COMBINING AUTOGENIC RELAXATION AND AURICULAR ACUPRESSURE TO REDUCE ANXIETY IN HIGH-RISK PREGNANT WOMEN

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Abstract

High-risk pregnancy is often associated with elevated levels of maternal anxiety, which can negatively impact maternal and fetal health outcomes. While pharmacological approaches are available, evidence regarding effective non-pharmacological interventions for anxiety management in this population remains limited. This study aimed to evaluate the effectiveness of autogenic relaxation and auricular acupressure in reducing anxiety among high-risk pregnant women. A quasi-experimental study with a pre-test–post-test control group design was conducted at the Bengkulu City Public Health Center area. Thirty-four third-trimester pregnant women experiencing anxiety were recruited, with 17 participants assigned to the intervention group through total sampling and 17 to the control group using simple random sampling. The intervention, combining autogenic relaxation and auricular acupressure, was administered daily for seven consecutive days. Anxiety levels were measured before and after the intervention. Data were analyzed using paired t-tests and Mann-Whitney tests. Baseline anxiety scores were comparable between groups (intervention: 30.18; control: 30.76). After the intervention, the intervention group showed a significant reduction in anxiety by 10.94 points ($p = 0.000$), compared to 3.76 points in the control group. Mann-Whitney analysis confirmed a significant difference between groups ($p = 0.000$). Autogenic relaxation was found to be more effective (37%) compared to auricular acupressure (13%) in reducing maternal anxiety. Autogenic relaxation is more effective than auricular acupressure in reducing anxiety among high-risk pregnant women. These findings highlight the potential of autogenic relaxation as a recommended non-pharmacological intervention in antenatal care to enhance maternal psychological well-being

Keywords: Autogenic Relaxation, Auricular Acupressure, Anxiety, High Risk Pregnancy

Presented at The 5th Bengkulu International Conference on Health (B-ICON), Bengkulu-Indonesia, October 28-29th, 2025

Published: December 31st, 2025

e-ISSN : 2986-027X

INTRODUCTION

Every pregnancy can have risks that may arise during pregnancy. The level of risk in pregnancy can be categorized as low, moderate, or high. According to Rochjati, a high-risk pregnancy is a pregnancy with one or more risk factors that have a negative impact on the mother and fetus (Jaya et al, 2020). High risk can affect the safety of the mother and fetus both during pregnancy and childbirth (Jamilah

et al. 2024). According to data from the World Health Organization, every year there are around 200 million pregnant women worldwide who face pregnancy and childbirth risks. These various risks include bleeding, infection, and eclampsia, which account for 40%, while about 15% experience anxiety (Parung et al, 2020). Based on data from the Bengkulu Provincial Health Office in 2020, out of a total of 40,609 pregnant women in Bengkulu Province, there were 1,511 pregnant women (3.72%) with high-risk pregnancies in Bengkulu City. This was followed by North Bengkulu with 1,311 pregnant women (3.23%) at high risk, Rejang Lebong with 1,000 pregnant women (2.46%), and South Bengkulu with 445 pregnant women (1.10%) at high risk (Bengkulu Provincial Health Office, 2020).

Pregnant women in their third trimester with high risk often experience anxiety due to several factors. Factors such as young or old age, medical history, first pregnancy, In addition, pregnant women who have had previous pregnancies (multigravida) experience higher anxiety if they have had a bad experience during the previous delivery process, such as pain, complications, or bleeding. Childbirth experiences (Aisyah, 2022). Pregnancy risks occur due to physical changes, psychological changes due to pregnancy, and the presence of risk factors for maternal diseases prior to pregnancy. Physiological changes include changes in weight, body shape and size, skin color, hormonal changes, and increased frequency of urination. Psychological changes occur due to the mother's worries that the baby will not be born on time, feelings of anxiety that the baby will be born with a disability, the mother imagining the pain of childbirth, previous childbirth trauma, and fear of death (Wirastri, 2022; Dewita, 2023).

Data from the WHO (2020) shows that 8-10% of pregnant women experience anxiety during pregnancy, with an increase of up to 13% as they approach childbirth. Anxiety in pregnant women in developed countries ranges from 7-20%, while in developing countries it is more than 20% (Setiawati et al., 2022). On the island of Java, pregnant women in their third trimester experience anxiety in facing childbirth at a rate of around 36.7%, which is lower than on the island of Sumatra, where it is around 52.3% of 679,765 pregnant women facing childbirth (Restipa et al., 2019). The prevalence of anxiety in women aged 20-44 years undergoing vaginal delivery ranges from 10-25%. According to a study by Asmariyah and Novianti (2021), pregnant women with mild anxiety in the city of Bengkulu amounted to 39.8%, with moderate anxiety at 37.0%, and severe anxiety at 19.4%.

During pregnancy, anxiety can also cause nutritional changes and sleep problems, which affect the mother's emotional changes and fetal development (Corbett, 2020). Anxiety can cause the release of catecholamine and adrenaline hormones, which inhibit the release of oxytocin. As a result, uterine

muscle contractions weaken during labor, causing prolonged labor and increasing the risk of infection. Emotional instability before and after childbirth also increases the risk of postpartum depression (Albin et al., 2022). According to Susilowati (2020), there are several nursing interventions that can be used to reduce anxiety levels in pregnant women, including Guided Imagery and Music (GIM) relaxation, classical music therapy, pregnancy exercises, Al-Quran murottal therapy, deep breathing relaxation techniques, acupressure, and aromatherapy. Other nursing interventions often used to address anxiety include relaxation techniques such as deep breathing, meditation, and yoga. Autogenic relaxation techniques, floating therapy, biofeedback relaxation, and tai chi are not yet widely used. Autogenic relaxation techniques are performed by focusing on the use of self-suggestion to achieve a state of relaxation (Rian et al., 2021). A study conducted by Lusia et al. (2022) on 20 pregnant women found a significant difference in the average anxiety levels of pregnant women before and after treatment. One relatively new method developed by Paul Nogier is auricular acupressure, which involves pressing certain points on the ear to stimulate other internal parts of the body (Mousavi et al., 2017). Auricular acupressure is a treatment method that involves stimulating certain points on the ear. A study conducted by Somayeh et al. (2024) on 68 post-cesarean section mothers at a hospital in Rasht City, Iran, after being given auricular acupressure intervention for 10 days, proved that there was a decrease in the mothers' anxiety levels.

The researchers aimed to analyze the effectiveness of both interventions. Based on a literature review, there have been no studies comparing autogenic relaxation with auricular acupressure in reducing anxiety in high-risk pregnant women.

MATERIALS AND METHODS

This study employed a quantitative approach using a quasi-experimental design with a pre-test and post-test control group. The design was selected to evaluate the effectiveness of autogenic relaxation compared with auricular acupressure in reducing anxiety among high-risk pregnant women.

This study has obtained ethical approval from the Bengkulu Ministry of Health Polytechnic Ethics Committee on November 21 with number KEPK. BKL/652/11/2024. This study has also obtained a research location permit from the Head of the Bengkulu City Health Office with number 000.9.2/2189/D.Kes/2024 dated November 24, 2024.

The study was conducted in two primary health care centers located in Bengkulu City, namely Telaga Dewa Public Health Center and Suka Merindu Public Health Center. The target population consisted of all high-risk and very high-risk pregnant women attending antenatal care services at these facilities.

The sample included third-trimester pregnant women (≥28 weeks gestation) who met the inclusion criteria: (1) diagnosed as high-risk or very high-risk pregnancy, (2) experiencing anxiety as measured by the Pregnancy Anxiety Screening Scale (PASS), and (3) willing to participate in the study. Exclusion criteria included women with severe obstetric complications requiring immediate referral or those undergoing pharmacological treatment for anxiety.

A total of 34 participants were recruited and divided into two groups: 17 in the intervention group and 17 in the control group. Participants in the intervention group were recruited using total sampling at Telaga Dewa Public Health Center, while participants in the control group were selected using simple random sampling at Suka Merindu Public Health Center.

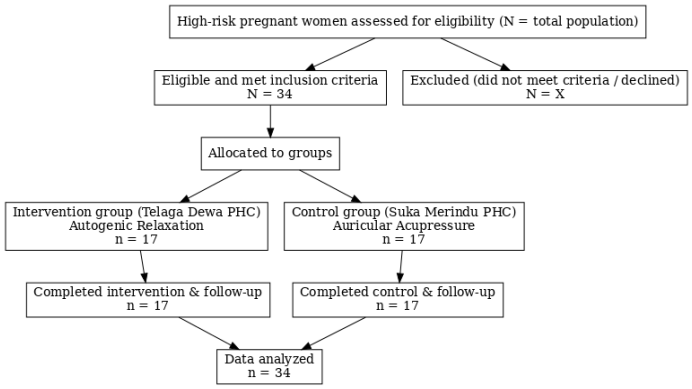
Interventions

1. Intervention Group: Participants received autogenic relaxation training, which consisted of daily guided sessions conducted for seven consecutive days. The sessions emphasized muscle relaxation, focused breathing, and self-suggestion techniques to induce a relaxation response. Each session lasted approximately 20–30 minutes.
2. Control Group: Participants received auricular acupressure, applied daily for seven consecutive days. Pressure was applied to specific auricular points associated with anxiety reduction using standardized techniques by trained personnel.

Data were collected through structured interviews using the Pregnancy Anxiety Screening Scale (PASS), a validated instrument for measuring pregnancy-related anxiety. Assessments were conducted before and after the 7-day intervention period in both groups.

Data analysis was carried out in two stages:

1. Univariate Analysis: Performed to describe the distribution of each variable, including demographic characteristics and baseline anxiety scores.
2. Bivariate Analysis: Conducted to examine the effect of interventions on anxiety reduction. The Wilcoxon signed-rank test was used for within-group comparisons, while the Mann-Whitney U test was applied for between-group comparisons. A significance level of $p < 0.05$ was considered statistically significant.



Picture 1 : research flowchart

RESULTS AND DISCUSSION

Participant Characteristics

Table 1 Characteristics of respondents based on maternal age, occupation, and education

No	Intervention	Control	*P-value*
Mothers Age			
No risk (ages 20–35)	12 (70,59%)	11 (64,71%)	0,718**
Risk age (<20/ >35)	5 (29,41%)	6 (35,29%)	
Job			
Work	3 (17,65%)	4 (23,53%)	0,676**
Not Working	14 (82,35%)	13 (76,47%)	
Education			
Low Education SD/SMP	5 (29,41%)	4 (82,35%)	
Secondary Education SMA/SMK	10 (58,82%)	8 (47,06%)	0,323**
Higher Education D3/S1/S2/S3	2 (11,76%)	5 (29,41%)	

A total of 34 third-trimester pregnant women with high-risk pregnancies were included in the study, equally divided between the intervention group (n = 17) and the control group (n = 17). Table 1 presents the sociodemographic characteristics of participants. Most participants in both groups were within the non-risk maternal age range of 20–35 years (intervention: 70.59%; control: 64.71%), with no significant differences between groups (p = 0.718). The majority of women in both groups were unemployed (intervention: 82.35%; control: 76.47%; p = 0.676). Regarding education, most participants had a secondary level of education (intervention: 58.82%; control: 47.06%), with no statistically significant differences between groups (p = 0.323). These findings indicate that baseline characteristics were comparable across groups.

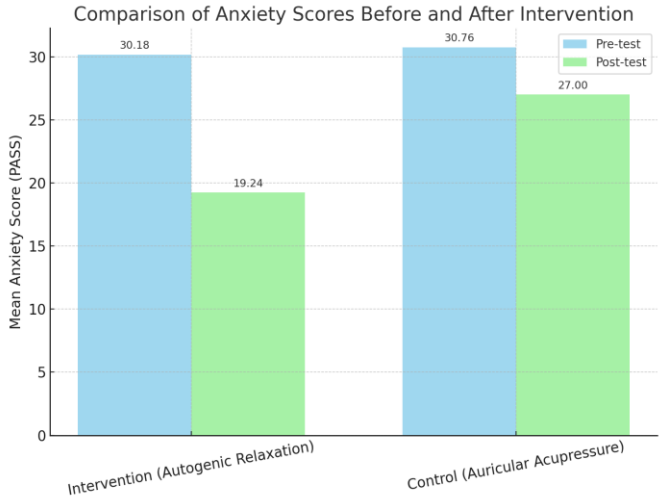
Anxiety Scores Before and After Intervention

Table 5.2 Average anxiety levels of mothers before intervention in the intervention and control groups (n=34).

Variable	Mean	Median	Min	Max	SD	CI	*p-value*
Intervention							
Before	30,18	30,00	21	51	8,812	25,65-34,71	0,008*
After	19,24	14,00	10	44	10,923	13,62-24,85	0,003*
Control							
Before	30,76	33,00	21	46	7,902	26,70-34,83	0,096*
After	27.00	29,00	15	37	6,699	23,56-30,44	0,334*

SD, Standar Deviation,, Uji *Shapiro Wilk

Table 2 shows the mean anxiety scores before and after the intervention. In the intervention group, the mean pre-test anxiety score was 30.18 (SD = 8.812), which decreased significantly to 19.24 (SD = 10.923) after the intervention (p = 0.003). In the control group, the mean anxiety score slightly decreased from 30.76 (SD = 7.902) to 27.00 (SD = 6.699); however, this reduction was not statistically significant (p = 0.334).



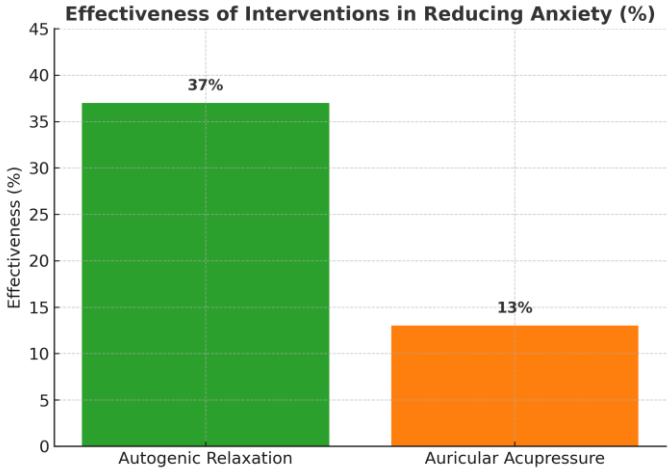
Picture 2 : Comparison of Anxiety Scores Before and after Intervention

Within-Group Analysis

The Wilcoxon signed-rank test revealed a significant reduction in anxiety within both groups. The intervention group demonstrated a mean reduction of 10.94 points (p = 0.000), while the control group showed a smaller reduction of 3.76 points (p = 0.003) (Table 3).

Between-Group Analysis

As shown in Table 4, the Mann-Whitney U test indicated a statistically significant difference between the intervention and control groups (p = 0.000). The effectiveness of autogenic relaxation in reducing maternal anxiety was 37%, substantially higher than the 13% reduction achieved with auricular acupressure.



Picture 3 : Effectiveness Of Interventions in Reducing Anxiety

Discussion

This study demonstrated that both autogenic relaxation and auricular acupressure reduced anxiety in high-risk pregnant women, but autogenic relaxation was significantly more effective. The mean reduction in anxiety among women who practiced autogenic relaxation was nearly three times greater than in those who received auricular acupressure.

Comparison with Previous Studies

The results align with previous studies indicating that relaxation techniques can effectively reduce maternal anxiety during pregnancy. Autogenic relaxation works by inducing a state of physiological calm through focused breathing, progressive muscle relaxation, and positive autosuggestion, directly counteracting sympathetic nervous system hyperactivity. Auricular acupressure, although beneficial, appears to produce a less pronounced effect, possibly due to reliance on external stimulation of acupoints rather than active cognitive and physiological engagement.

Clinical Implications

These findings support the integration of autogenic relaxation into routine antenatal care, particularly for high-risk pregnancies where anxiety can negatively affect maternal and fetal health. Autogenic relaxation offers practical advantages: it is simple, low-cost, culturally adaptable, and empowers women to practice independently at home after initial guidance. This makes it particularly valuable in community health care settings with limited resources.

Discussion

Average anxiety levels of high-risk pregnant women

The results of this study show that the anxiety levels of mothers before intervention in the intervention group had an average anxiety score of 30.18, while the average in the control group was 30.76. Referring to the anxiety levels according to Louise (2009), the classification of anxiety in both groups was in the range of 27-41, which is moderate anxiety. In the third trimester of pregnancy, many women experience anxiety. According to Rukiyah & Yulianti (2019), this anxiety is mainly caused by fear of childbirth and concern for the condition of the baby. Internal psychological factors, such as age and number of pregnancies, as well as external stressors from the environment, also play a role in increasing anxiety. Approaching childbirth, anxiety can cause tension, inhibit relaxation, cause fatigue, and affect the condition of the fetus (Padila, 2021). This study shows that pregnant women in their third trimester with a history of high-risk pregnancies experience moderate anxiety. Anxiety can increase vasoactive hormones, which can cause hypertension, trigger prolonged labor, and contribute to 5% of maternal deaths (Rahayu, 2019). In addition, anxiety can also affect nutrition, sleep, maternal emotions, and fetal development (Corbett, 2020).

The Effect of Autogenic Relaxation on Anxiety in High-Risk Pregnant Women

This study demonstrates the decline in anxiety scores following autogenic relaxation intervention. Before intervention, the average score was 30.60; after intervention, it was 19.24, with a decrease of 10.94. According to statistics, there is a significant decrease, thus Ha is accepted, which indicates that autogenic relaxation is effective in reducing anxiety. The findings of this study are consistent with those of a study by Prahardian et al, (2022) on 34 pregnant women in their third trimester who lived in the Puskesmas Merdeka Palembang working area. Prior to autogenic relaxation, the average anxiety score was 26.56; following the intervention, it dropped to 15.50. According to statistics, autogenic relaxation helps pregnant women in their third trimester feel less anxious. According to the findings of a study by Andayani et al, (2021) the average anxiety score was 32.95. Following the implementation of the intervention, it was demonstrated that autogenic relaxation significantly reduced the anxiety levels of expectant mothers.

The technique of autogenic relaxation involves using internal words or brief sentences to soothe the mind. By focusing on breathing and heart rate management and imagining a serene and tranquil state, this approach helps pregnant women reduce physiological strain. This method, which involves deep breathing and body awareness, can effectively induce a relaxation response in expectant mothers. This mechanism lowers chemicals that cause anxiety and raises feelings of comfort and serenity during

pregnancy by boosting parasympathetic nerve activity and decreasing sympathetic nerve activity (Mar'atun Ulaa, 2021).

The Effect of Auricular Acupressure on Anxiety in High-Risk Pregnant Women

The results of the study showed that the average decrease in anxiety scores after intervention in the auricular acupressure control group indicated a difference in the average anxiety levels before and after intervention. The anxiety score before intervention was 30.76, and after auricular acupressure, it was 27.00. Therefore, it can be concluded that Ha is accepted, meaning that there was a decrease in anxiety after intervention. These results are in line with the study by Novianti & Asrianti (2021), which showed that the average anxiety score before the intervention was 26.6 and after the intervention was 22.3. Statistically, auricular acupressure therapy was proven to be effective in reducing anxiety in pregnant women in the third trimester (p= 0.001). The results of this study are in line with the research by Setiawandar et al (2023), which showed that the average anxiety score before the intervention was 22.18 and after the intervention was 18.59. Statistically, auricular acupressure therapy was proven to be effective in reducing anxiety in pregnant women in their third trimester (p= 0.000). Using vaccaria seeds attached to the outer ear at six locations using adhesive stickers, auricular acupressure stimulates specific points on the ear to alleviate physical and psychological disorders. Five seeds—heart, muscle relaxation, main shoulder, subcortex or thalamus, and anxiety—were positioned on the right side of the ear, while one seed was placed at the Shen Men point on the left. For two minutes (a total of twelve minutes), the researcher applies light, continuous pressure to each spot. To control anxiety, tension, and improve sleep quality, the reticular formation and the sympathetic and parasympathetic nervous systems are activated when the reflex points in the ear are massaged.

The effectiveness of autogenic relaxation with auricular acupressure

Based on the results of the study, both autogenic relaxation and auricular acupressure interventions have been proven to be effective in reducing anxiety scores in pregnant women. However, when looking at the average difference in anxiety score reduction before and after intervention in the autogenic relaxation (AR) intervention group, it was 10.94. In the control group with auricular acupressure, there was a decrease in anxiety scores of 3.76 between before and after the intervention, which was statistically significant. These results indicate that Ha is accepted, meaning that autogenic relaxation is more effective in reducing the average anxiety scale of high-risk pregnant women than auricular acupressure.

This can be attributed to the fact that autogenic relaxation intervention is a technique that focuses more on mental aspects and visualization to regulate the body's response to stress. This technique involves deep breathing and creating a feeling of warmth or heaviness in the body, which aims to directly influence the autonomic nervous system, reduce muscle tension, and lower mental stress (Lusia et al., 2022). Through regular practice, AR can improve an individual's ability to manage stress and anxiety in the long term, while improving control over physiological and mental responses, which ultimately helps to form a calmer and more focused mindset, thus proving to be more effective in reducing the average anxiety score in high-risk pregnant women.

Compared to auricular acupressure, which focuses more on stimulating specific points on the ear to increase energy flow or Qi and provide a relaxing effect (de Matos et al., 2021), this technique is more physical and tends to provide a temporary relaxing effect. Auricular acupressure does not directly affect mental aspects as autogenic relaxation does. This technique is more effective for providing relaxation in the short term, but it does not have a long-term impact on forming habits or controlled mental responses like autogenic relaxation does.

CONCLUSION

Autogenic relaxation was found to be more effective than auricular acupressure in reducing anxiety among high-risk pregnant women, with a 37% reduction compared to 13%. This evidence highlights autogenic relaxation as a practical, non-pharmacological intervention to improve maternal psychological well-being during pregnancy.

Healthcare providers, especially nurses and midwives, are encouraged to incorporate autogenic relaxation into antenatal counseling and education. Structured training programs should be developed to equip women with the skills to practice relaxation independently. Future studies with larger sample sizes and extended intervention periods are recommended to strengthen the evidence and assess long-term maternal and neonatal outcomes.

Implications for Nursing Practice

The findings of this study carry significant implications for nursing and midwifery practice:

1. Integration into Care: Nurses can incorporate autogenic relaxation into antenatal education to manage maternal anxiety effectively.
2. Capacity Building: Training nurses and midwives in relaxation techniques ensures they can guide pregnant women both in clinical settings and at home.

3. Cost-Effectiveness: As an affordable, non-invasive intervention, autogenic relaxation can be applied in resource-limited healthcare settings.
4. Holistic Care**:** Incorporating relaxation addresses not only physical but also psychological aspects of maternal health, aligning with a holistic model of nursing care.

Limitations and Future Research Directions

Several limitations should be acknowledged. The small sample size and short intervention period may limit the generalizability and sustainability of the results. Furthermore, the study was conducted in only two health centers in one city, which may not represent broader populations. Future research should consider larger, more diverse samples, longer follow-up periods, and multicenter trials. Studies should also explore combining autogenic relaxation with other non-pharmacological approaches, such as mindfulness or partner support, and examine the impact on maternal outcomes (e.g., labor experience, delivery mode) and neonatal outcomes (e.g., birth weight, Apgar scores).

The authors would like to express their sincere gratitude to the Head of the Bengkulu Health Office and the staff of Telaga Dewa and Suka Merindu Community Health Centers for their invaluable support and cooperation during the study. Special thanks are extended to the pregnant women who willingly participated in this research, despite the challenges of their pregnancy journey. The authors also acknowledge the contributions of colleagues and research assistants who provided guidance and assistance throughout the data collection and analysis process.

The authors declare that there are no conflicts of interest, financial or otherwise, that could have influenced the conduct, outcomes, or reporting of this study.

REFERENCES

Adilla, I., Misrawati, M., & Indriati, G. (2023). Efektivitas Intervensi Mindfulness Bonding Ibu dan Janin Menggunakan Smartphone Terhadap Kecemasan Ibu Hamil Menjelang Persalinan.

Eliagita, C., Oktarina, M., & Absari, N. (2024). Pengaruh Aroma Terapi Lemon Terhadap Emisis Gravidarum Di Bidan Praktek Mandiri Di Wilayah Kerja Puskesmas Sukamerindu.

Manalu, A. B., Siagian, N. A., Yanti, M. D., Ariescha, P. A. Y., Barus, D. T., & Purba, T. J. (2021). Pengaruh Pemberian Relaksasi Autogenik Terhadap Tingkat Kecemasan Ibu Primigravida Di BPM Kurnia Kecamatan Deli Tua.

Nurhayati, Marliyana, & Nuraini, D. (2022). Gambaran Tingkat Kecemasan Ibu Hamil Primigravida dan Multigravida dalam Menghadapi Persalinan di Indonesia.

Norani, N., Friscila, I., Anisa, F. N., Fitriani, A., & Hartinah, H. (2024). Media Informasi Tentang Komplementer Pada Masa Kehamilan Di Desa Sigam Kotabaru.

Novianti & Asrianti. (2021). Pengaruh Terapi Akupresur terhadap Tingkat Kecemasan pada Ibu Hamil Trimester III.

Saputra, K., Waroh, Y. K., & Andarwulan, S. (2023). Education, Professional Program, Study Surabaya.

Pujiastutik, Y. E., & Wahyuni, S. (2023). Edukasi kesehatan kehamilan resiko tinggi terhadap pengetahuan WUS di Kelurahan Burengan Kediri.

Purba, M. (2022). Hubungan Teknik Relaksasi Autogenik dengan Tingkat Kecemasan Ibu Hamil Menjelang Persalinan di Klinik Pratama Matahari Tahun 2023.

Putri, A. H., Widiyanti, D., & Dewi, R. (2022). Pengaruh Senam Hamil Terhadap Nyeri Punggung Pada Ibu Hamil Trimester II Dan III.

Rahmizani, S. D., & Lestari, Y. A. (2023). Relaksasi Benson Dan Relaksasi Autogenik Terhadap Tingkat Kecemasan Ibu Hamil Trimester III.

Ulaa, M., & Azzahra, N. (2024). Implementasi Keperawatan Terapi Relaksasi Autogenik Pada Ibu Hamil Primigravida Trimester III Dengan Ansietas Di Daerah Binaan Ikest Muhammadiyah Palembang.

Vieira, A., Sousa, P., Moura, A., Lopes, L., Silva, C., Robinson, N., Machado, J., & Moreira, A. (2022). The Effect of Auriculotherapy on Situational Anxiety Triggered by Examinations: A Randomized Pilot Trial.

Zulaida, S., Astuti, H. P., & Renny, Y. (2022). Pengaruh Senam Hamil terhadap Tingkat Kecemasan Ibu Hamil Trimester III di Puskesmas Andong.