THE EFFECTIVENESS OF THE COMBINATION OF ENDORPHIN MASSAGE AND SAPE' MUSIC ON LABOR PAIN DURING THE FIRST STAGE OF ACTIVE LABOR

Nyemas Okta Dewisakti[1], Arlina Rachmaida[2], Ratna Indah Kartika Sari[3]

Poltekkes Kemenkes Pontianak
Email: ndewisakti@gmail.com

ABSTRAK : EFEKTIVITAS KOMBINASI PIJAT ENDORPHIN DAN MUSIK SAPE' TERHADAP NYERI PERSALINAN KALA 1 FASE AKTIF

Latar Belakang : Nyeri sedang dan berat persalinan dapat menimbulkan kecemasan dan kelelahan sehingga dapat mempengaruhi kemajuan persalinan dan kesejahteraan janin. Cara mengatasinya dengan metode nonfarmakologi yaitu pijat endorphin dengan merangsang medulla spinalis dan terapi musik instrumental yaitu musik sape' dengan merangsang otak untuk mengeluarkan frekuensi *deep delta,* kedua metode ini mengeluarkan endorphin sebagai pereda nyeri alami.

Tujuan : Menganalisis efektivitas kombinasi pijat endorphin dan musik sape' terhadap nyeri persalinan kala 1 fase aktif sebelum dan sesudah diberikan perlakuan di kabupaten Mempawah.

Metode Penelitian : Desain menggunakan *quasy experiment* dengan rancangan *pretest-posttest control group design*. Populasi penelitian yaitu ibu bersalin kala I fase aktif pada Februari sampai Maret 2025 sebanyak 97 orang. Sampel berjumlah 30 orang dengan 15 sampel intervensi kombinasi pijat endorphin dan musik sape' dan 15 sampel kelompok kontrol dengan teknik *consecutive sampling*.

Hasil Penelitian : Hasil uji *paired T-test* terdapat perbedaan nilai mean sebelum dan sesudah diintervensi kombinasi pijat endorphin dan musik sape' dari 6,33 menjadi 4,73 (*p-value* <0,001). Hasil uji Wilcoxon terdapat perbedaan nilai median sebelum dan sesudah diintervensi pijat endorphin yaitu 6 menjadi 5 (*p-value* <0,001). Setelah dilakukan uji *mann-whitney* terdapat perbedaan efektivitas antara kombinasi pijat endorphin dan musik sape' dan pijat endorphin terhadap nyeri persalinan kala I fase aktif (p-value <0.001).

Kesimpulan : Terdapat perbedaan efektivitas antara kombinasi pijat endorphin dan musik sape' dan pijat endorphin terhadap intensitas nyeri persalinan kala I fase aktif.

Saran : Dapat diberikan pada ibu bersalin kala 1 fase aktif.

Kata Kunci : endorphin, musik, sape', nyeri, persalinan

ABSTRACT

Background : Moderate to severe labor pain can cause anxiety and fatigue, which may affect the progress of labor and fetal well-being. A non-pharmacological approach to overcome this issue includes endorphin massage, which stimulates the spinal medulla, and instrumental music therapy such as sape' music, which stimulates the brain to release deep delta frequencies. Both methods help release endorphins, acting as the body's natural pain relievers.

Purpose : To analyze the effectiveness of the combination of endorphin massage and sape' music on labor pain during the first stage of active labor before and after the intervention in Mempawah Regency.

Methods : This study employed a quasi-experimental design with a pretest-posttest control group design. The population consisted of mothers in the first stage of active labor from February to March 2025, totaling 97 people. A sample of 30 respondents was selected, divided into 15 in the intervention group (combination of endorphin massage and sape' music) and 15 in the control group, using consecutive sampling.

Research Result : The paired T-test showed a difference in the mean labor pain scores before and after the combination intervention, from 6.33 to 4.73 (p-value < 0.001). The Wilcoxon test revealed a reduction in the median pain score before and after endorphin massage alone, from 6 to 5 (p-value < 0.001). The Mann-Whitney test indicated a significant difference in effectiveness between the combination of endorphin massage and sape' music and endorphin massage alone in reducing labor pain during the first stage of active labor (p-value < 0.001).

Conclusion : There is a significant difference in the effectiveness of the combination of endorphin massage and sape' music compared to endorphin massage alone in reducing labor pain intensity during the first stage of active labor.

Suggestion : This intervention can be recommended for mothers in the first stage of active labor.

Keywords: endorphin, music, sape', pain, labor

INTRODUCTION

All women naturally undergo labor pain during childbirth. This normal physiological process occurs as the uterine muscles contract to dilate the cervix and allow the baby's head to pass into the pelvic cavity. During the active phase of the first stage of labor, these contractions lead to cervical dilation, muscle hypoxia, and decreased blood flow to the uterine body (Gunawan et al., 2024).

When labor pain is not managed properly, it can increase the mother's stress, anxiety, and fear, which may intensify the pain. This heightened distress can negatively impact the progress of labor and the well-being of the fetus (Djafar, Harismayanti, & Retni, 2023).

Labor pain can be managed through various methods, including non-pharmacological and pharmacological approaches. One effective non-pharmacological method is endorphin massage, which promotes the release of the body's natural painkillers—endorphins—helping laboring mothers feel calm and relaxed (Yuliana et al., 2024).

Sape' music therapy, a traditional instrumental music style, can complement endorphin massage. Research shows that instrumental music induces deep delta brain waves, helping mothers relax mentally and stimulating the body's endorphin production (Suarmini & Nugraheny, 2019).

RESEARCH METHODS

This quantitative study used a quasi-experimental pretest-posttest nonequivalent control group design (Puspandhani & Sugiyono, 2020; Syapitri, Amila, & Aritonang, 2020). The population consisted of mothers in the active phase of the first stage of labor in Mempawah Regency from February to March 2025. Using non-probability consecutive sampling, 15 participants were assigned to the intervention group and 15 to the control group. Pain levels were measured with the Numeric Rating Scale (NRS) through observation. Data were analyzed using univariate and bivariate methods.

RESEARCH RESULTS

Univariate Analysis

As we know, mothers in labor with higher levels of education tend to possess better knowledge regarding the labor process and non-pharmacological pain management techniques, such as relaxation methods, breathing techniques, and emotional support. This is in line with a study conducted by Sari et al. (2021), which found that mothers with higher education levels tend to experience lower pain intensity during the first stage of active labor compared to those with lower education levels. This occurs because highly educated mothers are more proactive in seeking information about childbirth and are better mentally and emotionally prepared to face the labor process (Sari, Pratiwi, and Hidayati, 2021).

Table 1
Frequency Distribution Based on Respondents' Characteristics

Characteristics	n	%
Education		
Primary	1	3,3
Secondary	14	46,7
Higher	15	50
Occupation		
Employed	14	46,7
Unemployed	16	53,3
Cervical Dilatation		
4	8	26,7
5		
6	6	20
7		
8	4	13,3

Meanwhile, regarding the occupational characteristics of respondents, working mothers generally have broader social activities and better access to information related to pregnancy and childbirth. The work environment and social relationships can serve as sources of information and emotional support, both of which play an important role in helping mothers cope with the labor process.

This is consistent with research by Yuliana et al. (2021), who stated that pregnant women who work tend to experience higher stress levels compared to those who do not work, although at the same time, they also have better access to health information (Yuliana, Astuti, and Sari, 2021).

Based on the characteristics of cervical dilation during the first stage of active labor, most respondents were in the early active phase, with cervical dilation of 4–6 cm. This period is crucial in labor pain management because early-stage pain can cause tension, anxiety, and fear, which, if not properly managed, may slow the progress of labor and increase the risk of complications (Aprilia, Pratiwi, and Mustika, 2022).

These findings are in accordance with a study by Dharmawati et al. (2024), which stated that labor pain intensifies during the first stage of active labor. This occurs due to cervical dilation and effacement, with discomfort initially felt in the lower

abdomen (Dharmawati, Keswara, and Purwati, 2024).

Table 2
Frequency Distribution of Respondents Based on Treatment

Category of Labor Pain	n	%
Combination of Endorphin Massage and Sape' Music		
Before		
5	4	26.7
6	4	26.7
7	5	33.3
8	2	13.3
After		
3	2	13.3
4	6	40.0
5	2	13.3
6	4	26.7
7	1	6.7
Endorphin Massage		
Before		
4	1	6.7
5	4	26.7
6	4	26.7
7	1	6.7
8	5	33.3
After		
4	3	20.0
5	5	33.3
6	3	20.0
7	2	13.3
8	2	13.3

Labor pain intensifies during the active phase of the first stage of labor, initially felt in the lower abdomen due to cervical dilation and effacement. The pain then radiates to the lower back and thighs because of the fetal head pressing on the mother's spine. According to Dharmawati, Keswara, and Purwati (2024), this pain occurs only during contractions and subsides afterward (Dharmawati, Keswara and Purwati, 2024).

Bivariate Analysis

Based on the results of the study and paired t-test analysis, the group that received the combination treatment of endorphin massage and sape' music had a mean labor pain score of 6.33 before the intervention, and after the combination intervention, the median pain score decreased to 4.73. After data processing, it was found that there was a significant effect before and after the combination of endorphin massage and sape' music on labor pain during the first stage of active labor, with a p-value of 0.001.

This finding is in line with a study conducted by Nisak, Puspitasari, and Nisa (2023) regarding the effectiveness of the combination of endorphin massage and audio analgesia in reducing labor pain during the first stage at RSI PKU Muhammadiyah Tegal, which concluded that the combination therapy was effective in reducing labor pain. The Wilcoxon test in their study showed a p-value = 0.000 < 0.05.

Similarly, a study conducted by Yuliana et al. (2024) on the effect of endorphin massage and classical music on labor pain intensity during the first stage in the working area of Suliliran Baru Public Health Center showed that endorphin massage and classical music were effective in reducing labor pain, with an average pain reduction of 3.176 and a p-value of 0.000. It was concluded that endorphin massage and classical music were effective in alleviating labor pain, providing comfort and relaxation to mothers in labor, and helping them face the birthing process more calmly and confidently. The combination of these two interventions was also reported to improve labor experiences and accelerate the labor process (Yuliana et al., 2024).

Table 3
Analysis of the Effect of the Combination of Endorphin Massage and Sape' Music

Variable	Mean	SD	Min	Max	*p-value*
Combination of endorphin massage and sape' music					
Before intervention	6,33	1,047	5	8	<,001
After intervention	4,73	1,223	3	7	

 DOI 10.33024, http://ejurnalmalahayati.ac.id/index.php/kebidanan

Table 4
Analysis of the Effect of Endorphin Massage

Variable	Median	SD	Min	Max	*p-value*
Endorphin Massage					
Before intervention	6	1,320	4	8	0,001
After intervention	5	1,234	4	8	

Based on the table above, the Wilcoxon test showed a significant difference before and after the application of endorphin massage, with a p-value of 0.001 < 0.05. In the endorphin massage group, the median pain score before the intervention was 6, and after the intervention, it decreased to 5. This indicates a noticeable change between the pre- and post-intervention conditions after receiving endorphin massage.

This result is consistent with a study conducted by Dahlan et al. (2023) on *endorphin massage on the intensity of pain in the first stage of active labour*, which, based on the Mann-Whitney test, obtained a p-value of 0.000 < 0.05, indicating a significant effect of endorphin massage on pain intensity during the first stage of active labor.

Similarly, in a study conducted by Uluhiyah (2023), the Mann-Whitney test showed a p-value of 0.007 (p < 0.05) with a score difference of 2.70. This result indicates that there was a significant difference in pain levels in mothers during the first stage of labor before and after receiving massage therapy, meaning that endorphin massage has a significant influence on labor pain during the first stage.

Table 4
Analysis of the Effect of Endorphin Massage

Variabel Difference	Mean Rank	*p-value*
Combination of endorphin massage and sape' music	20,30	<,001
Endorphin Massage	10,70	

Based on the table above, it can be seen that the p-value was 0.001 < 0.05. From these results, it can be concluded that there was a difference in effectiveness between the combination treatment of endorphin massage and sape' music and endorphin massage alone.

This finding is consistent with research conducted by Christiana and Kusumawati (2021), where the results of the Wilcoxon Signed Rank Test showed an Asymp. Sig (2-tailed) of 0.004 < α (0.05), indicating a difference before and after administering endorphin massage combined with Murrotal recitation. These findings suggest that endorphin massage combined with Murrotal has a significant effect on labor pain during the first stage of labor.

CONCLUSION

The study conducted on 30 mothers in labor regarding the effectiveness of the combination of endorphin massage and sape' music on labor pain during the first stage of active labor in Mempawah Regency concluded that there was a significant difference in the effectiveness between the combination of endorphin massage and sape' music and endorphin massage alone on labor pain intensity during the first stage of active labor (p < 0.001).

SUGGESTION

Future researchers are expected to develop further studies on complementary therapies for labor pain management, especially the combination of endorphin massage and sape' music. This research can serve as an initial reference for conducting more advanced studies with broader research designs, larger sample sizes, and additional variables to obtain more comprehensive results regarding the effectiveness of this combination therapy in reducing labor pain intensity during the first stage of active labor.

REFERENCES

Aprilia, D., Pratiwi, S. and Mustika, R. (2022) 'Pengaruh Teknik Relaksasi Nafas Dalam Terhadap Intensitas Nyeri Kala I Fase Aktif Pada Ibu Bersalin', Jurnal Kesehatan Terpadu, 2, pp. 74–81.

Christiana, I. and Kusumawati, D. (2021) 'Pengaruh Kombinasi Pijat Endorphin Dan Murrotal Terhadap Nyeri Persalinan Kala I Di Pmb Ny. N Paspan Kabupaten Banyuwangi', Jurnal

Ilmiah Keperawatan *(Scientific Journal of Nursing)*, 7(2), pp. 344–350. Available at: https://doi.org/10.33023/jikep.v7i2.848.

Dahlan, F.M. *et al.* (2023) '*Endorphin Massage on Intensity of Pain in the First Stage of Active Labour*', *Health and Technology Journal (HTechJ)*, 1(4), pp. 420–426. Available at: https://doi.org/10.53713/htechj.v1i4.40.

Dharmawati, S., Keswara, N.W. and Purwati, A. (2024) 'Pengaruh Teknik Relaksasi Napas Dalam Untuk Menurunkan Nyeri Pada Gastritis', Jurnal Kesehatan, 13(2), pp. 24–29. Available at: https://doi.org/10.37048/kesehatan.v13i2.462.

Djafar, N., Harismayanti, H. and Retni, A. (2023) 'Pengaruh Teknik Relaksasi Nafas Dalam Terhadap Respon Nyeri Pada Ibu Inpartu Kala I Di Rsia Sitti Khadidjah Kota Gorontalo', *Journal of Educational Innovation and Public Health*, 1(2).

Gunawan, R.H. *et al.* (2024) 'Efek Pijat Endorphin Untuk Mengurangi Rasa Nyeri Persalinan (*Evidence Based Case Report*)', Jurnal Kesehatan Siliwangi, VOL 4 NO 3, pp. 1239–1249.

Nisak, A.Z., Puspitasari, I. and Nisa, P.R. (2023) 'Efektivitas Kombinasi Pijat Endorphin Dan Audioanalgesik Untuk Menurunkan Nyeri Persalinan Kala I', Jurnal Ilmu Keperawatan dan Kebidanan, 14(2), pp. 437–445. Available at: https://doi.org/10.26751/jikk.v14i2.2017.

Puspandhani, M.E. and Sugiyono (2020) Metode Penelitian Kesehatan. kedua. CV. ALFABETA.

Sari, R.D., Pratiwi, D.S. and Hidayati, D. (2021) 'Hubungan Tingkat Pendidikan dengan Tingkat Nyeri Persalinan Kala I Fase Aktif di Puskesmas X', Jurnal Kesehatan Masyarakat, 17(2), pp. 90–97.

Suarmini, K.A. and Nugraheny, E. (2019) 'Efektivitas Penggunaan Musik Instrumentalia Bali Kala I Fase Aktif', Ilmu Kebidanan, 5(2), pp. 106–114. Available at: http://jurnalilmukebidanan.akbiduk.ac.id/index.php/jik/article/view/99.

Uluhiyah, W.O.S.S.N. (2023) 'Pengaruh Massage Endorphin Terhadap Tingkat Nyeri', Jurnal STIKES Al-Ma'arif Baturaja, 8(2), pp. 2503–1392.

Yuliana, D., Astuti, E. and Sari, N. (2021) 'Hubungan Pekerjaan Ibu Hamil Dengan Kecemasan Menghadapi Persalinan Di Wilayah Kerja Puskesmas Mojo Surabaya', Jurnal Kesehatan Terpadu, 9, pp. 35–41.

Yuliana, F. *et al.* (2024) 'Pengaruh Pijat Endorphin dan Musik Klasik Terhadap Intensitas Nyeri Kala I Di Wilayah Kerja Puskesmas Suliliran Baru', *Journal of Comprehensive Science*, 15(1), pp. 37–48.