Journal of Public Health and Pharmacy
2775-4952 (Online - Elektronik)
Research Articles Open Access

Interactive Participation-Based Premarital Class Model for Reproductive Health and Marital Age Maturity in Support of the ASTA CITA Program

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ARTICLE INFO

Manuscript Received: 30 Sep, 2025
Revised: 26 Jan, 2026
Accepted: 24 Feb, 2026
Date of publication: 01 Jul, 2026
Volume: 6
Issue: 2
DOI: 10.56338/jphp.v6i2.8708

KEYWORDS

ASTA CITA;
Marital Age Maturity;
Participation Model;
Premarital Class;
Reproductive Health

ABSTRACT

Introduction: Early marriage and divorce remain persistent public health and social concerns in Indonesia, contributing to poor reproductive health outcomes and hindering human resource development. While premarital education programs exist, their modeled association in delaying marriage age and improving reproductive health is still uncertain. These challenges highlight the need for more engaging, evidence-based interventions that address not only knowledge gaps but also family dynamics, cultural norms, and participants' readiness to adopt healthier marital and reproductive practices. This study aimed to design and empirically examine an interactive premarital class model by modeling participation as a mediating mechanism linking premarital education with reproductive health and marital age maturity within the ASTA CITA program.
Method: A cross-sectional survey was conducted from March to August 2025 at the Kulonprogo Religious Affairs Office, Yogyakarta. A total of 260 prospective brides and grooms were recruited using purposive sampling. Data were collected through a validated questionnaire and analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM).
Results: Predisposing factors (knowledge, attitudes, and beliefs) (β=0.552; $p<0.001$) and reinforcing factors (family support and policy) (β=0.391; $p<0.001$) significantly increased participation. Participation showed a strong statistical association with reproductive health (β=0.763; $p<0.001$) and marital age maturity (β=0.789; $p<0.001$). The model showed strong explanatory power (R^2=0.805 for participation; R^2=0.582 for reproductive health; R^2=0.622 for marital age maturity) and high predictive relevance ($Q^2>0.35$).
Conclusion: The interactive premarital class model showed robust modeled associations between participation, reproductive health literacy, and marital age maturity. This participatory, family- and community-based approach may inform the development of premarital education strategies in similar institutional contexts, particularly in efforts to address early marriage and reproductive health challenges. However, given the cross-sectional design and single-site setting, these findings should be interpreted as exploratory, and broader implementation would require further validation through longitudinal or multi-site studies across diverse institutional and socio-cultural settings. Future research is needed to assess long-term outcomes and contextual adaptability.

Publisher: Pusat Pengembangan Teknologi Informasi dan Jurnal Universitas Muhammadiyah Palu

INTRODUCTION

Early marriage remains a complex and deeply rooted challenge in Indonesia. It is not merely a demographic phenomenon, but a lived social reality that intersects with education, gender expectations, family norms, and economic vulnerability. When marriage occurs before individuals are physically, emotionally, and socially prepared, the consequences often extend beyond the couple themselves. Evidence consistently links early marriage with higher risks of low birth weight, maternal anemia, maternal mortality, and long-term stunting in children (1–3). These outcomes are not abstract statistics; they shape the trajectory of families and, ultimately, the quality of future human resources.

At the policy level, the government, particularly through the Ministry of Religious Affairs, has introduced premarital guidance (*Bimbingan Perkawinan/Bimwin*) as part of the ASTA CITA agenda to strengthen family resilience. In principle, this initiative carries significant promise. Yet in practice, coverage remains uneven, and documentation of measurable outcomes is still limited in several regions (4,5). In many local settings, premarital classes are attended close to the wedding date and sometimes perceived as procedural requirements rather than reflective preparation spaces. This raises an important question: does attendance alone translate into readiness?

Research has shown that premarital education can improve knowledge related to sexual and reproductive health among engaged couples (6). Knowledge matters. However, knowing is not always the same as internalizing, and internalizing is not automatically followed by action. Empirical evidence examining whether such programs influence attitudes, behavioral intentions, or readiness to marry at a mature age remains relatively scarce. For instance, a study in rural Indonesia reported that low educational attainment dramatically increased the likelihood of early marriage (1). Yet it stopped short of exploring whether structured and interactive premarital learning could intervene in this pathway. The mechanism linking information, social context, and marital decision-making is still insufficiently understood.

Field observations and qualitative findings further suggest that existing *Bimwin* sessions often rely on lecture-based delivery, emphasizing information transfer more than dialogue (6). When participants are positioned primarily as recipients rather than contributors, the learning process risks becoming passive. Awareness may increase, but deeper reflection, about reproductive responsibility, emotional readiness, or long-term family planning, may not fully develop. If marital age maturity requires not only knowledge but also conviction and social reinforcement, then format matters. Engagement matters.

Emerging evidence points toward participatory and family-centered approaches as promising alternatives. An initiative in North Sumatra demonstrated improvements in reproductive health preparedness and stunting prevention through interactive premarital education, although its scope was limited (7). Studies in community-based family planning have likewise shown that active involvement of couples, families, and community actors strengthens reproductive health outcomes (8). Health beliefs and literacy, as emphasized in behavioral theories, shape how women interpret risks and adopt health-promoting practices (9). In Indonesia's socio-religious context, the role of religious communities also carries considerable influence in guiding marital norms and well-being (10). Structured antenatal education has been associated with better maternal and neonatal outcomes (11), and maternal education continues to show long-term benefits for child growth and nutrition (12). These strands of evidence converge toward a shared insight: education is most powerful when it is relational, contextual, and participatory, not merely instructional.

Value-based nursing scholarship reinforces this orientation. Educational encounters that integrate empathy, ethical commitment, family dialogue, and community engagement tend to cultivate deeper motivation and sustained behavioral change (13). In settings where marriage is both a personal and social institution, such relational dimensions become especially relevant. Preparation for marriage is not only an individual cognitive task; it unfolds within networks of expectation, culture, and belief.

Despite this growing body of literature, participation itself is rarely examined as a structural mechanism. It is often described as a program attribute, attendance rate, session involvement, or logistical engagement, rather than as a mediating process through which knowledge and social support are translated into reproductive health readiness and marital age maturity. How, then, does participation actually function within the educational pathway? Does it bridge cognitive understanding and lived decision-making? Or does it remain a surface indicator? These questions remain underexplored.

Guided by the PRECEDE–PROCEED framework, which conceptualizes health behavior as emerging from predisposing, enabling, and reinforcing factors, this study repositions participation as an active connector among

these elements. Instead of viewing it as a peripheral variable, participation is treated as the dynamic process through which knowledge, beliefs, and social reinforcement become operational. Within this perspective, interactive premarital classes are not simply venues for delivering information; they are potential spaces for dialogue, reflection, and shared commitment.

Accordingly, this research seeks to design and empirically examine an interactive premarital class model in which participation is explicitly modeled as a mediating mechanism linking predisposing and reinforcing factors with reproductive health literacy and marital age maturity. The model is tested using Partial Least Squares–Structural Equation Modeling (PLS-SEM) within the institutional context of KUA Kulonprogo. By situating the analysis in a real-world administrative and socio-cultural setting, the study aims to contribute grounded evidence for strengthening participatory premarital education aligned with the ASTA CITA program.

METHOD

Research Design

This research was designed as a quantitative cross-sectional survey, with data analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM). The choice of PLS-SEM was not merely technical. The proposed model involved several latent constructs and indirect pathways, and the sample size was moderate. Under these conditions, a variance-based SEM approach was considered more flexible and appropriate, particularly given its robustness when normality assumptions are not strictly met (14,15). In addition, because the theoretical integration of participation within the PRECEDE–PROCEED framework is still developing, a prediction-oriented analytical strategy was deemed suitable (16).

It is important to clarify that all variables were measured at a single point in time. For that reason, the analysis focuses on modeled associations rather than causal inference. The structural paths represent statistical relationships within the proposed framework, not proof of temporal sequencing.

Population and Sample

The study population comprised prospective brides and grooms registered at the Office of Religious Affairs (KUA) in Kulonprogo Regency, Yogyakarta Special Region, who had not previously attended premarital classes. Kulonprogo was chosen because it reports relatively high rates of early marriage compared to other districts in the province, making it a relevant site to test an innovative premarital education model.

Inclusion criteria were: (a) minimum age of 18 years, (b) willingness to provide written informed consent and complete the questionnaire, and (c) absence of severe mental disorders that could interfere with participation.

Participants were recruited using purposive sampling. In total, 260 respondents were included in the analysis. The number was considered adequate for PLS-SEM estimation, taking into account the number of indicators in the largest construct and common recommendations regarding minimum sample size for structural modeling (17,18). Rather than aiming for national representativeness, the sampling strategy prioritized contextual depth within a single institutional setting. Consequently, the findings should be interpreted as specific to this local context and not as a general portrait of all premarital class participants in Indonesia.

Research Setting

Fieldwork was conducted at KUA Kulonprogo, the government-mandated institution for marriage registration and premarital guidance. This setting was chosen for its high incidence of early marriage and because it actively implements the national premarital guidance program (*Bimwin*) under ASTA CITA, making it both practically and policy relevant.

Research Instrument

Data were collected using a structured questionnaire that had undergone prior validity and reliability testing. The instrument comprised five main constructs. Predisposing factors were measured through 12 items assessing knowledge, attitudes, and beliefs regarding premarital health. Reinforcing factors were assessed with 8 items covering family support and local policy support. Participation in premarital classes was captured with 6 items focusing on frequency of attendance, active questioning, and engagement in discussion. Reproductive health was evaluated through 10 items that examined knowledge, preconception readiness, and intentions to undertake premarital health

checks. Finally, marital age maturity was measured with 9 items related to understanding the implications of marriage age, emotional readiness, and family planning intentions. All items were rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Each construct was represented by multiple indicators to reflect its cognitive, attitudinal, and intentional dimensions. The intention was not only to capture surface agreement but to approximate how participants understood, valued, and planned for premarital health and marital readiness. The operationalization followed the conceptual logic of the PRECEDE–PROCEED framework while remaining sensitive to the local premarital education context.

Data Collection Procedure

Permission to conduct the study was obtained from the KUA Kulonprogo.

Before distributing the questionnaire, the researcher explained the purpose of the study in accessible language, emphasizing that participation was voluntary and unrelated to administrative marriage processes. Written informed consent was then obtained. Questionnaires were administered face-to-face, allowing respondents to seek clarification when needed. This approach was chosen to reduce misunderstanding and incomplete responses, particularly for items addressing reproductive health and marital readiness, which may be sensitive topics.

Data collection was conducted from March to August 2025.

After completion, questionnaires were checked manually to ensure completeness. Responses were screened for missing data and extreme outliers prior to statistical analysis.

Data Analysis

The analysis proceeded in two interconnected stages using PLS-SEM. Initially, attention was directed to the measurement model to ensure that the indicators adequately represented their respective constructs. Internal consistency (Cronbach's alpha and Composite Reliability), convergent validity (Average Variance Extracted), and discriminant validity (Fornell–Larcker criterion and HTMT ratio) were evaluated to confirm that the constructs were both reliable and conceptually distinct.

Subsequently, the structural relationships among constructs were examined. Path coefficients (β) were estimated, and their statistical significance was assessed through bootstrapping with 5,000 resamples. In addition to statistical significance, the magnitude of explained variance (R^2) and predictive relevance (Q^2) were considered to understand the model's explanatory capacity. Mediation pathways involving participation were interpreted as modeled indirect associations within the structural framework. Given the cross-sectional design, these mediation findings should be understood as statistical decompositions rather than evidence of temporal causation.

To minimize potential bias from common method variance, diagnostic checks were conducted. Harman's single-factor test was used to assess whether a single dominant factor accounted for most of the variance. Full collinearity variance inflation factors (VIFs) were also examined. Values below recommended thresholds suggested that common method bias was unlikely to meaningfully distort the structural estimates. Throughout the analysis, established methodological guidance for PLS-SEM in health research was followed (19–21), while maintaining careful interpretation of results within the study's design limits.

Ethical Considerations

This study received ethical approval from the Research Ethics Committee of [Institution Name], approval number: Skep/068b/KEP/III/2025. Participants were informed about the voluntary nature of the study, the confidentiality of their responses, and their right to decline or withdraw without any consequence for their marriage registration process. Signed informed consent was obtained prior to data collection. All data were anonymized and managed in accordance with ethical standards in public health research (18).

RESULTS

Respondents' Characteristics

A total of 260 prospective brides and grooms participated in this study. Most were women (53.5%), aged 20–35 years (88.1%), had completed secondary education (72.7%), and were employed as private sector workers (54.6%). Notably, 9.6% of respondents were younger than 20 years, reflecting the persistence of early marriage practices in the region. This demographic profile indicates that premarital classes are accessed by populations still

vulnerable to early marriage risks, reinforcing the relevance of participatory intervention models.The diversity of educational and occupational backgrounds illustrates the varied socio-economic context of premarital class participants.

Table 1. Characteristics of Respondents

Variable	Category	n	%
Gender	Male	121	46.5
	Female	139	53.5
Age	<20 years	25	9.6
	20–35 years	229	88.1
	>35 years	6	2.3
Education	Primary	18	6.9
	Secondary	189	72.7
	Higher	53	20.4
Occupation	Civil servant	18	6.9
	Private employee	142	54.6
	Trader/entrepreneur	55	21.2
	Laborer	32	12.3
	Other	13	5.0

Source: Primary Data, 2025.

Measurement Model Evaluation

The reflective indicators loaded strongly on their respective constructs (0.800–0.950), suggesting that the items coherently represented the intended latent variables. Composite Reliability values ranged from 0.886 to 0.965 and AVE from 0.730 to 0.875, all above commonly accepted thresholds. Cronbach's alpha values (0.742–1.000) further indicated satisfactory internal consistency.

Discriminant validity, assessed using the Fornell–Larcker criterion and HTMT ratios, indicated that each construct remained empirically distinct from the others. Tests for common method variance, including Harman's single-factor assessment and full collinearity VIF, did not indicate substantial bias. While no single statistical test can entirely eliminate the possibility of shared method effects, the diagnostics suggest that CMV is unlikely to meaningfully distort the structural relationships observed.

The high loading and reliability values indicate strong internal consistency; however, indicator retention was not determined by statistical magnitude alone. Items were preserved based on conceptual alignment and content relevance, ensuring that each construct retained its behavioral and participatory dimensions rather than being reduced to purely statistical performance.

Structural Model Analysis

Path analysis indicated that both predisposing factors ($\beta=0.550$, $t=8.246$, $p<0.001$) and reinforcing factors ($\beta=0.335$, $t=4.578$, $p<0.001$) significantly increased participation in premarital classes. In practical terms, individuals with greater knowledge and supportive environments were more likely to engage actively in the sessions. Participation thus appears to function as the immediate behavioral expression of these upstream influences, rather than merely an administrative record of attendance.

In turn, participation was strongly associated with reproductive health and marital age maturity within the structural model ($\beta=0.763$, $t=22.119$, $p<0.001$) and marital age maturity ($\beta=0.602$, $t=12.058$, $p<0.001$). The magnitude of these coefficients suggests that engagement within the class setting may be a critical pathway through which educational inputs translate into readiness-related outcomes. Reproductive health itself significantly predicted marital age maturity ($\beta=0.789$, $t=23.756$, $p<0.001$), indicating a close linkage between health preparedness and perceived readiness for marriage.

Mediation analysis indicated that the indirect pathway (predisposing → participation → reproductive health → marital age maturity) was statistically significant (β=0.331, t=6.731, p<0.001). This pattern suggests that the influence of knowledge and environmental support unfolds progressively through active engagement and health-related preparedness. Given the cross-sectional design, these pathways should be interpreted as structural associations rather than evidence of temporal causality.

Table 2. Summary of Structural Path Coefficients (PLS-SEM)

Path	β	t-value	p-value
Predisposing → Participation	0.550	8.246	<0.001
Reinforcing → Participation	0.335	4.578	<0.001
Participation → Reproductive Health	0.763	22.119	<0.001
Reproductive Health → Marital Maturity	0.789	23.756	<0.001

Source: Primary Data, 2025

Mediation Analysis

Bootstrapping procedures were used to estimate direct, indirect, and total effects within the proposed mediation structure. The results show that participation operates as a meaningful intermediary linking predisposing and reinforcing conditions with downstream outcomes. All indirect effects reached statistical significance at $p < 0.001$.

Rather than acting as a passive intermediate variable, participation appears to be the channel through which upstream determinants gain practical relevance. Without active involvement in the premarital sessions, the effects of knowledge and environmental encouragement might remain limited to intention rather than behavioral readiness. A summary of mediation effects is presented in Table 3.

Table 3. Direct, Indirect, and Total Effects in the Participation-Based Mediation Model

Relationship	Direct Effect (β)	Indirect Effect (β)	Total Effect (β)	t-value	p-value
Predisposing → Participation → Reproductive Health	—	**0.420**	**0.420**	7.118	<0.001
Reinforcing → Participation → Reproductive Health	—	**0.256**	**0.256**	5.004	<0.001
Participation → Reproductive Health → Marital Age Maturity	—	**0.602**	**0.602**	12.058	<0.001
Predisposing → Participation → Reproductive Health → Marital Age Maturity	—	**0.331**	**0.331**	6.731	<0.001

Source: Primary Data, 2025.

A graphical representation of the structural model with path coefficients is shown in **Figure 1**.

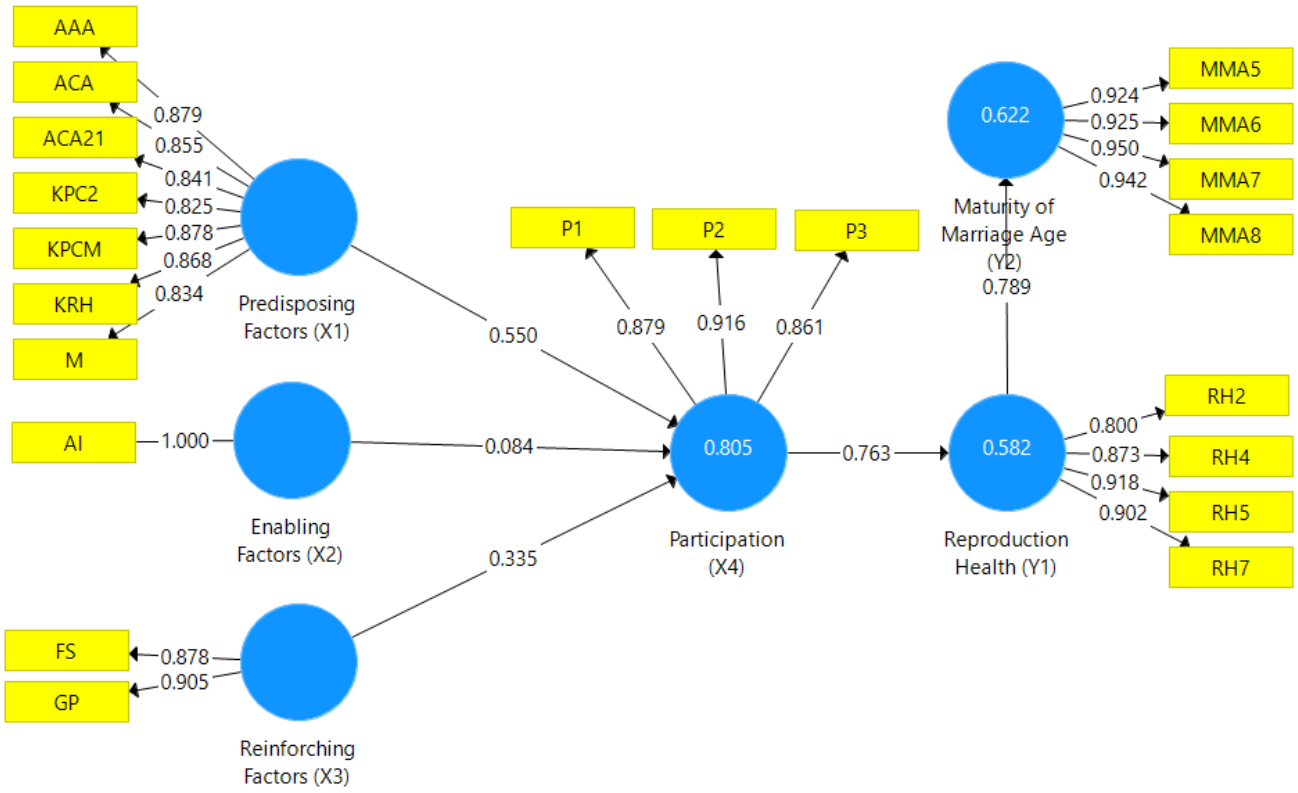

Figure 1. Structural model of the interactive premarital class with path coefficients (PLS-SEM).
Source: Primary Data, 2025.

Model Fit and Predictive Relevance

The model demonstrated strong explanatory power: R^2=0.805 for Participation, R^2=0.582 for Reproductive Health, and R^2=0.622 for Marital Age Maturity. These values indicate that a considerable proportion of variance in participation is explained by predisposing and reinforcing factors, while reproductive health and marital maturity are moderately well accounted for within the structural configuration.

Predictive relevance was substantial, with Q^2 values >0.35 across constructs. Model fit indices also supported adequacy (SRMR=0.063 <0.08; NFI=0.785). Although global fit indices in PLS-SEM are interpreted cautiously, the combined results suggest that the proposed relationships are empirically plausible within this dataset.

Effect size analysis (f^2) showed large effects for Participation on both Reproductive Health and Marital Maturity (>0.35), while the effects of Predisposing and Reinforcing factors on Participation were in the medium-to-large range. This distribution of effect sizes further highlights participation as the structural hinge connecting upstream determinants to downstream readiness outcomes.

Table 4. Explanatory Power and Predictive Relevance of Endogenous Constructs

Endogenous Construct	R^2	Q^2	Interpretation
Participation	0.805	0.619	Strong
Reproductive Health	0.582	0.435	Moderate-to-strong
Marital Age Maturity	0.622	0.536	Moderate-to-strong

Source: Primary Data, 2025

Summary of Findings

Overall, the participatory premarital class model exhibited substantial explanatory and predictive capacity within this sample. Educational content (predisposing factors) and environmental support (reinforcing factors) were associated with higher participation, which in turn was linked to improved reproductive health and marital age maturity.

Importantly, participation emerged not simply as attendance frequency, but as an active process through which knowledge and support are translated into preparedness. While the findings align with the conceptual logic underlying participatory health education, they should be interpreted in light of the study's cross-sectional scope and context-specific sample.

Taken together, the results suggest that strengthening interactive engagement within premarital programs may be a practical entry point for enhancing reproductive health readiness and delaying early marriage, particularly in regions where early marriage remains a persistent concern.

DISCUSSION

This study suggests that participation in interactive premarital classes functions as a statistical bridge between predisposing factors (knowledge, attitudes, beliefs), reinforcing factors (family support and local policies), and outcomes related to reproductive health and marital age maturity. However, because all variables were measured at the same point in time, the mediation observed here should be read cautiously, a decomposition of associations rather than evidence of a temporal chain. It may be that participation and readiness evolve simultaneously, shaped by shared contextual influences that were not fully captured in the model. These findings are consistent with the PRECEDE–PROCEED model, which emphasizes that predisposing, reinforcing, and enabling factors interact to produce sustained behavioral change (22). The results also support Andayani et al. (7) in North Sumatra, who showed that an interactive premarital education model could enhance nutritional knowledge and readiness among engaged couples, although their study did not test structural relationships as comprehensively as the current work.

Many premarital education initiatives remain predominantly top-down and information-oriented. For instance, a study in Grobogan reported that a one-day premarital course significantly improved knowledge ($p=0.001$) but had no measurable effect on attitudes (23). Similarly, Andayani et al. (7) demonstrated gains in nutritional knowledge through premarital stunting-prevention education , yet behavioral and psychosocial dimensions were not deeply explored. Against this backdrop, the present findings indicate that knowledge and attitudes may not operate effectively in isolation. One possible interpretation is that information becomes meaningful only when participants are actively engaged, when they discuss, question, and relate the material to their own marital plans. In Kulonprogo, where premarital classes are often embedded within local religious and community structures, this active involvement may help bridge formal content with lived social expectations.

Rather than surveying a wide range of international contexts, it may be more useful to consider a few comparable settings. Research in Zambia by Silumbwe et al.(8) highlighted the role of community participation in family planning services, while Ghorbani-Dehbalaei et al.(9) found that health literacy and beliefs significantly influence women's health-promoting behaviors. Similar concerns have been documented in Malaysia and Pakistan, where cultural and religious norms strongly shape marriage timing and reproductive health education (24). In Muslim-majority settings, premarital counseling programs that integrate religious leaders have shown greater acceptance and positive modeled association (10). Regional studies from Thailand and the Philippines also report that community-based premarital and reproductive health education programs are more effective when they combine cultural sensitivity, family involvement, and participatory learning methods (25,26). These findings are not identical to the Kulonprogo context, yet they echo a common thread: reproductive health education tends to be more influential when embedded within trusted social and religious networks. This pattern is perhaps unsurprising in communities where marriage decisions are rarely made in isolation from family and normative expectations.

National evidence further supports the importance of knowledge as a motivational driver. The study on adolescents' reproductive health knowledge and smoking avoidance demonstrated that higher literacy regarding reproductive risks significantly strengthened adolescents' intention to avoid harmful behaviors (OR = 3.25), underscoring that reproductive health knowledge functions as a motivational driver rather than a passive cognitive asset (27). This does not automatically imply causality, but it does suggest that knowledge can energize intention when individuals perceive the information as personally relevant. A similar dynamic may be operating in the present

study: participants who already possessed stronger predisposing factors seemed more inclined to engage actively in premarital classes, and through that engagement, reported greater readiness in reproductive health and marital timing.

Additional insights from value-based nursing literature reinforce these conclusions. Insights from value-based nursing literature (13). also offer a useful lens. Programs grounded in ethical commitment and culturally attuned communication have been shown to strengthen motivation and trust in community health initiatives. In Kulonprogo, premarital education often intersects with religious guidance and community endorsement. It may be that the credibility of facilitators and the moral framing of discussions play as much of a role as the technical content itself. This possibility deserves closer qualitative exploration.

From a structural standpoint, Figure 1 shows that the pathway from participation to reproductive health carries the largest standardized coefficient in the model ($\beta = 0.763$), exceeding the effects of predisposing and reinforcing factors. Statistically, this positions participation as the most proximal construct in the framework. Substantively, it suggests that readiness may be less about what participants know in the abstract and more about how actively they engage with the learning process. Still, the strength of this coefficient should not be over-interpreted. Cross-sectional modeling cannot fully disentangle directionality, and reciprocal relationships remain plausible.

In practical terms, these findings point toward the value of interactive learning formats, such as facilitated discussions, peer exchange, and scenario-based reflection, rather than exclusive reliance on lectures. In the Kulonprogo setting, where family presence and religious authority are socially significant, selective involvement of parents or respected community figures may strengthen the reinforcing environment around participants. At the same time, feasibility should be considered carefully. Not all couples may feel comfortable discussing sensitive reproductive topics in extended family settings. Local adaptation therefore remains essential.

Digital transformation of premarital education should be considered. Hybrid or fully digital platforms, incorporating online modules, mobile applications, or blended-learning formats, could expand reach, increase accessibility for young couples, and support continuous engagement. Such approaches have been successfully applied in digital premarital programs in Malaysia (25), Iran (10,24), and the Philippines (28,29), indicate that digital premarital platforms can improve accessibility and flexibility. Whether such approaches would be equally effective in Kulonprogo, where digital literacy and internet stability vary across villages, remains an open question. Pilot testing would be advisable before large-scale implementation.

This study has several limitations. Its cross-sectional design precludes definitive conclusions about causality. Self-reported data may also introduce social desirability and recall bias, particularly for constructs such as marital age maturity that are socially sensitive. Because the research was conducted exclusively in Kulonprogo, local cultural cohesion and institutional support may have amplified participation effects. The model may behave differently in urban or more heterogeneous districts. Additional influences, such as social media exposure, evolving gender norms, or informal peer networks, were not directly measured. Although outer loadings and reliability coefficients were high, some overlap among indicators is possible. Future studies might consider refining item pools to reduce redundancy while preserving conceptual breadth.

Longitudinal or experimental designs, such as randomized controlled trials (RCTs), to assess causal relationships and long-term outcomes. Expanding the model to other regions and incorporating blended or digital formats would also clarify contextual robustness. Qualitative follow-up studies in Kulonprogo could be particularly valuable for understanding how participants interpret “readiness” in their own words, and whether participation shapes not only knowledge but also negotiation dynamics within families.

Overall, this study positions participation not as a peripheral element of premarital education, but as a central process through which knowledge and social support appear to translate into reported readiness. While further validation is needed, especially across diverse settings, the findings contribute to ongoing efforts to strengthen reproductive health promotion and encourage more mature marital decision-making in Indonesia.

CONCLUSION

This study underscores the role of participation in premarital education, particularly in its association with reproductive health readiness and marital age maturity. Couples who were more actively involved in discussions and class activities tended to report greater preparedness. It may be that knowledge and family support only translate into readiness when individuals engage with them directly. In Kulonprogo, where premarital education is closely connected to local religious and community structures, participation likely reflects more than classroom attendance.

It may signal social affirmation and shared reflection. Even so, the cross-sectional design means these relationships should be interpreted with caution.

Rather than viewing participation as merely a statistical mediator, the findings point to a practical consideration: how premarital education is delivered may shape its impact. Interactive approaches and family awareness appear promising, but their relevance may vary across regions. Digital or blended formats also deserve exploration, though their feasibility in semi-rural contexts such as Kulonprogo requires careful assessment. Further longitudinal and experimental research would help clarify how these patterns develop over time and across different socio-cultural settings.

AUTHOR'S CONTRIBUTION STATEMENT

TS & DY conceptualized and designed the study. EA & R was responsible for data collection and initial data processing. NWU, EPA and E conducted the literature review and contributed to the theoretical framework. EFAS drafted the initial manuscript and led the revision process. All authors critically reviewed the manuscript and approved the final version for submission.

CONFLICTS OF INTEREST

The authors declare that there are no known conflicts of interest financial, professional, or personal that could have appeared to influence the work reported in this paper. This statement affirms the objectivity and integrity of the research.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During manuscript preparation, the authors only used language support tools for grammar and formatting checks. All analyses, interpretations, and conclusions were determined independently by the authors.

SOURCE OF FUNDING STATEMENTS

This research received funding from the Directorate General of Research and Development of the Ministry of Education, Culture, Research, and Technology through the 2025 Fundamental Grant, so that this research activity can be carried out properly.

ACKNOWLEDGMENTS

The author would like to thank the Director of Research and Community Service, Directorate General of Research and Development, Ministry of Education, Culture, Research, and Technology, for funding support through the 2025 Fundamental Grant, which enabled this research to be successfully implemented. For further information, interested parties may contact the corresponding author directly.

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