The Effect of Birthball Training on Back Pain in Third Trimester Pregnant Women in Kabila Community Health Center

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ABSTRACT

Back pain is one of the inconveniences which is often experienced by third trimester pregnant women. Around 50-72% of women who suffer lower back pain when they are pregnant, this pain will increase as the gestational age increases. This research aims to identify the effect of birthball training to back pain experienced by third trimester pregnant women at the working area of Kabila Community Health Center in Bone Bolango Districts. This research was included in Quasi experimental which is by one group pretest and posttest design. The data analysis used univariate analysis, bivariate analysis uses statistic test t test in two paired samples. The sampling was done by choosing sample that meets the research criteria until a certain period of time until the total samples were fulfilled. The data analysis used univariate analysis and bivariate analysis. The research result obtains that there was a difference of back pain before and after doing birthball training to third trimester pregnant women at the working area of Kabila Community Health Center in Bone Bolango Districts. The advice for Community Health Center party is to improve service quality and prevent back pain to third trimester pregnant women and also makes birthball training as the effort to decrease pregnant women's inconveniences so that the procedure of fixed birthball training is needed to be applied regularly and monitored.

Keywords: Birthball training, Back pain, Pregnant

INTRODUCTION

Background

Pregnancy is a natural process for women that will cause various changes and discomfort feeling. This thing is a normal condition to pregnant women. Some women usually complain things that make their pregnancy become discomfort and sometimes make them difficult. Not all women experience the discomfort feeling that usually occur during pregnancy, but many women experience it from mild to severe level. A woman's freedom from the inconvenience can make a significant difference to the way of women looking at her pregnancy experience. Physiology, anatomy, and psychology aspect that underlie every discomfort feeling (if known) is explained to stimulate the pregnant women mind to find further effort to overcome it[1]. During pregnancy women body start to have many changes and adjutments to help the baby to grow. Some body changes experienced by the pregnant women cause some problems like frequent urination, hemorrhoid, constipation, hard to breathe, varicose veins, and back pain[2].

Back pain is one of the discomfort feelings often experienced by third trimester pregnant women. According to Ayanniyi (2013), Prevalence of lower back pain to first trimester pregnancy was 16.7%, second trimester was 31.3%, and third trimester was 53%[3]. Around 50-72% from women who suffer lower back pain during their pregnancy will increase as they age. Back pain to third trimester pregnant women is caused by the enlargement of uterus so that changes in the body posture occur and cause changes in the center of gravity to move forward.

Back pain is usually physiological but can change into pathological if it is not handled well. Back pain that is not handled well will cause a higher risk like long term back pain, post partum back pain, and chronic back pain that will be more difficult to be treated. In this condition, refer to health physiotherapy[4]. There are many non pharmacological that can overcome back pain during pregnancy which is to prevent over bending,

warm compress on the waist area, pregnancy exercise, do mild physical exercise. Birth ball training is a simple body movement that uses ball during pregnancy, give birth, and post partum with the purpose to reduce non pharmacology pain and also tries to improve the upbringing component that are emotional and psychological[5].

Birthball is one of the non pharmacology therapies that can reduce the back pain suffered by third trimester pregnant women. The light exercise uses birthball has the benefit to help women to reduce the back pain caused by significant weight pain and the bigger size of stomach. Birthball training is very good to reduce pressure on the spine, give gentle massage to perineum and thight, position of erect posture, help the fetus position to be in the optimal position so that giving birth in the normal condition becomes easier[6].

METHODS

This research was included in Quasi experimental research type which was by one group pretest and posttest design approach, that was a technique to know the effect before and after giving the treatment. This research was held at the working area of Kabila Community Health Center in Bone Bolango Districts from September until November 2018. The population was all third trimester pregnant women interval of research that exist at the working area of Kabila Community Health Center, meanwhile the research subject was third trimester pregnant women with the gestational age of 28-36 weeks. The way of taking sample was by choosing the sample that meet the research criteria until a certain time so that total sample was met, with inclusion criteria which were single normal pregnancy, primigravida, multigravida, not anemia, and not with comorbidities.

The instrument used in this research was NRS sheet to assess decrease in pain before and after birthball training. The measurement result is recorded in observation sheet. The statistic test used was T Test in 2 paired samples which was the test to be used for sample with the same subject but experience two treatments or different measurements.

RESULTS

Characteristic of Respondents

Table 1. Distribution of age

Age (year)	Frequency	Percentage
20 - 35	24	80.0
< 20 and > 35	6	20.0
Total	30	100.0

Age is one of the factors that affect back pain to pregnant women. Table 1 showed that most respondents were in the age between 20 until 35 years old as much as 80.0%.

Table 2. Distribution of parity

Parity	Frequency	Percentage
Primigravida	10	33.3
Multigravida	20	66.7
Total	30	100.0

Parity is how many children that are borned by women. One of the factors that affect back pain to pregnant women is the total children that have been borned by women. Table 2 showed that most respondents with multigravida parity were 66.7%.

Table 3. Distribution of gestational age

Gestational age (week)	Frequency	Percentage
28 – 35	19	63.3
36	11	36.7
Total	30	100.0

Gestational age is the length of time a fetus is in a fetus. Table 3 showed that most respondents with gestational age 28 - 35 weeks were 63.3%.

Table 4. Distribution of education level

Education level	Frequency	Percentage
Elementary school to equivalent	2	33.3
Junior high school to equivalent	4	13.3
Senior high school to equivalent	20	66.7
Bachelor	4	13.3
Total	30	100.0

Education level is the process of changing a person's attitude and behavior or a group of people in an effort to mature themselves through teaching and training efforts. Tabel 4 showed that most respondents with Senior High School to Equivalent education level were 66.7%.

Table 5. Distribution of back pain scale before birthball training

Back Pain Scale	Frequency	Percentage
Moderate Pain	29	96.7
Severe Pain	1	3.3
Total	30	100.0

Back Pain is one of the discomfort feelings experienced by third trimester pregnant women. Table 5 shows that most repondents suffer moderate pain before and after doing birthball training which was 96.7%.

Table 6. Distribution of back pain scale after birthball training

Back pain scale	Frequency	Percentage
Not painful	2	6.7
A little painful	24	80.0
Moderate pain	4	13.3
Total	30	100.0

Back pain scale after birthbirth training will be made as the benchmark of intervention success. Tabel 7 showed that most respondents suffer a little pain after doing birthball training which was 80.0%.

Analysis of Birthball Training to Back Pain

Table 7. Average level of back pain before and after birthball training

Variable	Average ±SD	Min	Max	95%CI	p value
Pain Scale Before Intervention	5.77 ± 1.10	4	8	5.35 – 6.18	0.000
Pain Scale After Intervention	2.50 ±1.00	0	4	2.12 – 2.88	

*T Test in 2 paired samples; $\alpha = 0.05$

Back pain before and after birthball training shows that there is a reduction. Table 8 showed that p value uses T Test in 2 paired samples obtain a small result of α (0.05), so that it can be concluded that there is a back pain difference before and after birthball training.

DISCUSSION

This research subject is all normal pregnant women, single with gestational age between 28 and 36 weeks and without comorbidites. The research subject is included in third trimester gestational age. Back pain during pregnancy is musculoskeletal disorder that occurs on the waist area caused by imbalance of abdominal muscles imbalance and spine erector muscles caused by the fetus in the womb getting bigger, so that the mother will try to share body weight and pull the shoulders back. In the gestational age of third trimester, the fetus grows rapidly, increase weight of 200-300 gram per week and reaches length less than 50 cm in term of pregnancy. Lumbar lordosis attitude causes pressure in muscles causing back pain. Birthball is a big size ball that can reach to the height of 55 to 75 cm after being pumped. At the beginning of training there are several ways of the researcher to help the mothers start doing excercises which is by matching the mother's body height with the

ball diameter that will be used, the usage of mattress as anti-slippery or anti-slip so that pregnant women will not fall directly to the floor, a safe environment condition, far from the noise that can inhibit the mother's concentration in relieving pain.

The usage of birthball with some movements can increase balance either static or dynamic. Balance is a complex interaction from sensory system (vestibular, visual, and somatosensory include proprioseptive) and musculoskeletal (muscles, joints, and other soft tissues) that are regulated in the brain (motoric control, sensory, basal ganglia, cerebellum). Birthball training is effective to provide self-efficacy of a primigravida pregnant woman with normal labor. Birthball is not only to reduce pain but also to improve the upbringing component that are emotional and psychological[7]. The age range of respondents in this research were at the age of 18 until 37 years old. Healthy reproducive age for a pregnant woman is at the age of 20 until 35 years old. There are 5 respondents (20%) that are in the age of <20 years old and >35 years old[8].

The parity of respondents in this research were respondents with first until fourth pregnancy. The pain level before birthball training, there is a respondent that suffers severe pain which is the respondent with first pregancy and is 20 years old. A first time pregnant woman suffer may changes, either physical, psychologica, or social changes. Primigravida women need adaptation time to physical and psychological changes that are experienced longer compared to multigravida women who have experiences in previous pregnancy. Pregnant women who contain the first child experience excess perception about their pregnancy that are affected by hormon increase and cause a real feeling change[9]. Decreased fetal head has occurred in primigravida during the third trimester of pregnancy. The cause of low back pain during pregnancy shows several mechanisms, one of which is mechanical factors gain weight during pregnancy which increases sagittal diameter during pregnancy and changes in the body's increasingly anterior gravity point can increase stress in the spine, besides that the biochemical factors that cause stretching of the abdominal muscles also contribute significantly to the emergence of low back pain[10].

The gestational age of respondents in this research ranged from 28 to 36 weeks. The tendency of pregnant women who experience severe back pain before doing a birthball exercise is experienced by mothers with a 36 week gestational age compared to pregnant women with a gestational age of 28 to 35 weeks who experience moderate pain more. Gestational age had an influence on low back pain experienced by the mother during her pregnancy process. Increasing gestational age results in changes in the soft tissue of the waist, muscles become tense and decreased muscle elasticity and flexibility[11].

Before doing the birthball exercise there were 96.7% of third trimester pregnant women experiencing low back pain with a moderate pain scale and 3.3% experiencing low back pain with a severe pain scale but after doing birthball exercises for four times with a lapse of time once a week, there was a scale change pain, where the scale of moderate pain was only experienced by 13.3% of respondents, other respondents experienced a slight pain 80.0% and experienced no pain 6.7%.

The results of the research using t-test 2 paired samples show the p-value was 0.000 less than the value of α 0.05. The results of this research show that there are differences in low back pain experienced by third trimester pregnant women before and after doing birthball exercises. This proves that birthball exercises have an influence on decreasing low back pain in third trimester pregnant women. Birthball can help provide a comfortable position during pregnancy, labor and after the baby is born[12]. Birthball exercises consist of five core movements or five techniques, where the first technique is to sit on the ball to help support and open the pelvis, help reduce muscle tension, the second technique is to sit on a leaning ball to minimize and relieve low back pain, technique third is to stand leaning on the ball aiming to help reduce back and waist tension, the fourth technique is kneeling and leaning on the ball aims to improve muscle strength and flexibility especially the back muscles and the fifth technique that is squatting against the ball aims to train the mother expand the baby's space optimally so that helps the baby optimize the position of entry into the pelvis.

The limitation in this research was when screening the research subjects through the research of data in the history, it was found that not all research subjects had complaints of low back pain, so the researchers waited a long time to get the research subject. In addition, even though Kabila Community Health Center ranks the highest target for pregnant women in July 2018 at Bone Bolango Districts, not all pregnant women can be used as research subjects because they consider the inclusion criteria in this research.

CONCLUSION

The back pain suffered by third trimester pregnant women at the working area of Kabila Community Health Center of Bone Bolango Districts before doing birthball training most were at moderate pain scale. The back pain experienced by third trimester pregnant women at the working area of Kabila Community Health Center Bone Bolango Districts after doing birthball training most were at mild pain scale. The research conclusion is that there is a difference of back pain scale before and after doing birthball training to third trimester pregnant women at the working area of Kabila Community Health Center Bone Bolango Districts.

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