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The Effect of Hypnobirthing on Anxiety Levels in Maternal Women at Keputih Health Center Surabaya

Nur Zuwariah[1], Vicky Ambar Rachmawati[2]

[1,2] *Departement of Midwifery, Faculty of Nursing and Midwifery, Universitas Nahdlatul Ulama Surabaya, Surabaya, East Java, Indonesia*

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CORRESPONDENCE

E-mail: nurzuwariah@unusa.ac.id

A B S T R A C T

Labor is commonly accompanied by anxiety, which may weaken uterine contractions and slow cervical dilation. Non-pharmacological approaches such as hypnobirthing have been proposed to manage this anxiety, but evidence from Indonesian primary care settings remains limited. To determine the effect of hypnobirthing on anxiety levels among women in labor at Keputih Health Center, Surabaya. This quantitative study used a quasi-experimental one-group pretest-posttest design. Using purposive sampling, 32 of 35 laboring mothers meeting the inclusion criteria were enrolled in July 2024. Anxiety was measured with the Hamilton Anxiety Rating Scale (HARS) before and after a 15-minute hypnobirthing session delivered according to a standard operating procedure. Data were analyzed with the Wilcoxon signed-rank test ($\alpha = 0.05$). Before the intervention, almost all respondents (87.50%) experienced severe anxiety; afterward, most (68.75%) reported no anxiety and the remainder (31.25%) reported mild anxiety ($p < 0.001$). Hypnobirthing was associated with a significant reduction in anxiety levels among laboring mothers at Keputih Health Center, Surabaya, supporting its consideration as a complementary, non-pharmacological option in intrapartum care, pending confirmation in controlled trials.

INTRODUCTION

Childbirth is a physiological process experienced by nearly every woman, yet it is frequently accompanied by anxiety arising from stress responses and labor pain. Labor pain itself results from a decline in progesterone and estrogen alongside a rise in oxytocin, which together intensify contractions and can trigger discomfort and anxiety (Sulis, 2019). Anxiety is one of the principal factors influencing the course of labor; when unmanaged, it often contributes to prolonged labor through poor cervical dilation, which in turn may compromise fetal well-being.

According to Riskesdas 2020, maternal anxiety during labor is linked to both the Maternal Mortality Rate (MMR) and the Infant Mortality Rate (IMR). The World Health Organization (2020) estimated that 8–10% of women experience anxiety during pregnancy, rising to around 12% as childbirth approaches. National data from the Indonesian Ministry of Health in the same year put the prevalence of anxiety among laboring mothers at approximately 48.7%, while Zainiyah and Susanti (2020) reported that pregnant women in East Java experienced very severe anxiety (31.4%) and severe anxiety (12.9%) at similarly high rates. A preliminary study at Keputih Health Center, Surabaya, in December 2023 found that 10 of 21 laboring mothers (about 48%) experienced anxiety during delivery, suggesting the problem is as prevalent locally as it is nationally.

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Anxiety in laboring mothers is an emotional state marked by negative feelings and tension, shaped by internal factors (age, stressors, maturity, education, coping style, physical condition, personality, social support) and external factors (perceived threats to self-integrity and to the self-system). Sustained anxiety activates the hypothalamus to release excess cortisol, which raises heart rate, pulse, and respiration; the resulting fatigue, muscle tension, and loss of strength can weaken uterine contractions, slow cervical dilation, and hinder the smooth progression of labor.

Both pharmacological and non-pharmacological approaches are used to manage anxiety in labor. Pharmacological management typically relies on anti-anxiety medication, while non-pharmacological options include distraction, spiritual, humor, and relaxation therapies, of which hypnobirthing is one example. Hypnobirthing combines muscle relaxation, facial relaxation, breathing relaxation, and mental relaxation through positive affirmation (Sholihah, 2018), helping the mother direct her thoughts, relax her body, and regulate her breathing during labor. In this relaxed state, the pituitary gland increases the release of oxytocin and endorphins while suppressing cortisol, the hormone most closely tied to stress and anxiety.

Elevated oxytocin and endorphins relax the mother's body and ease feelings of stress, and a calmer mother generally experiences a smoother labor. Conversely, unmanaged anxiety can weaken contractions and reduce pushing effort, delaying labor or contributing to prolonged labor (Zamriati, Hutagaol, & Wowiling, 2019), with possible consequences for the fetus including infection, injury, asphyxia, or death (Kusumahati, 2010).

Contemporary evidence continues to support hypnosis-based methods for reducing anxiety and fear surrounding childbirth. In a meta-integration of qualitative and quantitative studies, Gueguen, Huas, Orri, and Falissard (2021) found that hypnosis-based preparation was associated with a more positive birth experience and no additional risk to mother or baby. A randomized controlled trial by Buran and Aksu (2022) reported that hypnobirthing training lowered fear of childbirth and labor pain scores, shortened labor, and increased rates of vaginal birth compared with routine care. A systematic review and meta-analysis by Arab et al. (2021) similarly found that hypnosis-based interventions reduced the use of pain-relief medication (OR = 0.21) and increased the likelihood of unmedicated vaginal birth (OR = 3.06) without adversely affecting neonatal Apgar scores. More recently, an overview of systematic reviews and meta-analyses by Alizadeh-Dibazari, Maghalian, and Mirghafourvand (2024) concluded that psychological and educational interventions, including hypnosis-based preparation, can meaningfully reduce fear of childbirth, although the certainty of evidence for individual interventions varies.

Much of this evidence, however, comes from randomized trials conducted in hospitals or specialized clinics outside Indonesia, where facilitators, session length, and follow-up periods differ considerably from routine primary care. Comparatively few studies have examined hypnobirthing delivered directly by

midwives within an Indonesian Puskesmas, the first point of contact for most low-risk deliveries in the country and a setting with more limited time and staffing than hospital-based trials. This gap is the central justification for the present study: rather than testing a lengthy antenatal hypnobirthing course, it evaluates a brief, midwife-delivered, in-labor hypnobirthing session that could realistically be implemented within existing Puskesmas services. Based on this background, the researchers evaluated the effect of a single 15-minute hypnobirthing session on anxiety levels among women in the physiological first stage of labor at Keputih Health Center, Surabaya, with anxiety assessed using the Hamilton Anxiety Rating Scale (HARS) immediately before and after the intervention.

METHOD

This quantitative study used a quasi-experimental design with a one-group pretest (before the intervention) and one-group posttest (after the intervention), conducted in July 2024 at Keputih Health Center, Surabaya. Because the design did not include a control group, causal inference is limited; this constraint, along with related threats to internal validity, is addressed further under Limitations.

The population comprised all 35 laboring mothers at Keputih Health Center, Surabaya. The sample size was calculated using Slovin's formula with a 5% margin of error (Riyanto & Hatmawan, 2020): $n = N / (1 + N\ e^2) = 35 / (1 + 35 \times 0.05^2) = 35 / 1.0875 \approx 32.18$, rounded to 32 respondents. Respondents were recruited using non-probability purposive sampling. Inclusion criteria were: (1) willingness to participate as a respondent, and (2) being in the physiological first stage of labor and experiencing anxiety. Mothers were excluded if they were taking anti-anxiety or antidepressant medication, or if their first stage of labor was pathological. The independent variable was the administration of hypnobirthing; the dependent variable was the laboring mother's anxiety level.

Data were collected following a fixed sequence: (a) the researcher identified eligible respondents against the inclusion criteria; (b) the purpose, procedure, and expected effects of hypnobirthing were explained to each respondent; (c) written informed consent was obtained; (d) each respondent completed the HARS questionnaire as a pretest; (e) the researcher delivered hypnobirthing according to the standard operating procedure (SOP)—combining muscle relaxation, facial relaxation, breathing relaxation, and mental relaxation through positive affirmation—individually, for 15 minutes, to mothers in the physiological first stage of labor who were experiencing anxiety; (f) each respondent completed the HARS questionnaire again as a posttest immediately afterward; and (g) data were processed and analyzed. In practice, the session lasted closer to 20 minutes for several respondents whose contractions had already become well established by the time the intervention began; this deviation from the intended 15-minute protocol is discussed further under Limitations.

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Anxiety was measured using the Hamilton Anxiety Rating Scale (HARS), a 14-item instrument assessing both psychic and somatic symptoms of anxiety, with scores classified as no anxiety (<14), mild anxiety (14–20), moderate anxiety (21–27), severe anxiety (28–41), and very severe anxiety (42–56). Item-level construct validity of the HARS, based on corrected item-total correlation, has been reported as positive and acceptable, with a Cronbach's alpha of 0.793 (Kautsar, Gustopo, & Achmadi, 2015). The Indonesian-language version used in this study has separately been validated by Ramdan (2019), who reported item correlations of 0.529–0.727 and a Cronbach's alpha of 0.756, supporting its reliability for assessing anxiety in Indonesian clinical populations. Fidelity to the hypnobirthing SOP was recorded dichotomously (performed according to SOP or not) using the SOP checklist as the second instrument.

Data were analyzed using the Wilcoxon Signed-Rank Test in SPSS, with statistical significance set at $p < 0.05$. Because the pre- and post-intervention anxiety categories did not overlap—all pre-intervention scores fell in the moderate-to-severe range, while all post-intervention scores fell in the none-to-mild range—every respondent's HARS category necessarily decreased following the intervention. This all-positive pattern of paired differences allows an approximate, lower-bound estimate of the Wilcoxon Z statistic for $n = 32$ ($Z \approx 4.94$), corresponding to an effect size of $r \approx 0.87$, which would indicate a very large effect. Because the exact continuous HARS scores were not retained in the dataset analyzed here, this estimate should be read as approximate rather than exact; future studies using this protocol are encouraged to report raw paired scores together with the exact Z statistic and 95% confidence interval so that effect size can be calculated directly.

This study received ethical clearance from the Health Research Ethics Committee of Universitas Nahdlatul Ulama Surabaya (certificate number 0297/EC/KEPK/UNUSA/2024). Before data collection, the researcher explained the purpose, procedure, and potential effects of hypnobirthing and provided each prospective respondent with an information and consent sheet; only mothers who read, understood, and voluntarily signed the consent form were enrolled, and no respondent who declined was coerced to participate. Anonymity was maintained by identifying respondents with initials and code numbers rather than names on questionnaires, and no information that could identify an individual respondent is reported in this article. Confidentiality was maintained by storing all data securely and restricting access to the research team; source data will be destroyed after the study period in line with institutional procedure.

RESULT

General Data

General characteristics of respondents covered age, education, occupation, parity, and family presence during labor.

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Table 1. Frequency Distribution of Respondents by Age at Keputih Health Center, Surabaya, July 2024

Age (years)	Frequency (n)	Percentage (%)
17–25	5	15.63
26–35	26	81.25
36–45	1	3.12
Total	32	100

Source: Primary Data, 2024

Table 1 shows that of 32 respondents, almost all (81.25%) were aged 26–35 years.

Table 2. Frequency Distribution of Respondents by Education Level at Keputih Health Center, Surabaya, July 2024

Education	Frequency (n)	Percentage (%)
Primary	3	9.38
Secondary	28	87.50
Higher	1	3.12
Total	32	100

Source: Primary Data, 2024

Table 2 shows that of 32 respondents, almost all (87.50%) had completed secondary education.

Table 3. Frequency Distribution of Respondents by Occupational Status at Keputih Health Center, Surabaya, July 2024

Occupation	Frequency (n)	Percentage (%)
Employed	3	9.37
Unemployed	29	90.63
Total	32	100

Source: Primary Data, 2024

Table 3 shows that of 32 respondents, almost all (90.63%) were unemployed.

Table 4. Frequency Distribution of Respondents by Parity at Keputih Health Center, Surabaya, July 2024

Parity	Frequency (n)	Percentage (%)
Primigravida	20	62.50
Multigravida	12	37.50
Grande multipara	0	0
Total	32	100

Source: Primary Data, 2024

Table 4 shows that of 32 respondents, most (62.50%) were primigravida.

Table 5. Frequency Distribution of Respondents by Family Presence during Labor at Keputih Health Center, Surabaya, July 2024

Family Presence	Frequency (n)	Percentage (%)
Present	32	100
Not present	0	0
Total	32	100

Source: Primary Data, 2024

Table 5 shows that all respondents (100%) were accompanied by a family member during labor.

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Special Data

Table 6. Frequency Distribution of Anxiety Levels before the Hypnobirthing Intervention at Keputih Health Center, Surabaya, July 2024

Anxiety Level	Frequency (n)	Percentage (%)
No anxiety	0	0
Mild anxiety	0	0
Moderate anxiety	4	12.50
Severe anxiety	28	87.50
Very severe anxiety	0	0
Total	32	100

Source: Primary Data, 2024

Table 6 shows that before the hypnobirthing intervention, almost all respondents (87.50%) experienced severe anxiety, with the median respondent falling in the severe-anxiety category (HARS score 28–41).

Table 7. Frequency Distribution of Anxiety Levels after the Hypnobirthing Intervention at Keputih Health Center, Surabaya, July 2024

Anxiety Level	Frequency (n)	Percentage (%)
No anxiety	22	68.75
Mild anxiety	10	31.25
Moderate anxiety	0	0
Severe anxiety	0	0
Very severe anxiety	0	0
Total	32	100

Source: Primary Data, 2024

Table 7 shows that after the hypnobirthing intervention, most respondents (68.75%) reported no anxiety, with the median respondent falling in the no-anxiety category (HARS score <14).

Table 8. The Effect of Hypnobirthing on Anxiety Levels among Women in Labor at Keputih Health Center, Surabaya, July 2024

Intervention	No Anxiety n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	Very Severe n (%)	Total n (%)
Before	0 (0)	0 (0)	4 (12.50)	28 (87.50)	0 (0)	32 (100)
After	22 (68.75)	10 (31.25)	0 (0)	0 (0)	0 (0)	32 (100)

Wilcoxon Signed-Rank Test: $p < 0.001$. Source: Primary Data, 2024

Table 8 shows that, of 32 respondents, almost all (87.50%) had severe anxiety before the hypnobirthing intervention, whereas after the intervention most (68.75%) reported no anxiety and the remainder (31.25%) reported mild anxiety. The Wilcoxon Signed-Rank Test yielded $p < 0.001$, indicating a statistically significant reduction in anxiety following hypnobirthing. Because pre- and post-intervention categories did not overlap for any respondent, all 32 paired differences were in the direction of improvement, consistent with the large approximate effect size ($r \approx 0.87$) described in the Method section.

DISCUSSION

Anxiety Levels before the Hypnobirthing Intervention

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Table 6 shows that before the hypnobirthing intervention, almost all respondents (87.50%) experienced severe anxiety. This pattern likely reflected respondents' fears for their newborn's safety, difficulty pushing effectively, concern about possible complications, contraction-related pain, and the physical and psychological changes accompanying labor. This is consistent with Indriyanti's (2015) view that hormonal changes supporting fetal growth also produce physical and psychological shifts that act as stressors for laboring mothers, and with Sarkhel's (2009) observation that laboring mothers commonly worry about their baby's condition at birth and about the pain they are about to endure.

Anxiety in laboring mothers is shaped by several factors, including age, education, occupation, parity, and social support (Muliani, 2022). Table 1 shows that most respondents (81.25%) were aged 26–35 years, a period of early adulthood in which mothers are generally better able to process and cope with anxiety and tend to be more emotionally stable. This is consistent with Ritonga (2016), who described early adulthood (26–35 years) as a dynamic stage for managing physical, cognitive, and psycho-emotional change toward a more mature personality.

Table 2 shows that almost all respondents (87.50%) had completed secondary education. Education shapes how a person thinks and acts; more highly educated individuals tend to reason more systematically and to build more effective coping strategies. This is consistent with Muliani (2019), who argued that education influences how readily a person absorbs and understands information about pregnancy and childbirth, helping mothers approach delivery with a more mature psychological outlook and a lighter mental burden.

Regarding occupation, Table 3 shows that almost all respondents (90.63%) were unemployed. Mothers who are not employed are occupied mainly with household duties, which may limit their social interaction outside the home. Titisari, Setiani, and Antono (2020) suggested that paid work can distract pregnant women from anxious thoughts, since work demands sustained attention and focus, and Hanifah and Utami (2019) noted that employed pregnant women are more likely to exchange information and experiences with others, which can broaden their understanding of pregnancy and help them feel calmer.

Table 4 shows that most respondents (62.50%) were primigravida. For a primigravida, pregnancy and childbirth are entirely new experiences, which can make labor feel more alarming, whereas anxiety among multigravida mothers is more often tied to specific past experiences. This is consistent with Usman and Maulida (2019) and with Shodiqoh and Fahriani (2018), who reported that primigravida mothers experience higher anxiety than multigravida mothers because they lack prior childbirth experience and have not yet developed practical strategies for coping with labor.

Table 5 shows that all respondents (100%) were accompanied by a family member during labor. Spousal and family support contributes to pregnancy readiness and delivery preparedness—for example, by helping meet nutritional needs and providing psychological encouragement. The physical presence of

family can reinforce a mother's confidence and reduce anxiety around delivery, consistent with Friedman's concept of family support as cited in Zuhrotunida and Yudiharto (2017), which describes an active relationship between the family and its social environment that provides emotional, appraisal, instrumental, and informational support to its members.

Anxiety Levels after the Hypnobirthing Intervention

Table 7 shows that after the hypnobirthing intervention, most respondents (68.75%) reported no anxiety. This is consistent with the idea that hypnobirthing helps anxious laboring mothers build healthier coping responses, allowing them to relax and accept the delivery process with less resistance. Widaryanti and Riska (2019) describe several benefits of hypnobirthing, including a greater sense of comfort, safety, and deep relaxation before labor, better control over the sensation of pain during uterine contractions, reinforced inner calm, increased endorphin levels to ease contraction pain, and reduced fear, tension, and panic.

Table 8 shows that anxiety fell from the moderate-to-severe range before the intervention to the none-to-mild range afterward for every respondent, supporting a meaningful effect of hypnobirthing on anxiety levels among laboring mothers in this sample. Physiologically, a calmer, more settled mother is more likely to have her pituitary gland release oxytocin and endorphins, which in turn suppresses cortisol, the hormone associated with stress and anxiety; rising oxytocin and endorphin levels help relax the body and ease feelings of stress. Psychologically, these same hormones are thought to foster feelings of warmth and attachment between mother and fetus, which may further reduce fear during labor.

These findings align with several recent studies on hypnobirthing and labor anxiety. Agestin (2023), using the Wilcoxon test in a similar Indonesian primary-care context, reported a p-value of 0.001 for the effect of hypnobirthing on anxiety during the active phase of the first stage of labor, concluding that mothers who received the intervention felt more comfortable and settled during delivery. Nurbaya and Munawaroh (2023) likewise found that hypnobirthing relaxation had a significant effect on anxiety among primigravida mothers preparing for labor. Internationally, a quasi-experimental study by Zartasha, Naz, Khatoon, Karim, Atiq, and Khattak (2024) conducted in a tertiary hospital in Islamabad reported a very similar pattern to the present study: 87% of participants had high anxiety at baseline, falling to 33% after a hypnobirthing intervention ($p < 0.001$). A randomized controlled trial by Buran and Aksu (2022) found that hypnobirthing training reduced fear of childbirth and labor pain scores and increased vaginal delivery rates compared with routine care, and Mahmoud, Mahmoud, Gohar, Moustafa, and Elkhatib (2024) reported reduced anxiety and pain intensity together with higher birth satisfaction among parturient women who received hypnobirthing preparation in Egypt. Taken together with the broader synthesis offered by Alizadeh-Dibazari, Maghalian, and Mirghafourvand (2024) and the meta-analytic evidence reported by Arab et al. (2021), this body of work supports hypnobirthing as a plausible, low-risk

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complement to standard intrapartum care, while also underscoring that most of the strongest evidence still comes from controlled trials rather than one-group designs such as the present study.

Confounding Factors

Because this study used a one-group design without a comparison group, the demographic characteristics summarized in Tables 1–5—age, education, occupation, parity, and family presence—could not be statistically controlled and may have contributed to the observed reduction in anxiety alongside, or independently of, the hypnobirthing intervention itself. Most respondents were in early adulthood, had at least a secondary education, and were accompanied by family throughout labor; each of these characteristics has separately been associated with lower anxiety in the literature reviewed above. It is therefore possible that part of the improvement reflected these favorable baseline characteristics rather than the intervention alone. Future studies with a control group and, ideally, stratified or adjusted analyses would help disentangle the specific contribution of hypnobirthing from these co-occurring factors.

Limitations

Several limitations should be considered when interpreting these findings. First, the one-group pretest-posttest design lacks a control group, so the observed reduction in anxiety cannot be attributed to hypnobirthing with certainty; it may partly reflect history (the natural approach of delivery, which can itself change how anxiety is experienced), maturation (psychological adaptation over the course of labor), or a Hawthorne-type effect, in which awareness of being observed and assessed may itself have reduced reported anxiety regardless of the intervention. Second, the sample was small (n = 32), drawn from a single primary care facility, and relatively homogeneous in age, education, and parity, which limits how far the findings can be generalized to other settings. Third, for several respondents the hypnobirthing session extended to approximately 20 minutes rather than the intended 15 minutes because their contractions were already well established, introducing some variability in the intervention actually delivered. Finally, anxiety was assessed only immediately before and after the session using a categorical HARS classification; continuous scores were not retained for this analysis, and no longer-term follow-up was conducted, so it is not known whether the reduction in anxiety was sustained through the remainder of labor and the immediate postpartum period.

CONCLUSION

Before receiving the hypnobirthing intervention, almost all laboring mothers at Keputih Health Center, Surabaya, experienced severe anxiety; afterward, most experienced no anxiety and the remainder experienced only mild anxiety. Hypnobirthing was associated with a statistically significant reduction in anxiety levels ($p < 0.001$) among laboring mothers in this sample. Given the one-group design and the demographic and procedural limitations described above, these results should be interpreted as evidence of

association rather than definitive proof of a causal effect. Midwives at primary care facilities may consider incorporating brief, SOP-guided hypnobirthing sessions as a complementary, non-pharmacological option for supporting laboring mothers, while future research using randomized controlled trials with adequate control groups, larger and more diverse multi-center samples, and reporting of continuous HARS scores is needed to confirm the intervention's independent effect and to establish its effect size with precision.

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