Comparison of Pregnancy Exercise and Depth Breath Relaxation for Lower Back Pain in Pregnant Women

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Abstract

The high number of LBP in the third trimester of pregnant women. A few numbers of study that explore the effect of pregnancy exercise and depth relaxation for LBP among pregnant women. This study was aimed to explore the efficacy of physical exercise and depth relaxation for reducing the severity of LBP. This study was an experimental study that used Pretest-Posttest Control Group Design among 28 third trimester of pregnant women in Royal Prima Hospital. The descriptive analysis, Mann-Whitney test, and Wilcoxon test were used to analyze the data. This study showed that at the initial observation time, there was no significant difference in the pain scale among the pregnant women. Meanwhile, at least two last observation time, there were significant differences in pain scale among each group of intervention and each observation time. Hence, pregnancy exercise is better than depth breath relaxation for reducing back pain severity after two weeks of intervention.

Keywords: Depth Breath Relaxation, LBP, Pregnancy Exercise

Introduction

There are several physiologic changes during Pregnancy include cardiovascular, endocrine, renal, and musculoskeletal systems. One of the musculoskeletal changes is weight gain around 25 to 35 lb (11 to 16 kg), especially around the abdomen. The enlargement of the abdomen causes postural compensation and change in the axial skeleton. That leads to the development of low back pain (LBP) that is the most common musculoskeletal problem during pregnancy [1]

LBP in Pregnancy is classified into two types, includes Pelvic girdle pain (PGP) and lumbar pain (LP). Meanwhile, in some cases, there is a combination of these types. LBP typically begins in the second trimester, on average, around 22 weeks of gestational age [1], [2].

About half of all pregnant women suffer from LBP that may be due to mechanical, hormonal, or other causes [2]. Approximately 50% of women that had LBP during Pregnancy continue to have the pain for one year after delivery, while about 20% experience the symptomatic for three years after delivery [1].

The Low Back Pain is the common musculoskeletal problem among pregnant women that harms the psychology and daily living. The range of estimation for LBP prevalence is 30-78% in the US, Europe, and some parts of Africa. One-third of the population shows severe LBP that is associated with poor quality of life. Around 8% woman that suffer from LBP, it is affected the daily living activities, while around 10% is unable to return to work due to LBP [2], [3].

The common several risk factors of LBP include pelvic trauma, young age, multiparous, chronic LBP, and history of LBP in the previous of Pregnancy. However, the exact cause of LBP is still poorly understood, and it may be due to multifactorial that is associated with biochemical, vascular, and hormonal changes during pregnancy [3].

Physical training program on Pregnancy is one of the modalities for reducing the LBP. Several studies showed that physical training could reduce the severity of LBP includes the resulting study from Thorell and Kristiansson (2012), Abu et al. (2017), and Mirmolaei (2018). However, these studies explored the effect of physical training among the foreign pregnant women population. This study was aimed to explore the effect of physical training among the local pregnant woman population to reduce the severity of LBP, due to there is a probability that the different populations will show different characteristics and the outcome. On the other hand, this study also compares the effect of deep relaxation and physical training to reduce the LBP among pregnant women [4]–[6].

Methods

This study was experimental research that used Pretest-Posttest Control Group Design. This study was involved in pregnant women (3rd trimester) who suffer from back pain that comes to Royal Prima Hospital between January until Mei 2019. Furthermore, the samples were divided into two groups of samples. The first group of the sample was received pregnancy exercise once a week for one month as long as 15-30 minutes per season. Meanwhile, the second group was received depth

breath relaxation that was performed once a week for one month and its performance 40 minutes for every season. The ethical committee has approved this study of Prima Indonesia University

Back Pain Severity was measured by the Faces Pain Rating Scale (FPRS) that was measured before the intervention, and every week before the pregnancy exercise or depth relaxation was performed. On the other hand, the socio-demographics of participants were asked directly to the participants, which included age, sex, occupation, and last educational level.

Initially, all data were analyzed descriptively. Furthermore, the back pain severity between each group of the intervention was analyzed by the Mann-Whitney test, while The Wilcoxon test was used to analyze the difference of back pain severity every time of observation. It was used to looking for the difference in back pain severity in each observation time and each group of intervention at the significance level lower than 0.05.

Result and Discussion

There are 28 pregnant women as participants in this study. The descriptive statistic was used to analyze the socio-demographic characteristic of the participant, and the following table showed it.

Based on the Table 1, the socio-demographic characteristic of participants showed that there was no difference in each group of interventions. It was shown by the p-value of each characteristic that higher than 0.05. The T-independent test was used to get the P-value of age and the chi-square for the occupation and last educational level. The following table showed the result of the non-parametric test.

Table 1. The Socio-Demographic Characteristic of Participants

Characteristics	Pregnancy exercise (n= 14)	Depth Breath Relaxation (n= 14)	P-Value
Age (years old), Mean ± SD	27.79 ± 2.81	29.71 ± 2.30	0.058
Occupation [N (%)]			
Housewife	9 (32.1)	7 (25)	
Entrepreneur	3 (10.7)	4 (14.3)	0.743
Civilian employee	2 (7.1)	3 (10.7)	
Last Educational Level [N (%)]			
Primary School	2 (7.1)	1 (3.6)	
Junior High School	2 (7.1)	3 (10.7)	0.666
Senior High School	8 (28.6)	7 (25)	
Higher Educational Level	2 (7.1)	3 (10.7)	

Based on the Table 2, at the initial observation time, there was no significant difference in the pain scale among pregnant women. Meanwhile, at least two last observation time, there were significant differences in pain scale among each group of intervention and each observation time.

Table 2. The Comparison of Back Pain Severity between Each Group of Intervention

No	Intervention	Pain Scale			
		0	1	2	3
1	Pregnancy Exercise	5 (4-6)[a]	5 (4-6)[a]	3 (2-4)[b]	2 (1-2)[d]
2	Depth Breath Relaxation	4 (4-6)[a]	4 (4-6)[a]	2 (1-3)[c]	1 (1-2)[e]

Data was express as Median (Min-Max). The difference letter in same cells showed significant at p-value < 0.05

Several studies support this result. One of these is the study that was demonstrated by Megasari (2015) among the 3rd trimester of pregnant women in the Maternal Hospital Fatmawati reported the pregnant women that did not have pregnancy exercise 2.6 time higher suffer from back pain [7]. The uterus expansion, when Pregnancy leads to back pain by the stretching of the muscle among the back [8]. The pregnancy exercise will reduce the back by increasing the elasticity of the muscle by the repetition of the pregnancy exercise [9].

Meanwhile, no study explores the effect of depth breath relaxation against back pain, yet. However, several studies explore the effect of depth breath relaxation for reducing pain due to surgery. Patasik et al. (2013) were one of the studies that reported significant reducing of pain among the post-cesarean section in Government Hospital of Prof. Dr. R. D. Kandou in Manado that had depth breath relaxation [10]. The depth of breath relaxation leads the relaxation for the pregnant woman. Furthermore, it relaxes the muscle, especially the back muscle, which was stretched [11].

Conclusion

The pregnancy exercise and depth breath relaxation can reduce back pain severity after the third and fourth weeks of intervention. However, pregnancy exercise is better than depth breath relaxation for reducing back pain severity.

Acknowledge

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