

**Changes in Pregnancy-Related Anxiety Following EX-HN 3 and CV 17
Acupressure Among Third-Trimester Pregnant Women at Siliwangi Health Center**Sheli Riani¹, Della Miranda¹, Lina Herlina¹¹Bachelor's and Professional Midwifery Study Program, STIKes Dharma Husada,
Indonesia**ABSTRACT**

The third trimester of pregnancy is accompanied by physical and psychological changes, and pregnancy-related anxiety may increase as childbirth approaches. Acupressure has been used as a non-pharmacological approach to support relaxation during pregnancy. This study aimed to examine changes in anxiety following seven consecutive days of EX-HN3 and CV17 acupressure among third-trimester pregnant women at Siliwangi Public Health Center, Garut. A pre-experimental one-group pretest-posttest design included 28 pregnant women who screened positive for anxiety using the 10-item Pregnancy-Related Anxiety Questionnaire-Revised 2 (PRAQ-R2). Before the intervention, 24 participants (85.7%) had moderate anxiety and 4 (14.3%) had mild anxiety; after the intervention, 25 (89.3%) had mild anxiety and 3 (10.7%) had moderate anxiety. Mean total PRAQ-R2 scores decreased from 24.71 ± 1.86 before the intervention to 19.71 ± 2.02 afterward. The paired difference scores were normally distributed (Shapiro-Wilk $p = 0.385$), and the mean reduction was 5.00 points (95% CI 4.02–5.98; $t(27) = 10.42$; $p < 0.001$). These findings indicate a significant within-group reduction in pregnancy-related anxiety following the intervention; however, the absence of a control group precludes definitive causal attribution to acupressure alone.

Keywords: pregnancy-related anxiety, acupressure, third-trimester pregnancy

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INTRODUCTION

Pregnancy begins with fertilization, the fusion of a spermatozoon and an ovum, followed by implantation of the developing embryo in the uterus. The gestational period extends from early pregnancy to delivery. The third trimester generally encompasses 28–40 weeks of gestation and represents a pivotal period characterized by physical and psychological preparation for childbirth and parenthood (Nurliawati et al., 2024). This stage is also marked by substantial physical and psychological changes. Physiological changes involve adaptations in the reproductive, respiratory, musculoskeletal, and other body systems, whereas psychological changes may include emotional fluctuations, stress, and heightened anxiety regarding labor. Anxiety during the

third trimester may be influenced by various factors, including age, parity, educational level, family support, previous obstetric experience, and maternal health status (Nurliawati et al., 2024).

Pregnancy-related anxiety is clinically important because it may affect maternal well-being, comfort, and readiness for childbirth. Reducing anxiety is therefore an important component of supportive antenatal care, particularly as women approach labor (Adnyani et al., 2023). In primary-care settings, non-pharmacological strategies that can be delivered by trained maternity-care providers may provide practical options for supporting maternal well-being during routine antenatal care.

Anxiety management may involve pharmacological and non-pharmacological approaches. Benzodiazepine exposure during pregnancy has been associated with adverse outcomes, including low birth weight and cesarean delivery, in observational research (Yonkers et al., 2017). Consequently, non-pharmacological approaches may be considered when clinically appropriate. Acupressure, rooted in traditional Chinese medicine, involves manual stimulation of specific body points and has been investigated as a complementary strategy for reducing anxiety (Au et al., 2015; Koriyanah et al., 2024).

Among the relevant acupressure sites, EX-HN3 (Yintang) is located on the forehead between the medial ends of the eyebrows, whereas CV17 (Shanzhong) is located on the anterior midline of the sternum at approximately the fourth intercostal space. EX-HN3 has been examined as an intervention for anxiety among third-trimester pregnant women, including in combination with P6 (Hakim & Agustiani, 2022). However, evidence specifically evaluating the combined use of EX-HN3 and CV17 for pregnancy-related anxiety remains limited, particularly in primary-care settings.

Acupressure has been proposed to influence sensory afferent, autonomic, and neurochemical pathways involved in anxiety regulation; however, these mechanisms were not directly assessed in the present study (Au et al., 2015). Previous studies have investigated different acupressure points and intervention protocols, but evidence regarding the combined EX-HN3 and CV17 protocol remains sparse. Therefore, this study aimed to examine changes in pregnancy-related anxiety following combined EX-HN3 and CV17 acupressure among third-trimester pregnant women at Siliwangi Public Health Center, Garut.

METHODS

This study used a quantitative pre-experimental, one-group pretest-posttest design and was conducted at Siliwangi Public Health Center, Garut, in 2025. Health-center records for 2024 documented 220 pregnant women across all gestational ages in the Siliwangi Public Health Center working area. The study population was subsequently limited to third-trimester pregnant women in the same working area. Ethical approval was obtained from the Health Research Ethics Committee of Sekolah Tinggi Ilmu Kesehatan Dharma Husada (No. 208/KEPK/SDHB/B/VI/2025). Written informed consent was obtained from all participants before data collection.

The accessible population comprised 33 third-trimester pregnant women. Total sampling was used, with all eligible members of the accessible population considered for participation. The study sample consisted of third-trimester pregnant women who screened positive for anxiety using the PRAQ-R2. Five of the 33 women were classified as not experiencing anxiety and were excluded, resulting in a final analytic sample of 28 participants.

Anxiety was assessed using the Pregnancy-Related Anxiety Questionnaire-Revised 2 (PRAQ-R2), a 10-item instrument designed to assess pregnancy-specific anxiety and validated for use regardless of parity (Huizink et al., 2016). Each item is rated on a 5-point response scale ranging from 1 (never) to 5 (very often), producing a total score ranging from 10 to 50, with higher scores indicating greater pregnancy-related anxiety. Huizink et al. (2016) reported good internal consistency for the total PRAQ-R2 (Cronbach's $\alpha = 0.85$). The study used an Indonesian-

language version of the PRAQ-R2 and cited prior validity testing in an Indonesian setting by Adilla et al. (2023). For descriptive reporting, the original study protocol categorized total scores as mild anxiety (<23), moderate anxiety (23–36), and severe anxiety (≥ 37). Inferential analysis in the present study used the continuous total PRAQ-R2 score rather than the categorical classification. The intervention consisted of acupressure at the EX-HN3 (Yintang) point, located above the nose between the eyebrows, and the CV17 (Shanzhong) point, located on the sternal midline at the level of the fourth intercostal space, approximately 2–3 fingerbreadths above the epigastrium. The intervention followed the study Standard Operating Procedure (SOP). Baby oil was applied to the massage area, and each selected point was stimulated with 40–60 counterclockwise rotations using a weakening technique and moderate-to-strong pressure. Acupressure was administered once daily for seven consecutive days. Some sessions were assisted by trained midwives who followed the same SOP because of limitations in researcher time and personnel. The posttest PRAQ-R2 assessment was performed after completion of the seven-day intervention.

Data were analyzed using SPSS version 23. Univariate analysis was used to summarize anxiety categories before and after the intervention and to describe total PRAQ-R2 scores using the mean and standard deviation. For inferential analysis, total PRAQ-R2 scores were treated as continuous paired measurements. The normality of the pretest-posttest difference scores was assessed using the Shapiro–Wilk test. Because the paired differences were normally distributed, pre- and post-intervention total PRAQ-R2 scores were compared using a paired-samples t-test. Statistical significance was set at $p < 0.05$, and the mean difference was reported with a 95% confidence interval.

The paired-difference distribution met the normality assumption (Shapiro–Wilk $W = 0.962$, $p = 0.385$), supporting the use of the paired-samples t-test for the continuous total PRAQ-R2 scores.

RESULTS

Table 1 shows that, prior to the intervention, all 28 participants experienced anxiety, with the majority presenting with moderate anxiety ($n = 24$, 85.7%) and the remainder with mild anxiety ($n = 4$, 14.3%).

Table 1. Frequency Distribution of Anxiety Levels Prior to Acupressure Intervention

Anxiety Level	Frequency (F)	Percentage (%)
Mild	4	14.3
Moderate	24	85.7
Severe	0	0
Total	28	100.0

Table 2 shows that following the acupressure intervention, the distribution of anxiety levels shifted toward mild anxiety. Post-intervention assessment showed that 25 participants (89.3%) had mild anxiety, while 3 participants (10.7%) had moderate anxiety. No participants were classified as having severe anxiety.

Table 2. Frequency Distribution of Anxiety Levels Following Acupressure Intervention

Anxiety Level	Frequency (F)	Percentage (%)
Mild	25	89.3
Moderate	3	10.7
Severe	0	0
Total	28	100.0

As shown in Table 3, the Shapiro–Wilk test of the pretest-posttest PRAQ-R2 difference scores yielded $W = 0.962$ and $p = 0.385$. There was no statistically detectable departure from

normality in the paired differences, supporting the use of a paired-samples t-test for the continuous total PRAQ-R2 scores.

Table 3. Shapiro-Wilk Normality Test of Paired PRAQ-R2 Difference Scores

Paired difference	Statistic	Df	Sig.
Pre-test - Post-test	.962	28	.385

As shown in Table 4, the mean total PRAQ-R2 score decreased from 24.71 (SD = 1.86) before the intervention to 19.71 (SD = 2.02) after the seven-day intervention. The mean paired reduction was 5.00 points (95% CI 4.02–5.98). A paired-samples t-test showed a statistically significant within-participant reduction in total PRAQ-R2 scores, $t(27) = 10.42$, $p < 0.001$. This result was consistent with the descriptive shift in anxiety categories shown in Tables 1 and 2.

Table 4. Comparison of Total PRAQ-R2 Scores Before and After Acupressure

Measurement	Mean $\pm$ SD	Mean Difference (95% CI)	t (df)	p
Pre-test	24.71 $\pm$ 1.86	5.00 (4.02-5.98)	10.42 (27)	<0.001
Post-test	19.71 $\pm$ 2.02			

Note: A positive mean difference indicates a lower PRAQ-R2 score after the intervention. The paired-samples t-test was performed on continuous total PRAQ-R2 scores.

DISCUSSION

Among the 28 participants assessed using the 10-item PRAQ-R2, baseline anxiety was categorized as moderate in 24 participants (85.7%) and mild in 4 participants (14.3%). The mean total PRAQ-R2 score before the intervention was 24.71 (SD = 1.86). Thus, moderate pregnancy-related anxiety predominated in this selected sample of women who had screened positive for anxiety.

Following seven consecutive days of acupressure at the EX-HN3 and CV17 points, 25 participants (89.3%) were categorized as having mild anxiety and 3 participants (10.7%) remained in the moderate category. The mean total PRAQ-R2 score decreased to 19.71 (SD = 2.02), indicating a reduction in pregnancy-related anxiety at the group level. All 28 participants completed the intervention, with no reported dropouts.

Analysis of the continuous PRAQ-R2 scores showed a mean reduction of 5.00 points (95% CI 4.02–5.98), with a statistically significant paired pretest-posttest difference, $t(27) = 10.42$, $p < 0.001$. This result indicates a significant within-participant reduction in pregnancy-related anxiety following the seven-day intervention. Nevertheless, because the study used a one-group pretest-posttest design without a control group, the observed reduction cannot be attributed to acupressure alone. Natural changes in anxiety as childbirth approaches, regression to the mean, and nonspecific effects of repeated contact with the researcher remain possible alternative explanations.

The observed reduction is consistent with the proposed mechanisms of acupressure described in the Introduction. Manual stimulation of acupressure points may activate sensory afferent pathways and modulate neurochemical and autonomic processes associated with anxiety, potentially contributing to reduced anxiety-related arousal (Au et al., 2015). However, the present study did not directly assess these physiological mechanisms; therefore, this explanation should be regarded as a proposed mechanism rather than a mechanism demonstrated by the current findings.

The findings are broadly consistent with previous studies of acupressure among pregnant women. Hakim and Agustiani (2022) reported reduced anxiety among third-trimester pregnant women following acupressure at EX-HN3 and P6. Koriyanah et al. (2024) reported reduced anxiety among pregnant women with premature contractions following acupressure combined with water-sound therapy, while Wulandari et al. (2021) reported reduced anxiety among third-trimester pregnant women following acupressure at other acupressure points. The consistent direction of findings across these studies, despite differences in acupressure points, study settings, intervention protocols, and outcome measures, suggests that acupressure may have potential as a complementary approach to managing anxiety during pregnancy. However, differences in intervention dose, including the number and duration of sessions and stimulation techniques, as well as differences in baseline anxiety severity and measurement instruments, limit direct numerical comparisons of effect sizes. The present study contributes to this literature by examining the EX-HN3 and CV17 combination using the pregnancy-specific PRAQ-R2 in a primary-care public health center setting.

The observed direction of change is also compatible with previous research suggesting that acupressure may improve sleep quality during pregnancy (Neri et al., 2016) and with a meta-analysis reporting an overall reduction in anxiety across acupressure studies (Au et al., 2015). However, the present study did not formally assess sleep quality, comfort, intervention acceptability, or patient-reported experience. Consequently, no conclusions can be drawn regarding these additional outcomes. Future studies incorporating patient-reported experience measures alongside validated pregnancy-anxiety scores may help clarify the acceptability and broader effects of the intervention.

This study has several strengths, including the use of a standardized acupressure SOP, a pregnancy-specific anxiety instrument, complete paired pretest-posttest data for all 28 participants, and analysis of continuous total PRAQ-R2 scores using a paired method appropriate to the observed difference-score distribution. Nevertheless, several limitations should be considered. First, the one-group pretest-posttest design without a control or comparison group prevents causal attribution of the observed reduction solely to acupressure. Second, the small sample size and recruitment from a single public health center limit statistical precision and generalizability. Third, although the intervention followed a standardized SOP, it was not delivered exclusively by the researcher; some sessions were assisted by trained midwives following the same SOP because of limitations in researcher time and personnel, which may have introduced provider-related variability. Fourth, the anxiety severity categories used for descriptive reporting were based on the original study protocol, while the inferential analysis relied on continuous total scores. Finally, potential confounders, including parity, concurrent psychosocial support, and gestational complications, were not controlled for. These limitations highlight the need for controlled studies with larger, multisite samples and standardized intervention delivery.

CONCLUSION

Seven consecutive days of EX-HN3 and CV17 acupressure were followed by a statistically significant reduction in total PRAQ-R2 scores among third-trimester pregnant women at Siliwangi Public Health Center. Mean scores decreased from 24.71 ± 1.86 before the intervention to 19.71 ± 2.02 afterward, with a mean paired reduction of 5.00 points (95% CI 4.02–5.98; $t(27) = 10.42$; $p < 0.001$). The anxiety-category distribution also shifted from predominantly moderate before the intervention to predominantly mild afterward. Because the study used a one-group pretest-posttest design without a control group, these findings demonstrate a significant within-group reduction following the intervention but do not establish a causal effect of acupressure.

RECOMMENDATION

EX-HN3 and CV17 acupressure may have potential as a complementary non-pharmacological approach to antenatal anxiety management. Because this study did not include a control group and some intervention sessions were assisted by trained midwives following the study SOP, the findings should be interpreted cautiously. Future studies should use controlled designs, larger multisite samples, standardized intervention delivery, and consistent measurement procedures to evaluate the efficacy, safety, acceptability, and feasibility of this intervention.

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