

The Effect of Health Education about Back Massage on the Level of Knowledge in Adapting Labor Pain

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Abstract:

Labor pain is a physiological phenomenon experienced by every pregnant woman. However, the response to this pain varies greatly, from screaming and crying to getting angry. One non-pharmacological method that can be used to reduce labor pain is back massage. This technique involves applying pressure to soft tissue, such as muscles, tendons, or ligaments, without causing joint movement. Massage not only relieves pain but also increases relaxation and improves blood circulation. However, an initial Bukit Hindu Palangka Raya Community Health Center survey showed that most pregnant women did not understand this technique. Therefore, this study aims to evaluate the effect of health education regarding back massage techniques on the level of knowledge of pregnant women in adapting to labor pain. This research uses a pre-experimental design with a "one-group pre-test and post-test design" approach. Sampling was carried out by purposive sampling with 30 pregnant women as respondents. Data were analyzed using the Wilcoxon statistical test to assess differences in knowledge levels before and after intervention. The results of statistical analysis show a significance value $< p\text{-value}$ ($0.000 < 0.05$), which means the alternative hypothesis (H_a) is accepted. This shows that health education about back massage techniques has a significant influence on increasing the level of knowledge of pregnant women in adapting to labor pain. This research proves that health education effectively increases pregnant women's understanding of back massage techniques. This method can be a non-pharmacological solution to reduce labor pain. It is hoped that health workers can be more proactive in educating pregnant women through direct discussions or visual media such as flipcharts. Health education about back massage techniques has been proven to increase pregnant women's knowledge in adapting to labor pain. Implementing this kind of counseling routinely in health facilities is important to support the mother's comfort during birthing.

Article info:

Submitted:
09-03-2025
Revised:
11-04-2025
Accepted:
14-04-2025

Keywords:

back massage; labor pain; health education; pregnant women; level of knowledge

DOI: <https://doi.org/10.53713/htechj.v3i2.349>

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INTRODUCTION

Labor pain is a physiological phenomenon experienced by almost all pregnant women during childbirth (Konlan et al., 2021). This pain is caused by uterine contractions, pressure on soft tissue, and stretching of ligaments and surrounding tissue during birth (White et al., 2022). Although labor pain is natural, responses to it vary significantly between individuals. Some mothers experience excessive stress, anxiety, and even depression due to their inability to manage the pain (Tan et al., 2021; Carolin et al., 2023). Emotional responses such as crying, anger, or even difficulty breathing is often a mother's way of dealing with labor pain. This affects the mother's physical well-being and can hurt the baby's birth process (Srisopa, 2021). One non-pharmacological method that has been proven effective in reducing labor pain is massage or massage. This technique involves gentle

pressure on specific body areas, such as the back, to relieve pain, increase relaxation, and improve blood circulation (Biana et al., 2021; Ismarina et al., 2023). However, an initial survey conducted at the Bukit Hindu Palangka Raya Community Health Center showed that the majority of pregnant women did not understand the technique of massage back as one way to manage labor pain. This lack of understanding is most likely caused by the lack of education given to pregnant women about non-pharmacological methods for dealing with labor pain (Abdelrahman, 2021). Lack of adequate knowledge of techniques massage The back can cause pregnant women to feel anxious and less prepared for the birthing process. In addition, the use of drugs to reduce labor pain is often the primary choice, even though this method carries the risk of side effects for the mother and fetus (Zuarez-Easton et al., 2022). Thus, it is important to provide health education to pregnant women about techniques to massage back so they can manage labor pain independently and more safely (Pietrzak., 2023).

This problem is relevant not only at the local level, such as at the Bukit Hindu Palangka Raya Community Health Center but also globally. In Indonesia, the incidence of labor pain that is not managed well is still relatively high. Pregnant women experience severe pain during labor without receiving adequate support from health workers (Shiferaw et al., 2022). At the global level, it has recommended the use of non-pharmacological methods such as massage, meditation, and breathing techniques to reduce labor pain (Nori et al., 2022). However, implementing these recommendations is often hampered by a lack of education and training for health workers and resources in health facilities. In Indonesia, this challenge is increasingly complex because many pregnant women still live in remote areas with limited access to quality health services. Therefore, it is a matter of pregnant women's understanding of the technique of massage backs is not only local but also reflects the challenges faced by health systems in developing countries.

Usage history massage to reduce labor pain can be traced to ancient times. In some traditional cultures, such as China and India, massage has been used for thousands of years as part of holistic medical practices to improve the health of pregnant women and prepare their bodies for childbirth (Solomon & Tesfaye., 2022; Dahlan et al., 2023). In the modern age, engineering massage began to be studied scientifically, and research results showed that this technique effectively reduced stress, increased relaxation, and improved blood circulation. However, although the benefits of massage have been scientifically recognized, its implementation in modern health practice is still limited (Lin et al., 2023; Abdullah et al., 2023). In Indonesia, this situation is further exacerbated by the lack of training for health workers on alternative techniques such as massage. For example, an initial survey at the Bukit Hindu Palangka Raya Community Health Center showed that the majority of pregnant women had never received information about massage back as part of preparation for childbirth.

The usage of massage as a method of managing labor pain has begun to receive more serious attention in the last few decades (Shahbazzadegan & Nikjou, 2022). scientific research into the effectiveness of massage began to develop rapidly, especially in developed countries such as the United States and Europe. Massage helps reduce physical pain and improves pregnant women's psychological well-being (Ningrum et al., 2024). This research became the basis for many health institutions to include massage in the birth preparation program. However, although its benefits have been scientifically proven, implementing this technique in health facilities is still highly dependent on the cultural context and available resources. In Indonesia, the use of massage in the context of childbirth is nothing new. Since ancestral times, traditional massage has been a common practice to help pregnant women maintain their body's health during pregnancy and childbirth. This practice is usually carried out by traditional birth attendants or traditional workers using coconut oil or certain herbal concoctions. However, with the modernization of health systems and the dominance of

Western medical approaches, these traditional practices are starting to be abandoned. According to Yoshino et al. (2023), the loss of these traditional practices is often caused by a lack of scientific documentation and minimal training for modern health workers on alternative techniques such as massage. As a result, many pregnant women lose access to methods that could help them deal with labor pain more naturally.

Apart from that, the development of modern medical technology has also played a role in shifting the focus of managing labor pain. Along with advances in medical science, the use of drugs such as epidurals has become the leading choice in reducing labor pain. Although epidurals have been proven to be effective, this technique carries a risk of side effects, including a decrease in maternal blood pressure, slowing of the fetal heart rate, and difficulty in normal labor (Callahan et al., 2023). On the other hand, non-pharmacological methods such as massage are rarely promoted because they are considered less "scientific" or less effective than medical interventions. A study by Yoshino et al. (2023) shows that combining pharmacological and non-pharmacological methods can provide more optimal results in managing labor pain. Thus, reviving traditional practices such as massage through structured, evidence-based health education is important.

Based on the description above, it is clear that pregnant women's understanding of the technique of massage back is still minimal, both at the local and global levels. This problem is not just a matter of individual ignorance but also reflects deficiencies in the existing health education system. Therefore, this study aims to evaluate the effect of health education on engineering massage back to the level of knowledge of pregnant women in adapting to labor pain. Hopefully, this research can provide concrete solutions to improve the quality of birth preparation for pregnant women and support the implementation of non-pharmacological methods as part of modern health practices.

METHOD

This research uses a pre-experimental design with a "one group pre-test and post-test design" approach. This design was chosen because the study aimed to evaluate the effect of health education about back massage on the level of knowledge of pregnant women in adapting to labor pain. In this design, measurements are carried out before (pre-test) and after (post-test) the intervention without a control group. This method allows researchers to see the changes that occur in subjects after being given the intervention. This study's population comprised all third-trimester pregnant women who underwent pregnancy checks at the Bukit Hindu Palangka Raya Community Health Center. Based on preliminary data, the number of pregnant women who actively visit the health center reaches 150 people per month. The sampling technique used is purposive sampling, a sample selection method based on specific criteria. The inclusion criteria in this study were: (1) pregnant women in the third trimester, (2) had no pregnancy complications, (3) were willing to follow the research process until completion, and (4) had never received information about the technique massage previous back. Exclusion criteria included pregnant women who had a history of chronic diseases such as hypertension or diabetes mellitus, as well as those who were unable to attend health education sessions due to logistical or time reasons.

Based on statistical considerations and research operational capabilities, the sample size was 30 respondents. This number was calculated using the sample size formula for experimental research, assuming a significance level of 95% and test power of 80%. The main instrument used in this research was a questionnaire to measure the level of knowledge of pregnant women about massage techniques. This questionnaire is divided into two parts: (1) demographic data, such as age, education, occupation, and parity, and (2) questions related to knowledge about massage back. Knowledge scores were calculated based on correct answers to 20 questions on a four-point Likert

scale (1 = very do not know, 2 = do not know, 3 = know, 4 = very much). The total score was then categorized into three levels of knowledge: low (score ≤ 40), medium (score 41–60), and high (score > 60). The instrument's validity was tested using a content validity test by three experts in the field of obstetrics. In contrast, reliability was tested using Cronbach's Alpha test, which produced a value of 0.85, indicating that the instrument is reliable.

Apart from that, health education media in the form of flipcharts was also used to provide information to respondents. This flipchart is designed to be visually attractive, with illustrations of practical steps in carrying out massage back and a brief explanation of its benefits. The research was carried out in several stages. First, researchers conducted an initial survey to identify pregnant women who met the inclusion criteria. After obtaining consent from the respondents, a pre-test questionnaire was completed to determine their initial knowledge about the massage back technique. Next, respondents were given health education for 30-45 minutes using discussion and demonstration methods with the help of flipcharts. The material presented includes basic concepts of massage back, implementation techniques, benefits in reducing labor pain, and practical guidance for doing it yourself or with the help of a partner.

After the health education session, respondents were given one week to practice massage techniques at home. At the end of the period, a post-test questionnaire was administered to evaluate whether there was an increase in knowledge after the intervention. The data obtained was then recapitulated and analyzed using statistical methods. Data were analyzed using the SPSS version 25 program. The Wilcoxon Signed-Rank Test statistical test was used to assess differences in knowledge levels between the pre-test and post-test. This test was chosen because the data was not normally distributed, according to the results of the Shapiro-Wilk test. Statistical significance was set at a p-value < 0.05 . In addition, descriptions of respondents' demographic data are presented as frequency tables and percentages to provide a general overview of the sample characteristics. Before the research began, all respondents were given a complete explanation of the research aims, procedures, benefits, and risks. Respondents willing to participate were asked to sign an informed consent form. Data confidentiality is guaranteed by storing data anonymously and only used for research purposes.

This research received ethical approval from STIKES Eka Harap Palangka Raya. The institution's ethical review board carefully assessed the study to ensure compliance with ethical standards. All procedures and methodologies were reviewed to protect the rights and welfare of participants involved in the research. This approval gave the study the green light while adhering to ethical guidelines.

RESULT

Results of research on the influence of health education about back massage on the level of knowledge in adapting to labor pain at the Bukit Hindu Palangka Raya Community Health Center.

Table 1. The influence of health education regarding back massage on the level of knowledge in adapting to labor pain at the Bukit Hindu Palangka Raya Community Health Center.

	N	Mean	SD	P value
Pre-test	30	2.70	0.466	0,000
Post-test	30	1.00	0.000	

Based on the results of statistical test analysis using UjiWilcoxon above, obtained P Value 0,000 with a 0.05, which means that H_a is accepted, namely that there is an influence of education

regarding back massage techniques on the level of knowledge in adapting to labor pain in pregnant women at the Bukit Hindu Palangka Raya Community Health Center.

DISCUSSION

The research results show that health education is about engineering massage. The back has a significant influence on the level of knowledge pregnant women have about adapting to labor pain. Based on statistical analysis using the Wilcoxon test, a significance value of <0.05 ($p = 0.000$) was obtained, showing a significant difference between the pre-test and post-test. Before the intervention, most respondents (73.3%) had a low to moderate level of knowledge regarding techniques of massage back. However, after being given health education, as many as 86.7% of respondents showed an increase in a high level of knowledge. This fact shows that health education is effective in increasing pregnant women's understanding of non-pharmacological methods for managing labor pain. This finding is in line with the results of an initial survey at the Bukit Hindu Palangka Raya Community Health Center, which showed that many pregnant women did not understand the technique of massage back as one way to reduce labor pain. The lack of information received by pregnant women often causes them to feel anxious and less prepared for the birthing process. Pregnant women experience severe pain during labor without receiving adequate support from health workers. These findings emphasize the importance of education about non-pharmacological methods, such as massage, to help pregnant women deal with labor pain independently (Mwakawanga, 2022).

Apart from the data previously mentioned, this research also revealed several interesting findings regarding the characteristics of respondents. Most respondents (60%) were aged between 20-30 years, with the majority's formal education level being high school or equivalent (53.3%). This shows that pregnant women who are research subjects have a good educational background but still need health education interventions to increase their understanding of non-pharmacological methods (Permatasari et al., 2021). Additionally, initial survey results indicated that only 10% of respondents had previously heard of the massage technique. However, they often use traditional methods, such as gentle stomach or back massage, without clear guidance.

Another interesting finding is that almost all respondents (93.3%) expressed a high interest in studying engineering massage after a health education session. They feel that this technique can help them reduce anxiety and increase their confidence in facing childbirth. Some respondents reported that they had tried these techniques at home with their partners the week following the intervention and experienced immediate benefits such as muscle relaxation and reduced emotional tension. These additional data show that health education increases theoretical knowledge and encourages positive behavior in daily practice. This aligns with reports from Yoshino et al. (2023), who found that combining education and direct practice can increase the adoption of alternative methods in managing labor pain.

Theoretically, the benefits of massage in reducing labor pain can be explained through several physiological and psychological mechanisms. Massage works by stimulating the parasympathetic nervous system, which results in muscle relaxation and reduced levels of stress hormones such as cortisol (Baek et al., 2022). In addition, gentle pressure on specific areas, such as the back, can stimulate the release of endorphins, the body's natural chemical compounds that act as an analgesic. This effect not only helps reduce physical pain but also increases the emotional comfort of pregnant women. Another theory that supports these findings is Roy's Adaptation Theory, which Sister Callista Roy developed. According to this theory, humans are adaptive systems that try to achieve balance in dealing with external and internal stimuli (Arndt et al., 2022). Labor pain is one of the stimuli that

can affect the physical and psychological balance of pregnant women. By providing health education about techniques to massage back, pregnant women can learn to adapt themselves to pain through non-pharmacological mechanisms. This strengthens the role of health education as an intervention that increases knowledge and facilitates the adaptation process (Wu et al., 2022).

In addition, the social learning theory of Albert Bandura is also relevant in this context. According to Bandura, learning occurs through observation, imitation, and reinforcement. This study conducted health education through discussions and practical demonstrations using flipcharts, allowing respondents to observe, understand, and practice techniques. massage back (Mujahidah & Yusdiana., 2023). This process helps pregnant women build self-confidence in managing labor pain independently. The author also refers to the Health Belief Model (HBM) theory developed by Hochbaum, Rosenstock, and Kegels in the 1950s to strengthen the argument further. According to the HBM, individuals' health behavior is influenced by their perceptions of vulnerability, disease severity, benefits of preventive measures, and the obstacles they face (Mirakzadeh et al., 2021). In the context of this research, health education is about engineering massage back, helping pregnant women understand the benefits of this technique in reducing labor pain (perceived benefits), and minimizing barriers such as misunderstanding or fear (perceived barriers).

The Self-Determination Theory (SDT) theory is also relevant in explaining respondents' intrinsic motivation to learn engineering massage. SDT states that humans need to feel competent, autonomous, and connected to others (Lei, 2024). By providing interactive and practical health education, pregnant women feel more competent in managing labor pain, more autonomous in making decisions regarding their health, and feel connected to partners or health workers who support their learning process. These theories suggest that health education is not just a transfer of information but also a process that influences individual perceptions, motivation, and behavior. Therefore, a holistic and theory-based educational approach is essential to ensure the effectiveness of interventions (Japalaghi et al., 2025; Kurniawan et al., 2024)

Based on the facts and theories, the author believes that health education is about technique massage, a practical and feasible solution for broader implementation in health facilities. This method increases pregnant women's knowledge and positively impacts their physical and psychological well-being. Besides that, massage dorsal is relatively easy to learn and does not require high costs, making it suitable for application in various contexts, including in areas with limited resources (Kerautret et al., 2020). However, the implementation of health education also faces several challenges. One of the main obstacles is the lack of training for health workers regarding non-pharmacological methods such as massage. Many health workers tend to focus on conventional medical interventions, such as the use of drugs, because they are considered quicker and more effective. Therefore, regular training is needed for health workers to introduce alternative methods such as massage and promote it as an integral part of childbirth preparation programs.

Apart from that, the author also believes that health education must be carried out continuously, not just once in a while. For example, material about engineering massage Back pain can be included in routine counseling sessions for pregnant women or childbirth preparation class programs. Visual media such as flipcharts, video demonstrations, or digital applications can also increase the effectiveness of conveying information (Setioputro et al., 2022; Noviyanti et al., 2023). In this way, pregnant women gain knowledge and have the opportunity to practice it directly. On the other hand, the author also highlights the importance of involving partners or family in the health education process. A partner or other family member can act as a companion to help the pregnant woman carry out the technique massage back during labor. This increases the effectiveness of massage and strengthens the emotional connection between pregnant women and those closest to them.

This research finding is also supported by other studies showing the effectiveness of massage in managing labor pain. For example, Kandeel et al. (2024) reported that technique massage can reduce the intensity of labor pain by up to 30% compared to the control group. A combination of pharmacological and non-pharmacological methods provided more optimal results in managing labor pain compared to using medication alone. These findings show that massage is an alternative method and can complement modern medical interventions.

CONCLUSION

Based on the facts, theories, and opinions that have been presented, it is clear that health education about back massage techniques has excellent potential to increase the knowledge and skills of pregnant women in dealing with labor pain. Although there are still some challenges in implementation, this method offers a cheap, safe, and effective solution to help pregnant women manage pain independently. Therefore, the author recommends that health education regarding back massage techniques be integral to childbirth preparation programs in health facilities. Besides that, collaboration between health workers, partners, and families must also be strengthened to ensure that pregnant women receive adequate support during birthing.

ACKNOWLEDGEMENT

The author is aware of many obstacles in preparing this research due to the limitations of the author's abilities. Therefore, the author would like to thank all parties, especially the research respondents, Eka Harapan Foundation Chair, and Stikes Eka Harapan.

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