

Effect of Effleurage Massage to Reduce Lower Back Pain in Pregnant Women in the Third Trimester at the Wede Arrachman Primary and Maternity Clinic in Bandar Lampung

Ni Wayan Windi Leonita Putri¹, Richta Puspita H Aryanti¹, Santi Oktavia¹

¹Mitra Indonesia Univercity, Bandar Lampung, Indonesia

Article Information

Revised: February 2026

Available online: June 2026

Keywords

Effleurage Massage, Lower Back Pain,
Third-Trimester Pregnant Women

Correspondence

E-mail :

niwayanwindi2022.student@umitra.ac.id
richta@umitra.ac.id

ABSTRACT

It is known that the effect of effleurage massage reduces lower back pain in pregnant women in the third trimester at the Wede Arrachman Primary and Maternity Clinic (Midwife Dasa) in Bandar Lampung City. The type of research used is quantitative with a One Group Pretest-Posttest pre-experimental design, the study population was 23 pregnant women in the third trimester who experienced lower back pain with a total sampling technique method, pain intensity measurement using the Numeric Rating Scale (NRS) and data analysis was carried out using the Wilcoxon Signed Rank Test after the normality test showed that the data was not normally distributed. The results showed that the average pain intensity before the intervention was 1.78 (moderate category), while after the intervention decreased to 1.26 (mild category). The results of the statistical test obtained a p-value of 0.001 ($p < 0.05$), which indicates that there is a significant effect of effleurage massage in reducing lower back pain in pregnant women in the third trimester.

INTRODUCTION

Pregnancy is a natural process that occurs in almost every woman. During pregnancy, the mother's body undergoes physical changes to meet the anatomical and functional needs of the body. The pregnant woman experiences both psychological and physical changes. At less than six months of gestation, the fetus is usually still small, so it doesn't interfere with the mother's activities (Mardiani & Resna, 2022).

According to the World Health Organization (2023), back pain during pregnancy varies, with nearly 70% of women in Australia and around 50% in the UK and Scandinavia experiencing it. Back discomfort during pregnancy is common in many regions of Indonesia and currently affects 60-80% of pregnant women. Seventy percent of this back pain is caused by tension or pulling. According to research by (Anggita & Fitriahadi, 2024), the prevalence of pain in pregnant women increases from the first trimester (16.7%), to the second trimester (31.3%), and peaks in the third trimester (53%). This indicates that discomfort during pregnancy, especially back pain, is also quite high, at around 60% in Indonesia. This figure is higher than the global prevalence, which ranges from 3-17%, with developed countries tending to have a lower prevalence (10%) compared to developing countries (25%).

The Lampung Provincial Health Office reported that the number of pregnant women was 182,815 (92%) and the total number of maternal complications during pregnancy was 3,815, with 70% experiencing back pain. Related research conducted by (Juita et al., 2024) on back

pain during pregnancy showed a prevalence rate ranging from 954 to 3,434 people (25% to 90%), with most concluding that approximately 50% of pregnant women will experience this condition. Approximately 80% of pregnant women with back pain said it affected their daily activities, while 10% reported being unable to work (Lampung Provincial Health Office Profile, 2024).

The number of deliveries at the Wede Arrachman Primary and Maternity Clinic (Bidan Dasa) in Bandar Lampung City recorded a total of 80 deliveries in 2023, and 80 deliveries from January to October in 2024. Data on pregnant women entering their third trimester at the Wede Arrachman Primary and Maternity Clinic in Bandar Lampung shows a figure of 23 pregnant women in the past month. Many women often experience discomfort and are bothered by the pain that arises, including back pain and excessive anxiety. To reduce this pain, Proper pain management is essential, one of which is effleurage massage (Lampung Provincial Health Office Profile, 2024).

Pregnancy involves physical, emotional, and physiological changes. The third trimester is a period that requires special attention because it is during this time that the baby's growth and development accelerates. Pregnant women may experience health problems such as musculoskeletal, neurological, or psychological issues. One of the most common musculoskeletal complications during pregnancy is lower back pain (Fauziah & Sugiadini, 2024).

As pregnancy progresses, the uterus enlarges, and gravity forces the body forward. This requires pregnant women to be able to position themselves correctly

when standing, as the body relies more on muscle strength, increased weight, joint relaxation, fatigue, and previous posture. If pregnant women fail to adjust their posture properly, excessive stretching of the lower back will occur, leading to fatigue, stiffness, and pain (Mardiani & Resna, 2022).

Some discomforts commonly experienced by pregnant women in the third trimester include frequent urination (50%), constipation (40%), and bloating (30%). Additionally, vaginal discharge (15%), leg swelling (20%), leg cramps (10%), headaches (20%), striae gravidarum (50%), hemorrhoids (60%), shortness of breath (60%), and back pain (70%) are also present (Febriana & Zuhana, 2021).

The most severe lower back pain usually occurs in the third trimester of pregnancy, when the pregnancy reaches more than six months. Changes occur in the abdominal organs, the volume of the uterus, blood, and other fluids also change, resulting in a change in the mother's weight. The abdominal muscles become more elastic to accommodate the growth of the fetus in the womb (Mardiani & Resna, 2022)

Effleurage massage can reduce pain in the back area, effleurage massage has a distraction effect that can increase the production of endorphins in the descending control system that can provide comfort through muscle relaxation. Effleurage massage is a series of movements that use the entire surface of the hand to perform gentle and soothing strokes on the body parts of the palms must always be in contact with the body that can relieve pain with gentle and rhythmic rubbing movements on the lower back area, in pregnant women in the third trimester this method is usually

given 2-3 times a week with a duration of 10-15 minutes per session. This technique aims to increase local blood flow, reduce lumbar muscle tension, and stimulate the release of endorphins, which play a role in reducing pain perception (Herlina Mardalina, 2023).

It is performed with the mother in a sitting or lying on her side. The therapist then rubs the lower back from bottom to top using light to moderate pressure. The movements are performed gently, repeatedly, and regularly to provide a relaxing effect. This technique is indicated for pregnant women in their third trimester who experience lower back pain due to changes in posture and increased body weight. After receiving effleurage massage, mothers typically experience a decrease in pain intensity, more relaxed muscles, and improved comfort and quality of daily activities (Herlina Mardalina, 2023).

Previous research by (Fadilah, 2021) showed that effleurage massage techniques can help reduce back pain in pregnant women in the third trimester. Similar research also found that effleurage massage techniques can be used as a non-pharmacological therapy to address back pain in postpartum women, resulting in reduced pain and increased comfort.

Previous research conducted by (Andriani et al., 2023) showed that after effleurage massage, there was a decrease in the back pain scale from a pain scale of 5 to a pain scale of 2. Pregnant women in the third trimester are advised to do effleurage massage regularly in the morning to reduce the back pain scale so that mothers are comfortable in carrying out activities. Previous research conducted by (Fitriana & Vidayanti, 2020) found that effleurage massage and deep breathing relaxation

techniques reduced back pain in third-trimester pregnant women compared to deep breathing relaxation techniques in third-trimester pregnant women experiencing back pain.

Based on a pre-survey conducted on October 7, 2025, data on 3,000 pregnant women visited during January-September 2025. Within three months, there were 330 visits, and within one week, there were four visits. The data showed that 23 pregnant women were in their third trimester in the past month. Meanwhile, at the Puri Betik Hati Hospital, 35 pregnant women experienced lower back pain in the past three months. According to the Wede Arrachman Primary and Maternity Clinic staff (midwife), the most common complaint among pregnant women is back pain. Interviews with five pregnant women revealed that they had never had effleurage massage, and they simply rested and applied balm. The pain and discomfort they feel disrupt the mother's daily activities. Based on the background above, the author wants to conduct a study entitled "The Effect of Effleurage Massage to Reduce Lower Back Pain in Pregnant Women in the Third Trimester at the Wede Arrachman Primary and Maternity Clinic (Midwife Dasa) in Bandar Lampung City."

METHOD

Research participants

In this study, the population consisted of all pregnant women in their third trimester who were registered for pregnancy check-ups at the Wede Arrachman Primary and Maternity Clinic (Bidan Dasa) totaling 23 pregnant women. In this study, the sample consisted of 23 pregnant women in their third trimester

who were registered for pregnancy check-ups at the Wede Arrachman Primary and Maternity Clinic who experienced lower back pain (Bidan Dasa).

The research design applied in this study is a One Group Pretest-Posttest Design, which is a pre-experimental study where the researcher conducts an intervention on respondents to observe changes before and after. This One Group Pretest-Posttest design is measured by a pretest conducted before the treatment and a posttest conducted after the treatment is given in each meeting session.

Instrument

Research instruments are tools used by researchers to collect information that serves as a basis for analysis and interpretation in the decision-making process so that it becomes systematic and is facilitated by it (Collins et al., 2021). The instruments used in this study were the NRS pain scale, observation sheets and SOP massage effleurage.

Data Analysis

Bivariate analysis was used to see the relationship between two variables, namely to evaluate the impact of effleurage massage therapy on lower back pain in pregnant women in the third trimester at the Wede Arrachman Primary and Maternity Clinic (Midwife Dasa), the statistical method used was the Wilcoxon signed rank test because the results of the normality test showed that the data was not normally distributed. The basis for decision making in the Wilcoxon signed rank test on an ordinal data scale, not normally distributed, obtained with a p value = 0.001 ($p < 0.05$). This shows that effleurage massage has a significant effect on reducing pain levels before and after.

RESULTS AND DISCUSSION

Table 1. Frequency Distribution of Respondent Characteristics at the Wede Arrachman Primary and Maternity Clinic (Midwife Dasa) in Bandar Lampung City

Characteristics	Frequency	Percentage (%)
Age		
20–30 years	16	69,6%
>30 years	7	30,4%
Education		
Junior High School	3	13,0%
Senior High School	16	69,6%
College	4	17,4%
Occupation		
Homemaker	19	82,6%
Self-employed	4	17,4%
Pregnancy		
Primiparous	10	43,5%
Multiparous	13	56,5%
Total	23	100%

Based on Table 1, the majority of respondents were aged 20-30 years (16 respondents) (69.6%), the majority of respondents had a high school education (16 respondents) (69.6%), and almost all respondents worked as housewives (19 respondents) (82.6%). Furthermore, the majority of respondents were multiparous (13 respondents) (56.5%).

Table 2. Lower Back Pain Intensity Before Effleurage Massage in Third Trimester Pregnant Women at the Wede Arrachman Primary and Maternity Clinic in Bandar Lampung

Characteristics	Frequency	Percentage (%)
Mild pain	5	21,7%
Moderate pain	18	78,3%
Total	23	100%

According to Table above before the intervention, most respondents experienced moderate pain (18 respondents (78.3%)), while a small proportion experienced mild pain (5 respondents (21.7%)).

Table 3. Lower Back Pain Intensity After Effleurage Massage in Third Trimester Pregnant Women at the Wede Arrachman Primary and Maternity Clinic in Bandar Lampung

Characteristics	Frequency	Percentage (%)
Mild pain	17	73,9%
Moderate pain	6	26,1%
Total	23	100%

Based on Table above after the effleurage massage intervention, the majority of respondents experienced a decrease in pain levels to the mild pain category, namely 17 respondents (73.9%), while respondents who still felt moderate pain decreased to 6 respondents (26.1%).

Table 4. Differences in Back Pain Before and After Effleurage Massage in Pregnant Women in the Third Trimester at the Wede Arrachman Primary and Maternity Clinic (Midwife Dasa) in Bandar Lampung

Pain intensity	Mean	Difference	Min-Max	P-value	Z
Sebelum (<i>Pretest</i>)	1,78	0,52	1 – 2	0,001	-3,464
Sesudah (<i>Posttest</i>)	1,26		1 - 2		

Table shows that before the intervention, the average pain intensity was 1.78, with a minimum score of 1 and a maximum score of 2. After the effleurage massage intervention, the average pain intensity decreased to 1.26, with a minimum score of 1 and a maximum score of 2. The results of the Wilcoxon Signed Rank Test showed an Asymp. Sig. (2-tailed) value of 0.001 ($p < 0.05$) with a Z-value of -3.464. This indicates that H_a is accepted, indicating a significant effect of effleurage massage on reducing pain intensity in respondents.

The results of the study showed that 23 respondents experienced a reduction in back pain, with an average pain intensity reduction of 1.78, with a minimum score of 1 and a maximum score of 2. After effleurage massage intervention, the average pain intensity decreased to 1.26, with a minimum score of 1 and a maximum score of 2. Statistical results using the

Wilcoxon Signed Rank Test showed an Asymp. Sig. (2-tailed) value of 0.001 ($p < 0.05$) with a Z value of -3.464. This indicates that H_a was accepted, indicating a significant effect of effleurage massage on reducing pain intensity in respondents.

The study conducted by (Wati et al., 2022) was an experimental study with a pre-experimental design with a pretest and posttest design. The population in this study was all pregnant women undergoing prenatal checkups at PMB Rosita. The sampling method used purposive sampling for 20 pregnant women. The data collection method was observation, and the research instrument used an observation sheet. Results: The average lower back pain score for pregnant women in the third trimester before the intervention was 3.25 (SD=1.446) and after the intervention was 0.75 (SD=0.851). The Wilcoxon signed-rank test, with a 95% confidence interval, showed a difference in the average lower back pain score for pregnant women in the third trimester before and after effleurage massage ($p=0.001$).

These results align with research by Handayani (2023), which found that the average back pain score before massage was 1.73 with an SD of 0.704, and afterward, it decreased to 0.53 with an SD of 0.640. The Wilcoxon test results showed a p-value of 0.001 ($p < \alpha$), thus concluding that massage was effective in reducing back pain in third-trimester pregnant women in the Bineh Krueng Community Health Center (Puskemas) in 2023.

According to (Mia Rita Sari, Nurul Indah Sari, 2023), effleurage massage is a light massage using the fingers, usually on the abdomen, accompanied by contractions. Effleurage massage is a movement using the entire surface of the hands, rubbing gently and soothingly on body parts. The goal of effleurage massage is to increase blood circulation, warm the abdominal muscles, and promote physical and mental relaxation. Therefore, effleurage massage is also known as a physical relaxation technique. Effleurage massage can provide a comfortable, light sensation after application, which can relieve pain in pregnant women.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

1. The average lower back pain intensity of pregnant women in their third trimester before effleurage massage intervention was 1.78, indicating moderate pain.
2. The average lower back pain intensity of pregnant women in their third trimester after effleurage massage intervention was 1.26, indicating mild pain.
3. The p-value was 0.001. Asymp. Sig. (2-tailed) was 0.001 ($p < 0.05$) with a Z-value of -3.464. This indicates a significant effect of effleurage massage on reducing lower back pain in pregnant women in their third trimester at the Wede Arrachman Primary and Maternity Clinic (Midwife Dasa) in Bandar Lampung City.

Pain is a sensory and subjective experience, and is a negative feeling associated with tissue damage that has occurred or may occur. Each person has a different way of describing and experiencing pain. Pain is anything that stings a person's body and is expressed by the individual experiencing it, whenever they choose. Pain reflects a complex phenomenon, involving not only physical or mental reactions but also emotional responses. Furthermore, pain can be very exhausting and draining; however, not all patients are able to express their pain verbally, so nurses play a crucial role in assessing and observing nonverbal behaviors that may accompany the pain (Leni Apridawati, Budi Antoro, 2021).

Researchers believe that effleurage massage intervention is crucial for pregnant women when back pain occurs. Effleurage massage can reduce lower back pain and relieve muscle stiffness because the light massage provides a comforting effect and stimulates endorphins, which can relieve pain.

Recommendations

1. For Mitra Indonesia University

It is hoped that this research will benefit the university and serve as a reference for health students, particularly nursing students, who will conduct research on lower back pain in third-trimester pregnant women. The results of this study can serve as a reference for students and lecturers in developing further research and support the improvement of academic and teaching quality at the university.

2. For Clinics/Health Institutions

The results of this study can serve as a reference for healthcare professionals in providing non-pharmacological interventions to reduce lower back pain in pregnant women. These results can also be used as a basis for developing standard operating procedures (SOPs),

service guidelines, or educational programs for antenatal care.

3. For Pregnant Women

The results of this study are expected to provide pregnant women with information about the benefits of effleurage massage and how to perform it independently after learning the technique to reduce lower back pain in the third trimester.

4. For Future Researchers

The results of this study can serve as a reference for further research related to lower back pain management, massage interventions during pregnancy, and research with larger designs and samples. These findings can serve as a basis for developing variations in massage techniques, comparing and combining them with other non-pharmacological interventions.

BIBLIOGRAPHY

- Andriani, A., Fitri, N. L., Sari, S. A., Dharma, A. K., & Metro, W. (2023). Penerapan Massage Effleurage Terhadap Nyeri Punggung Ibu Hamil Trimester Iii Di Wilayah Kerja Puskesmas Yosomulyo Kota Metro Tahun 2022. *Implementation of Massage Effleurage on Back Pain of Pregnant Women in Trimester Iii in the Work Area of Yosomulyo Pusk. Jurnal Cendikia Muda*, 3(1), 46–54.
- Anggita, E. D., & Fitriahadi, E. (2024). Penatalaksanaan nyeri punggung pada ibu hamil trimester III melalui Pendidikan dan KIE penanganan nyeri Management of back pain in pregnant women in the third trimester through education and KIE pain management. *Prosiding Seminar Nasional Penelitian Dan Pengabdian Kepada Masyarakat LPPM Universitas 'Aisyiyah Yogyakarta*, 2(2), 1102–1106.
- Collins, S. P., Storrow, A., Liu, D., Jenkins, C. A., Miller, K. F., Kampe, C., & Butler, J. (2021). ebook validitas dan instrumen penilaian penelitian. 167–186.
- Fadilah, S. (2021). Penatalaksanaan Afterpain Pada Ibu Post Partum Multipara Hari Ke 2-4 Dengan Terapinya Di BPM Siti Azizah Wijaya, S. St Sukolilo Bangkalan. *Stikes Ngudia Husada Madura*, 15. <http://repository.stikesnhm.ac.id/id/eprint/1132/%0Ahttp://repository.stikesnhm.ac.id/id/eprint/1132/1/18154010016-2021-MANUSCRIPT.pdf>
- Fauziah, S., & Sugiadini, T. E. (2024). Massage effleure terhadap nyeri punggung pada ibu hamil trimester III. *Jurnal Pembelajaran Pemberdayaan Masyarakat (JP2M)*, 5(3), 607–615. <https://doi.org/10.33474/jp2m.v5i3.22183>
- Febriana, L., & Zuhana, N. (2021). Asuhan Kebidanan pada Ibu Hamil Trimester III dengan Anemia. *Prosiding Seminar Nasional Kesehatan*, 1, 1669–1673. <https://doi.org/10.48144/prosiding.v1i.910>
- Fithriyah, Rizki Dyah Haninggar, & R. S. D. (2021). Pengaruh Prenatal Massage Terhadap Penurunan Nyeri Punggung Pada Ibu Hamil Trimester III (Di Desa Ceweng, Kecamatan Diwek, Kabupaten Jombang). *Jurnal Kebidanan*, 10(2), 36–43.
- Fitria Dhirisma, & Idhen Aura Moerdhanti. (2022). Hubungan Antara Tingkat Pendidikan Terhadap Pengetahuan Masyarakat Tentang Hipertensi Di Posbindu Desa Srigading, Sanden, Bantul, Yogyakarta. *Jurnal Kefarmasian Akfarindo*, 7(1), 40–44. <https://doi.org/10.37089/jofar.vi0.116>

- Fitriana, L. B., & Vidayanti, V. (2020). Pengaruh Massage Effleurage Dan Relaksasi Nafas Dalam Terhadap Nyeri Punggung Ibu Hamil Trimester III. *Bunda Edu-Midwifery Journal (BEMJ)*, 2(2), 1–6. <https://doi.org/10.54100/bemj.v2i2.1>
- Garcia, A. R., Filipe, S. B., Fernandes, C., Estevão, C., & Ramos, G. (2020). Sukses Dalam Kehamilan Melalui Pembinaan Kelas Ibu Hamil (TIM Strada Press (ed.)). STRADA Press.
- Hamil, I. B. U., Dan, N. Y. N., & Di, N. Y. F. (2025). Effleurage Massage Untuk Mengurangi Nyeri Punggung Pada Ibu Hamil Trimester III.
- Handayani, D. (2023). Prenatal massage is effective in reducing back pain in Third trimester pregnant women. In *International Journal of Health Science and Technology* (Vol. 5, Issue 2, pp. 94–101). <https://doi.org/10.31101/ijhst.v5i2.3217>
- Herlina Mardalina, C. P. L. D. (2023). Analisis Asuhan Keperawatan Nyeri Akut Pada Ibu Post Sectio Caesarea dengan Menggunakan Penerapan Terapi Massage Effleurage di RSUD Anwar Medika. *Universitas Bina Sehat*, 2023, 2, 1–9.
- Juita, K. E., Puspita, R., & Lestari, Y. (2024). Pengaruh Senam Hamil Dalam Mengurangi Nyeri Punggung Bawah Pada Ibu Hamil Trimester Ketiga Di Puskesmas Sidorejo Lampung Timur. *Jurnal Ilmu Kedokteran Dan Kesehatan*, 11(8), 1622–1630. <https://doi.org/10.33024/jikk.v11i8.15415>
- Junaedi, J., & Wahab, A. (2023). Hipotesis Penelitian dalam Kesehatan. *Jurnal Pendidikan Dan Teknologi Kesehatan*, 6(2), 142–146. <https://doi.org/10.56467/jptk.v6i2.98>
- Kristyaningsih, T. (2020). Tingkat Kepuasan Pasien Terhadap Kualitas Pelayanan Kefarmasian Di Apotek Utama Husada Kota Probolinggo. *Repository Akademik Farmasi Putra Indonesia Malang*, 35–43.
- Leni Apridawati, Budi Antoro, S. M. (2021). Pengaruh Teknik Relaksasi Autogenik Terhadap Skala Nyeri Pasien Post Operasi Mastektomi Di RSUD DR. H. Abdul Moeloek Provinsi Lampung. *Jurnal Keperawatan*, 32(3), 167–186.
- Mardiani, N., & Resna, M. N. (2022). Pengaruh Terapi Massage Effleurage Terhadap Nyeri Punggung Pada Ibu Hamil Trimester III. *Jurnal Mutiara Kesehatan Masyarakat*, 7(2), 108–114. <https://doi.org/10.51544/jmkm.v7i2.3509>
- Mediasari Melsi. (2022). Pengaruh Pemberian Pelvic Rocking Dan Birthing Ball Dengan Penurunan Nyeri Pinggang Ibu Hamil TM III Di Praktik Mandiri Bidan Wirahayu, Str.Keb Panjang Tahun 2022. Universitas Mitra Indonesia. <http://repository.umitra.ac.id/id/eprint/573/>
- Meisya, A. R. (2024). Asuhan Kebidanan Komprehensif Pada Ny. M Di Pmb Dince Safrina Kota Pekanbaru Tahun 2024. Poltekkes Kemenkes Riau, 2022, 1–23.
- Mia Rita Sari, Nurul Indah Sari, I. A. R. (2023). Kebidanan Komplementer. *eureka media aksara*.
- Nur Arummega, M., Rahmawati, A., Meiranny, A., & Studi Sarjana dan Pendidikan Profesi Bidan Fakultas Kedokteran Universitas Islam Sultan Agung Semarang, P. (2022). Faktor-Faktor yang Mempengaruhi Nyeri Punggung Ibu Hamil Trimester III: Literatur Review

- Factors Affecting Back Pain In Pregnant Trimester III : A Literature Review. *Jurnal Ilmiah Kebidanan*, 9(1), 14–30.
- Putri, C. P. (2020). Pengaruh Gender Dalam Keragaman Ruang Dewan Terhadap Esgd (Enviromental, Social, and Governance) Disclosoure. 2017, 23–33. <https://repository.unair.ac.id/101535/5/0Ahttps://repository.unair.ac.id/101535/5/5>. BAB IITINJAUAN PUSTAKA.pdf
- Rangkuti, N. A., & Harahap, M. A. (2022). Hubungan Pengetahuan dan Usia Ibu Hamil dengan Kehamilan Risiko Tinggi di Puskesmas Labuhan Rasoki. *Education and Development*, 8(4), 513–517.
- Richta Puspita Haryanti. (2021). Monograf Efektivitas Teknik Relaksasi Benson dengan Massage Effleurage - Richta Puspita Haryanti - Google Buku. Penerbit NEM.
- Rifka Alkhilyatul Ma'rifat, I Made Suraharta, I. I. J. (2024). Pengetahuan Ibu Hamil Multigravida tentang perubahan psikologis kehamilan. 2, 306–312.
- Saefudin. (2020). Asuhan Kebidanan Kehamilan. 9–48. [http://eprints.poltekkesjogja.ac.id/1793/4/BAB II.pdf](http://eprints.poltekkesjogja.ac.id/1793/4/BAB%20II.pdf)
- Siti Muawanah. (2023). Efektifitas Pijat Effleurage Terhadap Nyeri Punggung Ibu Hamil Trimester Iii Di Pmb Anggia Widiari Pati. *Jurnal Ilmu Kebidanan Dan Kesehatan (Journal of Midwifery Science and Health)*, 14(2), 15–20. <https://doi.org/10.52299/jks.v14i2>.
- 188
- Sugiyono. (2021). Populasi dan sampel - Google Scholar.
- Sulastri, M., Nurakilah, H., Marlina, L., & Nurfikah, I. (2022). Penatalaksanaan Nyeri Punggung Pada Ibu Hamil Trimester III Dengan Metode Kinesio Tapping Berdasarkan Standar Profesi Bidan. *Media Informasi*, 18(2), 145–161. <https://doi.org/10.37160/bmi.v18i2.81>
- Tyastuti, 2020. (2020). Pengertian Nyeri Punggung. *Tyastuti*, 2020, 5(3), 12–26.
- Wati, M. F., Susilawati, E., Yansartika, Y., & Yunizar, A. (2022). Pengaruh Masase Effleurage Terhadap Intensitas Nyeri Punggung Bawah Ibu Hamil Trimester Iii. *Femina: Jurnal Ilmiah Kebidanan*, 1(2), 25. <https://doi.org/10.30867/fjk.v1i2.780>
- wati risma. (2020). Penerapan Effleurage Massage Untuk Mengurangi Nyeri Punggung Pada Ibu Hamil Trimester Iii.
- Yaniwati, P. (2021). Kerangka teori dan hipotesis penelitian. *Kesehatan*, 2, 13.
- Zanah Miftakhul, & Armalini Rika. (2022). Efektivitas Effleurage Massage Dengan Aromaterapi Lavender Untuk Menurunkan Nyeri Persalinan Di Pmb Yenita Kota Pariaman. *Jurnal Ilmu Kebidanan*, 11, 128–135. <https://jurnal.stikes-alinsyirah.ac.id/index.php/kebidanan>