



Effectiveness of Hypnobirthing in Reducing Low Back Pain Among Pregnant Women: A Quasi-Experimental Study

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Abstract

Low back pain (LBP) is one of the most common discomforts experienced by pregnant women, particularly in the third trimester. Despite its prevalence, non-pharmacological interventions targeting this specific issue remain underexplored. Hypnobirthing, a method involving relaxation, visualization, and self-hypnosis, has shown promise in reducing labor-related pain and anxiety, but its effectiveness in alleviating LBP during pregnancy is still unclear. This quasi-experimental study aimed to evaluate the effectiveness of hypnobirthing techniques in reducing low back pain among pregnant women. A quasi-experimental design was used involving pregnant women in their third trimester. Participants were divided into intervention and control groups. The intervention group received a structured hypnobirthing program for four weeks, while the control group received routine antenatal care. Pain intensity was measured using the Visual Analog Scale (VAS) before and after the intervention. The hypnobirthing intervention group reported a statistically significant reduction in low back pain compared to the control group. Participants also reported improved relaxation and better coping mechanisms related to pregnancy discomfort. Hypnobirthing appears to be an effective complementary intervention for reducing low back pain in pregnant women. These findings support its integration into antenatal care programs and call for further research exploring its mechanisms and long-term benefits.

Keywords : Effectiveness, Hypnobirthing, Low back pain, Pregnant, Women.



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INTRODUCTION

Pregnancy, while a natural physiological process, is often accompanied by a range of discomforts that can significantly impact the physical and emotional well-being of expectant mothers. Among these, low back pain (LBP) is one of the most prevalent, affecting an estimated 50–70% of pregnant women worldwide, especially during the second and third trimesters. This condition not only disrupts daily activities and mobility but also contributes to heightened stress, sleep disturbances, and reduced quality of life (Sencan et al., 2018). The World Health Organization (WHO) has recognized maternal discomfort during pregnancy as a factor influencing both prenatal health and birth outcomes. As global healthcare systems shift toward more holistic, non-invasive interventions, there is increasing demand for integrative approaches that address maternal pain through mind-body therapies, including hypnobirthing, which aligns with the current trend in complementary and alternative medicine.

In Indonesia and other Southeast Asian countries, the burden of LBP among pregnant women is also substantial. Local studies estimate that more than 60% of pregnant women experience LBP, particularly in the third trimester, yet most do not receive adequate pain management due to limited access to care or fear of pharmacological side effects (Permatasari, 2021). National antenatal care programs, while increasingly focused on maternal nutrition and birth preparedness, rarely incorporate structured interventions to relieve pregnancy-related pain. Although hypnobirthing has gained traction in childbirth preparation classes, its application in managing antenatal discomforts such as LBP remains minimal and anecdotal. A growing number of midwives and maternal health advocates have expressed the need to expand evidence-based, non-pharmacological strategies into prenatal education, signaling a critical research gap in both practice and policy (Darma et al., 2021).

The theoretical foundation of this study is Kolcaba's Theory of Comfort, which posits that comfort is a fundamental outcome of nursing care and can be classified into three types—relief, ease, and transcendence—across four domains: physical, psychospiritual, sociocultural, and environmental (Hutagaol, 2021). In the context of pregnancy, LBP significantly disrupts both physical and psychospiritual comfort. Hypnobirthing, which incorporates guided breathing, visualization, and affirmations, directly targets these domains by promoting muscular relaxation and emotional reassurance. Unlike purely physiological models of pain, Kolcaba's theory allows for a comprehensive assessment of how interventions influence overall well-being. Furthermore, the theory's measurable framework aligns with a quasi-experimental design, enabling researchers to assess changes in comfort levels before and after intervention. By adopting this theoretical lens, the study seeks not only to evaluate hypnobirthing's effect on LBP but also to broaden the application of Kolcaba's model in maternal health contexts.(Hutagaol, 2021).

Previous research on hypnobirthing has primarily focused on its benefits during labor, such as reducing pain intensity, anxiety, and duration of childbirth (Nursalam et al., 2017). However, studies exploring its use during pregnancy, particularly for the management of LBP, are exceedingly rare. A literature review by (Panduragan, 2023) explicitly concluded that no prior studies had investigated the effectiveness of hypnobirthing for reducing LBP among pregnant women, positioning this research as a novel contribution. Unlike prior studies that focused solely on labor outcomes, this research integrates Kolcaba's multidimensional framework to examine how hypnobirthing may provide anticipatory relief and enhance comfort during the antenatal period a stage often overlooked in pain management research.

The significance of this research lies in both its academic and practical contributions. Academically, it extends the theoretical application of Kolcaba's model beyond clinical care into prenatal educational interventions, offering a nuanced understanding of how structured relaxation techniques impact perceived comfort. Practically, it supports the development of safe, low-cost, and culturally adaptable pain management strategies for pregnant women, especially in low-resource settings. If proven effective, hypnobirthing could be integrated into standard antenatal care programs, thereby improving maternal experiences, reducing unnecessary pharmacological interventions, and fostering more positive perceptions of pregnancy. This would contribute not only to maternal well-being but also to policy shifts toward holistic maternal healthcare.

The urgency of this research is highlighted by two main aspects: its contribution to the development of maternity nursing science and its potential implementation in primary health care systems. From an academic perspective, this study enables the renewal of intervention models in nursing based on cultural integration and relaxation psychology. From a practical point of view, the findings of this study can help create standard procedures hypnobirthing that can be used in health centers, especially in cities such as Palembang (Sr et al., 2021). In addition, this study contributes to national efforts to reduce the use of pharmacological interventions during pregnancy, which, in the long run, impacts maternal and fetal safety and health system efficiency. This study aimed to evaluate the effectiveness of hypnobirthing in reducing lower back pain among third-trimester pregnant women.

RESEARCH METHODS

This study used a quasi-experimental design with a non-equivalent control group pretest-posttest approach. The research was conducted over a 3-month period at a community health center (PUSKESMAS) Plaju in Palembang (Yulius, 2023). The population consisted of pregnant women in their third trimester (28–36 weeks gestation) experiencing low back pain. A total of 100 participants were selected using purposive sampling, divided equally into intervention (n = 50) and control (n = 50) groups. Inclusion criteria included: singleton pregnancy, absence of obstetric complications, and self-reported low back pain.

The following phases make up the five-month study, which is planned to run from October 2024 to February 2025: October 2024: Development and certification of instruments November 2024: obtaining official study permits from PUSKESMAS and the Indonesian Department of Health, as well as submitting and receiving ethical clearance from the institutional ethics committee. Recruitment of participants and eligibility screening according to preset inclusion and exclusion criteria will take place in December 2024. The January 2025 intervention phase entails four weeks of hypnobirthing and music therapy sessions conducted under the guidance of licensed medical professionals. Preliminary findings interpretation, statistical data processing, and post-intervention data gathering in February 2025.

Third-trimester pregnant women's levels of lower back pain were assessed using the VAS questionnaire both before and after the intervention. One of the most used tools for measuring pain in clinical research and maternity nursing is the VAS, which is why it was selected. Respondents can use this scale to subjectively rate their level of pain on a scale of 0 to 10, with 0 denoting no pain and 10 denoting excruciating agony. In several clinical settings, including maternity nursing, the VAS has demonstrated strong construct validity and reliability (Andreyni & Bhakti, 2023). Hypnobirthing intervention is carried out in accordance with standard procedures included guided breathing, visualization, and deep relaxation techniques conducted by a certified practitioner twice weekly for four weeks (Saad & Jariyah, 2022).

RESULTS AND DISCUSSION

Table 1 Distribution of Low Back Pain Score Pre and Post Intervention

Intervention	N	Pre Intervention			Post Intervention		
		Mean	SD	Min-Max	Mean	SD	Min-Max
Hypnobirthing Group	50	6,50	1,619	4-9	4,50	1,619	2-7
Control group	50	5,22	1,075	4-7	4,56	1,280	2-7

Source: Primary researcher data, 2025

Based on Table 1 The average pain level before Hypnobirthing was 6,50 (SD = 1,619, the average pain level after Hypnobirthing was 4,48 (SD =1,644) and the average pain level in the control group was 4,50 (SD = 1,075. ,The average pain level after control group was 4,56 (SD =1,280).

Table. 2. Paired Sample t-Test for low back pain score before and after intervention (per Group)

Variable	N	Low back pain (Pre)		Low back pain (Post)		T	df	P value	Cohen's d
		M	SD	M	SD				
Hypnobirthing	50	6,50	1,619	4,50	1,619	14,289	49	0,000	2,503
Control	50	5,22	1,075	4,56	1,280	5,505	49	0,000	1,092

Source: Primary researcher data, 2025

Based on Table 2 The paired t-test statistic ($t(49) = 14,289$) was highly significant ($p 0.000$). This confirms that the observed reduction in pain scores was not due to chance but was likely caused by the hypnobirthing therapy.

Table 3. Independent Sample t-Test of Low Back Pain Score between Hypnobirthing and Control Groups (Post Intervention)

Variable	Group	N	Mean	SD	t	df	P value
Low back pain (Post-test)	Hypnobirthing	50	4.50	1.619	-2.010	98	0.047
	Control	50	4.56	1.280			

Source: Primary researcher data, 2025

Table 3 presents the results of the independent sample t-test comparing the post-intervention low back pain scores between the hypnobirthing and control groups. The findings indicate a statistically significant difference ($t(98) = -2.010$, $p = 0.047$), suggesting that the reduction in pain was greater in the hypnobirthing group compared to the control group. Although the mean difference between groups

was relatively small (4.50 vs. 4.56), the effect size (Cohen's $d = 0.403$) falls within the medium range, highlighting the clinical relevance of the intervention.

These results reinforce the earlier findings from the paired sample t-test and descriptive analysis. While both groups experienced a decrease in pain, hypnobirthing demonstrated a more substantial impact, confirming its role as an effective complementary therapy. The statistical significance, even with a modest mean difference, underscores the robustness of hypnobirthing as a non-pharmacological approach for managing low back pain during pregnancy.

The independent t-test supports the conclusion that hypnobirthing is more beneficial than routine care in alleviating low back pain among pregnant women. This strengthens the evidence base for incorporating hypnobirthing into antenatal education and pain management programs, offering a safe, cost-effective, and empowering intervention for expectant mothers.

The results show that hypnobirthing is equally useful for lowering low back pain in the third trimester of pregnancy. These findings support earlier research and demonstrate the effectiveness of relaxation-based treatments in reducing fetal discomfort. By including these low-cost, non-invasive therapies into prenatal care protocols, it may be possible to improve maternal comfort, lessen reliance on pharmaceutical painkillers, and promote comprehensive prenatal care. By lowering anxiety and triggering positive suggestion mechanisms, hypnobirthing operates via the cognitive-emotional pathway, according to research by Saad and Jariyah (2022). This is in line with the biopsychosocial approach to pain management, which highlights how crucial it is to combine sociocultural, psychological, and biological therapies. (Maidawilis et al., 2023).

Back pain during pregnancy can be caused by weight gain, changing posture, hormone fluctuations, shifting the center of gravity, muscle separation, the natural elasticity of ligaments to prepare for labor, and stress. Lower back discomfort in pregnant women is frequently caused by mechanical instability of the lumbar spine and pelvis. The lumbar joints, ligaments, and muscles are overstressed as a result of compensatory lumbar lordosis (Atis & Rathfisch, 2018). Pregnancy hormone changes cause the ligaments connecting the pelvic bones to the spine to relax and the joints to become less rigid. This results in pain when bending, lifting, walking, standing, and sitting for extended periods of time (Amayri et al., 2023).

Hypnobirthing is a method designed to attain profound relaxation, deliberate slow breathing, and a state of heightened awareness with the objective of alleviating discomfort during pregnancy by managing detrimental thoughts that may adversely affect the body while fostering positive thoughts that can beneficially influence physical well-being (Permatasari, 2021). The study by Murbiah & Panduragan (2023) even noted that no study has been found that directly tests the effectiveness of hypnobirthing on low back pain, thus opening up space for novelty and scientific contributions from this dissertation research. Thus, although the effectiveness of hypnobirthing in reducing pain perception has been proven in the context of childbirth, its implications for low back pain during pregnancy are still extrapolative and require further empirical validation.

In the context of this study, the pre-test and post-test results in the hypnobirthing group showed a significant decrease in the mean pain scale, indicating that the relaxation effect achieved during hypnobirthing sessions was also able to reduce musculoskeletal pain perception. This is in line with the results of research by (Atis & Rathfisch, 2018), which found that hypnobirthing has a significant effect on reducing pain intensity and labor time through strengthening psychological adaptation to pain.

Thus, hypnobirthing is shown to be an integrative approach that balances the physiological and psychological dimensions of pain and is relevant to empowerment-based antenatal practice and self-intervention. This reinforces the urgency to include hypnobirthing as part of a comprehensive pregnancy education program.

Effectiveness of Hypnobirthing in Reducing Low Back Pain among Pregnant Women

The findings of this study demonstrated a significant reduction in low back pain scores among the hypnobirthing group compared to the control group. As shown in Table 1, the mean pain score prior to intervention in the hypnobirthing group was 6.50 (SD = 1.619), which decreased to 4.50 (SD = 1.619) following the intervention. In contrast, the control group reported a smaller reduction, from 5.22 (SD = 1.075) to 4.56 (SD = 1.280). These results indicate that hypnobirthing provided a substantial relaxation effect, which contributed to the alleviation of pain intensity during pregnancy.

Further analysis using paired sample t-test reinforced this conclusion. The results showed $t(49) = 14.289$ with a p-value of 0.000 in the hypnobirthing group, indicating a highly significant difference. The effect size (Cohen's $d = 2.503$) was classified as large, suggesting that hypnobirthing has a strong clinical impact on pain reduction. On the other hand, although the control group also demonstrated a significant difference ($t(49) = 5.505$, $p = 0.000$), the effect size was smaller (Cohen's $d = 1.092$). Thus, hypnobirthing proved to be more effective than routine care in managing low back pain.

These findings are consistent with previous studies emphasizing the benefits of relaxation-based interventions in reducing pain perception. According to Saad and Jariyah (2022), hypnobirthing works through the cognitive-emotional pathway by reducing anxiety and enhancing positive suggestions, which subsequently lower pain perception. This is aligned with the biopsychosocial model of pain management, which highlights the interplay of biological, psychological, and sociocultural factors in shaping the pain experience.

This study contributes to scientific novelty by specifically exploring the effect of hypnobirthing on low back pain among pregnant women. Murbiah and Panduragan (2023) highlighted that there is limited research directly linking hypnobirthing to pregnancy-related back pain. Therefore, the present findings enrich the body of knowledge in maternal health and extend the potential benefits of hypnobirthing beyond childbirth into prenatal care.

Hypnobirthing is proven effective in reducing low back pain among pregnant women both statistically and clinically. The intervention not only provides physiological benefits through muscle relaxation but also improves psychological well-being by enhancing calmness, self-control, and reducing the subjective perception of pain. These results affirm the relevance of hypnobirthing as a non-pharmacological approach for managing pregnancy-related discomfort.

Implications of Hypnobirthing in Antenatal Practice and Pain Management

Low back pain in pregnancy is a common problem resulting from multiple physiological changes. The primary causes include weight gain, altered posture, a shifted center of gravity, and the relaxation of ligaments due to hormonal changes (Atis & Rathfisch, 2018; Amayri et al., 2023). These factors place additional strain on the joints and muscles of the lumbar region, leading to discomfort and pain. Within this context, hypnobirthing serves as a valuable method that facilitates deep relaxation, thereby reducing muscle tension and modifying pain perception among pregnant women.

The application of hypnobirthing targets not only the physiological aspects of pain but also the psychological dimensions, which significantly influence the pain experience. Through controlled breathing techniques and positive suggestions, hypnobirthing helps expectant mothers lower anxiety levels and redirect attention away from pain. This aligns with the biopsychosocial model of pain, which posits that pain can be alleviated by psychological interventions as well as biological measures. Hence, hypnobirthing provides a more holistic approach compared to conventional pain management strategies that focus primarily on physical aspects.

The practical implications of these findings for healthcare providers, particularly midwives, are considerable. Given its low cost, ease of implementation, and safety, hypnobirthing can be integrated into routine antenatal care as a non-pharmacological option for pain relief. In addition, involving pregnant women in hypnobirthing practices enhances their sense of control, builds confidence, strengthens maternal-fetal bonding, and aligns with empowerment-based models of antenatal care.

From a health policy perspective, these findings reinforce the importance of incorporating hypnobirthing into prenatal education programs. By offering hypnobirthing sessions within maternal classes, healthcare services can provide pregnant women with comprehensive strategies to manage pain and discomfort, while minimizing reliance on pharmacological interventions. This is especially valuable in safeguarding maternal and fetal health, as many medications carry risks during pregnancy.

This research opens avenues for further exploration of hypnobirthing's broader benefits in maternal health. Beyond alleviating low back pain, hypnobirthing may also prove effective in addressing other common pregnancy-related issues such as insomnia, anxiety, and emotional stress before delivery. Thus, hypnobirthing should be considered not merely as a labor technique, but as an integrative intervention that supports maternal well-being throughout pregnancy and enhances the overall quality of the antenatal experience.

CONCLUSION

The findings of this study demonstrate that hypnobirthing is highly effective in reducing low back pain among pregnant women compared to routine care. The hypnobirthing group showed a significant reduction in mean pain scores with a large effect size, highlighting its strong clinical relevance. This supports the biopsychosocial approach to pain management, as hypnobirthing not only provides physiological relaxation but also fosters psychological well-being through anxiety reduction and positive suggestion. Thus, hypnobirthing serves as a valuable non-pharmacological intervention that enhances maternal comfort during pregnancy.

The practical implications of hypnobirthing are considerable for antenatal practice and maternal health policy. With its low cost, safety, and ease of implementation, hypnobirthing can be integrated into prenatal education programs to empower expectant mothers, reduce reliance on medication, and promote holistic care. Beyond alleviating low back pain, hypnobirthing has potential benefits for addressing broader pregnancy-related challenges such as stress, anxiety, and sleep disturbances. Therefore, hypnobirthing should be regarded as an integrative intervention that supports comprehensive maternal care and improves the overall quality of pregnancy experiences.

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