

ORIGINAL RESEARCH ARTICLE

Integrating cultural norms into maternal health: Male engagement through a comprehensive caring model

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Abstract

Husband involvement during pregnancy plays a crucial role in improving maternal and fetal health outcomes. However, in the Minangkabau culture, which follows a matrilineal system, such involvement is often limited by prevailing cultural norms. This study aimed to bridge cultural norms and maternal health by implementing a culturally adapted comprehensive caring training model to increase male involvement during pregnancy. This quantitative study employed a pre-experimental one-group pretest–posttest design involving 92 husbands of pregnant women in Lubuk Alung, Batang Anai, and Empat Koto Aur Melintang, West Sumatra, Indonesia. Data on husband involvement were collected before and after the intervention, covering five domains: emotional, informational, physical, participation, and social-spiritual support. Before the intervention, husband involvement was highest in the emotional domain (mean score = 10.07) and lowest in the physical domain (mean score = 7.87). After the training, significant improvements were observed across all domains: emotional (11.93), informational (11.59), physical (11.24), participation (10.93), and social-spiritual (10.67) (all $p < 0.05$). The comprehensive caring training model effectively enhanced husband involvement in various aspects of pregnancy care, including emotional, financial, informational, social-spiritual, and physical support. This culturally tailored intervention shows promise for improving maternal health outcomes and is recommended as a model for culture-based health strategies to reduce maternal and infant mortality in Indonesia. (*Afr J Reprod Health* 2026; 30 [2]: 70-80).

Keywords: Comprehensive caring training, Husband, Matrilineal, Minangkabau, Pregnancy

Résumé

L'implication du conjoint pendant la grossesse joue un rôle crucial dans l'amélioration de la santé maternelle et fœtale. Cependant, dans la culture Minangkabau, qui repose sur un système matrilineaire, cette implication est souvent limitée par les normes culturelles en vigueur. Cette étude visait à concilier normes culturelles et santé maternelle en mettant en œuvre un modèle de formation aux soins complets, adapté à la culture, afin d'accroître l'implication masculine pendant la grossesse. Cette étude quantitative a utilisé un plan pré-expérimental avec groupe unique et mesures avant-après, impliquant 92 conjoints de femmes enceintes à Lubuk Alung, Batang Anai et Empat Koto Aur Melintang, dans l'ouest de Sumatra, en Indonésie. Les données relatives à l'implication du conjoint ont été recueillies avant et après l'intervention, couvrant cinq domaines : émotionnel, informationnel, physique, participation et soutien socio-spirituel. Avant l'intervention, l'implication du conjoint était la plus élevée dans le domaine émotionnel (score moyen = 10,07) et la plus faible dans le domaine physique (score moyen = 7,87). Après la formation, des améliorations significatives ont été observées dans tous les domaines : émotionnel (11,93), informationnel (11,59), physique (11,24) et participation (10,93) et socio-spirituel (10,67) (tous $p < 0,05$). Le modèle de formation aux soins complets a permis d'améliorer significativement l'implication du conjoint dans divers aspects du suivi de grossesse, notamment le soutien émotionnel, financier, informationnel, socio-spirituel et physique. Cette intervention adaptée au contexte culturel est prometteuse pour l'amélioration de la santé maternelle et est recommandée comme modèle de stratégies de santé culturelles visant à réduire la mortalité maternelle et infantile en Indonésie. (*Afr J Reprod Health* 2026; 30 [2]: 70-80).

Mots-clés: Formation aux soins complets, Conjoint, Matrilinearité, Minangkabau, Grossesse

Introduction

Indonesia is a multicultural country, also known as a multiethnic nation, because it comprises diverse

ethnic groups, cultures, regional languages, customs, and religions. One distinct and notable cultural tradition in Indonesia is the Minangkabau tradition, which originates from the province of

West Sumatra. This culture is unique in that it is matrilineal, meaning lineage is traced through the mother rather than the father. This system governs the status of women and men, property inheritance, descent, and tribal identity, all passed down through the maternal line.¹ To this day, Minangkabau culture remains well-preserved and vibrant. This cultural continuity is further supported by the community's long-standing tradition of traveling abroad, which has helped maintain its international recognition.

Minangkabau cultural customs significantly influence various aspects of community life, particularly in fulfilling the roles and responsibilities of husband and wife. According to Minangkabau tradition, a man's role after marriage encompasses both biological and sociological obligations.^{2,3} Biologically, a man is expected to provide offspring and be a biological father. This role designates him as the head of the family, responsible for providing for and protecting his family. Sociologically, however, he assumes the role of the maternal uncle (*mamak*), serving as the central authority in decision-making, offering guidance and direction, and caring for his sisters and children.⁴

Additionally, Minangkabau custom requires married couples to reside in the wife's family home (*Rumah Gadang*). In this setting, the husband is considered a guest (*Urang Sumando*), which diminishes his authority and traditional role within the household. His presence is generally confined to the bedroom and living room, necessitating careful attention to his conduct and position within the family.⁵⁻⁷

Matrilineal culture dictates that women determine the continuation of the family line and the life of society. Therefore, a married woman's duties include providing for and inheriting offspring, leading the women's community (also known as *Bundo Kanduang*), caring for and feeding children, and managing domestic chores.^{8,9} When a couple has children, the children become part of the mother's family lineage, thereby reducing the father's responsibility for their care and guidance. Currently, the mother's brother or the father's brother plays a more significant role in the child's upbringing. As a result, the father's role in a child's development has become increasingly limited.¹⁰

According to Minangkabau custom, a husband's primary role during his wife's pregnancy is to be financially responsible for providing for his wife and children, covering nutritional, health, and other pregnancy-related needs.¹¹ Other responsibilities, such as emotional and psychological support, are largely assumed by the woman's family members, including her mother, sisters, and brothers.¹² Many Minangkabau husbands do not accompany their wives to prenatal checkups or during labor. This contrasts with the Indonesian Ministry of Health's recommendation that husbands play an active role in supporting their wives throughout pregnancy.

Lack of husband participation during pregnancy can increase maternal and child mortality rates from pregnancy through delivery. According to WHO data from 2023, approximately 260,000 women die during or after pregnancy and childbirth worldwide, with half of these deaths resulting from preventable causes. Additionally, about 2.3 million babies die within the first 28 days of life, averaging 6,500 infant deaths per day. Approximately 75% of neonatal deaths occur within the first week, and around 1 million babies die within the first 24 hours after birth. The average neonatal mortality rate is approximately 17 per 1,000 live births. Major contributing factors include premature birth, infections, complications during delivery, and congenital abnormalities.¹³

Data from the Indonesian Ministry of Health in 2022 indicated that the maternal mortality rate averaged 173 per 100,000 live births, while the infant mortality rate was approximately 10.7 per 1,000 live births. By 2024, the maternal mortality rate had increased to 183 per 100,000 live births, and the infant mortality rate rose to 16 per 1,000 live births. This rise in maternal and infant mortality rates occurred across various regions in Indonesia, including West Sumatra Province. In 2023, there were 118 reported maternal deaths and 826 infant deaths related to pregnancy and childbirth. The average maternal mortality rate in West Sumatra was 178 per 100,000 live births, and the infant mortality rate was 16.35 per 1,000 live births.

Padang Pariaman Regency, one of the largest areas in West Sumatra Province, contributed significantly, with 123 maternal deaths and 98 infant deaths reported in 2023. These deaths were attributed to preventable causes such as bleeding

(27%), hypertension during pregnancy (34%), infection (7%), prolonged labor (6%), non-communicable diseases (including heart disease, diabetes, and others) (21%), and other causes (anemia, mental disorders, tuberculosis, HIV, and others) (5%).¹⁴

Interviews with 20 husbands of pregnant women of Minangkabau descent living in West Sumatra province, particularly in Padang Pariaman Regency, revealed several surprising insights. Fifteen husbands believed that their sole responsibility during their wives' pregnancies was to provide financial support, covering prenatal care costs and emergency funds if needed. Five husbands felt that it was the wife's family's responsibility to monitor the pregnant wife's diet. Seventeen husbands stated that pregnancy was a natural right of the wife and that it was her responsibility to ensure her own and her child's safety; therefore, the husband had no obligation to accompany her during pregnancy and childbirth. Eighteen husbands noted that it was common for many pregnant women in Padang Pariaman Regency to attend prenatal checkups without their husbands present. For these 20 husbands, being informed about a woman's pregnancy was not necessarily essential. These data indicate that the husband's role as a companion during pregnancy and childbirth remains limited due to men's beliefs about Minangkabau cultural norms. However, few previous studies have specifically examined how deeply rooted Minangkabau cultural norms shape husbands' limited involvement during pregnancy. This study addresses this gap by introducing and testing a culturally adapted comprehensive caring training model to enhance husbands' participation during pregnancies.

Training can be conducted by providing a comprehensive caring model. This model involves offering respondents counseling, role-playing, and practice in managing the discomfort experienced by pregnant women. For nurses, training in the comprehensive caring model can enhance their concern for patient safety. However, research on the effects of comprehensive caring model training has not been conducted with husbands of pregnant women. Therefore, this training aims to help husbands of pregnant women in Minangkabau increase their knowledge and skills, while fostering

more caring, empathetic, and proactive attitudes and behaviors in addressing their wives' needs during pregnancy.¹⁵ This approach seeks to align the gap between the husbands' cultural and literal roles without compromising either. The study's objective is to bridge the gap between Minangkabau cultural norms and maternal health by providing a comprehensive training model. This study offers a novel contribution by being the first to design and implement a culturally tailored comprehensive caring model specifically targeted at husbands, which has not been previously explored in maternal health interventions.

Methods

Research design

This study employed a quantitative pre-experimental design using a one-group pretest-posttest approach. In this design, researchers measured changes in the involvement of husbands of pregnant women in Minangkabau before and after the comprehensive caring model intervention within a single group.

Research Setting

This study was conducted from November to December 2024. It took place in three sub-districts of Padang Pariaman Regency with the highest number of pregnant women: Lubuk Alung, Batang Anai, and Empat Koto Aur Melintang.

Population and sample of research

The study population consisted of the husbands of pregnant women residing in the Minangkabau region, specifically in Padang Pariaman Regency, totaling 2,827 participants. The sample size was calculated using the Slovin formula with a 10% margin of error, resulting in 92 husbands of pregnant women selected as respondents. A cluster sampling technique was employed, dividing the population into clusters to determine the sample size. The selected sub-districts were Batang Anai, Lubuk Alung, and IV Koto Aur Malintang, which collectively included 1,054 pregnant women. Participants were then randomly selected from these clusters, with the number of samples from each sub-district determined using the Slovin

formula. Consequently, 92 individuals were randomly chosen from the clustered population. Inclusion criteria for the sample were husbands of pregnant women who originated from and resided in the Minangkabau region, specifically in Padang Pariaman Regency, lived with their wives or their wives' families, were able to read, and consented to participate. Exclusion criteria included husbands of non-pregnant women, husbands who did not live with their wives during pregnancy, and individuals who were not husbands but originated from and resided in Minangkabau.

Research instrument

The research instrument employed a husband involvement questionnaire that has been validated for both reliability and validity. This instrument utilizes an 18-item Likert scale. Each question includes three items addressing husband involvement in emotional, informational, physical/instrumental, socio-spiritual, financial, and decision-making domains. Respondents indicate their level of agreement with each statement by selecting a number from one to five: five for strongly agree, four for agree, three for undecided, two for disagree, and one for strongly disagree. The responses were then categorized into two groups: positive and negative.

Data collection methods

Data collection was conducted through interviews, observations, and questionnaires. Interviews were held with pregnant women to explore their husbands' active roles during pregnancy. Questionnaires were administered to respondents, presenting a series of statements regarding a husband's involvement before and after receiving comprehensive caring model training. Additionally, observations were made by directly watching husbands' active participation during role plays. Respondents were gathered in the Multipurpose Hall in Padang Pariaman Regency on a predetermined date. Researchers distributed consent forms to participants prior to questionnaire completion. Respondents completed the questionnaires both before and after the comprehensive caring model training. The training lasted approximately four hours and was divided into a 30-minute presentation, a 30-minute

interactive discussion, a 15-minute video presentation, and a two-hour role play focusing on prenatal checkups and pain management experienced by pregnant women. The final evaluation involved respondents completing the questionnaires once again.

Data analysis

Data analysis included both univariate and bivariate methods. The univariate analysis aimed to describe the mean, minimum, maximum, and standard deviation of the variable representing husband involvement during pregnancy. The bivariate analysis assessed the effect of comprehensive caring model training on husband involvement among pregnant women in Minangkabau. This analysis employed a paired t-test with a significance level of 5%. Before conducting the paired t-test, the normality of the husband involvement data was evaluated using the Kolmogorov-Smirnov test. A p-value greater than 0.05 indicated that the data were normally distributed.

Ethical considerations

This study was approved by the Health Research Ethics Committee of the Alifiah University of Padang, West Sumatera Province, Indonesia with reference number: 004162/KEP Universitas Alifiah Padang/2024. Respondents completed an informed consent form before collecting the data in the form of their agreement.

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could withdraw from the study at any time without any negative consequence.

Results

Characteristics of respondents

Table 1 presents the characteristics of the respondents, which include Age (years), Education Level, Occupation, Parity, Pregnancy Status, and Residence Status. The characteristic respondents of the research respondents include information on age, education level, occupation, parity, pregnancy status, and type of residence, as presented in Table 1. The data in Table 1 indicate that the majority of pregnant women's husbands are aged between 20 and 30 years, accounting for 56.52%. Most respondents have completed high school, totaling 60 individuals (65.22%), and work as casual laborers, with 48 people (52.18%). Additionally, the majority of respondents have two to four children, classifying them as multiparas, with 46 respondents (50.0%). Regarding their wives' pregnancy status, most are experiencing their second to fourth pregnancies, classifying them as multigravida, with 64 individuals (69.57%). In terms of residential status, most respondents live with their wives and children, totaling 60 people (65.22%).

Involvement of husbands of pregnant women in Minangkabau during pregnancy

The involvement of husbands of pregnant women in Minangkabau during pregnancy before receiving comprehensive caring model training can be seen in Table 2. Based on Table 2, the involvement of pregnant women's husbands during pregnancy encompasses emotional, financial, informational, social and spiritual, physical, and participatory support. In the Minangkabau community, husbands show the highest involvement in the emotional aspect, with an average score of 10.07 (average response per item = 3.36). This suggests that Minangkabau husbands are more attuned to the emotional needs of their pregnant wives, providing attention, affection, reassurance, and actively listening to their wives' concerns during pregnancy.

Table 1: Characteristics of respondents

| No | Variable | F | % |
|-----------------|---|-----------|------------|
| 1 | Age (years) | | |
| | 20-40 | 52 | 56.52 |
| | 41-60 | 40 | 43.48 |
| 2 | Education level | | |
| | Primary school | 10 | 10.87 |
| | Junior high school | 10 | 10.87 |
| | Senior high school | 60 | 65.22 |
| | Higher education | 12 | 13.04 |
| 3 | Occupation | | |
| | Casual laborer | 48 | 52.18 |
| | Farm workers | 20 | 21.74 |
| | Private sector employee | 6 | 6.53 |
| | Teacher | 2 | 2.17 |
| | Mechanic | 2 | 2.17 |
| | Honorary | 2 | 2.17 |
| | Driver | 2 | 2.17 |
| | Self-employed | 10 | 10.87 |
| | 4 | Parity | |
| Nullipara | | 22 | 23.91 |
| Primipara | | 20 | 21.74 |
| Multipara | | 46 | 50 |
| Grandemultipara | | 4 | 4.35 |
| 5 | Pregnancy status | | |
| | Primigravida | 28 | 30.43 |
| | Multigravida | 64 | 69.57 |
| 6 | Residence status | | |
| | Children and wife | 60 | 65.22 |
| | Children, wife and mother/father in-laws | 4 | 4.35 |
| | Children, wife and brother/sister in-laws | 4 | 4.35 |
| | Children, wife and in-laws | 24 | 26.08 |
| | Total | 92 | 100 |

Description: f = frequency, % = percentage

Conversely, the lowest level of husband involvement is in physical support, with an average score of 7.87 (average response per item = 2.62). This means that physical involvement, such as helping with housework, taking them to the clinic, or providing comfort, remains relatively low, even though most husbands have participated in these activities.

Husbands' financial, informational, social, and spiritual involvement, as well as their overall participation, were categorized as sufficient. Financial involvement, with an average score of 9.28 and an average response of 3.09 per item, indicates that most husbands contribute

Table 2: Involvement of husbands of pregnant women in Minangkabau during pregnancy

| Variable | N | Average Amount | Average Answer | SD | Max | Min |
|----------------------|----|----------------|----------------|------|-----|-----|
| Emotional | 92 | 10.07 | 3.36 | 2.02 | 12 | 3 |
| Financial | 92 | 9.28 | 3.09 | 1.90 | 12 | 5 |
| Informational | 92 | 8.74 | 2.91 | 2.27 | 12 | 3 |
| Social and spiritual | 92 | 8.87 | 2.96 | 1.68 | 12 | 4 |
| Physical | 92 | 7.87 | 2.62 | 1.56 | 12 | 3 |
| Participation | 92 | 8.72 | 2.91 | 1.70 | 12 | 5 |

Description: N = total number, Sd = standard of deviation, Max = Maximum value, Min = Minimum value

Table 3: Involvement of husbands of pregnant women in Minangkabau during pregnancy after receiving comprehensive care training

| Variable | N | Average Amount | Average Answer | SD | Max | Min |
|----------------------|----|----------------|----------------|------|-----|-----|
| Emotional | 92 | 11.93 | 3.95 | 0.61 | 12 | 9 |
| Financial | 92 | 10.28 | 3.09 | 1.9 | 12 | 9 |
| Informational | 92 | 11.59 | 3.90 | 1.00 | 12 | 7 |
| Social and spiritual | 92 | 10.67 | 3.56 | 1.19 | 12 | 7 |
| Physical | 92 | 11.24 | 3.75 | 0.95 | 12 | 9 |
| Participation | 92 | 10.93 | 3.64 | 0.90 | 12 | 9 |

Description: N = total number, Sd = standard of deviation, Max = Maximum value, Min = Minimum value

economically by financing nutritional needs, prenatal check-ups, and childbirth preparations, despite the prevailing Minangkabau socio-cultural dynamics. Informational involvement, with an average score of 8.74 and an average response of 2.91 per item, suggests that only a few husbands actively seek information from various sources, while others remain passive or rely on their wives for information. Social and spiritual involvement, averaging 8.87 with a mean response of 2.96 per item, shows that husbands are fairly engaged in socio-spiritual activities such as attending religious study groups, praying together, and supporting their wives' social relationships. This involvement is influenced by Minangkabau culture, which emphasizes spiritual values. Finally, overall participation, with a mean score of 8.72 and an average of 2.91 per item, was considered quite high. Minangkabau culture also promotes mutual cooperation within the family, encouraging husbands to participate in decision-making, pregnancy planning, choosing the place of birth, and determining the method of delivery. Respondents' scores on husband involvement statements ranged from a minimum of 3 to a

maximum of 12 across three statements in each aspect.

Husband involvement in Minangkabau following comprehensive care training

Data on the involvement of husbands of pregnant women in Minangkabau after receiving comprehensive caring training is presented in Table 3. Based on Table 3, the highest levels of husband involvement during their wives' pregnancies were observed in the emotional aspect (average score 11.93, or mean per item 3.95), followed by informational involvement (average 11.59, mean per item 3.90), physical involvement (average 11.24, mean per item 3.75), participation (average 10.93, mean per item 3.64), and social and spiritual involvement (average 10.67, mean per item 3.56) after receiving comprehensive caring model training. In the emotional domain, Minangkabau husbands provide strong emotional support, including attention, affection, and psychological comfort, which are essential during pregnancy. Regarding informational involvement, husbands actively seek, understand, and share information about pregnancy.

Table 4: The effect of comprehensive caring training on husband involvement in pregnancy in Minangkabau

| Variable | N | T | df | Sig |
|----------------------|----|------|----|-------|
| Emotional | 92 | 6.86 | 91 | 0.000 |
| Financial | 92 | 5.91 | 91 | 0.000 |
| Informational | 92 | 7.43 | 91 | 0.000 |
| Social and spiritual | 92 | 6.10 | 91 | 0.000 |
| Physical | 92 | 9.19 | 91 | 0.000 |
| Participation | 92 | 7.52 | 91 | 0.000 |

Description: N = total number, t = t value, df = degrees of freedom, Sig = p-value

Physical involvement is demonstrated through assistance such as driving their wives to health facilities and helping with household chores, indicating a shift from traditional female-dominated domestic roles toward more collaborative roles. In terms of participation, husbands have begun engaging in decision-making, health programs, attending prenatal check-ups, and participating in classes. Social and spiritual involvement is reflected in their willingness to pray together, participate in socio-religious activities, and strengthen their spirituality, demonstrating the integration of cultural and religious values into the husband's role. However, financial involvement during their wives' pregnancies is still considered moderate, with an average score of 10.28 points, or 3.09 points per item. Some husbands have yet to demonstrate adequate financial involvement, which is related to their predominant occupation as casual laborers, resulting in limited income.

The effect of comprehensive caring training on husband involvement in pregnancy in Minangkabau

The results of data analysis using a paired T-test at alpha = 5% are shown in Table 4. The Paired Samples T-Test was conducted to examine the influence and differences in the average scores of husbands' involvement before and after the comprehensive caring model training. The data in Table 4 show that the highest t-values were observed in the physical (9.19), participation (7.52), and informational (7.43) aspects, while the lowest t-value was in the financial aspect (5.91). Overall, the p-value for each aspect of husbands' involvement was 0.000 (<0.05), indicating that the intervention, in the form of comprehensive caring model training, significantly enhanced husbands' involvement in Minangkabau during their wives'

pregnancy, as reflected by increases across all aspects

Discussion

Maternal health is not only the responsibility of healthcare workers and pregnant women; it is also significantly influenced by the involvement of men, particularly husbands, during pregnancy. Husbands' involvement can take various forms, including emotional, physical, spiritual, social, financial, and participatory support. Research indicates that husbands' involvement in the pregnancies of Minangkabau women is predominantly emotional. In contrast, informational, social, and spiritual involvement, as well as participation, are considered adequate, while physical involvement is the lowest. However, after comprehensive caring model training, all aspects of husbands' involvement improved significantly, with a p-value of 0.000 (<0.05). This demonstrates that comprehensive caring model training substantially enhances husbands' involvement in supporting maternal and fetal health among Minangkabau women.

The results of various studies indicate that a husband's emotional involvement of a husband by providing comfort, calm, security, attention, support, affection, and being a good listener to all complaints, can improve the mental health and readiness of pregnant women.¹⁶ Furthermore, a husband's active participation throughout pregnancy and postpartum can directly yield positive effects, such as enhancing the wife's psychosocial well-being by fostering a sense of security and calm, increasing compliance with antenatal care (ANC) visits, promoting adherence to iron (Fe) tablet and vitamin D supplementation, encouraging balanced nutrition, reducing the incidence of stunting, alleviating anxiety before

childbirth, and enabling informed decision-making regarding pregnancy risks.^{17,18}

The comprehensive caring model training helped address these gaps by increasing husbands' knowledge, awareness, and confidence in supporting their wives. Through counseling, role-playing, and hands-on practice, the training challenged cultural beliefs that pregnancy is solely a woman's responsibility and reshaped perceptions of shared responsibility. As a result, husbands became more empathetic, proactive, and willing to provide multidimensional support during pregnancy. Husbands' involvement as sources of information can be enhanced by increasing health knowledge through pregnancy modules, thereby raising couples' awareness to monitor fetal growth and development and actively participate in pregnancy care.¹⁹ Additionally, husbands' sound financial preparation provides pregnant women with a sense of security to attend pregnancy check-ups, maintain proper nutritional intake, and reduce anxiety and the risk of complications during pregnancy and childbirth.²⁰

The minimal involvement of husbands in Minangkabau, particularly in physical aspects, is closely linked to prevailing customary norms and social structures. It is widely recognized that Minangkabau customs follow a matrilineal system, which positions women as leaders, assigns domestic responsibilities exclusively to women, and entrusts all decisions to the woman's family. This often marginalizes the husband's role in household life, including during pregnancy. The matrilineal system in Minangkabau further reinforces women's empowerment. Consequently, many Minangkabau men perceive a husband's involvement during his wife's pregnancy as limited to providing financial and emotional support.¹⁶

Other forms of involvement are considered less important for the husband and are instead managed by the wife's family members, such as her mother, uncle, father, and siblings.¹ The husband's role is generally confined to offering suggestions or support rather than making decisions related to reproductive health.²¹ Additionally, the husband's status as a guest in the woman's home, known as "*Urang Sumando*", restricts his physical participation. During pregnancy, the husband's role is primarily to provide physical/practical support

(food, comfort, and accommodation) rather than to make customary decisions. This perspective limits the husband's involvement in the household. In reality, the husband should be the primary person involved and aware of his wife's and children's well-being, especially during pregnancy.

During this training, a culture-based approach was employed to facilitate acceptance by the local community. Examples of this approach include the incorporation of local wisdom values and the involvement of traditional leaders. The local wisdom values implemented encompass the use of proverbs or pantuns and the unifying Minang language, such as "*Dusanak, Basamo Mako Manjadi*" (brothers and sisters, together we can). Proverbs include "*Adat Basandi Syarak, Syarak Basandi Kitabullah*" (custom is based on religion, and religion is based on the Quran), "*Anak Dipangku Kamanakan Dibimbiang, Urang Kampuang Dipatenggangkan*" (responsible for the nuclear family and community), and "*Rumah Gadang Bagonjong*" (husband is the protector of the wife during pregnancy). Meanwhile, the involvement of traditional leaders is achieved by engaging *Ninik Mamak* (heads of the family), *ulama* (religious scholars), and *Cadiak Pandai* (wise men) to convey the importance of men's roles in supporting their pregnant wives, based on religious verses and Minang proverbs. The goal is to enhance the cultural and religious legitimacy of health messages.¹¹ This approach fosters a sense of intimacy, social acceptability, and alignment with local cultural values, thereby increasing its effectiveness in changing husbands' attitudes and behaviors.

Comprehensive training included counseling, interactive discussions, and video presentations about pregnancy and the roles of husband and wife, as well as role-plays focused on pregnancy check-ups and pain management for pregnant women. Training on the comprehensive caring model has never been provided to husbands of pregnant women, making this study a pioneering effort in its development. However, research related to the comprehensive caring model has demonstrated improvements in nurses' knowledge, attitudes, and concern for patients across various community service centers (p-value < 0.05).¹⁵ The findings of this study on caring behavior indicate

that the comprehensive caring model effectively increases respondents' concern. In this study, the increased concern reflects improvements in all aspects of husbands' involvement in monitoring the health of their wives and fetuses in Minangkabau.

Training in the comprehensive caring model for husbands of pregnant women in Minangkabau can enhance their role as informational mediators between customary values and the health needs of pregnant women. This training does not lead husbands to oppose the matrilineal system; rather, it enables them to maintain its relevance by adopting trained support roles. This approach allows Minangkabau culture to adapt to the health needs of pregnant women through increased husband involvement. Meanwhile, husbands' financial participation in Minangkabau is already strong, as customary norms designate the husband as the household breadwinner responsible for meeting all household needs. Through comprehensive caring training, husbands gain a better understanding of the financial requirements during their wives' pregnancies, including balanced nutrition, prenatal care, delivery expenses, baby preparation, and emergency funds. Overall, comprehensive caring training effectively increases husbands' involvement, shifting it from passive to more active participation in Minangkabau.

In many parts of sub Saharan Africa, programs emphasize community mobilization and peer education. For example, Senegal's "schools for husbands" train respected local men (imams, ex-soldiers, community leaders) as peer educators to promote positive masculinity, encourage facility births, and shift household norms an approach that leverages male social networks and local authority to change attitudes and behaviours. Evaluations and reporting indicate increased facility usage and shifts in domestic roles, though national mortality remains a broader challenge.²³ Country level studies and pilots in West Africa (e.g., Ghana) and East Africa often combine facility invitations (male-friendly ANC), couple counseling, and community outreach. These interventions report gains in partner attendance at ANC, better postpartum planning, and improved uptake of preventive measures, but uptake and sustainability

depend heavily on male social norms, health system readiness, and endorsement by community leaders.

Researchers suggest that comprehensive caring model training provided to husbands of pregnant women in Minangkabau can bridge the gap between cultural norms that restrict husbands' activities within their wives' homes and the health needs of their wives and fetuses during pregnancy. This training can legitimize their involvement in practice; although they are not the primary decision-makers, they can serve as effective pillars of support for maternal and infant health within the matrilineal Minangkabau culture. Such training encourages caring behavior from husbands, demonstrated by their increased involvement in all aspects of their pregnant wives' needs. This greater involvement can help address the gap between culturally permitted roles for the health of their wives and children and those that remain taboo. For example, husbands can physically participate in household tasks if they live with the wife's family, assisting with chores such as ironing and folding clothes, cooking, caring for children, repairing broken household appliances, and providing massages when their wives feel tired. Overall, husbands' involvement contributes to increased antenatal care (ANC) visits, faster decision-making, and a more stable maternal psychological state.²²

Researchers also assume that increased husband involvement in Minangkabau, following direct training can positively influence the behavior of pregnant women in maintaining their pregnancies. Husband involvement across emotional, physical, financial, informational, socio-spiritual, and participatory aspects makes wives feel deeply cared for during pregnancy, encouraging them to adhere to all pregnancy health recommendations. This involvement also positively affects the mother's physical and psychological well-being, promoting a calm, comfortable, and happy state without undue burden throughout the pregnancy. Mothers who experience a safe pregnancy process can reduce the risk of high-risk pregnancies, thereby lowering maternal and infant mortality rates. Therefore, enhancing husband involvement during pregnancy through comprehensive caring model training is a viable strategy to reduce maternal and infant mortality rates, particularly in Minangkabau, while

respecting existing cultural norms. It is anticipated that this increased husband involvement will significantly contribute to achieving the Sustainable Development Goals (SDGs) targets by 2030 and support the World Health Organization's Safe Motherhood Program.

Conclusions

A comprehensive caring training model has been proven effective in increasing husbands' involvement during pregnancy within the matrilineal Minangkabau culture. This approach helps bridge the gap between cultural norms and initiatives aimed at improving maternal health in Minangkabau. The researchers suggest that training programs grounded in local culture can serve as a model for culture-based health interventions to reduce maternal and infant mortality rates in Indonesia. Moreover, this model could be adapted and scaled to other countries or regions with similar socio-cultural dynamics, particularly in low-resource settings, by integrating local cultural values and leveraging existing community health structures.

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