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by

Submission date: 30-Jul-2021 08:28PM (UTC-0500)

Submission ID: 1626009888

File name: 7712_Niu_2019_E_R.pdf (243.6K)

Word count: 3630

Character count: 19114



The Effects of Pre-test and Post-Test Endorphin Massage on Reducing Intensity of Lower back pain in Pregnant Woman at Trimester III in Abepura Health Center

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This study aims at determining the effect of pre-test and post-test endorphin massage on reducing the intensity of lower back pain in pregnant women at trimester III in Abepura Health Center in 2018. Endorphin massage is a non-pharmaceutical approach which appropriates at pregnancies women in isolated areas. The result of this study shows that most (50%) of pregnant women experienced moderate and severe lower back pain before being given endorphin massage and after doing endorphin massage, most (83.3%) of them had moderate and minor lower back pain. The result is a positive effect of pre-test and post-test endorphin massage in decreasing the intensity of lower back pain in pregnant women at trimester III (p-value was 0.000)

Key words: *Endorphin massage, lower back pain, pregnant woman, isolated areas.*

Introduction

Lower back pain (LBP) as a musculoskeletal change is a condition that often occurs in pregnant women (Reyhan, Dereli, & Çolak, 2017). The intensity of lower back pain is most common in trimester III of pregnancy. It is often compounded by backache and referred to as long pelvic pain. The backache was found in 45% of women at the time of pregnancy, increasing to 60% by the 28th week and almost unchanged at that level. Lower back pain can cause a negative impact on the quality of life of pregnant women due to disruption of daily physical activity (Chang et al., 2014). Endorphin massage is a safe or non-pharmaceutical



way to stimulate endorphins to escape from the human body. The use of endorphin massage is found to reduce labour pain (Azizah, Widyawati, & Anggraini, 2013).

The previous research only found the effect of reflection on beta endorphin to reduce the intensity of pain. The approach for handling non-pharmacological LBP such as massage is safer for mother and her foetus (Blomqvist, Hellgren, & Strandell, 2018), especially in isolated areas such as Papua, there are many pregnant women who cannot access a health centre for getting regular medicine. The results of the interviews conducted on 10 pregnant women at trimester III found that they had pain in lower back since they had been in trimester III. Therefore, researchers are interested in conducting this study.

Material and Method

Research Design

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This study is a pre-experiment and uses quantitative method with one group pre-test, post-test design.

Research Location

This research was conducted at Abepura Health Center in Jayapura City, Papua Province in January 2018.

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Population and Sample

The population in this study were all pregnant women in trimester III who experienced lower back pain during pregnancy at Abepura Health Center. There are 18 pregnant women with purposive sampling.

Data Collection

The techniques and instruments used for collecting data were in the form of demographic questionnaires. Bourbanis pain scale containing assessment from 0 - 10 was used to measure pain intensity. The independent variable of this study is endorphin massage, which is a massage performed with back massage to form a V letter for 30-minutes given to pregnant women at trimester III. The instrument used to measure this variable is Standard Operating Procedure (SOP) of Endorphin Massage.

Data Analysis

Univariant and Bivariant data analysis is a statistical analysis carried out more than two variables to determine the effect of pre- and post-endorphin massage.



Research Result

Characteristic of Respondents

The following data is an overview of respondent's characteristics in Abepura Health Center based on age, occupation, education and the number of parities. Table 1 shows the Characteristics of Respondents, and outlines that the education of pregnant women in Abepura Health Center is that most have senior high school education (77.8%). Pregnant women in Abepura Health Center are mostly pregnant women with multigravida parity (72.2%) and 27.8% of them with primigravida parity.

Table 2 shows the results of Respondents Frequency Distribution based on Intensity of Lower Back Pain. The following data are the intensity of lower back pain in pregnant women at trimester III pre- and post-giving endorphin massage.

Back Pain

Table 2 shows that the percentage of pregnant women with minor intensity of lower back pain before having endorphin massage was none and after giving endorphin massage was 83.3%.

Analisa Bivariat

Table 3 shows the Distribution of the Effect of Pre-test and Post-test Endorphin Massage in Decreasing Intensity of Lower Back Pain.

Discussion

Intensity of LBP before Giving Endorphin Massage

Lower back pain in pregnancy is felt by pregnant women caused by the growth of foetus in the womb, then the foetus experiences changes in the centre of gravity and it causes an adjustment in pregnant women's posture that causes discomfort (Look, Kleck, & Burger, 2018). Lower back pain is a disorder also experienced throughout the pregnancy until the post-natal period (Weis et al., 2018; Kolekang, Awuah-Werekoh & Adomah-Afari 2019). Based on the Bourbanais scale, moderate pain refers to 4 – 6 on the scale. While, severe pain if the client objectively cannot follow orders, describe the pain, and which is not overcome by taking long breaths, position and distraction; however, the client still responds to actions and indicates the location of pain. Based on Bourbanais scale, severe pain refers to 7 – 9 on the scale (Pelletier, Higgins, & Bourbonnais, 2017). These studies found that the sample of



pregnant women experiencing lower back pain were all in trimester III of pregnancy. This is in line with the study by Look et al. (2018), which states that lower back pain reaches a peak in the 24th week until the 36th week (Look et al., 2018). According to the result of limited epidemiological study conducted by Chang et al. (2014), lower back pain is often aggravated by the occurrence of backache or often called long back pain. The backache was found in 45% of women at the time of their pregnancy, increasing 69% at the 28th week and almost unchanging at that level (Chang et al., 2014; Kurasawa, 2016). Chapentier et al. (2012) found that lower back pain was more 2.88 times higher at the term of pregnancy above 6 months and pregnant women in the village of Benin Canada had more 83% of lower back pain presentation than pregnant women in the city area (Charpentier et al., 2012).

Along with increasing gestational age, the position of the baby in the uterus can suppress the nerves and cause lower back pain. Back pain is a result of tension in the lower vertebra because it carries extra weight. The body gravity point change of that is increasingly anterior and can increase stress in the spine. Aside from a mechanical factor, the response of intervertebral disc in the time of spinal compression after doing activities causes long back pain. In addition, biochemical factor, parity and physical activity cause stretching of spinal muscles and fatigue (de Andrade et al., 2018).

The results of research conducted at Abepura Health Center is in line with several studies above. It was found that the majority (72.2%) of pregnant women at trimester III in this study had parity about 2-4 children. Increasing parity will cause severity of lower back pain to increase. The theory is supported by the result of this research in which most of pregnant women at trimester III are housewives who carry out daily activities such as sweeping, washing, cooking and caring for children. The daily activities are very heavy, causing back pain in trimester III. Some research results mentioned that the impact of lower back pain during pregnancy can interfere with activities of pregnant women, including research conducted by Jan M.A Mens, et al (2011) in the Netherlands in which 110 of 182 respondents reported they had pain on their activities. The level of pain severity can be classified as minor, moderate and severe pain (Mens & Pool-Goudzwaard, 2017; Kyrychenko, 2018). Lower back pain is more experienced by respondents who had a previous pregnancy.

Intensity of LBP after Giving Endorphin Massage

The results of research conducted in Abepura Health Center, shows that most (83.3%) of the pregnant women in the study at trimester III experienced minor lower back pain after being given endorphin massage. The level of pain is called minor pain if the patient is able to communicate well. Based on Bourbanais scale, minor pain refers to 1 – 3 on the scale. Further to this, 16.7% of them experienced moderate pain and according to Bourbanais scale, moderate pain refers to 4 – 6 on the scale (Kurihara, 2016; Pelletier et al., 2017). Massage or



touch is a sensory integration technique that affects the activity of the autonomic nervous system. A relaxation response will appear by perceiving touch as a stimulus to relax. Massage has a general therapeutic and physiological effect that can strengthen muscles through rhythmic and steady movements, stimulate circulation of body fluids such as blood and lymph, stimulate supple state through manipulation of bone tissue, and overcome musculoskeletal problem such as those in the joints by increasing the supple state of muscle.

There are several types of massage method that can be provided to stimulate the large-diameter nerve in reducing lower back pain including effleurage massage, deep back massage and endorphin massage. Endorphin massage is given with a gentle swab. This swab gives a warm sensation by causing dilatation of the local blood vessel to increase comfort. Other therapeutic values of endorphin massage are that it reduces muscle tension and increases physical and psychological relaxation.

According to Tamasbender (2007), endorphin massage is a method of light touch developed by Constance Palinsky which is used to manage pain. This technique is usually used to reduce discomfort during pregnancy and labour and improve relaxation by triggering a feeling of comfort through the surface of the skin. This light touch technique also helps normalise heart rate and blood pressure (Bender et al., 2007). Endorphin massage is a non-pharmacological method used to reduce lower back pain. Midwives have a big contribution to make in reducing pain using a non-pharmacological approach. According to McCullough (2018), the benefits of endorphin massage include helping relaxation, reducing pain awareness, increasing blood flow to diseased areas, stimulating sensory receptors in head skin and brain, changing the skin, providing a sense of general well-being associated with human closeness, increasing total circulation, stimulating endorphin release, decreasing endogenous katecholamin, and stimulating efferent seranto block pain stimulation (McCullough, Liddle, Close, Sinclair, & Hughes, 2018). The results of a study conducted by Azizah (2011 unpublished), about the effect of endorphin massage on pain intensity of scale I in normal labour of primigravida mothers at Clinic Demak Indonesia, supported that pain can be reduced by massage. The average scale of pain before giving massage was 12.31 and after giving massage was 4.69 (Azizah et al., 2013; Lari,et.al 2017).

Most of the respondents in this study also stated that they felt comfortable and relaxed when receiving endorphin massage. Gentle swab and massage carried out in the lower back made the pain feel lessened, and there were even respondents who said that the pain is not felt again after doing endorphin massage. Theoretically, endorphin is a hormone produced naturally by the body as a pain reliever. Endorphin is produced by doing activities such as meditation, deep breathing, or through acupuncture treatment. Endorphin is believed to produce four keys to the body and mind, namely, increasing the immune system, reducing pain, reducing stress and slowing down the aging process. Endorphin massage can also be carried out by giving



swabs with a lotion or warm balm. They can provide a warm sensation by causing dilatation of the local blood vessels to increase comfort. Other therapeutic values of endorphin massage performed on the low back of pregnant women are reducing muscle tension and improving physical and psychological relaxation.

Difference in Pre-Test and Post-test Endorphin Massage on decreasing LBP

From the result of research, there is a difference before and after performing endorphin massage. This shows that endorphin massage treatment can reduce lower back pain in pregnant women. Endorphin massage is a gentle way to help pregnant women feel more refreshed, relaxed and comfortable during pregnancy. It can relieve pain in the low back, in this case the compound of endorphins becomes a natural pain reliever during pregnancy. From other results of this study, it was found that most (50%) of the respondents experienced intensity of moderate and severe lower back pain before receiving endorphin massage and after giving endorphin massage for 30 minutes in three consecutive days, most (83.3%) of them experienced minor lower back pain and 16.7 of them experienced moderate lower back pain. Therefore, the endorphin massage technique is important for pregnant women with lower back pain problem. The result of non-parametric Wilcoxon Signed Rank Test (2-tailed) is a significant value (0.000). It means that there is a difference between pre-test and post-test endorphin massage in decreasing intensity of lower back pain on pregnant women at trimester III in Abepura Health Center in 2018. In brief, by giving endorphin massage, there is a significant positive effect in decreasing lower back pain of pregnant women at trimester III. It indicated that the respondents who received endorphin massage were able to adapt to the pain. Based on the result of research and theory, the researchers argue that endorphin massage is a touch therapy/mild massage that is a very effective therapy in and important during pregnancy, especially in women with the complaint of lower back pain. This is because massage can stimulate the body to release endorphins as a pain reliever and create a feeling of comfort (Bender et al., 2007; McCullough et al., 2018). Recently research results indicated that endorphin massage is good for pregnant women at trimester III to reduce the intensity of lower back pain. Based on these results, the respondents who were given endorphin massages mostly experienced a decrease in the intensity of moderate and mild lower back pain (Bender et al., 2007). The endorphin massage technique is important to be mastered by pregnant women and their husbands during trimester III of pregnancy. This technique can also help strengthen the bond between pregnant women and their husbands during pregnancy.



Conclusion

Based on the results of research and discussion on the effect of pre-test and post-test endorphin massage in decreasing the intensity of lower back pain on pregnant women at trimester III in Abepura Health Center in 2018, it can be concluded that: before receiving endorphin massage, most (50%) of the respondents experienced intensity of moderate and severe lower back pain and after this treatment, the majority (83.3%) of the respondents experienced minor intensity of lower back pain. The treatment of giving endorphin massage makes respondents feel comfortable, relaxed and fall asleep while receiving endorphin massage. They also felt positive after receiving the massage in the form of feeling more relaxed, more comfortable and having reduced pain in their lower back.

Recommendation

Future studies should include an evaluation of endorphin massage with biochemistry studies and a large sample size.



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Tables

Table 1: Characteristic of Respondents

N=18	N	%
Age (years old)		
<19	2	11.13
≥20-30	9	38.9
>30	7	50.0
Job		
Unemployment	12	66.7
Entrepreneur	3	16.7
Civil servant	3	16.7
Education Level		
Junior High School	1	5.6
Senior High School	14	77.8
University	3	16.7
Parity		
Primigravida	5	27.8
Multigravida	13	72.2

Source: Processed Primary Data, 2018



Table 2: Respondent Frequency Distribution based on Intensity of Lower Back Pain

Intensity of Lower Back Pain before Providing <i>Endorphin</i> <i>Massage</i>	N	%
No pain	0	0
Minor pain	0	0
Moderate pain	9	50
Severe pain	9	50
Severest pain	0	0
After		
No pain	0	0
Minor pain	15	83.3
Moderate pain	3	16.7
Severe pain	0	0
Severest pain	0	0



Table 3: Distribution of the Effect of Pre-test and Post-test *Endorphin Massage* in Decreasing Intensity of Lower Back Pain

	Treatment/ Action	Level of Pain								P value	
		Minor Pain		Moderate Pain		Severe Pain		Severest Pain		Total	
		N	%	N	%	N	%	N	%	N	%
1	Before Giving										
	<i>Endorphin</i>	0	0	9	50	9	50	0	0	18	1
	<i>Massage</i>									0	
2	After Giving										
	<i>Endorphin</i>	15	83.	3	16.	0	0	0	0	18	1
	<i>Massage</i>		3		7					0	
										0	

*Wilcoxon Signed Rank Test test p value=0.00 significant

Source: Processed Primary Data, 2018

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