The Effectiveness of Physical Exercise, Prenatal Yoga and Pregnancy Gymnastics in Primigravida on Childbirth Duration

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ABSTRACT

One of the physical exercises favored by pregnant women is pregnancy gymnastics. It is a kind of exercise for strengthening and maintaining the elasticity of abdominal wall muscles, ligaments, and basic muscles of pelvis which are related to the process of childbirth. The objective of this research was to find out the effectiveness of physical exercise method between prenatal yoga and pregnancy exercise in primigravida on childbirth duration so that it could provide information which could increase the knowledge of midwives and midwifery students in providing midwifery care for pregnant women in facing the process of childbirth. This quasi experiment study was conducted in July to September 2016. The subjects was 40 pregnant women. The respondents were all primigravida pregnant women of trimester III who had the pregnancy examined in the Practice of Independent Midwife, Medan Johor. T-test was used for statistical analysis. The result of T-test showed that p-value=0.002 which indicated that there was the difference in the effectiveness of physical exercise method between prenatal yoga and pregnancy gymnastics in primigravida on the duration of normal childbirth. Prenatal yoga was more effective than pregnancy gymnastics in shortening the duration of normal childbirth.

Keywords: Prenatal yoga, Pregnancy gymnastics, Childbirth

INTRODUCTION

Background

Every pregnant woman must have wanted a healthy and perfect baby; therefore, she also has to be physically and mentally healthy. It means that she has to be in normal condition either physically or mentally, without undergoing disturbances, and can function well as what a pregnant woman usually is (Solihah, 2010)

One of the purposes of prenatal care is physiological childbirth with healthy mother and her baby. A natural and normal childbirth can be achieved when uterus has good, rhythmical, and strong contraction with its segment is below the womb, cervix, and basic muscles of pelvis is in a relaxing condition so that the baby can easily pass the canal. This condition can be achieved by the efforts of the pregnant woman herself in a complete bodily composer and relaxation (Setyorini, et. al, 2007).

In a primipara (the first childbirth), the duration of childbirth in Phase I has longer than that of multipara (many childbirths) in which the duration of childbirth Phase I in primipara is in the neighborhood of 13 to 14 hours, while in multipara it is in the neighborhood of 7 hours (Wiknjosastro, 2008). The long duration of childbirth Phase I in primipara can bring about long duration of pain so that the childbirth woman undergoes severe exhaustion; in consequence, she will have emotional response such as anxious, tense, scared, and panicky. It is indicated that in primipara, there is long duration of parturition and the risk for the infant death is more possible than that in multipara. Cheng, et. al. (2010) in Budiarti (2011) points out that long duration of parturition in Phase I of childbirth has the risk for the incidence of post-parturition bleeding, chorioamnionitis, and the increase in intensive care in neonatal.

Most of pregnant women must have undergone anxiety in facing the process of childbirth. Exercises which can be done by pregnant women in order to expedite the process of childbirth are pregnancy gymnastics, pregnancy yoga, and relaxation. One of the exercises which is favored by pregnant women is pregnancy gymnastics. The aims of pregnancy gymnastics are to strengthen and to maintain the elasticity of abdominal wall muscles, ligaments, and basic muscles of pelvic which are related to the process of childbirth. By doing pregnancy gymnastics regularly, a pregnant woman can maintain the condition of muscles and joints which...
play their role in expediting the process of childbirth. Pregnancy gymnastics can also establish prime bodily attitude so that it can help solve any complaints during pregnancy which will eventually help solve any complaints during childbirth, arrange the position of fetus, help out breathlessness, control respiration technique in childbirth, and provide comfort for women during the process of childbirth so that childbirth can be carried out smoothly (Yulianti, 2010).

There are several types of physical exercises in pregnancy such as pregnancy gymnastics, pilates, yoga, and kegel and yophita exercises. Physical exercises which are favored by pregnant women are pregnancy gymnastics and pregnancy yoga. Pregnancy gymnastics constitutes a therapy of movement exercise to maintain women’s stamina and fitness during their pregnancy and to prepare them physically and mentally in facing the process of childbirth optimally. Viewed from its movements, pregnancy gymnastics is merely a kind of common gymnastics which makes the body fresh and fit; however, it also has another benefit, helping the smoothness in the process of childbirth. Its difference from pregnancy yoga lies on “respiration.” Yoga exercise is always referred to respiration. In yoga exercise, pregnant women are clearly guided when they have to inhale and when they have to exhale (Wiadnyana, 2011). Shindu (2009) points out that yoga regular exercise can help maintain health and the smoothness in the process of childbirth because it will make the body flexible, especially in the muscles of canal. These flexible muscles are highly needed because pregnant women usually feel anxiety and panicky during childbirth.

Yoga is a kind of exercises of the body, mind, and mentality which help a pregnant woman make her joints more flexible and soothe her mind, especially in the trimester III. Pregnancy yoga exercise has five methods: yoga physical exercise, pranayama (respiration), mudra (positions), meditation, and deep relaxation. They can be very beneficial during pregnancy since they can help the smoothness in pregnancy and normal childbirth, and they can also make sure that the new-born baby will be healthy (Indiarti, 2009).

Several researches have been done to find out the influence of pregnancy gymnastics and pregnancy yoga exercise on the duration of childbirth. The research conducted by Rusmita (2011) on pregnant women in trimester III in the Mother and Child Limijati Hospital, Bandung, about the influence of pregnancy yoga exercise during pregnancy on physical and psychological preparation in facing childbirth showed significant result (p=0.014). The research with the same topic was also conducted by Hariyanto (2015) in the Practice of Independent Midwife, Boyolali Regency, found that there was the influence of pregnancy yoga exercise on the level of anxiety in pregnant women in trimester III in the treatment group (p < 0.05), there was no influence of yoga exercise on the level of anxiety in pregnant women in trimester III in the control group (p > 0.05), and there was the difference in the level of anxiety in pregnant women with the age of pregnancy more than 32 weeks in the pre and post yoga exercise (p < 0.002).

Martini, et al. (2008) points out that pregnancy gymnastics has the influence on the childbirth duration of Phase I and Phase II at p = 0.001. The research conducted by Ekayanthi, et al. (2014) on the influence of pregnancy gymnastics on childbirth duration in primigravida in the Klinik Ibunda, Denpasar, found that there was the significant influence at p-value of 0.000, less than α = 0.05 (p<0.05) of pregnancy gymnastics on duration of childbirth in primigravida and duration of childbirth in the treatment group; 11 respondents (73.3%) were in the category of speed duration of childbirth.

Based on the explanation above, it is recommended that research should be done to analyze the effectiveness of physical exercise method, pregnancy prenatal yoga and pregnancy gymnastics, in primigravida on childbirth duration in the Practice of Independent Midwife, Medan Johor, Medan.

**Formulation of the Problems**

Which of the physical exercise method is more effective, prenatal yoga or pregnancy gymnastics, in primigravida on the duration of childbirth?

**Objective**

This study aimed to find out the effectiveness of physical exercises, prenatal yoga and pregnancy gymnastics in primigravida on the duration of childbirth in the Practice of Independent Midwife, Medan Johor, Medan.

**Hypothesis**

1. Prenatal yoga in primigravida was more effective than pregnancy gymnastics in shortening the duration of childbirth phase I, phase II, and phase III.
2. There was the difference in the effectiveness of physical exercises between prenatal yoga and pregnancy gymnastics on the total duration of childbirth.
Significances of The Study

1. It could strengthen research material on physical exercises in pregnancy which was effective to shorten childbirth duration and could be used as the reference for the next researches;
2. There would be the standard of measured gymnastics or physical exercise for pregnant women and it could increase the quality of antenatal care, minimize the incidence of anxiety in facing childbirth, prepare a safe and comfortable childbirth, and decrease the risk for the incidence of long and complicated duration of childbirth.

METHODS

The research used pre-experimental method with one-shot case study design. It measured the difference in the effectiveness of physical exercises between prenatal yoga and pregnancy gymnastics in primigravida pregnant women of trimester III on childbirth duration. The population was 40 primigravida pregnant women with the pregnancy age of 28-32 weeks. They were divided into two groups: group 1 was all respondents who participated in Prenatal Yoga class and group 2 was all respondents who participated in Pregnancy Gymnastics class in the Practice of Independent Midwife, Medan Johor, Medan, from July until September, 2016. The samples were the total population: 40 respondents that were divided into two groups with 20 respondents each. They were taken by using purposive sampling technique in which the whole population had met inclusive criteria. The research was conducted in the Practice Independent Midwife Suryani and the Practice of Independent Midwife Sumiariani at Medan Johor from July until September, 2016. T-test was used for statistic test which was aimed to analyze the difference between pregnancy gymnastics and prenatal yoga in primigravida pregnant women of trimester III on duration of childbirth.

RESULTS

Result I

The analysis on the duration of childbirth and the difference in the effectiveness of physical exercise method between prenatal yoga and pregnancy gymnastics in primigravida pregnant women on the total duration of normal childbirth in the Practice of Independent Midwife, Medan Johor, Medan, could be seen in Table 1 below.

Table 1. Childbirth duration and difference in physical exercise method between prenatal yoga and pregnancy gymnastics in primigravida on the total duration of childbirth in the practice of independent midwife, Medan Johor, Medan.

<table>
<thead>
<tr>
<th>No</th>
<th>Childbirth Duration</th>
<th>Time (minute)</th>
<th>95% CI</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Prenatal Yoga</td>
<td></td>
<td>-106.540</td>
<td>-24.860</td>
<td>0.002</td>
</tr>
<tr>
<td>1 Phase I Childbirth</td>
<td></td>
<td>770</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Phase II Childbirth</td>
<td></td>
<td>12.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Phase III Childbirth</td>
<td></td>
<td>8.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Childbirth Duration</td>
<td></td>
<td>790.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Pregnancy Gymnastics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Phase I Childbirth</td>
<td></td>
<td>813</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Phase II Childbirth</td>
<td></td>
<td>25.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Phase III Childbirth</td>
<td></td>
<td>10.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Childbirth Duration</td>
<td></td>
<td>849.55</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on the Table 1, it was found that the average duration of normal childbirth Phase I in primigravida pregnant women who participated in Prenatal Yoga class in the Practice of Independent Midwife, Medan Johor, Medan, was 12 hours and 50 minutes, while the average duration of those who participated in Pregnancy Gymnastics class was 13 hours and 33 minutes (mean difference of 17 minutes). The average duration of normal childbirth phase II in primigravida pregnant women who participated in Prenatal Yoga class was 12 hours and 75 minutes, while the average duration of those who participated in Pregnancy Gymnastics class was 25 hours and 85 minutes (mean difference of 13 hours and 1 minute). The average duration of normal childbirth Phase III in primigravida pregnant women who participated in Prenatal Yoga class was 8 hours, while the average
duration of those who participated in Pregnancy Gymnastics class was 10 hours and 70 minutes (mean difference of 2 hours and 70 minutes). Therefore, physical exercise method which was more effective between prenatal yoga and pregnancy gymnastics for the total duration of normal childbirth was those who participated in Prenatal Yoga class with the mean difference in Phase I was 17 minutes, in Phase II was 13 hours and 1 minute, and in Phase III was 2 hours and 70 minutes.

Meanwhile, the difference in the effectiveness of physical exercise method between prenatal yoga and pregnancy gymnastics tested by independent t-test showed that p-value=0.002 (<0.05) which indicated that there was the difference in the effectiveness of physical exercise method between prenatal yoga and pregnancy gymnastics in primigravida on the total duration of childbirth in the Practice of Independent Midwife, Medan Johor, Medan.

**DISCUSSION**

The result of the research showed that the duration of childbirth Phase I in primigravida in the Practice of Independent Midwife, Medan Johor, Medan, for those who participated in Prenatal Yoga class on duration of childbirth, the average duration of normal childbirth Phase I in primigravida pregnant women who participated in Prenatal Yoga class was 12 hours and 50 minutes (770 minutes). The average duration of childbirth Phase II in primigravida pregnant women who participated in Prenatal Yoga class was 12 hours and 75 minutes. The average duration of normal childbirth Phase III in primigravida pregnant women who participated in Prenatal Yoga class was 8 hours. This was in accordance with the result of the research conducted by Berliana (2015) on physical and psychological preparation in facing childbirth in pregnant women who participated in Yoga gymnastics in Do The Beauty & Fresh, Sidoarjo, which stated that 10 respondents (66.7%) were physically ready to face childbirth, while 11 respondents (73.3%) were psychologically ready to face childbirth.

The result of the research also showed that the duration of childbirth Phase I in primigravida in the Practice of Independent Midwife, Medan Johor, Medan, for those who participated in Pregnancy Gymnastics class on duration of childbirth, the average duration of normal childbirth Phase I in primigravida pregnant women who participated in Pregnancy Gymnastics class was 13 hours and 33 minutes (813 minutes). The average duration of childbirth Phase II in primigravida pregnant women who participated in Pregnancy Gymnastics class was 25 hours and 85 minutes. The average duration of normal childbirth Phase III in primigravida pregnant women who participated in Pregnancy Gymnastics class was 10 hours and 70 minutes.

This was in accordance with the result of the research conducted by Mintarsih (2014) on the effectiveness of pregnancy gymnastics on duration of childbirth Phase I primipara in Mawar I Ward of RSUD Dr. Moewardi, Surakarta, which stated that there was the difference in the influence of pregnancy gymnastics on duration of childbirth Phase I in the spontaneous post-parturition primapara in RSUD Dr. Moewardi, Surakarta. The result of the research conducted by Septaningtia (2015) on the correlation of pregnancy gymnastics with the duration of childbirth process phase II in primigravida women in RSKIA Sadewa, Yogyakarta, in 2015 found that there was the correlation of pregnancy gymnastics with the duration of childbirth process phase II.

The result indicated that there was the difference in the effectiveness of physical exercise method between prenatal yoga and pregnancy gymnastics in primigravida on the total duration of normal childbirth in the Practice of Independent Midwife, Medan Johor, Medan. Referring to the result of the test above, it could be explained that physical exercise method of prenatal yoga was more effective than that of pregnancy gymnastics in shortening the total duration of normal childbirth.

From the result of the research, it was found that physical exercise method of prenatal yoga in primigravida was more effective in shortening the duration of normal childbirth. This condition could easily be seen in the phase I childbirth in primipara women who participated in Prenatal Yoga class: the childbirth duration was ≤ 12 hours and 5 minutes (770 minutes) at the percentage of 55%, while those who participated in Pregnancy Gymnastics class had longer duration of childbirth (<12 hours and 5 minutes at the percentage of 80%). In phase III, those who participated in Prenatal Yoga class had childbirth duration of ≤ 10 minutes at the percentage of 90%, while those who participated in Pregnancy Gymnastics class had only 75%. Nevertheless, if it was viewed from child birth duration of phase II in primipara, both methods were effective enough to shorten childbirth duration. According to Rukiyah (2009), duration of childbirth for primigravida in phase I was 12 hours and 5 minutes, in phase II was 60 minutes, in phase III was 10 minutes, and phase IV was 2 hours.

Prenatal yoga is beneficial to train and master respiration technique which plays its role in pregnancy and in the process of childbirth. The use of basic training of respiration was to train tense, expedite blood circulation, and meet the needs of oxygen for pregnant women and their fetuses. No less important than its benefit, it can strengthen and maintain the elasticity of abdominal wall muscles, ligament, basic muscles of pelvic, and muscles in inner part of hips so that the process of childbirth can be carried out smoothly.

According to Yuliarti (2010), by doing pregnancy gymnastics regularly the condition of muscles and joints which play their role in expediting the process of childbirth can be maintained. Pregnancy gymnastics
can also establish prime bodily attitude so that it can help sole any complaints during pregnancy, arrange position of fetus, help out breathlessness, master respiration technique in childbirth, and provide comfort for childbirth women so that the process of childbirth can take place smoothly. Meanwhile, doing yoga gymnastics regularly, according to Shindu (2009), is also very beneficial to maintain health and the smoothness of the process of childbirth because it will make the body, especially muscles of the canal, flexible. The flexibility of muscles is highly needed because during the childbirth, pregnant women usually undergo anxiety and panic. The difference between pregnancy gymnastics and yoga exercise lies on “respiration.” Yoga exercise is always referred to respiration. In yoga exercise, pregnant women are clearly directed when they have to inhale and when they have to exhale (Wiadnyana, 2011).

This research which was in accordance with the research conducted by Rusmita (2011) in pregnant women in trimester III in the Mother and Child Hospital Limijati, Bandung, about the influence of yoga gymnastics during pregnancy on physical and psychological preparation in facing childbirth showed significant result. Another research by Hariyanto (2015) in the practice of Independent Midwife, Boyolali Regency, found that there was the influence of yoga gymnastics on the level of anxiety in pregnant women in trimester III, and there was the difference in the level of anxiety in pregnant women with pregnancy age more than 32 weeks in pre and post yoga gymnastics.

CONCLUSION

There was the difference in the effectiveness of physical exercise method between prenatal yoga and pregnancy gymnastics in primigravida on the total duration of normal childbirth in the Practice of Independent Midwife, Medan Johor, Medan. Physical exercise method of prenatal yoga was more effective than that of pregnancy gymnastics in shortening the total duration of normal childbirth;

REFERENCES


