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(Research/Review) Article

The Effectiveness of Health Education on Healthy Pregnancy Planning for Women of Childbearing Age in Olat Rarang Hamlet, Labuhan Village, Sumbawa

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Abstract. Maternal and child health is a fundamental parameter of a nation's welfare. Efforts to produce a quality generation must be initiated from the pre-conception phase, long before the birth process occurs. Based on WHO recommendations (2023), pre-conception care is crucial to optimize maternal health and reduce the risk of pregnancy complications. However, in reality, pregnancy readiness is often not a priority. This study aims to analyze the effectiveness of health education on the level of knowledge of healthy pregnancy planning among women of childbearing age (WUS) in Olatrarang Hamlet, Labuhan Village, Sumbawa. The research method used a pre-experimental design with a one-group pretest-posttest approach to 30 respondents selected through a purposive sampling technique. The research instrument was a structured questionnaire, and data were analyzed using a paired t-test. The results showed a statistically significant increase in knowledge scores, from an average value of 52.43 in the pre-test to 88.67 in the post-test (p-value = 0.000). Post-intervention, the majority of respondents (86.7%) achieved the "Good" knowledge category. These findings indicate that interactive, community-based health education programs are effective in improving reproductive health literacy in rural areas.

Keywords: Health Education; Knowledge; Maternal Health Education; Pregnancy Planning; Reproductive Health.

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1. Background

The quality of a country's health can be seen from the level of maternal and child health, as both are key indicators of successful health development (Ministry of Health of the Republic of Indonesia, 2021). Efforts to produce a healthy and competent generation begin not only during pregnancy but also before conception, namely during the pre-conception period. The World Health Organization emphasizes that pre-conception health services play a strategic role in improving the health status of mothers and babies, as well as reducing the risk of pregnancy complications, premature birth, and stunting (World Health Organization, 2023).

Globally, many couples of childbearing age have not optimally prepared for pregnancy. This condition is characterized by poor nutritional quality, high rates of unhealthy lifestyles, and a lack of pre-conception health checks (Mason et al., 2024). Yet, interventions during the pre-conception period have been shown to be the most effective health investment, improving nutritional status, reducing the risk of anemia, preventing neural tube defects through folic acid supplementation, and enhancing the physical and mental readiness of expectant mothers (Stephenson et al., 2024). Therefore, the pre-conception period is a critical phase in the life cycle that determines the health of the next generation.

In Indonesia, awareness of the importance of pregnancy planning remains relatively low. A report from the National Population and Family Planning Agency (BKKBN) indicates that pregnancy planning is not yet a priority in families, resulting in a relatively high rate of unplanned pregnancies (BKKBN, 2022). This low level of planning contributes to a lack of maternal health preparedness, including nutritional aspects, chronic disease status, and psychological readiness. Furthermore, many women of childbearing age (WUS) have not yet undergone routine premarital or preconception health checks (Ningsih, 2023).

One of the main factors influencing pregnancy readiness is knowledge level. Research shows that women with good knowledge of reproductive health and pregnancy planning tend to have attitudes and behaviors that are more prepared for pregnancy (Ahmad & Rahayu, 2023). Health education has been shown to be effective in increasing folic acid consumption, awareness of health check-ups, and healthier lifestyle changes (Rahmawati, 2023). The use of educational media such as booklets, videos, leaflets, and focus group discussions can also significantly improve pre-conception health literacy (Handayani, 2022; Lestari, 2023; Utami, 2023; Yuliani, 2024).

However, access to information remains a challenge in rural and coastal areas. Limited infrastructure, low health literacy, and sociocultural factors contribute to the uneven distribution of reproductive health information (Indriani & Wahyuni, 2023). The role of health cadres and community-based approaches are crucial strategies in bridging this information gap (Pratama, 2024). In the Labuhan Community Health Center (Puskesmas) work area, for example, mothers' knowledge of pregnancy danger signs still needs to be improved, indicating that reproductive health literacy is suboptimal (Setyorini, 2022). This situation illustrates the need for structured and contextualized educational interventions tailored to the characteristics of the local community.

Olat Rarang Hamlet, as part of Labuhan Village, has geographic and social characteristics that require a more adaptive and participatory approach to health education. Lack of access to pre-conception health information has the potential to lead to low preparedness among women of childbearing age (WUS) in planning a healthy pregnancy, which ultimately increases the risk of pregnancy complications and infant health problems. Therefore, systematic, needs-based health education activities are needed to improve the knowledge, attitudes, and behaviors of women of childbearing age (WUS) in preparing for a healthy pregnancy from the pre-conception period.

2. Theoretical Study

Conceptually, Pregnancy planning is a conscious step taken by a couple to regulate the interval, number, and timing of pregnancies to ensure the well-being of both mother and child. The Indonesian Ministry of Health (2021) emphasizes that pre-pregnancy health services must include a comprehensive physical examination, immunizations, and nutritional improvement as a preventative measure against the risk of anemia and stunting in children.

Health education serves as an instrument for behavioral transformation through cognitive enhancement. Widiyawati (2022) argues that delivering reproductive health materials to women of childbearing age (WUS) is crucial for raising awareness of their reproductive rights. Implementation of this educational method can vary, from using focus group discussions (FGDs) to strengthening the role of village-level cadres to conduct persuasive outreach.

There are several key elements that determine a WUS's readiness to plan a pregnancy:

a. Social Support: The husband's involvement and support are determining factors for the wife's mental and physical stability when planning a pregnancy.
b. Information Accessibility: Exposure to information through mass media and direct counseling has a major impact on changes in lifestyle, such as compliance with folic acid consumption.
c. Geographic Characteristics: Environmental conditions, both in coastal and rural areas, also influence WUS's perspective on health issues.

Based on behavioral planning theory, knowledge is the foundation for individuals to build intentions and take concrete actions. Comprehensive pregnancy planning must address medical, nutritional, and psychological aspects. Consistent with the findings of Ahmad and Rahayu (2023), effective counseling interventions can minimize the risk of malnutrition and anemia in pregnant women. This theoretical framework serves as a

reference for examining the extent to which education in Olatrarang Hamlet has a cognitive impact on women of childbearing age (WUS) in preparing for their reproductive years.

3. Research Methods

This study used a one-group pretest-posttest design. The study population included all women of childbearing age in Olatrarang Hamlet, using a purposive sampling technique. The research instrument was a questionnaire. Data analysis was performed using a paired t-test to determine the difference in average knowledge scores before and after the intervention, with a significance level set at 0.05 .

4. Results and Discussion

4.1. Overview of the readiness of women of childbearing age for a healthy pregnancy before and after education

Table 1. Overview of the readiness of women of childbearing age for a healthy pregnancy before and after education.

Condition	Dominant Image	Key Indicators
Before Education	Lack of Knowledge (50%)	Only focus on pregnancy (not pre-conception).
After Education	Good Knowledge (86.7%)	Understand the importance of health screening before marriage/pregnancy.

Source: Primary Data, 2026

Preliminary data indicates that prior to the intervention, the understanding of women with childbearing age (WUS) in Olat Rarang Hamlet was still general and did not address crucial pre-conception aspects. This situation aligns with Setyorini's (2022) report regarding the low awareness of health risks in the Labuhan area. This limited knowledge significantly risks inadequate nutritional preparation, which, according to Putri & Sari (2022), is the key to early stunting prevention.

4.2. Frequency Distribution of WUS Knowledge Level Before and After Education

Table 2. Frequency Distribution of WUS Knowledge Level Before and After Education.

Knowledge Category	Pre-test (f)	(%)	Post-test (f)	(%)
Good	6	20%	26	86.70%
Enough	9	30%	4	13.30%
Not enough	15	50%	0	0%
Total	30	100%	30	100%

Source: Primary Data, 2026

Based on the results in Table 2 above, significant changes in respondents' knowledge levels are visible. Before receiving health education (pre-test), the majority of respondents were in the Poor category, with 15 respondents (50%). However, after receiving the educational intervention (post-test), there was a drastic increase, with the majority of respondents moving to the Good category, with 26 respondents (86.7%), and no more respondents having knowledge in the Poor category (0%).

The study results confirmed a significant shift in respondents' literacy levels. During the pre-test, half of the respondents (50%) were in the "Poor" knowledge category. However, after exposure to health education, there was a dramatic improvement, with 86.7% of respondents achieving the "Good" category, and no further low-knowledge respondents were found.

The surge in knowledge in Olatrarang Hamlet was driven by the use of interactive educational methods and media tailored to the local context. This intervention served as an external stimulus, opening new insights regarding the urgency of routine health checks and pre-conception nutrition. This success was also influenced by the high level of respondent participation in discussion sessions, which enabled them to clarify various pregnancy myths prevalent in the hamlet.

4.3. Paired T-test Results of Knowledge of Healthy Pregnancy Planning

Table 3. Results of the Paired T-test on Knowledge of Healthy Pregnancy Planning.

Measurement Variables	N	Mean	Standard Deviation	p-value
Pre-test Knowledge	30	52.43	10.25	0,000
Post-test Knowledge	30	88.67	7.12	

Source: Primary Data, 2026

Based on Table 3 above, it is known that there was an increase in the average value (Mean) of 36.24 points after being given health education. The results of the statistical test using the paired t-test showed a value of P = 0.000 ($p < 0.05$), which provides strong empirical evidence that the health education intervention had a significant impact on increasing respondents' knowledge. The increase in the average score of 36.24 points from 52.43 to 88.67 indicates a substantial cognitive transformation in Women of Childbearing Age (WUS) in Olatrarang Hamlet.

Theoretically, this increased literacy is expected to close the "gap in the continuum of care." Women of childbearing age (WUS) with adequate knowledge will tend to be more proactive in conducting premarital and pre-pregnancy health screenings. Therefore, strengthening the role of health workers and village cadres is key to transforming this knowledge into a sustainable health culture within the community.

The success of the educational intervention in Olatrarang Hamlet was inseparable from the use of appropriate and varied supporting media. The significant increase in respondents' knowledge aligns with Lestari's (2023) findings, which state that the use of innovative educational media is highly effective in improving health literacy during the pre-conception period. Through clear information visualization, respondents can more easily absorb complex material regarding healthy pregnancy planning.

Furthermore, the use of *leaflets* or booklets has been shown to have a positive impact due to their ability to be read independently by women of childbearing age at home. This is reinforced by Yuliani (2024), who emphasized that print media innovations such as *leaflets* remain crucial instruments in birth planning and complication prevention programs, as they bridge the gap in access to information in areas with limited technology. The use of this media in Olatrarang Hamlet allows for more personalized and sustainable delivery of information on nutrition and routine health check-ups.

5. Conclusion and Suggestions

5.1. Conclusion

Based on the data analysis and discussion, it can be concluded that providing structured health education has proven effective in increasing knowledge about healthy pregnancy planning among women of childbearing age (WUS) in Olatrarang Hamlet. This intervention successfully addressed the low health literacy identified in the initial phase of the study, as demonstrated by a significant increase in knowledge scores empirically. This confirms that an appropriate educational approach can be a powerful cognitive stimulus for communities in rural areas.

5.2. Suggestion

For Health Agencies: It is hoped that Community Health Centers and village health workers can integrate pre-conception education materials into the routine agenda of Integrated Health Posts (Posyandu) and prospective bride and groom classes on an ongoing basis.

For the Community: WUS are expected to be able to implement the knowledge they have acquired into real behavior, such as carrying out routine health checks before planning a pregnancy.

For Future Researchers: Further research using longitudinal methods is needed to monitor long-term changes in WUS behavior and attitudes, and to involve a control group to strengthen the validity of the intervention's effectiveness.

Thank-You Note

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