

Yoga Exercises to Speed up the Process of Uterine Involution



Rasumawati¹, Erlin Puspita², Marlynda Happy Nurmalita Sari³

^{1,2}Department of Midwifery, Health Polytechnic Jakarta I, Ministry of Health, Jakarta, Indonesia

³Department of Midwifery, Health Polytechnic Semarang, Ministry of Health, Jakarta, Indonesia

ABSTRACT: Yoga exercise will restore the strength of the pelvic floor muscles, tighten the muscles of the abdominal wall and perineum, and stimulate the contractions of the uterus. This research aims to determine the efficacy of yoga exercises on the involution of the uterus. Quasi-experimental design is used in this research with the approach of the pre-post test control design. Univariate results from uterine involution could be obtained at the latest 6 days and at the most 14 days. Bivariate analysis with correlation test and independent T test has obtained the following results: mother's age, r value = 0.277 and P value = 0.032, labor duration r = 0.351 and P value = 0.006. The mothers who did the yoga exercise had an average uterine involution of 8.97 days while those who did not do yoga exercise had the average uterine involution of TFU 13.70 days with P value of 0.0005. The final results of multivariate was further examined using multiple linear regression test resulting in β coefficient of 4.8 with P value of 0.0005 and the coefficient of determination (R square) showing the value of 0.82 and beta value of 0.922. Conclusion: The uterine involution of the mothers who did pregnancy exercise is faster on average by 4.8 days after the age and length of labor variables are controlled. The exercise variable indicates beta value of 0.922, which means that the variable that has the greatest influence on uterine involution is yoga exercises

KEYWORDS: Yoga exercise; uterine involution; postpartum period

I. INTRODUCTION

Post partum hemorrhage in the first day after birth is the cause of more than half of all maternal deaths. Post partum bleeding can occur when risk factors are present and often without warning. It is estimated that postpartum hemorrhage is the cause of 140,000 deaths worldwide every year or about one death every four minutes (Chua et al., 2018). The risk of postpartum hemorrhage occurs around 45% in the first 24 hours of labor and 68-73% within 1 week of labour. Post partum bleeding can be caused by infection, leftover placenta and the involution process that is not going well or is called uterine subinvolution (Anggraeni et al., 2019; Siti Rofi'ah dkk, 2015).

Uterine involution is a very important process for postpartum mothers so that at this stage special care and supervision is needed to ensure the recovery of the postpartum mother's health as before pregnancy. Involution is a process of returning the uterus to its pre-pregnancy state weighing about 60 grams. This process begins immediately after delivery of the placenta as a result of contractions of the smooth muscles of the uterus. Measurement of involution can be done by measuring the height of the uterine fundus, uterine contractions and also by removing lochia (Prawirohardjo Sarwono, 2008).

Mobilization or simple physical activities such as postpartum exercise can prevent postpartum women from uterine subinvolution. Postpartum exercise can make the uterine muscles contract and retract. Doing physical activity during the puerperium can accelerate the return of stretching the pelvic muscles and stretching the lower limbs and reduce pain during the puerperium. Postpartum exercise also affects the decrease in the uterine fundus in postpartum mothers (Hadianti & Sriwenda, 2019). One of the physical activities that can be done for post partum mothers is yoga. According to research conducted by (Anggraeni et al., 2019; Sunarsih & Astuti, 2021) there is the effect of yoga exercise on the process of uterine involution in post partum mothers.

Consistent yoga practice goes a long way in reducing the effects the fight-or-flight response has on the body by giving the body a chance to fully rest. Consistent yoga practice can give mothers confidence and body stability. Yoga can improve posture and coordination, strengthen muscles, increase flexibility, and create balance (Nishitha et al., 2020). According to research conducted by (Anggraeni et al., 2019) yoga for postpartum mothers can reduce muscle tension, improve blood circulation, and stimulate neuro-hormonal and reduce physical and psychological discomfort. Comfortable conditions that occur in the postpartum mother can stimulate the release of the hormone oxytocin and through the bloodstream the hormone is

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transported to the alveoli and causes myoepithelial cells to contract so that the involution process becomes faster (Anggraeni et al., 2019).

II. RESEARCH METHODS

This type of research is a quasi-experimental with postpartum mothers who are trained in yoga and postpartum mothers who are not trained in gymnastics as a control design. In this study, two groups were used, namely the treatment group (A) and the control group (B). Both were performed by postpartum mothers in the treatment group (A) who were given intervention.

The population in this study were all postpartum mothers with normal deliveries at the Independent Midwife Practice in Bogor District, West Java. The sample in this study was each subject who met the criteria to be a sample member such as primiparas, aged 20-35 years, normal/term pregnancy, hemoglobin (Hb) level of 10-12 gr%, no food restrictions and no postpartum complications. The number of samples used in this study were 36 people.

Data was collected in May - September 2018. Data collection personnel consisted of researchers and assisted by 3 numerators, namely midwives with DIII Midwifery education. The analysis used is multiple linear regression. The validity and reliability of the instrument, prior to conducting the research, training was carried out for the three numerators on yoga exercises and CDs were given to equalize perceptions about the implementation and measurement procedures in the study. After the training, an evaluation is carried out on how to implement yoga exercises for the numerator. To measure the height of the uterine fundus, metlin was used with the same type of material and brand, Merlin, a butterfly brand produced in Shanghai, China. Researchers and numerators equate perceptions about how measurements and evaluations are carried out. To reduce bias, in one patient the process of uterine involution from the first day to the eighth day was evaluated by the same numerator.

III. RESULT AND DISCUSSION

Table 1. Distribution of Respondents Based on Mother's Age, Length of Labor (in minutes), Birth Weight and Uterine Involution/Uterus Involution (in days)

| Variable | Mean | SD | Min - Max | 95% CI |
|--------------------|---------|-------|-------------|-------------------|
| Age | 23,47 | 4,71 | 16 – 38 | 22,25 – 24,68 |
| Labor Length | 43,37 | 31,07 | 20 – 180 | 35,34 – 51,39 |
| Baby Birth Weight | 3109,67 | 409,6 | 2000 – 4000 | 3003,86 – 3215,48 |
| Uterine Involution | 11,33 | 2,65 | 6 – 14 | 10,65 – 12,02 |

The average age of the mother is 23.47 years with a minimum age of 16 years and a maximum age of 38 years. Judging from the age of the respondents, there are still mothers aged less than 20 years and over 35 years. The ideal reproductive age from a health aspect is at the age of 20-35 years. Mothers who give birth at the age of more than 35 years have a risk of reduced uterine muscle elasticity, and are at risk of complications before and after birth due to decreased uterine muscle elasticity so that uterine contractions are not optimal (Septyara et al., 2020). The average length of labor lasted 43.37 minutes. this is still in the normal category. According to (Prawirohardjo, 2010) The duration of labor for primigravida mothers lasts 1.5 hours to a maximum of 2 hours and for primigravida mothers the duration of labor is 0.5 hours to a maximum of 1 hour (Fatriyani Ishmah, 2020; Prawirohardjo, 2010). The average birth weight of babies is 3109.07 grams, and there are still babies with birth weights of 2000 grams and 4000 grams. Birth weight is related to uterine involution (Rahmadhani et al., 2014). The greater the baby's weight, the greater the uterus will also enlarge optimally, the enlargement of the uterus is caused by mechanical stress due to the growth and development of the growing fetus. A large uterus also requires a longer involution time than a small uterus (Rahmadhani et al., 2014).

Table 2. Relationship of uterine involution/UTU to maternal age, birth weight and length

| Variable | R Square | P value |
|-------------------|----------|---------|
| Age | -0,277 | 0,032 |
| Baby Birth Weight | 0,122 | 0,352 |
| Labor Length | -0,351 | 0,006 |

The correlation test showed that for the age variable the value of $r = 0.277$ and the P value = 0.032 means that the older the mother, the longer the process of uterine involution. This is because in women who are over 35 years old, the elasticity of the uterine muscles has reduced and at that age complications often occur before and after childbirth due to reduced elasticity of

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the uterine muscles, causing uterine contractions to be not optimal so that there is a risk of slowing uterine involution (Ningsih, 2021). Mothers who are older are also heavily influenced by the aging process. Where in the aging process there is an increase in fat volume, decreased muscle elasticity and decreased absorption of fat, protein and carbohydrates. If the aging process is associated with a decrease in protein, this will inhibit uterine involution (Widyawaty, 2018).

Meanwhile, the duration of labor was obtained $r = 0.351$ and the P value = 0.006, meaning that the relationship between duration of labor and uterine involution shows a moderate relationship and has a negative pattern, namely the longer the mother's labor, the longer the uterine involution process. This is because uterine contractions and retraction last longer so that they have an influence on the involution process. For mothers who experience longer labor, they will easily feel tired, so they can delay early mobilization, even though early mobilization can improve blood circulation, increase body metabolism, the work of organs recovers quickly, including making the process of uterine involution more effective (Kasanah & Alika, 2020).

Table 3. Relationship of uterine involution to mothers who do yoga and do not do yoga

| Yoga Group | N | Mean | SD | SE Mean | P value |
|----------------|----|-------|-------|---------|---------|
| Not doing yoga | 30 | 13,70 | 0,596 | 0,109 | 0,0005 |
| doing yoga | 30 | 8,97 | 1,52 | 0,277 | |

The results of bivariate analysis with an independent T test showed that mothers who did yoga had an average uterine involution of 8.97 days, while mothers who did not do yoga had an average uterine involution of 13.70 days with a P value of 0.0005 meaning there is a significant difference in the average uterine involution between mothers who did yoga and those who did not do yoga.

Table 4. Relationship of uterine involution to mothers who do yoga and do not do yoga

| | B | R Square | SE | B | P value |
|---------------|-------|----------|-------|--------|---------|
| Constant | 9,712 | 0,832 | 0,832 | | 0,0005 |
| Age | -0,49 | | 0,034 | -0,086 | 0,160 |
| Labor Length | 0,008 | | 0,006 | 0,093 | 0,165 |
| Yoga Exercise | 4,84 | | 0,332 | 0,922 | 0,0005 |

Mothers who did yoga exercise, uterine involution was on average 4.8 days faster after controlling for age and length of labor variables with a P value of 0.0005. The coefficient of determination (R square) shows a value of 0.823 meaning that the regression model obtained can explain 82.3% of the variation in the TFU (uterine involution) variable while the rest is explained by other variables. The yoga exercise variable shows the greatest beta value (0.922), which means that the variable that has the greatest influence on uterine involution (TFU) is yoga exercise.

This study is in accordance with the theory which states that yoga exercises can accelerate uterine involution. Where the decrease in the height of the uterine fundus can occur properly if the contractions in the uterus are good and continuous. Uterine contractions can increase with yoga exercises for postpartum mothers. Movement Physical exercise can increase muscle contractions in the uterus. Where this occurs due to an increase in calcium ions in the extracells which bind to calmodulin, after calmodulin and potassium bind it will increase myosin kinase and phosphorylase occurs in the myosin head which binds to actin so that periodic muscle tension occurs resulting in muscle contractions in the uterus after contract, uterine involution occurs (Sari, 2018). The results of research conducted by (Anggraeni et al., 2019) showed that yoga exercises had an effect of 40.3% on uterine involution after controlling for parity, frequency of breastfeeding and anxiety. Yoga for post partum mothers is effective for strengthening uterine muscles, improving blood circulation and stimulating neurohormones so that it can accelerate uterine involution (Anggraeni et al., 2019).

IV. CONCLUSIONS

In mothers who do yoga, the uterus involution is on average 4.8 days faster after controlling for age and length of labor variables with a P value of 0.0005. The coefficient of determination (R square) shows a value of 0.832 meaning that the regression model obtained can explain 83.2% of the variation in the TFU (uterine involution) variable while the rest is explained by other variables. The yoga exercise variable shows the greatest beta value (0.922), which means that the variable that has the greatest influence on uterine involution (TFU) is yoga exercise.

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This research can be used as material for learning references in postpartum care. Yoga exercises can be used as an alternative to provide comfort to postpartum mothers and accelerate uterine involution. This research can be the basis for further research with the influence of yoga exercise interventions on other variables that are more specific and varied.

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