

## Maternal Health Literacy and the Uptake of Triple Elimination Services: A Case Study from Tobacco-Growing Communities in Jember

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### ABSTRACT

This study aims to analyze the determinants of health literacy of pregnant women in tobacco growing areas of Jember Regency and its influence on participation in Triple Elimination testing (HIV, syphilis, and hepatitis B). The method used was a qualitative case study. This study was conducted in four health centers and used 24 informants with data collection through in-depth interviews, observation, and documentation on pregnant women, health workers, and community cadres. The results showed that low health literacy is influenced by limited access to culturally appropriate information, strong social norms, the role of family in decision-making, and limited health services that are not fully responsive to local needs. The findings emphasize the importance of contextualized educational approaches, involvement of family and community leaders, and integration of Triple Elimination testing in antenatal services to increase awareness and participation of pregnant women

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## INTRODUCTION

Triple elimination is a global and national effort that targets the elimination of vertical transmission of HIV, Syphilis, and Hepatitis B from mother to child. The Indonesian government has formulated a strategy through the integration of ANC (Antenatal Care) services that includes testing for these three diseases. However, the triple elimination program still faces many challenges in rural areas and marginalized communities. One of the determinants of success is the level of health literacy of pregnant women (Indonesian Ministry of Health, 2020).

Health literacy is an individual's ability to access, understand, and utilize health information to make informed decisions. In the context of pregnant women, health literacy includes understanding the risks of pregnancy, the importance of antenatal check-ups, and adherence to medical recommendations. Research shows that low health literacy has a direct impact on low ANC visits and participation in maternal health programs (Gebeyehu et al., 2022). Therefore, improving health literacy is key in triple elimination interventions.

Jember District is one of the regions in Indonesia that has a large tobacco farming community. These farming areas are dominated by communities with limited access to health facilities and medical information. The remote geographical conditions, coupled with economic limitations, create major barriers for pregnant women to obtain adequate health services. In such areas, the success of the triple elimination program is largely determined by the local context, especially in social and cultural aspects (Lestari & Indrawati, 2019).

In plantation communities, there are strong traditional norms and beliefs that can influence health-related decision-making. For example, some pregnant women still believe in traditional birth attendants or local traditions more than medical professionals. Such beliefs often discourage women from attending triple elimination checks provided by health facilities. This is a challenge for health workers in the field (Kurniawan et al., 2021).

Previous research suggests that pregnant women with high health literacy are more likely to participate in HIV, syphilis, and hepatitis B screening. They are also more proactive in asking about their health conditions and understand the risk of transmission to the baby. In contrast, mothers with low literacy tend to be passive and only follow procedures when forced or directed. This phenomenon shows that health literacy is not just the ability to read brochures, but involves critical awareness of one's own and the baby's health (Paasche-Orlow & Wolf, 2019).

In the Indonesian context, health literacy of pregnant women is still a serious problem, especially in rural or marginalized areas. A study by Wulandari et al. (2020) found that only 36% of pregnant women in rural areas understood the importance of HIV testing during pregnancy. Lack of information, lack of cultural engagement from health workers, and high levels of illiteracy exacerbate the situation. Therefore, strategies that are not only educative but also transformative and contextual are needed.

Triple elimination is not only a medical agenda, but also a social and educational one. Community and family involvement in improving the health literacy of pregnant women is important to support the success of this program.

Several community-based approaches have been proven effective in increasing pregnant women's awareness and adherence to antenatal check-ups. However, their effectiveness is highly dependent on an in-depth understanding of local culture and social determinants (WHO, 2023).

Screening for triple elimination during pregnancy requires systematic preparation, ranging from initial education, adequate service facilities, to trust-based approaches. However, without adequate literacy, all these facilities will not be utilized to their full potential. Health literacy is the main foundation in activating pregnant women's right to proper health. This is where the qualitative study approach becomes important to explore the experiences, perceptions, and barriers felt by mothers (Nutbeam et al., 2021).

The Jember region, which is rich in tobacco commodities, has a community of workers who tend to live in structural economic attachment to tobacco companies. This dependency leads to the formation of a closed social system that affects women's mobility and access to external services. In this context, pregnant women face not only individual barriers, but also structural and relational barriers. These conditions reinforce the urgency of local context-based health literacy studies (Suryani et al., 2020).

In addition to cultural factors, geographical barriers also reinforce the low rate of visits to health facilities. Many pregnant women have to travel tens of kilometers with difficult terrain to reach the puskesmas. This condition has an impact on consistency in following the ANC stages and triple elimination checks. A study by Rahmawati et al. (2021) showed that 42% of mothers in the mountainous area of Jember did not complete at least 4 ANC visits during pregnancy.

The gap between national programs and local realities must be bridged with an approach based on the direct experience of pregnant women. The government and health service providers need to understand that a one-way, uniform approach is not always effective in areas such as plantations. Local values-based interventions are needed that are able to increase women's participation without ignoring their cultural roots. This approach has been successfully implemented in several rural areas in Southeast Asia (Lee et al., 2018).

Using a case study approach, this study seeks to capture the complex dynamics between maternal health literacy, risk perception and decision-making in triple elimination screening. It also explores the role of the social environment, culture and local belief systems in influencing maternal attitudes and actions. Through the narratives and experiences of pregnant women, it is expected to find important patterns in improving access to maternal health services. This will be an important foundation in designing community-based interventions (Rahmawati & Setiawan, 2022).

Many previous studies have used quantitative approaches to assess health literacy, but have not explored the dimensions of experience and context. In traditional societies, meaning and action are strongly influenced by collective values, not just individual understanding. Therefore, a qualitative approach is more appropriate to understand how pregnant women form meaning towards

triple elimination testing. It also allows exploration of the role of informal figures in the dissemination of health information (Muniroh & Prabowo, 2019).

This research is relevant and strategic because it targets vulnerable groups that have received less attention in national health policy. With a focus on pregnant women in tobacco growing areas, this study contributes to the development of a more inclusive and reality-based health literacy strategy. The results of this study are expected to be an input in improving maternal services, especially in supporting the success of the triple elimination program. It also emphasizes the importance of a culturally sensitive approach in the public health care system (WHO, 2023; MOH, 2022).

## LITERATURE REVIEW

### *Health Literacy*

The World Health Organization (WHO) in the *Health Promotion Glossary* defines *health literacy* as cognitive and social abilities that determine a person's motivation and ability to gain access to, understand and use information in ways that improve and maintain good health. Increased access and capacity to obtain and use health information effectively will play a significant role in empowering public health (WHO, 2022).

*Health literacy* is a composite term in interpreting a person's ability to be able to meet the various demands of modern times related to health (Sørensen et al, 2013). Health literacy is always related to motivation, knowledge, and competence to access, understand, draw conclusions, and then take action in daily life related to health (Sørensen et al, 2015).

The main components of *health literacy* are cultural and conceptual knowledge, listening, speaking, counting, writing and reading skills in health (Lloyd et al, 2006). The development of reading and numeracy skills will affect the success in making decisions in health consumers (Speros, 2010).

Measuring the level of health literacy in the development of these skills can be seen using four factors, namely knowledge of disease and self-care, health risk behavior, preventive care and regular consultation, and compliance with taking medication when sick (Lee et al, 2009). There are three types of health literacy: 1) functional health literacy (basic skills in reading and writing effectively in everyday life); 2) interactive health literacy (cognitive skills and social skills to derive meaning from various forms of communication); 3) critical health literacy (the ability to analyze critical information and control major events and health situations) (Nutbeam, 2000).

The Canadian Public Health Association (CPHA) *Expert Panel on Health Literacy* attempts to summarize all the elements of health literacy as the ability to access, understand, assess and apply information as a way to maintain and improve health in a variety of circumstances. People who lack health literacy are at risk of making the wrong decisions, which can worsen their health (Omariba, 2010).

The concept of *health literacy* has been widely developed, but this study is in line with the concept developed by Europe for the European community in the health survey which identified 12 health factors related to the competencies needed to understand health, assess and apply health services, environmental health and disease prevention such as health promotion. *Health literacy* is actually

still a hot topic discussed by researchers. There are several differences in expert opinion in relation to the concept of *health literacy*. *Health literacy* should still be discussed by various components, because this concept must also cover the scope of science, including discussing methods and quality (Sorensen et al., 2012).

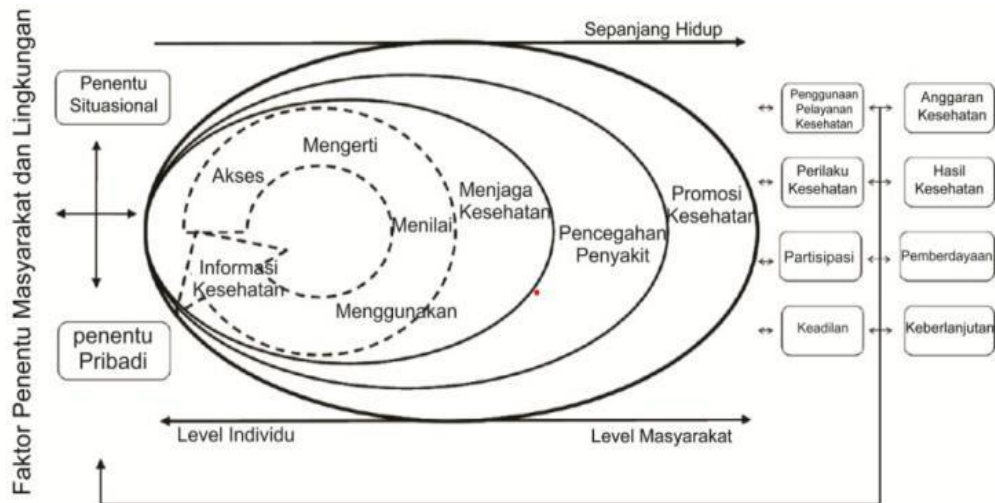


Figure 1. Health Literacy Concept Model (WHO, 2014)

The *health literacy* concept model above is a combination of the main dimensions of *health literacy* (illustrated in Figure 1) and also a logical model which is a distal and proximal factor that affects *health literacy*. Based on the main dimensions of health literacy above, it shows the relationship between competencies and processes in accessing, understanding, assessing, and applying health information (Sørensen, et al, 2012). An explanation of the main abilities in health literacy is as follows:

- a. *Access*  
Health literacy refers to the ability or skill to seek and obtain information about health. Obtaining and accessing health information depends on understanding, time and trust.
- b. *Understand*  
Health literacy refers to the ability to understand the health information obtained. The ability to understand information depends on expectations, perceived benefits, personalized outcomes and how to interpret information.
- c. *Appraise*  
Health literacy refers to the ability to interpret, filter and evaluate health information. Information processing and evaluation depend on the complexity and understanding of the information.
- d. *Apply*  
Health literacy refers to an individual's ability to communicate and utilize information to make decisions to improve their health. Effective communication depends on one's understanding of the information received.

## **METHODOLOGY**

This study used a qualitative approach with a case study design to explore in-depth the determinants of pregnant women's health literacy and its influence on triple elimination testing (HIV, syphilis, and hepatitis B) in tobacco growing areas in Jember Regency. The research sites were purposively selected from four villages in the working areas of Kemuningsari Kidul, Jenggawah, Bangsalsari, and Sukorejo Community Health Centers (Puskesmas), which are characterized as tobacco growing centers and have fluctuating Triple Elimination coverage rates. Informants in this study were selected using purposive sampling technique, consisting of 24 people who are relevant and have direct involvement in the research issues, including pregnant women, village midwives, health cadres, local community leaders, and puskesmas officers. The criteria for selecting informants were based on their experience, understanding, and involvement in health services for pregnant women in the area, so that they could provide rich and contextualized information.

Data collection techniques were conducted through in-depth interviews, participatory observation, and documentation studies. Interviews were semi-structured with a flexible open-ended question guide, allowing for in-depth and reflective exploration of the data. Observations were made of the health communication process between health workers and pregnant women as well as the socio-cultural situation that influences decision-making in self-examination. Documentation included health profile data, Triple Elimination coverage reports, and national guidelines related to pregnant women's health. The data obtained were analyzed using thematic analysis technique with the stages of data reduction, categorization, interpretation of meaning, and compilation of findings. Data validity was tested through source triangulation, technique triangulation, member check, and discussion between researchers to ensure consistency and credibility of the data. With this approach, the research is expected to be able to describe the dynamics of pregnant women's health literacy in the geographical, economic, and socio-cultural context of the plantation community as a whole and in depth.

## **RESEARCH RESULT**

This study found that the majority of pregnant women in the tobacco growing areas of Jember Regency have a low level of health literacy related to Triple Elimination. Most informants did not know that they had undergone screening for HIV, Syphilis, and Hepatitis B when blood tests were conducted. Some did not even know what Triple Elimination was and thought the blood test was only to check HB or sugar levels. This lack of understanding correlates with the lack of in-depth education provided by health workers.

In-depth interviews revealed that the delivery of information on Triple Elimination during pregnancy check-ups was very limited and cursory. Village midwives admitted that the education was done in a hurry due to the large number of patients who had to be served in a short time. As a result, pregnant women did not have time to ask questions or understand more about the benefits and risks of the diseases detected in this program. The one-way communication approach also reduces the effectiveness of the health messages.

Observation of posyandu activities in three villages showed that health education still focuses on nutrition and immunization. There is no specific material related to mother-to-child transmission infections in routine counseling conducted by cadres or midwives. Brochures or leaflets on Triple Elimination were also not found at the activity sites. This lack of supporting media makes it difficult for pregnant women to understand topics that are unfamiliar to them.

Other findings showed that pregnant women who had a higher educational background or had participated in family planning programs tended to have a better understanding of the importance of the Triple Elimination test. They were able to name the three main diseases examined and stated that this examination is important to prevent risks to the baby. This suggests that formal education and previous experience in the healthcare system can be predictors of literacy levels. However, the number of pregnant women with this category is still a minority in the study area.

Documentation from Puskesmas Ajung and Sumberjambe shows that Triple Elimination coverage in the last two years is still below the national target. Of the total target pregnant women, only 62-70% were recorded as having undergone a complete examination. This figure is lower than urban Jember which has reached above 85%. This disparity highlights the inequality of access and information between plantation and urban areas.

Geographical limitations are also a significant factor in pregnant women's low access to Triple Elimination services. Some villages located in the middle of plantation areas experience transportation difficulties, especially during the rainy season. Damaged dirt roads make women reluctant to come to the health center, which is located quite far away. This is exacerbated by the unavailability of adequate health service posts in their neighborhoods.

The decision to seek medical care is also strongly influenced by family, especially husbands and in-laws. Some pregnant women stated that they had to get permission first to go to the puskesmas. In some cases, family members do not understand the importance of these check-ups and consider them as something that is not urgent. This reinforces the role of patriarchal culture in hindering efforts to improve women's health literacy.

Information from interviews with posyandu cadres showed that the training they received did not include education on Triple Elimination in detail. The focus of the training was more on supplementary feeding (PMT), immunization, and MCH book recording. As a result, cadres are not confident when it comes to explaining more technical health topics to pregnant women. They tend to refer women directly to the midwife without providing any preliminary explanation.

Pregnant women who work as tobacco laborers experience time challenges as they have to meet daily work targets. The operational time of the puskesmas often clashes with their working hours in the fields. This means that they only come to health services when they feel sick or when they are about to give birth. Consequently, they do not get enough health information from the beginning of their pregnancy.

Some pregnant women revealed that they were afraid to undergo the Triple Elimination test because they were afraid that the result would be positive. This fear is compounded by the stigma that people with HIV or Hepatitis are "bad people" or "people who don't take care of themselves." In small homogeneous communities, this stigma can have far-reaching effects, even to the point of social rejection. Ignorance of treatment and prevention concepts also reinforces this fear. In terms of systems, some logistical constraints were also found in the implementation of Triple Elimination. Health worker informants stated that in some months, laboratory reagents for Triple Elimination testing ran out before new stocks arrived. This resulted in pregnant women not being able to be tested even though they were willing. Logistical delays like this can reduce community trust in the program.

Observations show that the venue for Integrated Health Service Post in the village is often inappropriate and not conducive. Cramped spaces, poor lighting, and lack of visual aids make the activities unattractive and tiring. Some pregnant women even bring small children and do not focus during the activities. This prevents them from absorbing the information optimally. Pregnant women who have had bad experiences with health services, such as unfriendly service or inadequate explanations, are less motivated to return. These negative experiences lead to the perception that health checks are not important and are just a formality. This distrust is an additional barrier to improving maternal literacy and participation. Empathetic care is needed to rebuild trust. Some mothers reported that they trusted information from peers more than health workers. When they heard positive stories from fellow mothers who had undergone screening and benefited, they became more open. This shows that a community-based or peer-education approach has the potential to raise awareness. This approach can also overcome psychological barriers.

Documentation from the health center internal audit showed that pregnant women often do not read the contents of the MCH Book that has been given. The book is rarely opened again after the examination is completed. This emphasizes that functional literacy is still low, especially in understanding written health documents. Therefore, educational approaches need to be more varied and not only text-based. In an interview, the village head in one of the locations stated that he had never been actively involved in the Triple Elimination program. In fact, the support of the village head is very important to mobilize community leaders and provide a budget for health activities. The lack of cross-sector collaboration makes the program run alone without structural support from the village government. This is an important note for future program improvement.

There is also a difference in perception between midwives and pregnant women regarding the risk of infectious diseases. Midwives assume that all women are at risk and should be examined, while pregnant women think they are unlikely to get infected because they "live healthy" and are faithful to their partners. This misperception shows the importance of delivering information based on risk and epidemiological facts. Assumption-based knowledge without scientific understanding hinders preventive behavior. The data also shows that husbands' participation in pregnancy education is still very low. Most activities

are only attended by women, and information is not passed on to husbands or families. In fact, in the social context of plantation communities, many household decisions are determined by husbands. Involving men in pregnancy education is an important strategy in improving collective family literacy. Researchers also found that some pregnant women did not understand that Triple Elimination test results are confidential and professionally managed. They were afraid that the information would spread in the community, especially if the results were positive. This concern arose due to a lack of explanation about data protection procedures and medical confidentiality. Education around patient rights needs to be part of health education.

Based on all these findings, it can be concluded that the low health literacy of pregnant women towards Triple Elimination is caused by a combination of individual, social, cultural, structural and systemic factors. Unpersonalized communication approaches, difficult geographical access, logistical limitations, and dominance of decision-making by other parties are the main obstacles. Overcoming this requires a cross-sectoral intervention strategy that is participatory, contextual and inclusive. These findings provide an important basis for developing health policies based on local needs.

## **DISCUSSION**

The low health literacy of pregnant women in tobacco growing areas is influenced by limited formal education and access to information. Sørensen et al. (2021) emphasized that health literacy includes the ability to understand, evaluate, and use health information in daily decision-making. In marginalized areas such as tobacco growing, these limitations are exacerbated by geographical conditions and the low availability of health professionals. This has a direct impact on mothers' low understanding of the importance of Triple Elimination.

In the absence of structured education on Triple Elimination, pregnant women are unable to differentiate the benefits of the screening from regular antenatal check-ups. Research from Nutbeam et al. (2020) states that health literacy is multidimensional, including functional, interactive, and critical skills. These three dimensions are not fully developed among pregnant women in the research area. When only the functional dimension (reading and understanding) is strengthened, health interventions become less meaningful.

Family non-involvement in the health counseling process is also a factor inhibiting health literacy. Based on a study by Zhang et al. (2018), partner and family involvement in health education was shown to increase the achievement of comprehensive antenatal check-ups. In the study locations, health decisions are still strongly influenced by husbands or in-laws. Therefore, interventions that only target pregnant women are partial and less effective.

The study showed that unfamiliarity with Triple Elimination is not only related to medical information, but also distrust of health services. This is in line with Aljohani & Kendall's (2022) findings that trust is a key component in promoting preventive health behaviors. When previous experiences are unpleasant, pregnant women tend to refuse or avoid additional services. This is

a key challenge in building partnerships between pregnant women and health service providers.

Infrastructure limitations at posyandu and puskesmas pembantu exacerbate the condition of service affordability. WHO (2018) highlights the importance of a *people-centered care* approach to address inequalities in access to basic services. In the study sites, many mothers complained about distance, transportation, and service times that did not fit with their work schedules as farm laborers. This indicates the need for service flexibility that is contextual and adaptive to the social characteristics of the community.

The unavailability of educative media that is appropriate to the local context weakens efforts to improve health literacy. Research from Maharani et al. (2021) showed that visual-based media and local stories are more easily understood by people with low educational backgrounds. In the field, most education is only delivered verbally without visual aids or other tools. This makes health messages difficult to understand and easily forgotten.

Cultural factors and myths that develop in the community also hinder the health literacy of pregnant women. According to Rachmawati et al. (2020), many mothers still believe that diseases such as HIV and syphilis are unlikely to attack ordinary housewives. This belief reduces the urgency of Triple Elimination checks. As a result, education needs to be developed with a more culturally sensitive approach.

Lack of training for posyandu cadres as the spearhead of primary care is an obstacle in delivering important information. A study by Putri & Supriyanto (2019) mentioned that regular capacity building of cadres can significantly contribute to improving community health literacy. In the research location, some cadres did not understand in detail the benefits and procedures of Triple Elimination. This resulted in a lack of education for pregnant women.

Educational activities that are one-way and formal are difficult to accept by pregnant women with low literacy. Recent research from Kusnadi et al. (2023) emphasized the importance of a participatory approach in community health promotion activities. When mothers are given space to ask questions and share experiences, the acceptance of information increases. Therefore, counseling methods should be more interactive and small group-based.

The role of social media has not been maximally utilized to disseminate information related to Triple Elimination. Research by Novitasari & Handayani (2022) concluded that the use of WhatsApp Group and short educational videos can significantly improve the knowledge of pregnant women. In the plantation area, almost all mothers have cell phones, although the signal is limited. This could be an opportunity to create a rural-friendly digital health communication strategy.

The Triple Elimination Check is considered an "additional check" that is not mandatory due to the lack of emphasis from health workers. According to a report from the Indonesian Ministry of Health (2021), risk communication strategies are essential in maternal care, especially regarding infectious diseases. If health workers do not communicate risks clearly, then people will not consider

them important. This was consistently found in field interviews with pregnant women and midwives.

Information gaps also occur due to the lack of coordination between puskesmas and posyandu facilities. Suhendar et al. (2019) states that weak primary care information management has a direct impact on the quality of communication between service providers. This can be seen from the inconsistency in the delivery of educational materials in the field. Stronger integration of communication systems between service lines is needed.

The finding that some mothers only participated in the examination because of the midwife's direction without a full understanding indicates a lack of informed consent. According to the Law on Medical Practice and Medical Ethics (Indonesia), informed consent should be based on understanding and conscious consent. A recent study by Hasibuan et al. (2022) also underlined the importance of legal and ethical literacy in reproductive health services. When mothers do not understand the purpose of the examination, the value of the service loses its ethical substance.

Reluctance to participate in Triple Elimination examinations is also influenced by shame and stigma towards sexually transmitted diseases. A study by Fahmi & Yuliani (2017) showed that an empathy-based and non-stigmatizing approach increased acceptance of HIV and STI services in rural areas. Thus, health workers need to be equipped with sensitive and ethical communication skills. This is important so as not to reinforce community resistance to health services.

Overall, the results of this study suggest that improving pregnant women's health literacy should involve a multisectoral, cross-cultural and community-based approach. Literacy is not only about reading information, but also understanding, interpreting and responding appropriately to the information received. As stated by Paakkari & Okan (2020), health literacy is a social competency that demands a supportive environment. Therefore, cross-sector collaboration between health, education, and local leaders is needed to overcome health literacy barriers in tobacco growing areas.

## CONCLUSIONS AND RECOMMENDATIONS

This study concludes that the level of *health literacy* of pregnant women in tobacco growing areas of Jember Regency towards Triple Elimination testing is still low and is influenced by various determinants, such as low access to information, strong local culture, lack of husband and family support, and limited health services that are not responsive to the local context. Lack of understanding among pregnant women about the importance of integrated HIV, syphilis, and hepatitis B testing leads to low participation in the Triple Elimination program, despite the availability of services. In addition, the role of health workers and cadres has not been optimal in conducting communicative and participatory culture-based education. Therefore, improving pregnant women's health literacy requires a holistic community-based approach, involvement of local leaders, and inclusive and contextualized health service policies so that the Triple Elimination goal can be achieved effectively and sustainably.

This study suggests improving the health literacy of pregnant women in Jember tobacco growing through local culture-based education involving families, community leaders, and health cadres. Triple Elimination services should be integrated in antenatal visits with simple communication and local language. Continuous training for health workers and regular program evaluation are also important to ensure successful elimination of mother-to-child disease transmission.

#### **ADVANCED RESEARCH**

This research advances the understanding of health literacy determinants among pregnant women in marginalized agricultural communities, specifically within tobacco plantation areas in Jember, by adopting a qualitative case study approach that captures the nuanced socio-cultural, familial, and systemic factors influencing participation in the Triple Elimination program. It highlights the complex interplay between limited access to culturally appropriate information, entrenched local beliefs, and health service gaps that impede effective maternal screening for HIV, syphilis, and hepatitis B. By integrating community voices and frontline health workers' perspectives, the study provides a comprehensive framework for designing targeted, culturally sensitive interventions to enhance maternal health outcomes. This work not only fills a critical gap in maternal health literacy research in rural Indonesia but also offers transferable insights for similar contexts globally, emphasizing the need for multi-level, community-engaged strategies to achieve disease elimination goals.

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