



The impact of information exposure on husbands involvement in maternal emergency prevention

Dampak paparan informasi terhadap keterlibatan suami dalam pencegahan kedaruratan maternal

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Abstract

Maternal emergencies remain one of the leading causes of maternal morbidity and mortality; therefore, preventive efforts through adequate nutritional management during pregnancy are of paramount importance. The husband's role in supporting pregnant women, particularly by understanding and ensuring adherence to proper dietary practices, is crucial in reducing the risk of complications. This study aimed to analyze the effect of information exposure on husbands' knowledge regarding maternal emergency prevention through dietary pattern management. A cross-sectional design was employed in April 2025, involving 399 husbands residing in Makassar City and Gowa District, selected using accidental sampling. Data were collected online using a structured questionnaire that assessed sources of information, frequency of exposure, accessibility, and activeness in seeking information. The chi-square test was applied for statistical analysis. The results revealed that information exposure had a significant effect on husbands' knowledge ($p < 0,0001$), including aspects of information sources, frequency of exposure, accessibility, and activeness in seeking information. In conclusion, improving the quality and accessibility of nutritional information for husbands plays an essential role in supporting maternal emergency prevention through the optimization of dietary patterns during pregnancy.

Keywords: Emergency medical services, health knowledge, practice, maternal mortality, nutrition policy

Abstrak

Kegawatdaruratan maternal masih menjadi salah satu penyebab utama morbiditas dan mortalitas pada ibu, sehingga upaya pencegahan melalui pengaturan gizi selama kehamilan sangat penting dilakukan. Peran suami dalam mendukung ibu hamil, khususnya melalui pemahaman dan kepedulian terhadap pola gizi yang adekuat, menjadi faktor krusial dalam menurunkan risiko komplikasi. Penelitian bertujuan untuk menganalisis pengaruh paparan informasi terhadap pengetahuan suami mengenai pencegahan kegawatdaruratan maternal melalui pengaturan pola gizi. Desain penelitian yang digunakan adalah cross-sectional dan telah dilaksanakan pada April 2025, dengan melibatkan 399 responden suami di Kota Makassar dan Kabupaten Gowa, yang dipilih menggunakan teknik accidental sampling. Data dikumpulkan secara daring melalui kuesioner terstruktur yang mencakup sumber informasi, frekuensi paparan, aksesibilitas, serta keaktifan dalam mencari informasi. Analisis menggunakan uji chi-square. Hasil penelitian menunjukkan bahwa paparan informasi berpengaruh signifikan terhadap pengetahuan suami ($p < 0,0001$), baik dari aspek sumber informasi, frekuensi paparan, aksesibilitas, maupun keaktifan mencari informasi. Kesimpulan, peningkatan kualitas dan akses terhadap informasi gizi bagi suami berperan penting dalam mendukung pencegahan kegawatdaruratan maternal melalui optimalisasi pola gizi selama kehamilan.

Kata Kunci: Layanan medis darurat, kematian ibu, kebijakan gizi, pengetahuan dan praktik kesehatan

Introduction

Pregnancy-related emergencies, such as hypertensive disorders, including preeclampsia and eclampsia, postpartum hemorrhage, and infections, continue to be the leading causes of maternal morbidity and mortality worldwide, particularly in developing countries (Dearden et al., 2021). These obstetric complications often result from the complex interplay of biological, social, and health care system factors. Effective prevention and management of such emergencies necessitate a comprehensive understanding of the risk factors, early warning signs, and timely intervention strategies (Tunkara-Bah et al., 2021). Recognizing the critical role of maternal nutrition and antenatal care in mitigating adverse outcomes, recent studies have emphasized the importance of health literacy and community engagement in improving maternal health (Damayanti et al., 2020; Nguyen et al., 2018).

Adequate nutritional intake during pregnancy is fundamental for both maternal and fetal health. It supports optimal fetal growth, reduces the risk of complications such as anemia, preeclampsia, and hyperemesis gravidarum, and enhances the mother's resilience to infections and other health challenges (Oktaviance et al., 2022; Masoi & Kibusi, 2019). Anemia, often caused by iron deficiency, remains a significant public health concern, especially in low- and middle-income countries, where it contributes to increased maternal and perinatal mortality (Oktaviance et al., 2022). Globally, anemia accounts for approximately 4% of maternal deaths, underscoring the importance of nutritional interventions during pregnancy (Masoi & Kibusi, 2019). Furthermore, hypertensive disorders, such as preeclampsia and eclampsia, characterized by high blood pressure and proteinuria, can lead to severe maternal and fetal complications, including seizures, organ failure, and death if not promptly managed (Pratamaningtyas & Titisari, 2022). Obesity during pregnancy further complicates maternal health by increasing the risk of gestational diabetes, preeclampsia, cesarean delivery, and perinatal mortality (World Health Organization, 2025).

Despite advances in maternal healthcare, maternal mortality remains a significant global health issue. In 2023, the World Health Organization estimated a maternal mortality

ratio of approximately 223 deaths per 100,000 live births worldwide, with an infant mortality rate of 41 per 1,000 live births (Cresswell et al., 2025). These figures highlight the persistent disparities in access to quality maternal health services, early detection, and emergency preparedness in the country. In Indonesia, although the 2023 Indonesian Health Survey reported that 57,8% of pregnant women received integrated antenatal services, maternal and infant mortality rates remain high compared to those in neighboring Southeast Asian countries (Kemenkes RI, 2023). Notably, maternal deaths in South Sulawesi increased to 184, with infant deaths reaching 1,480 in 2023, indicating that healthcare access alone is insufficient to address the complex factors contributing to maternal mortality (Kemenkes RI, 2023).

In this context, family support systems, particularly the involvement of husbands, are becoming increasingly vital. Husbands often serve as primary decision-makers and emotional supporters in maternal health, influencing behaviors related to nutrition, health-seeking, and emergency recognition (Suhartika & Mulyati, 2021). Their participation can significantly improve maternal health outcomes by facilitating timely access to healthcare services, ensuring proper nutrition, and recognizing warning signs of complications. However, the level of husbands' knowledge and engagement varies widely, often hindered by limited access to reliable information and cultural barriers (Alamsyah et al., 2019).

Access to accurate and targeted health information is a critical determinant of knowledge and behavior change. Exposure to appropriate information about pregnancy, nutritional needs, danger signs, and emergency preparedness can empower husbands to support their wives effectively (Wulandari & Laksono, 2020). Sources of such information include healthcare providers, community health programs, digital platforms such as social media, and peer-support networks. Nonetheless, many husbands still lack sufficient understanding of pregnancy warning signs, which can delay critical decision-making and increase the risk of adverse maternal outcomes (Rudiyanti & Utomo, 2024). Nutritional interventions, including promoting balanced diets, iron and folic acid supplementation, and management of maternal

health conditions, have proven effective in reducing pregnancy-related risks. Therefore, enhancing husbands' knowledge through targeted education about maternal nutrition and early detection of complications is essential for improving maternal health outcomes (Falade-Fatila & Adebayo, 2020).

Nausea and vomiting during pregnancy, particularly in the first trimester, pose additional challenges to nutritional intake and maternal well-being (Mullany et al., 2007; Pratamaningtyas & Titisari, 2022). Proper dietary regulation, including the consumption of balanced and nutritious foods, is vital for preventing maternal emergencies, supporting fetal development, and reducing the likelihood of miscarriage, preterm birth, and low birth weight (Nguyen et al., 2018; Zaman et al., 2018). Given the significant influence of information exposure on maternal health behaviors, understanding how husbands access, perceive, and act on health information is crucial for designing effective interventions for men.

This study aimed to investigate the influence of information exposure—including sources, frequency, accessibility, and activeness in seeking information—on husbands' knowledge of maternal emergency prevention through nutritional regulation in rural China. By elucidating these relationships, this study seeks to inform strategies that enhance husband involvement in maternal health, ultimately contributing to reducing maternal morbidity and mortality. Addressing this gap is particularly pertinent in regions with high maternal mortality rates, where family- and community-based approaches can complement formal health care services to improve maternal outcomes.

Methods

This study will employ a cross-sectional design. The study will be conducted in Makassar City and Gowa Regency, South Sulawesi, in April 2025. The study population consisted of husbands whose wives were either currently pregnant or planning to have more children. The inclusion criteria were as follows: (1) husbands with wives who were currently pregnant, (2) husbands planning future pregnancies, and (3) husbands who were not health professionals

(e.g., nutritionists, nurses, physicians, or public health workers). Using accidental (convenience) sampling, 399 respondents were recruited for the study. Although this method may introduce bias, it was chosen because of feasibility and accessibility constraints in reaching the target population within the study area.

Data will be collected using a structured self-administered questionnaire distributed via Google Forms to respondents who provide informed consent. The questionnaire included demographic characteristics (age, education, and occupation), exposure to information (sources, frequency, accessibility, and activeness), and knowledge of maternal emergency prevention through nutritional regulation.

The questionnaire was pretested with 14 respondents. Validity was assessed by correlating each item score with the total score using Pearson's correlation coefficient, with results showing r -count values greater than the r -table value of 0,576, indicating acceptable construct validity. Reliability was assessed using Cronbach's α . The information exposure section (5 items) obtained $\alpha = 0,772$, while the knowledge section (20 items) obtained $\alpha = 0,788$, both exceeding the minimum threshold of 0,60, thus demonstrating a satisfactory internal consistency. Data from the online questionnaires will be coded, cleaned, and entered into the SPSS (version 25). Descriptive statistics were used to summarize the respondents' characteristics. The chi-square test was applied to examine the association between information exposure and the husbands' knowledge. For non-parametric comparisons, the Kruskal-Wallis test will be used where appropriate. A significance level of $p < 0,05$ will be considered statistically significant.

The study ensured confidentiality, anonymity, and voluntary participation, with informed consent obtained from all respondents before data collection. Ethical clearance was obtained from the Health Research Ethics Committee of the Pelamonia Institute of Health Sciences (No. Rek/024/KEPK-IIKP/II/2025).

Result and Discussion

Characteristics of respondents

The demographic characteristics of the respondents indicate that most participants were men within the age range of 29 to 39 years,

comprising approximately 44,9% of the sample size. This age group is generally classified as middle adulthood, a period characterized by increased social and economic stability, which aligns with the findings of Isler et al. (2020). Rahman et al. (2018) also noted that middle-aged adults tend to have enhanced capacity to absorb health information due to their active involvement in family affairs and higher productivity levels.

Table 1. Characteristics of respondents (n = 399)

Characteristic	n (%)
Age	
18–28 years	93 (23,3)
29–39 years	179 (44,9)
40–50 years	118 (29,6)
>50 years	9 (2,3)
Education	
Master’s Degree	1 (0,3)
Diploma/Bachelor	107 (26,8)
High School	225 (56,4)
Junior High School	29 (7,3)
Primary School	34 (8,5)
No Formal Education	3 (0,8)
Occupation	
Civil Servant/Military/Police	87 (21,8)
Private Employee	73 (18,3)
Self-employed	145 (36,3)
Farmer/Fisherman	86 (21,6)
Daily Laborer	8 (2,0)

In terms of educational background, most respondents had completed high school or an equivalent level of education. Educational attainment is a significant factor influencing health literacy, as individuals with secondary education tend to have better comprehension of health-related information disseminated through various media, despite potential limitations in health literacy (Shabila et al., 2014). Higher education levels are associated with increased knowledge of pregnancy warning signs, facilitating the timely recognition and response to maternal health emergencies (Shabila et al., 2014).

Regarding employment status, most respondents were self-employed, accounting for approximately 36,3% of the sample size. Self-employment often affords greater flexibility in working hours, enabling easier access to health information and participation in health counseling programs. Handayani & Mubarokah (2018) found that men engaged in nonformal

employment are more likely to accompany their wives during pregnancy than those in formal employment, primarily due to the stricter time constraints faced by formal workers. This flexibility may contribute to increased involvement and knowledge of maternal health, including nutrition management and emergency prevention.

These demographic factors—age, education level, and employment type—are crucial in shaping husbands’ capacity to acquire and utilize health information effectively. Such characteristics are instrumental in fostering family preparedness to face potential maternal emergencies, especially through targeted educational interventions focusing on nutritional and health-related aspects (Galle et al., 2020).

Gender Exposure and Awareness Levels

Table 2. Exposure to information among husbands (n = 399)

Characteristic	n (%)
Information Exposure	
Exposed	320 (80,2)
Not Exposed	79 (19,8)
Information Sources	
Health Professionals	160 (40,1)
Social Media	106 (26,6)
Internet (YouTube/Website)	20 (5,0)
Health Seminars	11 (2,8)
Health Books/Magazines	10 (2,5)
Television/Radio	3 (0,8)
Family/Friends	10 (2,5)
None	79 (19,8)
Frequency of Information	
Very Frequent (≥1 time/week)	52 (13,0)
Frequent (2–3 times/month)	88 (22,1)
Rare (≤1 time/month)	180 (45,1)
Never	79 (19,8)
Access to Information	
Very Easy	103 (25,8)
Moderately Easy	207 (51,9)
Difficult	69 (17,3)
Very Difficult	20 (5,0)
Activeness in Seeking Info	
Very Active	65 (16,3)
Active	160 (40,1)
Passive	131 (32,8)
Never	43 (10,8)
Level of Knowledge	
Good	311 (77,9)
Poor	88 (22,1)

The majority of respondents' husbands (80,2%) reported being exposed to information on maternal emergency prevention through dietary management. The primary sources of information were health professionals (40,1%), followed by social media and family discussions, which, although accessible, often provided limited guidance. Conversely, a smaller proportion (19,8%) reported no exposure. These findings align with the concept that the availability of health information is a crucial determinant of shaping individual knowledge related to family health (Graham et al., 2024).

Health workers emerged as the most influential source of information, with 40,1% of husbands receiving information from them. This supports previous research indicating that health professionals serve as trusted and effective sources of maternal health information, significantly enhancing awareness and understanding (Mullany et al., 2007; Althabe et al., 2016). In contrast, traditional mass media, such as television and radio, contributed minimally (0,8%), likely reflecting a shift in media consumption patterns toward digital and social media platforms, which are increasingly preferred for disseminating health information (Kues et al., 2014).

In terms of exposure frequency, most husbands (45,1%) reported receiving information infrequently, approximately once per month. This low frequency of exposure may limit the depth of understanding, although basic knowledge can still be acquired (Handayani and Mubarakah 2018). Accessibility to information was generally perceived as manageable, with 51,9% of respondents indicating that access was quite easy, which is an encouraging factor for ongoing health education. Accessibility has been shown to influence husbands' involvement in maternal health support, including emergency preparedness (Shabila et al., 2014).

Furthermore, a significant proportion of respondents (40,1%) described themselves as actively seeking information, reflecting a high level of awareness of their role in supporting maternal health during pregnancy. Active information seeking is associated with increased knowledge and preparedness to recognize the signs of pregnancy danger (Ismawati et al., 2024). Despite the relatively high exposure and active seeking behaviors, the overall level of knowledge about maternal emergency prevention through

nutritional management was predominantly good, with 77,9% of respondents classified as knowledgeable. However, a notable minority (22,1%) demonstrated limited understanding, highlighting the need for targeted and continuous health education.

In summary, while most husbands are exposed to maternal health information, the frequency and depth of this exposure vary. Reliance on health professionals as primary information sources underscores the importance of strengthening healthcare provider-led educational efforts. Enhancing the consistency and diversity of information dissemination could further improve husbands' knowledge, ultimately supporting better family preparedness and maternal emergency prevention through improved nutritional status.

Relationship of Information Exposure to the Husband's Level of Knowledge about Maternal Emergency Prevention Through Dietary Pattern Adjustment

This study revealed a significant association between husbands' exposure to health information and their knowledge of maternal emergency prevention through dietary pattern adjustment. Specifically, respondents who reported being exposed to information demonstrated a markedly higher likelihood of possessing good knowledge (86,9%) than those not exposed (41,8%), with statistical analysis confirming this relationship ($p < 0,001$). These findings support the notion that information exposure is a critical determinant of health knowledge, consistent with Graham et al. (2024) theory that exposure to education, experience, and motivation influences individual awareness and understanding.

Health professionals emerged as the most influential, with 96,2% of respondents who received information from them exhibiting good knowledge of diabetes. This aligns with prior research indicating that health workers serve as trusted and effective sources of maternal health education, facilitating personalized and targeted communication (Mullany et al., 2007; Althabe et al., 2016). Conversely, traditional mass media, such as television and radio, contributed minimally, with only 0,8% of respondents citing these sources, reflecting a shift toward digital and interpersonal channels (Kues et al., 2014).

Interestingly, the frequency of information exposure showed a paradoxical pattern. Although most respondents reported infrequent exposure (once a month), those with this level of exposure demonstrated a surprisingly high proportion of good knowledge (42,4% of respondents). This suggests that the relevance and quality of information may outweigh sheer frequency, emphasizing that targeted, reliable

messages—particularly from health professionals—are more impactful than repetitive or superficial messages (Coombs et al., 2023; Li et al., 2023). Consistent with this, respondents who perceived their access to information as fairly easy also exhibited higher knowledge levels (42,1%), underscoring the importance of accessibility in facilitating knowledge acquisition (Shabila et al., 2014).

Table 4. The Relationship of information exposure to the husband's level of knowledge about maternal emergency prevention through dietary pattern adjustment

Variable	Category	Knowledge			p-value
		Good; n (%)	Poor; n (%)	Total	
Information Exposure	Exposed	278 (86,9)	42 (13,1)	320	<0,0001
	Not Exposed	33 (41,8)	46 (58,2)	79	
Resources	Health Professionals	154 (96,2)	6 (3,8)	160	<0,0001
	Social Media	101 (95,3)	5 (4,7)	106	
	Internet (YouTube/Website)	20 (100,0)	0 (0,0)	20	
	Health Seminars	10 (100,0)	0 (0,0)	10	
	Health Books/Magazines	8 (80,0)	2 (20,0)	10	
	Television/Radio	8 (72,7)	3 (27,3)	11	
	Family/Friends	2 (66,7)	1 (33,3)	3	
	None	8 (10,1)	71 (89,9)	79	
Intensity of Information	Very Frequent	48 (92,3)	4 (7,7)	52	<0,0001
	Frequent	85 (96,6)	3 (3,4)	88	
	Rare	169 (93,9)	11 (6,1)	180	
	Never	9 (11,4)	70 (88,6)	79	
Access to Information	Very Easy	90 (87,4)	13 (12,6)	103	<0,0001
	Moderately Easy	168 (81,2)	39 (18,8)	207	
	Difficult	44 (63,8)	25 (36,2)	69	
	Very Difficult	9 (45,0)	11 (55,0)	20	
Activeness in Seeking Info	Very Active	58 (89,2)	7 (10,8)	65	<0,0001
	Active	138 (86,3)	22 (13,7)	160	
	Passive	97 (74,0)	34 (26,0)	131	
	Never	18 (41,9)	25 (58,1)	43	

Activeness in seeking information significantly influenced knowledge levels. Respondents classified as active or very active in seeking health information had the highest proportion of good knowledge (86,3% and 89,2%, respectively), highlighting the role of proactive engagement in health literacy and behavior change (Ismawati et al., 2024). This proactive behavior not only enhances knowledge but also translates into practical actions, such as dietary modifications, adherence to supplementation, and increased support during antenatal visits, which are vital for preventing maternal emergencies (Dearden et al., 2021; Nassar & Al-Haddad, 2024).

The analysis also demonstrated that easier access to information sources was strongly associated with higher levels of knowledge. Respondents with fairly easy access showed the highest proportion of good knowledge (42,1%), whereas those with very difficult access were more likely to have poor knowledge ($p < 0,001$). These findings align with studies from Nigeria and Tanzania, which emphasize that improved access to health information enhances paternal involvement in maternal care, including nutritional support (Falade-Fatila & Adebayo, 2020; Martin et al., 2021). Conversely, limited access owing to infrastructural, socioeconomic, or digital literacy barriers can hinder paternal participation and

negatively affect maternal health outcomes (Pokhrel et al., 2022; Li et al., 2023).

Furthermore, the study identified that respondents who rarely received information surprisingly exhibited the highest proportion of good knowledge (42,4%); this counterintuitive result may be attributed to the quality and relevance of the messages received by them. Fewer but more targeted and reliable messages, often from trusted sources such as health workers, may facilitate better retention and application of knowledge, whereas frequent exposure to fragmented or conflicting information—particularly from social media—can lead to confusion and information fatigue (Coombs et al., 2023; Wilhelm et al., 2025). This underscores the importance of content quality over quantity in health communications.

In terms of digital media, exposure to social media and Internet platforms contributed to increased knowledge, although their effectiveness depended on health literacy levels. Studies in Europe and North America have shown that concise, well-curated messages delivered through digital channels, such as instant messaging apps, can significantly influence health behaviors, provided they are tailored and interactive (Frennesson et al., 2023; Wilhelm et al., 2025; Hou et al., 2025). These approaches offer scalable solutions to reach a wider audience, especially in contexts with high smartphone penetration rates.

These findings also reinforce the importance of involving husbands in maternal nutrition programs in Indonesia. Interventions in Bangladesh, Mozambique, and Zimbabwe have demonstrated that direct engagement, such as health worker visits, forums, and print materials, enhances fathers' knowledge of and support for maternal health (Nguyen et al., 2018; Galle et al., 2020; Moyo et al., 2024). Moreover, sociocultural factors, including gender norms and occupational demands, influence men's ability to access and utilize health information. Qualitative studies from Kenya and Nigeria have revealed that traditional masculinity and time constraints often limit men's participation, highlighting the need for culturally sensitive, community-based strategies to empower fathers (Isler et al., 2020; Babatunde et al., 2022).

This study affirms that multiple dimensions of information exposure—sources, frequency, accessibility, and activeness—are significantly associated with husbands' knowledge of maternal

emergency prevention through dietary management. The findings emphasize that enhancing access to credible, relevant, and culturally appropriate information is essential for fostering husbands' active involvement in maternal health. Strategies should focus on improving health literacy, leveraging digital media, and engaging community health workers to optimize paternal support and reduce maternal morbidity and mortality rates.

Conclusion

Information exposure, including sources, frequency, accessibility, and activeness, was significantly associated with husbands' knowledge of preventing maternal emergencies through nutritional regulation. Reliable sources, particularly health professionals, contributed most effectively to knowledge improvement in this study's participants.

To strengthen family preparedness, husband-focused education should be integrated into antenatal care, digital health campaigns should be leveraged to deliver credible information, and the role of health workers as primary educators should be reinforced. These strategies are essential for enhancing husbands' involvement and reducing maternal and neonatal risk.

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