family and community are protective factors without them, stress increases and compliance decreases."* (Inf-1) *"We encourage husbands to be active; their involvement makes a difference."* (Inf-10)	Emotional and practical support from family and community strengthens adolescents' learning and resilience.	Family and community involvement is needed to support pregnant adolescent to learn from their peers' experiences and receive emotional support.	Involving families and communities

In Table 4, The integration of social learning principles; such as modeling, reinforcement, and community engagement, is crucial for improving maternal health behavior among adolescents. These themes strongly support the need for a comprehensive, adolescent-friendly educational model.

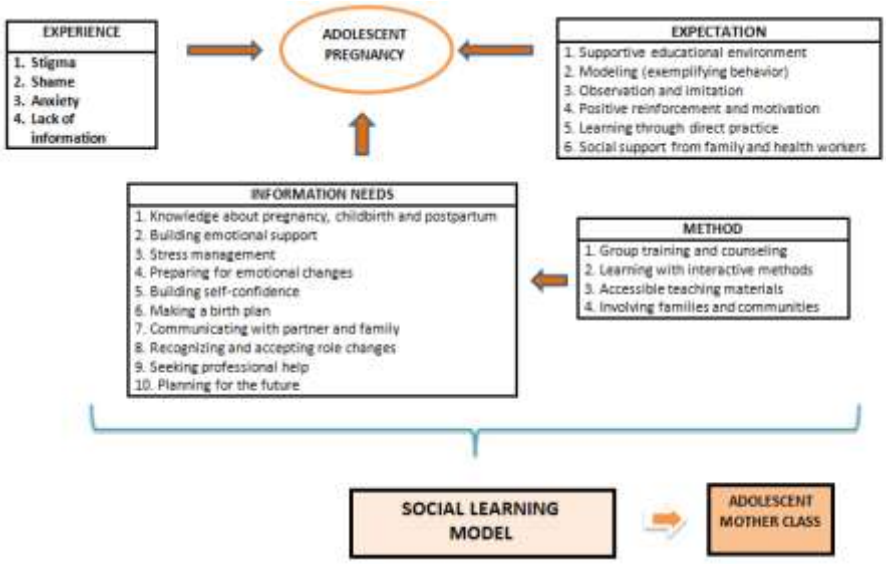

Figure 1: Social learning model for adolescent mother in Pregnancy and Baby Care

DISCUSSION

Interactive Learning Methods Using Modules

Interactive learning methods, especially those using digital modules, have shown strong potential in addressing adolescent pregnancy through social learning models. Research suggests that technology-enabled approaches can effectively educate adolescents about sexual health and pregnancy prevention.

For example, one Australian university introduced a 6-week immersive program with interactive online modules. Students reported that the modules' interactivity, media richness, and flexibility supported deeper learning, and engagement with the modules was linked to better academic success (Huang et al., 2022). Similarly, studies with elementary school children found that gamification and interactive modules improved both cognitive performance and social skills (Longchar et al., 2025; Nihal & Shekhar, 2024). In Indonesia, including Padang, West Sumatra, interactive learning has also been shown to increase adolescents' reproductive health knowledge, especially when digital modules are combined with peer engagement and culturally relevant content. Local studies highlight that adolescent-friendly e-modules can be easily accessed through smartphones, which are widely used among adolescents. This accessibility helps reduce barriers caused by stigma or limited attendance at formal session(Putri & Sansuwito, 2025; Saleh et al., 2024).

Interestingly, while attending synchronous classes did not significantly affect final scores in the Australian study, students still valued the chance to build supportive communities during live sessions. This suggests that combining asynchronous modules with synchronous

elements may be especially effective, as it addresses both the learning and social aspects of pregnancy prevention education.

In conclusion, interactive learning modules that use multimedia content, gamification, and flexible participation options show great promise for educating adolescents about pregnancy prevention. By leveraging technology to create immersive and adaptable learning experiences, these approaches can help reduce disparities in adolescent pregnancy rates across different social and demographic groups. Future interventions should focus on improving content quality, involving youth in design, and ensuring equity and inclusion (Fuente et al., 2023; Jenny McLeish et al., 2021).

Accessible Teaching Materials in Module Format

When it comes to addressing adolescent pregnancy, social learning models that consider multiple levels of influence within a social cognitive framework have proven effective. Adolescent pregnancies are shaped by a mix of individual, economic, social, and environmental factors, so solutions need to be equally comprehensive. Recommended strategies include sensitization seminars, counseling, stronger law enforcement, and capacity building, for example, training teachers and community members to empower girls with essential life skills (Fàbregues et al., 2023; Kuipers et al., 2024). While e-modules are useful teaching tools, research also shows that parental involvement is critical. Parents who actively use electronic resources with their children can encourage better reading and learning habits. In fact, instructional models have been applied to analyze parenting processes in this context (Field, 2024). This underscores the importance of combining school-based learning with home-based strategies.

In conclusion, accessible teaching materials in module format, especially e-modules designed with contextual approaches, can be powerful tools for tackling complex social issues like adolescent pregnancy. Their impact is greatest when paired with broader social learning models that involve multiple stakeholders, including parents, teachers, and community members. Together, these approaches can provide adolescents with the comprehensive education and support they need (Huang et al., 2022).

Involving Family and Community

Social learning models that involve both family and community play a crucial role in preventing adolescent pregnancy. These models highlight how social influences and environmental factors shape adolescent behavior and decision-making. Qualitative findings showed that adolescents prefer learning experiences that are interactive, peer-based, and emotionally safe. Activities such as group training sessions and social storytelling allowed

them to learn through shared experiences, echoing results from earlier studies (Aunes et al., 2021).

Family involvement emerged as a key component of effective prevention strategies. Strengthening parent-child communication and parental supervision can help reduce adolescent pregnancy rates (Sakaguchi et al., 2025). Emotional support from mothers, husbands, and midwives was also described as essential for building adolescents' motivation and confidence, consistent with findings by Shatilwe et al., (2022). Community engagement is equally important. Recommendations include involving community leaders, closing pornography outlets that admit minors, enforcing laws against sexual violence, and training teachers and community members to provide empowerment and vocational skills for girls. Such community-based interventions and policies can significantly reduce the risk of adolescent pregnancy while promoting responsible sexual behavior.

In conclusion, social learning models that actively engage families and communities are vital for addressing adolescent pregnancy. These approaches recognize the multifaceted nature of the issue, individual, interpersonal, and societal factors, and create supportive environments that empower adolescents to make informed decisions (Yousefi et al., 2025).

CONCLUSION

This study shows that adolescent pregnancy and baby-care behaviors are shaped by a mix of cognitive, emotional, and environmental factors. While knowledge about pregnancy and infant care is important, it is not enough on its own. Emotional readiness, family communication, role acceptance, and future planning are equally critical for promoting healthy maternal practices.

These findings reveal a gap in current maternal and child health programs in West Sumatra, where the developmental and psychosocial needs of adolescent mothers have not been fully addressed. The results also affirm the relevance of Social Learning Theory, which emphasizes learning through observation, modeling, and social reinforcement. Approaches such as peer-based learning, interactive modules, and accessible digital materials can strengthen adolescents' understanding, confidence, and caregiving skills.

Based on these insights, health authorities and midwifery educators are encouraged to adopt learning models that combine peer engagement, practical simulations, and real-life scenarios. Programs like Indonesia's Generasi Berencana (GenRe) could be expanded to involve families and communities, creating supportive environments for young mothers.

Governments and NGOs should also invest in mobile-based learning platforms and culturally relevant media to improve outreach.

Looking ahead, future research should use longitudinal designs to evaluate the long-term impact of social learning–based interventions on maternal and neonatal outcomes. Policymakers are advised to revise adolescent reproductive health curricula to include emotional and social dimensions that align with adolescent development.

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