

Improving Pregnant Women's Knowledge Through Health Education About Congenital Hypothyroid Screening (Chs)

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ARTICLE INFO

Keywords: Health Education, Pregnant Women, CHS

Received : 20, January

Revised : 15, February

Accepted: 18, March

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ABSTRAK

The low awareness of pregnant women regarding Congenital Hypothyroidism Screening (CHS) remains a challenge in the early detection and prevention of developmental disorders in newborns. This issue is caused by limited information, inadequate access to education, and less interactive communication approaches in healthcare facilities. This community service was conducted simultaneously on December 4, 2025, at Puskesmas Tanjung Selor, RS dr. Soemarno Sosroatmodjo, and Puskesmas Vera-Cruz to improve pregnant women's knowledge and awareness regarding CHS. This community service activity employed a descriptive quantitative approach through communicative and participatory health education supported by visual media. The results indicated a significant increase in maternal knowledge, with the average pretest score of 7.62 rising to 10.80 in the posttest. The Wilcoxon Signed Rank Test showed a significance value of < 0.001 , confirming the effectiveness of the educational intervention. Visual media and interpersonal communication strategies proved effective in improving pregnant women's comprehension of the importance of CHS, as well as fostering awareness and adherence to screening procedures. These findings highlight that interactive, participant-centered educational innovations can be replicated in other settings to enhance maternal knowledge and health-related behaviors.

INTRODUCTION

Improving pregnant women's understanding of maternal and child health, particularly regarding Congenital Hypothyroidism Screening (CHS), is an important step in the early detection and prevention of developmental disorders in newborns. CHS is a national program aimed at identifying hypothyroidism at an early stage so that intervention can be provided promptly. However, the level of understanding among pregnant women regarding the importance of CHS remains suboptimal in various regions (Ministry of Health of the Republic of Indonesia, 2023). Limited knowledge, lack of access to information, and ineffective educational approaches are the main barriers to increasing pregnant women's participation in screening procedures.

Problem identification in several healthcare service areas indicates that most pregnant women are still unfamiliar with the benefits and procedures of CHS. The lack of information tailored to target characteristics, low family involvement in decision-making, and limited educational models that are engaging and easy to understand also influence maternal knowledge levels (Sari et al., 2024). Educational efforts provided so far tend to be one-way, less interactive, and have not effectively increased awareness or motivation among mothers to participate in screening programs.

This community service activity was conducted based on the still limited understanding of pregnant women regarding Pregnancy Exercise (Senam Hamil Kehamilan/SHK) and the limitations of educational methods used in maternal healthcare services at Tanjung Selor Community Health Center, dr. Soemarno Sosroatmodjo Hospital, and Vera-Cruz Community Health Center. Existing educational approaches tend to be one-way and involve minimal use of supporting media, resulting in health messages not being fully understood or implemented by pregnant women. This condition highlights the need for more communicative, visual, and contextual educational innovations so that health messages regarding SHK can be delivered more effectively. Various studies and community activities have shown that the use of visual media such as educational videos, infographics, and demonstration tools can improve understanding and information retention among pregnant women (Fakhriyah & Lestari, 2023). In addition, interpersonal communication and participatory discussion approaches have been proven to build trust between healthcare providers and participants, thereby increasing pregnant women's motivation to follow health recommendations.

This community service program aims to develop and test the effectiveness of health education through three approaches: (1) counseling using visual media tailored to the characteristics of pregnant women; (2) interactive discussions as a form of participatory education; and (3) an interpersonal communication approach that provides opportunities for mothers to ask questions and clarify information related to Pregnancy Exercise (SHK). This activity was conducted simultaneously on December 4, 2025, at Tanjung Selor Community Health Center, dr. Soemarno Sosroatmodjo Hospital, and Vera-Cruz Community Health Center. This approach is expected to improve pregnant women's understanding,

awareness, and compliance in following screening procedures and practicing SHK appropriately.

Through this community service activity, it is expected that a more effective educational strategy can be developed, aligned with the needs of the target population, and capable of supporting the success of the national CHS program. In addition to contributing to the improvement of maternal and child healthcare services, this approach is also expected to strengthen efforts to prevent developmental disorders through accurate and targeted early detection.

Implementation



Figure 1. Implementation Documentation

The implementation of the community service activity regarding health education on Congenital Hypothyroidism Screening (CHS) was carried out simultaneously on Thursday, December 4, 2025, at three locations: Tanjung Selor Community Health Center, dr. Soemarno Sosroatmodjo Hospital, and Vera-Cruz Community Health Center. The activity began with a preparation stage in the morning by the community service team, which included checking the completeness of educational materials, demonstration tools, visual presentation equipment, as well as pretest and posttest questionnaires. In addition, the team ensured that administrative and documentation requirements were ready so that the activity could proceed smoothly according to schedule.

After the preparation was completed, the team departed for each activity location. Upon arrival at the healthcare facilities, the team coordinated with local staff to confirm the readiness of the counseling rooms, supporting facilities and infrastructure, and to ensure the safety and comfort of participants throughout the activity. The team then identified respondents using an accidental sampling technique, recruiting pregnant women who were present at the location on that day until the target of 20 respondents per site was achieved, resulting in a total sample of 60 pregnant women. Each respondent was given a brief explanation regarding the purpose of the activity and the questionnaire completion procedure as a form of voluntary participation consent.

The next stage involved conducting a pretest to measure respondents' initial level of knowledge regarding Congenital Hypothyroidism Screening. The pretest consisted of a short questionnaire covering questions about the definition, benefits, procedures, and timing of screening implementation. After all respondents completed the pretest, a health education session was conducted in an interactive and communicative manner. Educational materials were delivered using visual media, slides, and leaflets to facilitate understanding, accompanied by illustrations of the medical consequences if screening was not performed. The team also provided a question-and-answer session, allowing pregnant women to share questions or experiences related to newborn health, creating a participatory and responsive educational environment.

After the educational session was completed, respondents were given a posttest questionnaire to evaluate the improvement in knowledge following the health education intervention. The posttest data were then collected for further analysis. Activities at each location concluded with expressions of gratitude to participants, documentation of the activity, and a brief evaluation by the team regarding field implementation. Overall, the series of activities—from preparation, sample collection, pretest, interactive counseling, to posttest—was conducted smoothly, orderly, and successfully generated complete data to support the purpose of the community service program, namely improving pregnant women's knowledge about the importance of early detection of congenital hypothyroidism in newborns.

RESULTS

Respondent Characteristics

Table 1. Respondent Characteristics (n = 60)

Characteristics	Category	Frequency (n)	Percentage (%)
Age (years)	20–24	15	25%
	25 (majority)	24	40%
	26–30	12	20%
	31–38	9	15%
Gestational Age (Trimester)	Trimester I	9	15%
	Trimester III (majority)	36	60%
	Trimester II	15	25%
Parity	1	24	40%
	2	21	35%
	3	15	25%
Research Location	Tanjung Selor Community Health Center	20	33.3%
	dr. Soemarno Sosroatmodjo Hospital	20	33.3%

Characteristics	Category	Frequency (n)	Percentage (%)
	Vera-Cruz Community Health Center	20	33.3%
Total		60	100%

Based on Table 1, respondent characteristics indicate that the majority of pregnant women were 25 years old, accounting for 24 respondents (40%), while the 20–24 age group consisted of 15 respondents (25%), the 26–30 age group included 12 respondents (20%), and the 31–38 age group comprised 9 respondents (15%). Most respondents were in the third trimester of pregnancy, totaling 36 respondents (60%), followed by the second trimester with 15 respondents (25%) and the first trimester with 9 respondents (15%). Based on parity, respondents with parity 1 represented the largest group, consisting of 24 individuals (40%), followed by parity 2 with 21 respondents (35%) and parity 3 with 15 respondents (25%). This activity was conducted at three locations with an equal number of respondents at each site: Tanjung Selor Community Health Center, dr. Soemarno Sosroatmodjo Hospital, and Vera-Cruz Community Health Center, each contributing 20 respondents (33.3%). The total number of respondents in this study was 60 pregnant women.

Pregnant Women's Knowledge of CHS Screening (Pretest)

Table 2. Pregnant Women's Knowledge of CHS Screening (Pretest)

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Pretest	60	3.00	11.00	7.6167	2.00923

The pretest results shown in Table 2 indicate that pregnant women's level of knowledge before receiving health education regarding Congenital Hypothyroidism Screening (CHS) had a minimum score of 3.00 and a maximum score of 11.00, with a mean of 7.6167 and a standard deviation of 2.00923. These findings suggest that prior to the educational intervention, pregnant women's knowledge was still varied and generally categorized as moderate, but not evenly distributed among all respondents.

Pregnant Women's Knowledge of CHS Screening (Posttest)

Table 3. Pregnant Women's Knowledge of CHS Screening (Posttest)

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Posttest	60	6.00	15.00	10.8000	1.96408

Table 3 presents the posttest results after the provision of health education. The minimum knowledge score increased to 6.00, while the maximum score reached 15.00, with a mean of 10.8000 and a standard deviation of 1.96408. The increase in the average knowledge score compared to the pretest results indicates that the health education intervention had a positive impact on improving pregnant women's understanding of the importance of Congenital Hypothyroidism Screening (CHS).

Statistical Analysis

Wilcoxon Signed Rank Test

Table 4. Wilcoxon Signed Rank Test

Variable	N	Mean	Std. Deviation	P Value
Pretest	60	7.6167	2.00923	<0.001
Posttest	60	10.8000	1.96408	

The results of the Wilcoxon Signed Rank Test in Table 4 show that the significance value was <0.001; therefore, the testing decision was to reject the null hypothesis. Thus, there was a significant difference between the pretest and posttest scores. This finding indicates that health education regarding Congenital Hypothyroidism Screening (CHS) significantly improved pregnant women's knowledge. The educational intervention proved effective in enhancing understanding and awareness of the importance of early detection of congenital hypothyroidism in newborns.

DISCUSSION

The study results demonstrated a clear difference in the level of pregnant women's knowledge before and after receiving health education regarding Congenital Hypothyroidism Screening (CHS). In the pretest, respondents' knowledge scores ranged from 3.00 to 11.00, with a mean score of 7.6167 and a standard deviation of 2.00923. These findings indicate that prior to the intervention, pregnant women's knowledge was varied, with most respondents categorized as having moderate understanding, although knowledge distribution was not uniform. Some respondents had very limited understanding of CHS, including its purpose, procedures, benefits, and the consequences if screening was not performed. This condition reflects an information gap that may influence pregnant women's awareness and readiness to participate in screening for their babies (Munir et al., 2023).

After receiving direct, interactive health education supported by engaging visual media, the posttest results showed a significant improvement. Posttest scores ranged from 6.00 to 15.00, with a mean score of 10.8000 and a standard deviation of 1.96408. This improvement indicates that health education significantly enhanced pregnant women's understanding. This phenomenon may be explained by the educational approach, which was not only informative but also communicative and participatory, allowing pregnant women to absorb information effectively. Opportunities to ask questions, engage in discussions, and receive direct clarification from the education team increased learning effectiveness and reduced confusion or misconceptions regarding CHS (Wiratni et al., 2025).

Further analysis showed that the pretest data were not normally distributed, whereas the posttest data followed a normal distribution; therefore, the non-parametric Wilcoxon Signed Rank Test was applied. The test results showed a significance value of <0.001, indicating a statistically significant difference between pretest and posttest scores. This confirms that the health education intervention had a clear positive impact on pregnant women's

knowledge regarding the importance of early detection of congenital hypothyroidism in newborns (Muharis & Triani, 2024; Sulistyani & Triana, 2024).

The increase in knowledge can be explained through several mechanisms. First, the systematic delivery of educational materials—from definitions, objectives, procedures, benefits, to the medical consequences if screening is not performed—helped pregnant women understand the context and urgency of CHS. Second, the use of visual media and real-life examples made the information easier to remember and apply in daily life. Third, the interactive nature of the educational sessions allowed pregnant women to actively participate, ask questions about unclear concepts, and receive immediate feedback, making the learning process more meaningful and comprehensive (Fadillah & Yarah, 2025; Kusika & Syamsu, 2020).

These findings are also consistent with health education and health literacy theories, which state that an individual's understanding of health information is influenced by how the information is delivered, opportunities for interaction, and a supportive learning context. With increased knowledge, pregnant women are expected to become more aware of the importance of participating in CHS screening and more capable of making informed decisions for their babies' health. Increased knowledge may also improve adherence to congenital hypothyroidism early detection programs, which represent an important preventive effort against developmental disorders in newborns (Purnama & Widyastuti, 2020; Radhia et al., 2023).

Nevertheless, posttest results indicated that not all respondents achieved maximum scores, suggesting differences in individuals' ability to absorb information. Factors that may influence this include educational level, previous pregnancy experience, interest, concentration during counseling sessions, and social and cultural background. This highlights the importance of repeated and continuous educational approaches, including the provision of printed or digital learning materials that can be reviewed independently, as well as reinforcement through counseling sessions or follow-up by healthcare professionals (Muharis & Triani, 2024).

As researchers, it can be concluded that health education regarding Congenital Hypothyroidism Screening effectively improves pregnant women's knowledge. This increase in knowledge not only broadens maternal awareness but also has the potential to enhance participation in newborn screening programs. For optimal and sustainable outcomes, it is recommended that educational activities be conducted regularly and supported by healthcare facilities, family members, and the surrounding community. In this way, health education interventions can truly function as an effective preventive strategy for the early detection of congenital hypothyroidism.

CONCLUSION AND RECOMMENDATIONS

Based on the results of the community service program conducted at three locations, health education regarding Congenital Hypothyroidism Screening (CHS) significantly improved pregnant women's knowledge, as reflected in the increase of the average pretest score from 7.62 to 10.80 in the posttest, with a

significance value of <0.001 . Educational approaches that are communicative, participatory, and supported by visual media proved effective in strengthening pregnant women's understanding of the importance of early CHS detection, thereby increasing awareness and adherence to screening procedures. To support the sustainability of these outcomes, it is recommended that educational activities be conducted regularly, supplemented with additional learning media, utilize interactive methods, include post-education monitoring, and involve family members to strengthen support and adherence among pregnant women.

Acknowledgments

We would like to express our gratitude to **Ngudi Waluyo University** and the coordinators at the research locations for their support and assistance in facilitating this study.

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