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The Effect Of Endorphin Massage On Reducing Back Pain In Pregnant Women: Literature Review

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Abstrak

Ketidaknyamanan yang sering terjadi pada ibu hamil trimester ketiga, salah satunya adalah nyeri pinggang pada ibu hamil. Sekitar 80% wanita hamil mengalami sakit punggung pada suatu saat selama kehamilan. Pengobatan nyeri pinggang dapat dilakukan dengan terapi nonfarmakologis yang dilakukan melalui aktivitas bebas obat, salah satunya pijat endorfin. Pijat endorfin merupakan terapi sentuhan atau pijatan ringan yang cukup penting diberikan kepada ibu hamil, menjelang persalinan. Pijatan ini dapat merangsang tubuh mengeluarkan senyawa endorfin sehingga menghilangkan rasa sakit dan dapat menimbulkan rasa nyaman. Pijat endorfin sebaiknya diberikan pada ibu hamil yang sudah memasuki usia kehamilan 36 minggu. Untuk mengetahui pengaruh pijat endorfin terhadap penurunan nyeri punggung pada ibu hamil trimester III. Tinjauan literatur diambil dari 12 jurnal dengan menggunakan studi eksperimental antara kelompok perlakuan dan kelompok kontrol. Populasi ibu hamil di Indonesia selama lima tahun terakhir. Sumber literatur yang digunakan adalah Pubmed, BMC, dan Google Scholar. Hasil pencarian menggunakan PICO. Populasi: ibu hamil, Intervensi: Pijat endorfin, Perbandingan: Pijat endorfin lainnya, Hasil: Nyeri pinggang. Terdapat pengaruh pijat endorfin terhadap penurunan nyeri punggung pada ibu hamil trimester III

Kata Kunci: *Pijat Endorphine, Kehamilan, Nyeri Punggung*.

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Abstract

Discomfort often occurs in third trimester pregnant women, one of which is back pain in pregnant women. About 80% of pregnant women experience back pain at some point during pregnancy. Back pain can be treated with non-pharmacological therapy carried out through drug-free activities, including endorphin massage. Endorphine massage is a touch therapy or light massage that is quite important to give to pregnant women, in the time leading up to giving birth. This massage can stimulate the body to release endorphin compounds to relieve pain and can create a feeling of comfort. Endorphine massage should be given to pregnant women who are already 36 weeks pregnant. To identify the effect of endorphin massage on reducing back pain in third trimester pregnant women. The literature review was taken from 12 journals using experimental studies between treatment groups and control groups. Population of pregnant women from Indonesia over the last five years. The literature sources used were Pubmed, BMC, and Google Scholar. Search results using PICO. Population: pregnant women, Intervention: Endorphine massage, Comparison: Another Endorphine massage, Outcome: Low back pain. There is an effect of endorphine massage on reducing back pain in third trimester pregnant women
Keywords: *Endorphine Massage, Pregnancy, Back Pain.*

INTRODUCTION

Back pain is one of the disorders most frequently experienced by pregnant women, especially when entering pregnancy in the third trimester (Kuniarti, 2017). The pain felt by pregnant women in the back is caused by musculoskeletal changes where the muscles in the shoulders are pulled back and the spine becomes more curved, the lumbar joints become more elastic, resulting in pain in the back (Fauziah, 2012). The condition of continued pain is caused by the increasing size of the pregnancy, the mother's body posture changes as an adjustment to the increasingly heavy uterus, which will also increase the degree of lordosis so that the mother often complains of back pain (Herawati, 2017).

The results of epidemiological research show that back pain is often worsened by backache or what is often called "long back pain". This backache was found in 45% of women when their pregnancy was recorded, increasing to 69% at the 28th week (Yosefa, Misrawati & Hasneli, 2015). The prevalence of low back pain in pregnancy is reported to vary, from 50% in England and Scandinavia to 70% in Australia (Mudayyah, 2015). Among pregnant women in various regions in Indonesia, up to 60-80% of people experience back pain during pregnancy (Puspasari, 2019).

Pain management in midwifery care for pregnant women is providing education so that individuals can reduce symptoms by providing back care and are encouraged to maintain a level of activity that is comfortable for them (Herawati, 2017). Handling back pain during pregnancy is very necessary to reduce discomfort, including pharmacological

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therapy and non-pharmacological therapy. Pharmacological therapy can include non-steroidal anti-inflammatory agents and anelgesics. For non-pharmacological therapy by providing relaxation, distraction, massage, and imagination (Candra, 2017).

According to research by Mafikasari and Kartikasari (2015), several efforts to prevent back pain in pregnant women are maintaining body weight, don't wear high-heeled shoes, try not to stand for long periods, use a bolster in a comfortable sleeping position, avoid excessive bending, take various exercise classes and do simple movements. The results of previous research by Istianti (2017) to reduce pain can use non-pharmacological methods, namely distraction which can reduce back pain by 5%, relaxation techniques by 5%, transcutaneous electrical nerve stimulation (TENS) by 20%, hypnosis by 10%, and Endorphine massage can reduce back pain by as much as 60% (Puspasari, 2019).

Endorphine massage is a touch therapy or light massage that is quite important to give to pregnant women, in the time leading up to giving birth. This massage can stimulate the body to release endorphin compounds which are pain relievers and can create a feeling of comfort. Endorphine massage should be given to pregnant women who are already 36 weeks pregnant (Kuswandi, 2014). According to Puspasari (2019), the benefits of Endorphin Massage include, creating relaxation and reducing awareness of pain by increasing blood flow to the area that feels pain, stimulating sensory receptors in the skin and brain, providing a feeling of pleasure related to closeness between people, stimulating release in Endorphins, lowering endogenous catecholamines, stimulate efferent fibers that block pain stimuli. So in this case the researcher wants to identify the literature to find out the effect of endorphine massage on reducing back pain in pregnant women.

RESEARCH METHOD

The type of research used is literature study. *A literature review* is a comprehensive review of previous research on a particular topic by involving an explicit secondary analysis of knowledge, as well as showing readers what is known about a topic and what is not yet known (Jesson et al., 2011; Denney and Tewksbury, 2013). The type of *literature review* used is traditional *literature review*. This design is a review that usually adopts a critical approach, such as assessing the theories or hypotheses of previous researchers, examining the methods and results of a single primary study with an emphasis on background and contextual material, not using a scientific methodological approach (depending on the wishes of the researcher) so that it may contain bias, no can be replicated because the synthesis is carried out narratively (Jesson et al., 2011; Siswanto, 2012). The aim of this literature study research is to obtain a theoretical basis that can support solving the problem

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being researched and reveal various theories that are relevant to the case studied. Literature *review* sources used to refer to literature published electronically, in the form of journals from PubMed, Science Direct, and Google Scholar, BMJ, as well as other paper reference lists. Search results using words. Search using PICO which is described below:

Population : *pregnant women*
Intervention : *Endorphin massage*
Comparison : *Another massage*
Outcome : *Low back pain*

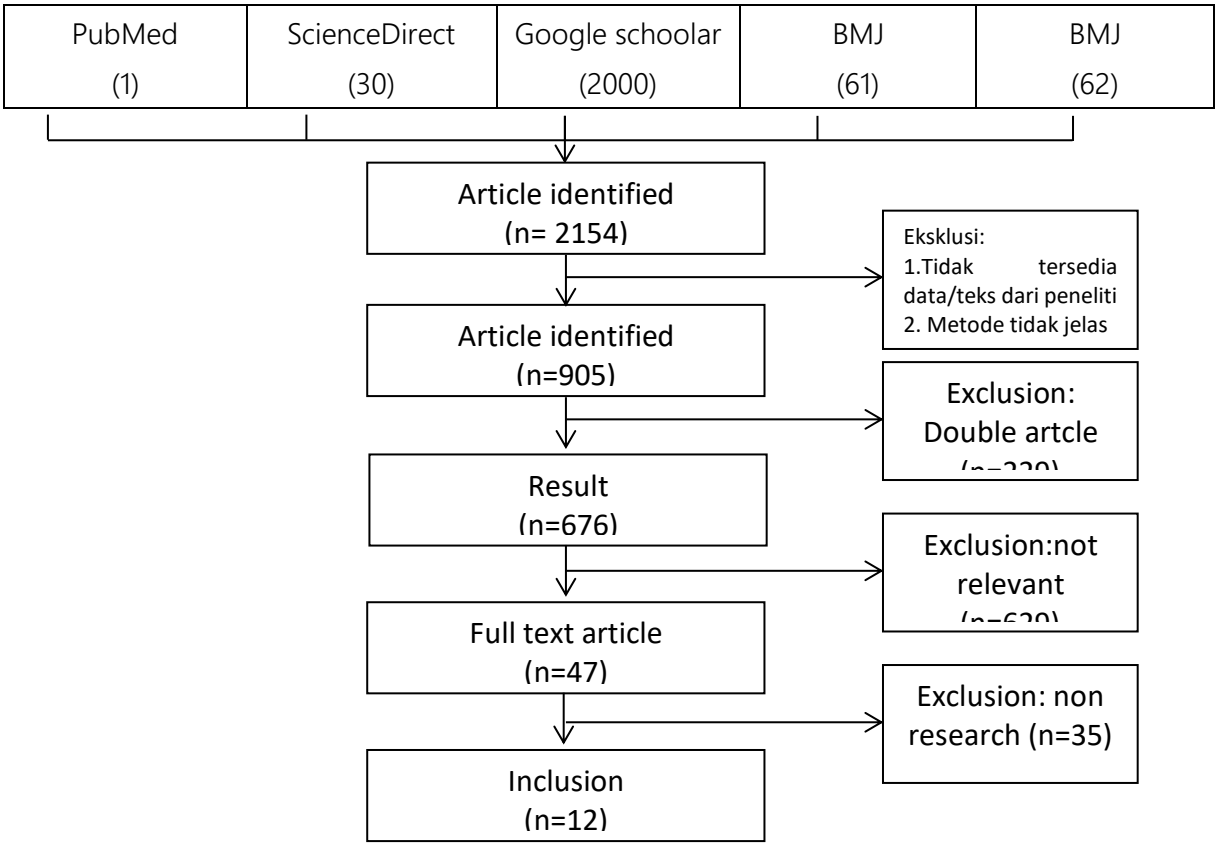

Figure 1. *Literature Review* Algorithm

Inclusion and Exclusion Criteria

Table 1. Research Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Population	*Pregnant women*	*No. Pregnant women*
Intervention	*Endorphin massage*	-
Comparison	*Another Endorphine massage*	-
Outcomes	*Low Back Pain*	-

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	Study Design and Publication Type	*Quasy experiment/ Pre experiment*	Study *literature/systematic review, meta analysis.* ,
	Publication Years	2018-2022	< 2018 and > 2023
	Language	English , Indonesian	Another English and Indonesian

Study Criteria Analysis

Table 2. Assessing the Quality of Articles Based on Literature Study Findings

No.	Author	Journal Name Vol (No), Year	Title	Methods (Design, Sample, analysis)	Results	Conclusion	Databases
1	(Munir et al., 2022)	*Indonesian Midwifery and Health Science Journal,* Vol 6(2), 2022	*Endorphine Massage Effect On Back Pain In Third Trimester Pregnant Women*	*True Experimental Pretest-posttest control group design.* Sample: 30 pregnant women Experimental group: 15 pregnant women Control group: 15 pregnant women Mann-Whitney test	Ex experiment: *endorphine massage was carried out* Ex control: *endorphine massage was not performed* Frequency of back pain before and after the test in the experimental group No pain = 0 people – 3 people Mild pain = 0 people – 9 people Moderate pain = 6 people – 2 people Severe pain = 8 people – 1 person Very severe pain= 1 person Frequency of back pain before - after test in the control group No pain = 0 people - 0 people Mild pain = 1 person – 0 people Moderate pain = 5 people – 5 people Severe pain = 9 people – 10 people There is an effect of endorphin massage on back pain in pregnant women (p=0.000)	There is an effect of endorphin massage on reducing back pain in pregnant women	Google Scholar
2	(Haflah et al., 2022)	*Tour Health Journal,* Vol 1 (2), 2022	*Pregnancy Massage for Reducing Back Pain*	*Quasi Experimental design with a non-randomized*	Ex experiment: *endorphine massage was carried out* Ex control: Deep relaxation	There is a significant effect of giving *pregnancy*	Google Scholar

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				pretest and posttest with a control group. Sample: 32 pregnant women Wilcoxon and Mann-Whitney tests	Average back pain after intervention Experimental group= 0.87 Control group= 2.06 The effect of *pregnancy massage* on third trimester pregnant women's back pain (p= 0.000)	*massage* to the back on back pain	
3	(Yona Amir et al., 2022)	Medical Science Journal Vol 13(1), 2022	*Effect of Endorphin Massage On Back Pain Intensity In Trimester III Pregnant Women*	*Pre-experiment one group pretest posttest* Sample: 20 pregnant women Wilcoxon test	Endorphin massage was performed for 30 minutes Pain levels before - after: Mild pain = 0 people – 7 people Moderate pain = 5 people – 12 people Severe pain = 15 people – 1 person Very severe pain = 0 people – 0 people There is an effect of *endorphin massage* on reducing the intensity of back pain in third trimester pregnant women (p=0.000)	There is an effect of *endorphin massage* on reducing the intensity of back pain in pregnant women in the third trimester	Google Scholar
4	(Handayani et al., 2021)	Journal of Welfare Midwifery (JKK), Vol 3(2), 2021	The Effect of Endorphine Massage on Reducing the Intensity of Back Pain in Pregnant Women at the Julianatanjung Morawa Clinic	Quasi experimental one group pretest posttest design The total sample was 18 people Chi-square test	Endorphin massage is done every day for 20 minutes Pain level of intervention group before – after intervention Mild pain = 0 people – 8 people Moderate pain = 8 people – 4 people Severe pain = 10 people – 0 people There is an effect of *endorphin massage* on reducing back pain in pregnant women (p=0.02)	There is an effect of *endorphin massage* on reducing back pain in pregnant women	Google scholar
5	(Podungge, 2019)	*Health Notions,* Vol 3(4), 2022	*Endorphine Massage and Pregnancy Exercise as a Method to Relieve Lower Back Pain in Trimester III Pregnant Women*	Quasi experimental two group pretest posttest design Number of samples: 44 people	Intervention group: given *endorphine massage* Control group: given pregnancy exercise Frequency of back pain before and after the test in the pregnant exercise group Mild pain = 2 people – 17 people Moderate pain = 20 people – 5 people	There is a significant difference between pregnancy exercise and endorphin massage to reduce back pain in third trimester	Google scholar

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				Ex. Intervention: 22 people Control group: 22 people Chi-square test	The average back pain before and after pregnancy exercise was 4.68 to 3.27 Frequency of back pain before - after the test in the Endorphin massage group Mild pain = 1 person – 21 people Moderate pain = 21 people – 1 person The average back pain before and after endorphin massage was 4.91 to 2.64 There is a significant difference between pregnancy exercise and endorphin massage to reduce back pain in third trimester pregnant women (p=0.042)	pregnant women	
6	(Argo Cahyani & Winarsih, 2020)	*Midwifery and Nursing Research (MANR) Journal 2(1), 2020*	*The Effect of EAndorphine Massage toward Decreasing Low back Pain In Third Trimester Pregnant Women*	Quasi experimental with Non-Equivalent control group Sample size: 46 pregnant women Wilcoxone test	Frequency of back pain before and after the test in the experimental group with endorphin massage No pain = 0 people – 6 people Mild pain = 4 people – 12 people Moderate pain = 15 people – 3 people Severe pain = 2 people – 0 people Frequency of back pain before - after test in the control group No pain = 0 people - 0 people Mild pain = 9 people – 0 people Moderate pain = 10 people – 5 people Severe pain = 2 people – 10 people *endorphin massage* effect on reducing back pain in pregnant women (p=0.000)	There is an effect of *endorphin massage* on reducing back pain in pregnant women	Google scholar
7	(Ayu Handayany et al., 2020)	Indonesian Nurses Scientific Journal Vol 1 (1), 2020	The Effect of Endorphine Massage on the Intensity of Lower Back Pain in Pregnant Women in the	*Pre-experiment one group pretest posttest* Sample: 20 pregnant women	Endorphin massage was performed for 30 minutes Pain level before - after *Endorphine Massage* No pain = 0 people – 6 people Mild pain = 0 people – 9 people Moderate pain = 3 people – 5 people	There is an effect of *endorphin massage* on reducing the intensity of back pain in pregnant women in	Google Scholar

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			Third Trimester	Wilcoxon test	Severe pain = 8 people – 0 people Very severe pain = 9 people – 0 people The average back pain before and after endorphin massage was 3.30 to 1.95 There is an effect of *endorphin massage* on reducing the intensity of back pain in third trimester pregnant women (p=0.000)	the third trimester	
8	(Sulistyawati, 2018)	*Midwifery Jounal Of* Stikes Insan Scholar Medika Jombang Vol 16 (1), 2018	The Effect of Endorphine Massage on Reducing the Intensity of Back Pain in Pregnant Women	*Pre-experiment one group pretest posttest* Sample: 38 pregnant women Wilcoxon test	Pain level before - after *Endorphine Massage* Mild pain = 0 people – 9 people Moderate pain = 9 people – 18 people Severe pain = 19 people – 1 person Very severe pain = 0 people – 0 people There is an effect of *endorphin massage* on reducing the intensity of back pain in third trimester pregnant women (p=0.000)	There is an effect of *endorphin massage* on reducing the intensity of back pain in pregnant women in the third trimester	Google scholar
9	(Diana et al., 2019)	*Journal of Health Sciences Vol 12, No 2*	*Endorphine Massage* Effectively Reduces Back Pain in Third Trimester Pregnant Women	*Quasi experimental one group pretest posttest design* The number of samples was 20 people Wilcoxone test	Pain level before - after *Endorphine Massage* Mild pain = 3 people – 14 people Moderate pain = 12 people – 4 people Severe pain = 5 people – 2 people The average back pain before and after endorphin massage was 2.10 to 1.40 There is an effect of *endorphin massage* on reducing the intensity of back pain in third trimester pregnant women (p=0.000)	There is an effect of *endorphin massage* on reducing the intensity of back pain in pregnant women in the third trimester	Google scholar
10	(Eka Putri Saudia & Nila Kencana Sari, 2018)	*Prima Health Journal Vol 12 (1), 2018*	Differences in the Effectiveness of *Endorphine Massage* with Warm Compress in	Quasi experimental two group pretest posttest design	Intervention group: given *endorphine massage* for 5 days Control group: warm compress Frequency of back pain before and after the test in the intervention group	There is a significant difference between pregnancy exercise and endorphin	Google scholar

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			reducing back pain for pregnant women in the third trimester at the Mataram City Working Area Health Center	Sample size: 30 people Ex. Intervention:15 people Control group: 15 people Kolmogrov-Smirnov test	No pain = 0 people – 2 people Mild pain = 11 people – 13 people Moderate pain = 4 people – 0 people Average back pain before and after endorphin massage was 1.933 to 0.884 Frequency of back pain before and after the test in the control group Mild pain = 12 people – 15 people Moderate pain = 3 people – 0 people Frequency of back pain before - after the test in the Endorphin massage group Mild pain = 1 person – 21 people Moderate pain = 21 people – 1 person The average back pain before and after using a warm compress was 0.7333 to 0.594 There is a significant difference between pregnancy exercise and endorphin massage to reduce back pain in third trimester pregnant women (p=0.000)	massage to reduce back pain in third trimester pregnant women	
11	(Hartati et al, 2019)	*Journal Of Physics, 2019*	*Increasing the Comfortable Feel For Pregnant Women Trough the Endorphin*	Quasi experimental with Non-Equivalent control group design Sample: 34 people Intervention Ex: 17 people Control group: 17 people Independent t-test	Intervention group: given *endorphine massage* for 3 days with a duration of 20 minutes Control group: nothing was done The average back pain before and after treatment in the intervention group was 5.23 to 3.52 The average back pain before and after treatment in the control group was 4.52 to 5.35 There is a significant difference in endorphin massage to reduce back pain in third trimester pregnant women (p=0.001)	There is a significant difference between endorphin massage in reducing back pain for pregnant women in the third trimester	Google Scholar
12	(Bumi Pangesti et al., 2022)	*Midwifery Journal XIV(01), 2022*	*The Effect of Pregnancy Back Massage on the Back*	Quasi-experimental design with non-	Ex experiment: *endorphine massage was carried out* Ex control: Deep relaxation	The effect of *pregnancy massage* on third	Google scholar

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	Pain of Pregnant Women TM III	randomized pretest and posttest with control group. Sample: 32 people Intervention Ex: 16 people Control group: 16 people Independent t-test	Frequency of back pain before - after the test in the Endorphin massage group Mild pain = 10 people – 11 people Moderate pain = 6 people – 5 people Frequency of back pain before - after test in the control group No pain = 0 people – 3 people Mild pain = 1 person – 4 people Moderate pain = 21 people – 9 people Average back pain after intervention Experimental group= 0.87 Control group= 2.06 The effect of *pregnancy massage* on third trimester pregnant women's back pain (p= 0.003)	trimester pregnant women's back pain

RESULT AND DISCUSSION

The article search process involves searching through journal databases which include Google School, Pubmed, and BMJ, Science Direct and BMC. The results of the identification of 2154 journals or articles were searched and the exclusion criteria were then selected to reduce by 905 journals. Duplicate articles were found in 229 journals and included in the identified inclusions were 676, however there were still many irrelevant articles found in 629 journals. Researchers found 47 full text journals that were appropriate and suitable for the search, but still found 35 journals that were not relevant to the inclusion criteria and found 12 journals that met the inclusion criteria. The reasons for deletion were because the time/year was not relevant, the method was unclear, the subject was not a pregnant woman. The number of articles is 12 journals, the journals covered are national and international journals. The journal area covered is in Indonesia with several provinces spread across Indonesia.

Discussion

Based on the findings of the literature review that has been carried out, researchers will group the effect of reducing pain on pregnant women apart from giving endorphine massage. In this case the researchers found the following comparisons:

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Pregnancy massage (Endorphine massage) with deep breathing relaxation

Based on the research results that have been reviewed, there are 2 similar studies by Haflah et al., (2022) and Bumi Pangesti et al., (2022). In the results of research conducted by Haflah et al., (2022), there were two experimental groups, namely the treatment group who received endorphine massage and the control group who received deep relaxation. The average pain produced in the treatment group was 0.97 and the control group averaged 2.06. In this case, Endorphine massage showed a significant reduction in pain with a P value of 0.001 compared to pregnant women who only did deep breathing relaxation. Deep relaxation technique is a condition that is able to stimulate the body to release endogenous opioids so that a pain suppression system is formed which ultimately causes a decrease in pain intensity in line with research conducted by Herawati (2017) that there was a decrease in the pain scale from 5 to 3 after being given deep breathing intervention. . In line with research conducted by (Bumi Pangesti et al., 2022) which examined the reduction in pain in the treatment group given pregnancy massage and the control group with deep breathing relaxation. Where giving pregnancy massage (Endorphine massage) is proven to be better than giving breath relaxation alone because the average results for pregnancy massage are 0.87 and deep breath relaxation is 2.87. So in this case pregnancy massage (Endorphine massage) is more able to reduce pain in third trimester pregnant women. Why pregnancy massage is more effective is because the effect of this massage has a non-pharmacological effect to reduce pain during and before delivery which is not harmful to the mother or fetus. The benefits of pregnancy massage are also that it can improve good sleep quality, release endorphin hormones and reduce adrenaline hormones so that mothers remain relaxed and calm. Meanwhile, this endorphin massage can be done by practitioners, husbands, or other family members by stroking the back. If a pregnant woman feels pain, only do therapy

Endorphine Massage with a warm compress

Based on the results of research conducted by Eka Putri Saudia & Nila Kencana Sari, (2018) Those who examined the difference in the effectiveness of endorphine massage with warm compresses in reducing back pain for pregnant women in the third trimester showed that the average before the warm compress was applied was 0.7333 to 0.594, while for pregnant women who received endorphine massage the average was 1.933 to 0.884. From these results, it can be seen that endorphine massage treatment is more effective than warm compression in reducing back pain in third trimester pregnant women. Endophine Massage provides a very positive nonverbal response and conveys a significant reduction in pain scale

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after being given a massage. Warm compresses can reduce pain if this is combined with other methods.

Endorphine Massage with Pregnancy Exercises

Based on the results of research conducted by Podungge, (2019) there were 2 intervention groups given endorphine massage and a control group given pregnancy exercises to reduce back pain in pregnant women. The average back pain before endorphine massage was 4.91 to 2.64, while the average back pain before pregnancy exercise was 4.68 to 3.27. This means that after being given pregnancy exercises, the respondent's pain level decreased. The statistical test results have a sig value of 0.000, which means that there is an effect of giving pregnancy exercise on reducing lower back pain in the third trimester of pregnancy. Pregnancy exercise is sa This is a physical activity to develop pelvic muscles and ligaments and reduce the incidence of bleeding during and after delivery and can reduce fetal emergencies. Exercise is carried out from 28 weeks of gestation for approximately 30 minutes and at least once a week. However, if we look at the average statistical reduction in back pain with pregnancy exercise and endorphin massage, endorphin massage is more effective than pregnancy exercise. Because massage has opiate receptors in the brain and spinal cord. The central nervous system releases endorphins. On the other hand, it is proven from research results that this technique is also able to increase the release of oxytocin in preparation for a smooth delivery.

Endorphine Massage Without Doing Anything

Many researchers have conducted research on the effect of Endorphine massage compared to those who did nothing to reduce pain, carried out by several researchers, including Munir et al., (2022). The population was divided into 2 groups, including the treatment group given endorphine massage and the control group without. given any intervention. Of the 30 respondents, in the experimental group, 8 respondents experienced severe pain, which was reduced to 1 person. Meanwhile, the control group of 9 people experiencing severe pain increased to 10 people experiencing severe pain. Statistically, there is an effect of endorphin massage on back pain with a P value of 0.000. This is in line with research by Argo Cahyani & Winarsih, (2020). Of the 46 respondents, in the experimental group, 15 respondents experienced moderate pain, which was reduced to 3 people. Meanwhile, the control group of 2 people experiencing severe pain increased to 10 people. Statistically, there is an effect of endorphin massage on back pain with a P value of 0.000. Similar to research conducted by Hartati et al, (2019), the average back pain before and after being given Endorphine massage was 5.23 to 3.52, while the average back pain in the control

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group was from 4.52 to 5.35. So it can be concluded from the three researchers that to relieve pain, endorphine massage can be done.

CONCLUSION

Based on the results of a review of 12 journals, it was concluded that there was an effect of endorphin massage on reducing pain in third trimester pregnant women. And among them, a comparison was found to reduce back pain apart from giving endorphine massage compared to warm compresses, deep breathing and pregnancy exercises. Based on the findings, discussion and conclusions of the literature review regarding the effect of endorphin massage on reducing pain in third trimester pregnant women. Here are some suggestions for consideration, namely:

1. For pregnant women respondents, based on the reviewed literature, there is an effect of endorphin massage on reducing pain in third trimester pregnant women. The comparisons found to reduce back pain include deep breathing, pregnancy exercises and warm water compresses. In this case, if the variables studied could be combined to reduce pain, it could be more optimal
2. For health workers, it can be used as education or counseling as a way to overcome the effect of endorphin massage on reducing pain in third trimester pregnant women.
3. For the next author, based on the results of the literature review findings, he can find the effect of reducing pain in third trimester pregnant women with other variables in accordance with evidence based.

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