

The Relationship Between Health Promotion Media and Improvement Knowledge of Pregnant About the Physical Condition of the Work Area of the Curug Health Center in Serang City in 2025

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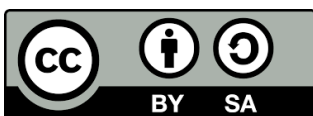
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ABSTRACT

Health promotion plays an important role in improving community health knowledge and encouraging preventive behaviors, particularly among pregnant women who are vulnerable to environmental health risks. Adequate knowledge regarding healthy home environmental conditions, including ventilation, lighting, humidity, sanitation, and occupancy density, is essential to support maternal and fetal health. This study aimed to determine the relationship between health promotion media and pregnant women's knowledge regarding the physical condition of the home environment in the working area of Curug Community Health Center, Serang City, in 2025. This study employed a quantitative approach with a cross-sectional design. The research was conducted from November 2025 to January 2026. The study population consisted of 333 pregnant women, with a sample of 77 respondents selected from the working area of Curug Community Health Center. Data were collected using structured questionnaires and analyzed through univariate and bivariate analyses using the Chi-Square test. The findings showed that 50.6% of respondents received poor-quality health promotion media, while 51.9% demonstrated good knowledge regarding home environmental conditions. Statistical analysis revealed a significant relationship between health promotion media and pregnant women's knowledge, with a p-value of 0.023 ($p < 0.05$). These findings indicate that the availability, accessibility, and quality of health promotion media contribute to improving maternal health knowledge. Strengthening educational strategies through appropriate health promotion media is recommended to support preventive maternal health programs and improve awareness of healthy home environmental conditions.



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INTRODUCTION

The health of pregnant women is one of the priorities in efforts to reduce maternal and infant morbidity and mortality rates. Pregnancy is a vulnerable period in which internal factors (maternal health conditions) and external factors (living environments) significantly contribute to pregnancy outcomes. A healthy home environment, including adequate ventilation, lighting, humidity control, clean floors and walls, proper waste management, and sanitation, can influence the risk of infection, thermal comfort, nutritional status, and overall maternal comfort during pregnancy (Mustikaningrum et al., 2024; Sadi'yah et al., 2021; Sugiester S et al., 2021). Therefore, improving pregnant women's knowledge regarding these aspects is important as a

foundation for behavioral changes that may reduce health risks during pregnancy (Kupang, 2024).

At the district level, indicators related to sanitation access and housing conditions provide an overview of residential environmental conditions. According to statistics from BPS Banten Province (2024), household access to sanitation varies among districts/cities, and these data are important for understanding the prevalence of sanitation-related issues that may affect family health, including the health of pregnant women. To develop effective health promotion interventions in the working area of Curug Health Center, Serang City, it is necessary to understand local sanitation conditions and home environmental quality as the contextual basis for intervention planning (Sugierster S et al., 2021) .

Health promotion is a key strategy for improving health knowledge and practices in communities. Various promotional media, including print media (leaflets and posters), audiovisual media (educational videos), direct lectures or training sessions, and digital media (WhatsApp, Instagram, and Facebook), have been used in health centers and primary healthcare facilities. Studies in Indonesia have shown that educational media, such as leaflets and videos, can improve pregnant women's knowledge regarding specific health topics, including HIV transmission prevention, iron (Fe) tablet consumption, and the first 1,000 days of life (1000 HPK). However, the effectiveness of each medium depends on factors such as material quality, delivery methods, audience literacy levels, technology accessibility, and contextual learning processes involving families and local health cadres. Family health efforts also emphasize the family's ability to modify and maintain a healthy home environment as part of family nursing responsibilities (Załęcki et al., 2024) . Curug Health Center provides various healthcare services for pregnant women and utilizes several communication channels; however, publicly available documentation regarding routinely used promotional media types and their coverage remains limited (I, 2020; Organization, 2024; Ramdiyah, 2013; Sahrul et al., 2023; Załęcki et al., 2024) . Considering the variation in media access among pregnant women, including differences in educational levels, smartphone ownership, and social media usage patterns, research examining the relationship between promotional media types and knowledge improvement in this region can provide practical evidence for strengthening environmental health promotion programs (Cahya et al., 2024) .

The purpose of this study was to determine the relationship between health promotion media and pregnant women's knowledge regarding the physical condition of the home environment in the working area of Curug Health Center, Serang City, in 2025. The findings are expected to provide a basis for developing promotive and preventive intervention models in maternal health services, as well as provide input for healthcare workers and policymakers in strengthening efforts to improve the home environmental conditions of pregnant women at the primary healthcare level (Riyanto., 2020) l.

METHOD

Type of Research

This study employed a quantitative approach with a cross-sectional design and was conducted in the working area of Curug Community Health Center, Serang City. Data were

collected at a single point in time to examine the relationship between health promotion media and pregnant women's knowledge regarding the physical condition of the home environment.

Research Location and Time

Research Location

This study was conducted in the working area of Curug Community Health Center, Serang City.

Research Time

The study was carried out from November 2025 to January 2026.

Population and Sample

1) Population

The population in this study consisted of all pregnant women in the working area of Curug Community Health Center, Serang City, totaling 333 pregnant women.

2) Sample

A sample is a small portion of objects drawn from the entire population under study, considered representative of the whole population (Nursalam, 2016). The sample used in this study consisted of 77 pregnant women.

Research Roadmap

The research roadmap outlines the overall research flow, from the preliminary survey and problem identification through instrument development, data collection, univariate and bivariate data analysis, to the formulation of conclusions and recommendations for the Curug Community Health Center.

Operational Definitions

The operational definitions of the dependent and independent variables used in this study are presented in Table 1 below.

Table 1. Operational Definitions of Variables

No.	Variable	Operational Definition	Measurement Method	Measurement Tool	Measurement Result	Scale
Dependent Variable						
1.	Health Promotion Media	The level of accessibility, acceptance, attractiveness, and comprehension of pregnant women toward the health education media (print, audio-visual, digital) provided by the Community Health Center.	Interview	Questionnaire	1. Poor, if score < mean value 2. Good, if score ≥ mean value	Ordinal
Independent Variable						
2.	Pregnant Women's Knowledge of the Physical Condition of the Home Environment	The level of understanding and recall of pregnant women regarding healthy home physical environment standards, covering aspects of ventilation, natural	Interview	Questionnaire	1. Poor, if score < mean value 2. Good, if score ≥ mean value	Ordinal

No.	Variable	Operational Definition	Measurement Method	Measurement Tool	Measurement Result	Scale
		lighting, water/waste management, flooring, and occupancy density.				

Source: Primary research data, 2025.

Data Collection Method

Prior to conducting the research, the researcher first requested a preliminary data collection cover letter from the Head of the Institute for Research and Community Service (LPPM) of Universitas Faletahan, followed by obtaining research approval from the Head of Curug Community Health Center, Serang City.

Primary Data: primary data are data obtained or collected directly by the researcher from the data source, also referred to as original or up-to-date data. Primary data were obtained by having pregnant women in the working area of Curug Community Health Center complete a questionnaire, with questions related to their level of knowledge and the physical condition of their home environment.

Secondary Data: secondary data are data obtained or collected by the researcher from various existing sources (the researcher acting as a secondary party). Secondary data were obtained by tracing records of pregnant women who underwent antenatal examinations in the working area of Curug Community Health Center.

Data Analysis

Data analysis in a study generally follows a staged procedure, comprising univariate, bivariate, and multivariate analysis (Notoatmodjo, 2012). This study employed only two types of analysis: univariate and bivariate.

Univariate Analysis

Univariate analysis aims to explain or describe the characteristics of each independent and dependent variable. The form of univariate analysis depends on the type of data; in general, this analysis produces only the distribution, frequency, and percentage of each independent variable, namely the level of pregnant women's knowledge of the physical condition of the home environment.

Bivariate Analysis

Bivariate analysis was conducted on two variables presumed to be related or correlated. This analysis aims to examine the relationship between the independent variable (level of pregnant women's knowledge) and the dependent variable (physical condition of the home environment).

RESULTS AND DISCUSSION

Univariate Analysis

The frequency distribution of health promotion media and the level of pregnant women's knowledge is presented in Table 2 below.

Table 2. Frequency Distribution of Health Promotion Media and Pregnant Women's Level of Knowledge

Variable (n = 77)	n	Percentage (%)
Health Promotion Media		
Poor	39	50.6
Good	38	49.4
Knowledge		
Poor	37	48.1
Good	40	51.9

Source: Primary research data, 2025.

The univariate results show that most respondents were exposed to poor-quality health promotion media (50.6%), while most respondents had a good level of knowledge (51.9%).

The frequency distribution of the physical condition of the home environment is presented in Table 3 below.

Table 3. Frequency Distribution of the Physical Condition of the Home Environment

Physical Environmental Condition	Not Meeting Standards (n)	Not Meeting Standards (%)	Meeting Standards (n)	Meeting Standards (%)
Occupancy Density	4	5.2	73	94.8
Home Ventilation	27	35.1	50	64.9
Humidity	25	32.5	52	67.5

Source: Primary research data, 2025.

The univariate results show that most respondents' homes met the standards for occupancy density (94.8%), home ventilation (64.9%), and humidity (67.5%).

Bivariate Analysis

The relationship between health promotion media and increased knowledge among pregnant women regarding the physical condition of the home environment in the working area of Curug Community Health Center, Serang City, in 2025, is presented in Table 4 below.

Table 4. Relationship between Health Promotion Media

Health Promotion Media	Knowledge: Poor (n)	Knowledge: Poor (%)	Knowledge: Good (n)	Knowledge: Good (%)	Total (n)	Total (%)	p-value
Poor	24	61.5	15	38.5	39	100	0.023
Good	13	34.2	25	65.8	38	100	
Total	37	48.1	40	51.9	77	100	

Source: Primary research data, 2025.

Based on the bivariate analysis results in Table 4, of the 39 respondents exposed to poor-quality health promotion media, 24 (61.5%) had poor knowledge and 15 (38.5%) had

good knowledge. Meanwhile, of the 38 respondents exposed to good-quality health promotion media, 13 (34.2%) had poor knowledge and 25 (65.8%) had good knowledge.

The Chi-Square statistical test yielded a p-value of 0.023 ($p < 0.05$), indicating a significant relationship between health promotion media and increased knowledge among pregnant women regarding the physical condition of the home environment in the working area of Curug Community Health Center, Serang City, in 2025.

Discussion

These findings are consistent with the health promotion theory put forward by Pakpahan (2021), which states that health promotion is an effort to provide information in order to increase public knowledge and awareness so that people are able to maintain and control the health determinant factors around them. Positive and consistent behavioral change is more easily achieved when educational interventions are accompanied by an understanding of the surrounding living environment.

Conceptually, knowledge is the result of the human sensory process toward a particular object (Notoatmodjo, 2019). Through the five senses (such as sight and hearing), health promotion media - whether print media (leaflets, posters), audio-visual media (educational videos), or digital media (WhatsApp, social media) - serve as teaching aids that facilitate the absorption of educational material. This study reinforces the findings of (Mustikaningrum et al., 2024) and Suryani et al. (2022), who state that the effectiveness of educational media such as videos and booklets can significantly improve pregnant women's understanding and knowledge compared with education delivered without structured media.

The importance of pregnant women's understanding of the physical condition of the home environment is closely related to the home's function as a basic form of shelter. As explained by (Affandi & Kusmayadi, 2025), physical home environment components such as ventilation area, natural lighting, humidity conditions, water-resistant flooring, and occupancy density are crucial variables determining comfort and the presence of pathogenic microorganisms. Pregnancy is a period highly sensitive to external environmental exposure (BPS Banten Province, 2024). Limited information and restricted access to communicative health promotion media cause some pregnant women to be less aware of the risks that poor air humidity or lighting pose to lung health and physical comfort during the antepartum period (Varney, 2017; Ministry of Health of the Republic of Indonesia, 2019).

The use of good, interactive health promotion media in the working area of Curug Community Health Center has proven able to drive pregnant women's knowledge to the level of comprehension and even application (Notoatmodjo, 2019). Pregnant women do not merely retain health information but are able to identify and improve the physical conditions of their home environment to meet the ideal standards in accordance with Ministry of Health regulations (Minister of Health Decree No. 2 of 2023). Therefore, optimizing the variety of health promotion media used by health workers and cadres at the Community Health Center is an essential preventive measure for improving the health status of pregnant women and their fetuses (Ambarita Hanafi A. & Y, 2022; Notoatmodjo, 2012; Rahmawati, 2016; Sari, 2019).

CONCLUSION

This study concluded that health promotion media had a significant relationship with pregnant women's knowledge regarding the physical condition of the home environment in the working area of Curug Community Health Center, Serang City. The findings showed that 50.6% of respondents received inadequate health promotion media, while 51.9% of pregnant women demonstrated good knowledge regarding home environmental conditions. Bivariate analysis using the Chi-Square test demonstrated a significant association between health promotion media and pregnant women's knowledge, with a p-value of 0.023 ($p < 0.05$). These results indicate that the availability, quality, and accessibility of health promotion media play important roles in improving maternal understanding of healthy home environmental conditions, including ventilation, lighting, humidity, sanitation, and household conditions. Therefore, strengthening health promotion strategies through appropriate educational media can support preventive efforts to improve maternal and fetal health outcomes.

Future research is recommended to employ longitudinal or intervention-based research designs to evaluate the effectiveness of specific health promotion media, such as audiovisual materials, digital platforms, interactive education, and community-based counseling, in improving pregnant women's knowledge and health behaviors over time. Further studies should also involve larger samples and multiple healthcare facilities to enhance the generalizability of findings. In addition, future research may explore other factors influencing pregnant women's knowledge, including educational level, socioeconomic conditions, family support, access to health information, and the roles of healthcare workers and community health cadres in delivering sustainable environmental health promotion programs. Such approaches are expected to provide more comprehensive evidence for developing effective maternal health promotion policies at the primary healthcare level.

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CONFLICT OF INTEREST

The author(s) declared that this work was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

AUTHOR CONTRIBUTIONS

Hana Sarvella contributed to the research design, data collection and processing, system development, analysis of results, and manuscript preparation.

GENERATIVE AI STATEMENT

In the preparation of this article, the author utilized generative artificial intelligence (AI) as a tool to assist with language refinement, structuring the text, and correcting grammar. The use of AI was limited and remained under the author's supervision. All data, analyses, interpretations, and scientific content within this article have been reviewed and verified by the

author. The author bears full responsibility for the accuracy, originality, and final content of the manuscript.

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