
EFFECT OF BREAST CARE EDUCATION USING BOOKLETS ON THIRD-TRIMESTER PREGNANT WOMEN'S KNOWLEDGE

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ABSTRACT

Background: Pregnancy involves a range of physiological and psychological adjustments, including increased body weight and visible changes in skin and breast tissue. According to the 2023 Indonesian Health Profile, approximately 40% of breastfeeding mothers experience nipple soreness and mastitis. The present study sought to examine how health education on breast care, delivered through booklet media, influences the knowledge levels of third-trimester pregnant women at PMB Eny Puji Hastuti, Semarang.

Methods: A quantitative, pre-experimental design using a one-group pretest–posttest approach was applied in this research. All 35 third-trimester pregnant women in the study population were recruited as respondents using a purposive sampling technique, and data were collected between January and February 2025. A validated breast care questionnaire served as the primary data-collection instrument, and the Wilcoxon Signed-Rank Test was used to analyze the data.

Results: Findings revealed a significant effect of booklet-based health education on breast care, improving the knowledge of third-trimester pregnant women at PMB Eny Puji Hastuti (p -value = 0.000; $\alpha \leq 0.05$).

Conclusion: Booklet-based health education was found to meaningfully enhance third-trimester pregnant women's knowledge of breast care at PMB Eny Puji Hastuti, Semarang.

Keywords: booklet media, breast care, education, knowledge level

INTRODUCTION

Spanning roughly 280 days, or 40 weeks, from conception to delivery, pregnancy unfolds across three distinct trimesters and is a pivotal stage in a woman's life (Rahmawati & Realita, 2016). Throughout this period, mothers undergo a series of physiological and psychological shifts, including reproductive and physical adaptations such as breast tissue enlargement, darkening of nipple pigmentation, and heightened sensitivity in the breast area (Uswatun Qoyyimah et al., 2023). Left unmanaged, these changes may give rise to irritation, infection, swelling, or interference with milk production (Alhadar & Umaternate, 2017). Breast care is therefore recommended to minimize breast engorgement and support a smoother lactation process (Ernawati et al., 2022). Since the breasts serve as the newborn's primary nutritional source through breastfeeding, their condition during pregnancy carries significant downstream importance. Even so, a considerable number of pregnant women either remain unaware of or fail to practice breast care, largely as a consequence of limited knowledge and insufficient guidance from health professionals (Darmawati et al., 2023). This positions health workers as key contributors to achieving exclusive breastfeeding goals (Ernawati et al., 2022), an outcome that matters greatly given the protective role exclusive breastfeeding plays against malnutrition and infant illness,

even though coverage rates across Indonesia, Semarang City included, continue to fall short of the 100% national benchmark (BPS, 2024; Elvina, 2020).

Recommended third-trimester breast care practices encompassing hygiene maintenance, nipple massage, and breast preparation for nursing help guard against breastfeeding complications and promote uninterrupted milk flow (Nurhayati, 2017). Carrying out these practices correctly, however, depends heavily on whether pregnant women possess sufficient understanding of them, which is precisely where health education becomes indispensable for strengthening maternal awareness and skill in breast care. Functioning as an initial preventive measure against health complications (Ernawati et al., 2023), Health education has been shown to meaningfully raise both knowledge and awareness among pregnant women regarding the value of breast care (Sulistiyowati et al., 2017). A range of instructional formats supports this kind of education, including pocket guides, posters, flip charts, booklets, videos, televised messaging, and other digital media, among them (Ernawati et al., 2023), with booklets in particular standing out as a consistently effective option for building pregnant women's understanding of breast care (Dewi, 2018; Fitriani, 2021).

Prior studies further indicate a meaningful link between knowledge levels and the actual practice of breast care (Indrasari, 2016). These studies concluded that mothers with better knowledge tend to develop more positive mindsets and attitudes toward their breast care, which in turn supports breastfeeding outcomes (Isma & Janiah, 2024). A preliminary investigation at PMB Eny Puji Hastuti Semarang, conducted through direct interviews with pregnant women attending antenatal visits, identified 8 respondents, most of whom were in their third trimester. These initial findings suggested that most had little understanding of, or had not engaged in, appropriate breast care, compounded by the facility's lack of any structured breast care education program. In light of this gap, the present study aimed to assess how booklet-based breast care health education affects the knowledge levels of third-trimester pregnant women at PMB Eny Puji Hastuti.

RESEARCH METHOD

This research adopted a quantitative, pre-experimental design built around a one-group pretest–posttest framework. Data collection took place between January and February 2025 at PMB Eny Puji Hastuti, located on Jl. Raya Ampel–Simo No. 16, Canggal, Jetis, Kaliwungu, Semarang, Central Java. Drawing from a population of 35 third-trimester pregnant women, the researchers applied a non-probability, purposive sampling strategy, ultimately enrolling all 35 individuals as study respondents. Eligible participants were third-trimester pregnant women who consented in writing to take part, presented with normal, low-risk pregnancies (excluding those with a history of preterm birth, miscarriage, ongoing bleeding, or severe preeclampsia), possessed basic literacy skills, and had not previously received any breast cancer–related health education. Pregnant women were excluded from the study if they had pregnancy complications, a prior history of breast disorders, or worked within the healthcare profession.

Data were gathered using a validated, reliability-tested questionnaire covering respondent demographics and 25 items assessing knowledge of breast care among third-trimester pregnant women. The intervention relied on a breast care booklet specifically developed by the research team for this population, which had also undergone validity and reliability testing beforehand. Its content spanned anatomical changes in the breast during pregnancy, the definition, purpose, and benefits of breast care, core care principles, nutritional recommendations, the appropriate timing and frequency for performing breast care, the tools and materials needed, step-by-step care techniques, and guidance on preparing for breastfeeding. Analytically, the study combined univariate analysis to

characterize respondent profiles with bivariate analysis to assess relationships between independent and dependent variables, using the nonparametric Wilcoxon test. Ethical clearance for the research was granted by the Health Research Ethics Committee of Kusuma Husada University Surakarta, under document number 2595/UKH.L.02/EC/II/2025.

RESULTS

The results of this study are presented by describing the respondents' characteristics and levels of knowledge before and after the intervention.

Table 1. Frequency Distribution of Respondent Characteristics (n=35)

Characteristics	Frequency (f)	Percentage (%)
Age		
20-30 Years	29	82,9
>30 Years	6	17,1
Pregnant		
Primigravida	14	40,0
Multigravida	21	60,0
Education		
SMP	4	11,4
SMA	20	57,1
S1	11	31,4
Work		
Work	20	57,1
Not Working	15	42,9

Source: Primary Data 2025

Based on the respondent characteristics table, it was shown that the respondents in the study had the most pregnant women aged 20-35 years, as many as 29 people (82.9%), and the pregnancy status of the majority of respondents was multigravida, as many as 21 pregnant women (60.0%). The majority of high school/vocational school students are 20 years old (57.1%), and 20 of them are pregnant (57.1%).

Table 2. Frequency Distribution of the Knowledge Level of Pregnant Women Before Intervention

Knowledge Level	Frequency (f)	Percentage (%)
Pretest		
Good (76%-100%)	14	40,0
Adequate (56%-75%)	15	42,9
Less (<56%)	6	17,1
Total	35	100

Source: Primary Data 2025

Based on the frequency distribution table of the level of knowledge of pregnant women before being given the intervention, there were 14 pregnant women who had a good level of knowledge (40.0%), 15 pregnant women with sufficient knowledge (42.9%), and 6 pregnant women who had poor knowledge (17.1%).

Table 3. Frequency Distribution of the Knowledge Level of Pregnant Women After Intervention

Knowledge Level	Frequency (f)	Percentage (%)
Posttest		
Good (76%-100%)	32	91,4
Adequate (56%-75%)	3	8,6
Total	35	100

Source: Primary Data 2025

Based on the frequency distribution table of the level of knowledge of pregnant women after being given intervention, there is a very significant increase in the knowledge of pregnant women, where there are 32 women who have a good level of knowledge (91.4%) and 3 pregnant women who have a sufficient level of knowledge (8.6%).

Table 4. The Effect of Health Education on Breast Care Using Booklet Media on the Level of Knowledge of Pregnant Women in the Third Trimester at PMB Eny Puji Hastuti Semarang

Research Variables	Z	p-value
Knowledge Level of Pregnant Women	-5,184	0,000

Source: Primary Data 2025

Based on the statistical test with *the Wilcoxon Signed Ranks* test in table 4, it shows that the correlation (*z score*) between the two variables is -5.184 with a *p-value* of 0.000 ($\alpha \leq 0.05$), so it can be concluded that there is a significant influence between the variables of health education about breast care using *booklet* media with the level of knowledge of pregnant women in the third trimester.

DISCUSSION

Respondent Characteristics

Findings from PMB Eny Puji Hastuti indicate that the study population was dominated by third-trimester pregnant women aged 20-35 years. This age bracket is widely regarded as optimal for pregnancy, given that women within this range typically maintain stable physical and psychological conditions, leaving them better equipped to navigate pregnancy and absorb health-related information (Lestari, 2023). Such a pattern aligns with earlier work suggesting that women within their reproductive prime tend to process information more effectively and reason more clearly, particularly in the context of health education interventions (Fauza, 2021).

With regard to pregnancy status, multigravida women made up the larger share of respondents. Having already navigated similar challenges in earlier pregnancies, including recognizing the value of breast care in preventing breastfeeding difficulties, these mothers often arrive at subsequent pregnancies more prepared for the breastfeeding process (Prihandani et al., 2021). Interestingly, other research points in a somewhat different direction, finding that primigravida mothers display stronger learning motivation, driven by the novelty of a first pregnancy and a corresponding urge to seek out information that supports their well-being (Purwoastuti, 2019). Taken together, these findings imply that prior pregnancy experience can shape both a woman's motivation and her readiness to seek information.

Educational background also factored into the picture, with most respondents having completed high school or vocational level schooling. Since education shapes both mindset and the capacity to process information, including knowledge related to breast care, mothers with more advanced education tend to grasp the significance of prenatal care more readily (Rahayu & Ernawati, 2020).

Employment status further distinguished the sample, as more than half of the respondents were pregnant women. Workplace settings often open up additional avenues for accessing health information, whether through digital platforms or conversations with coworkers. Beyond that, employment tends to sharpen critical thinking and broaden general awareness, both of which support stronger maternal knowledge of breast care during pregnancy (Wahit, 2017).

Pregnant Women's Knowledge Level Before Being Given the Intervention

Prior to the booklet-based health education intervention, the study found that among the 35 third-trimester pregnant women at PMB Eny Puji Hastuti, the largest share 42.9% fell into the sufficient knowledge category, followed by 40.0% with good knowledge and 17.1% with poor knowledge. Observation suggests that this predominance of sufficient-level knowledge stems largely from gaps in respondents' understanding of when breast care should be performed, the physiological changes occurring during pregnancy, and the potential risks of neglecting such care. By contrast, those placed in the good knowledge category generally grasped the purpose, benefits, and pre-delivery effects of breast care more thoroughly (Hasmi, 2016).

Maternal knowledge of this kind tends to draw on a mix of sources, including personal experience, social environment, and exposure to social media. This observation is consistent with earlier findings showing that over half of respondents possessed adequate knowledge, shaped in part by their reproductive-age status and prior breastfeeding experience (Chori et al., 2021). Emotional maturity and accumulated experience have likewise been identified as contributors to stronger maternal knowledge (Rachmawati & Tria, 2017), a conclusion echoed by another study reporting that most pregnant women held sufficient knowledge, particularly knowledge rooted in personal experience (Putriningrum et al., 2019).

Age and education further influence how well individuals are able to comprehend and reason through new information. Maturity that comes with age tends to sharpen one's mindset, while a higher level of education generally makes it easier for mothers to absorb and interpret information, breast care included (Uswatun Qoyyimah et al., 2023).

Pregnant Women's Knowledge Level After Intervention

Following the booklet-based health education intervention, third-trimester pregnant women at PMB Eny Puji Hastuti Semarang exhibited a marked improvement in knowledge, with 91.4% of respondents reaching the good knowledge category and the remaining 8.6% classified as having sufficient knowledge. This shift underscores how effective health education can be in deepening pregnant women's understanding of breast care (Putri, 2025).

This increase cannot be separated from supporting factors such as age, education level, information exposure, socioeconomic conditions, and previous experience. A similar study conducted at the Iringmuyo Health Center also showed similar results, where health counseling succeeded in significantly increasing the knowledge of pregnant women (Putri et al., 2025).

The educational factor is one of the main aspects that affect the success of counseling. Pregnant women with secondary and tertiary education tend to understand the material presented more easily, as stated by Rahmawati & Realita (2016). The counseling material in this study covers various important aspects, such as definitions, goals, tools, and techniques of breast care, as well as the impact if treatment is not carried out since pregnancy.

The Media *Booklet* has proven effective as an educational tool. With its small size, compact content, and combination of text and images, *Booklet* facilitates understanding and allows pregnant women to repeat the material independently whenever needed. This advantage makes the *Booklet* a practical and efficient medium for health education (Nugroho & Ahmad, 2023). The other research also supports these findings, showing a significant increase in knowledge after counseling with a similar approach (Qoyyimah et al., 2023).

The Effect of Health Education on Breast Care Using *Booklet Media* on the Level of Knowledge of Pregnant Women in the Third Trimester at PMB Eny Puji Hastuti Semarang

This study shows that before the health education intervention, most pregnant women in the third trimester had a relatively adequate level of knowledge (42.9%). However, after being educated through *booklet* media, the majority of respondents moved into the good knowledge category (91.4%). This shows that these interventions are effective in increasing pregnant women's knowledge about breast care (Winarsih & Siti, 2015).

This increase in knowledge aligns with the theory that knowledge is the first step in behavior change. Without a clear understanding, a person will not be able to adopt the right attitude or take the right action. In this context, pregnant women who understand the importance of breast care will be better prepared to take actions that support breastfeeding success (Putri, 2019).

The Media Booklet, as an educational tool, has many advantages. In addition to presenting the material in a structured manner, combining images and text, the Booklet is practical because it can be taken home and read repeatedly. The material presented includes definitions, goals, steps, and the impact of not doing breast care since pregnancy. This allows pregnant women to access information easily and improve their understanding independently (Notoatmodjo, 2017).

The results of Wilcoxon's statistical test showed that $Z_{cal} = 5,184 > Z_{tabel} = 1.96$, with a p-value = 0.000, indicating a significant association between the provision of booklets and increased knowledge among pregnant women. This finding is supported by other research showing a significant increase in knowledge after counseling using booklet media compared to *leaflets*. Previous studies have shown that booklet media significantly increases pregnant women's knowledge compared to other media (Dewi, 2018; Fitriani, 2021; Putri, 2019).

The use of media in health education is very important to facilitate a deeper understanding. An attractive and appropriate delivery can form positive perceptions and motivate mothers to perform breast care. Breast care practices initiated during pregnancy help prepare mothers for exclusive breastfeeding and enhance both physical and psychological readiness for breastfeeding. In this study, the authors observed that booklet media encouraged active participation among pregnant women, as evidenced by increased engagement during educational sessions and frequent questions about breast care practices. The visual illustrations in the booklet helped participants better understand the steps of breast care, making the educational process more interactive and easier to comprehend (Wirasih et al., 2024).

CONCLUSION

This study concludes that health education on breast care using booklet media significantly improves the knowledge levels of third-trimester pregnant women at PMB Eny Puji Hastuti Semarang. The provision of educational booklet media effectively enhanced mothers' understanding of breast care, as evidenced by the increase in knowledge after the intervention. Therefore, booklet-based health education can be considered an effective educational medium to support breast care practices during pregnancy.

RECOMMENDATIONS

It is recommended that midwifery services implement breast care health education using booklet media as a routine educational intervention for third-trimester pregnant women. The use of booklets can be easily integrated into antenatal care visits to improve

mothers' knowledge and readiness for breastfeeding. This approach can be applied immediately in midwifery clinics to support consistent and effective health education during pregnancy.

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