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Pregnancy Exercise on Childbirth Clinical Outcome

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Abstract:
Some of the problems that are quite often encountered by midwives during childbirth assistance are some complications during childbirth, including power problems, the mother's mistakes in the pushing process, and problems with improper breathing regulation which can cause a long labor process, so preventive measures can be increased such as pregnancy exercise which can show better clinical results or clinical outcomes at the time of delivery. This study aims to determine the effect of pregnancy exercise on clinical outcomes of childbirth at the Pratama Ratna Komala Clinic, Bekasi Regency, in 2022. This study used a non-parametric testing method with the Mann-Whitney method, totaling 20 respondents with 10 respondents participating in pregnancy exercise and 10 respondents did not participating in pregnancy exercise. The results of differences in clinical outcome between the experimental and control group showed that the Asymp Sig. (2-tailed) < 0.05 so that H0 was rejected which means that there is an effect of pregnancy exercise on clinical outcomes of childbirth. Pregnancy exercise can reduce pain and speed up the delivery process. It is hoped that the Pratama Ratna Komala Bekasi Clinic will continue to socialize pregnancy exercises to pregnant women to continue doing pregnancy exercises regularly. Midwives need to provide health counseling to pregnant women regarding the benefit of pregnancy exercise.

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INTRODUCTION

One measure of the effectiveness of health services, particularly midwifery services, is the Maternal Mortality Rate. Indonesia still has a high maternal mortality rate today. One of the factors causing the high maternal mortality rate in Indonesia and other developing countries is the duration of labor which can be affected by the fetus, the birth canal, and the delivery itself. Phases inconsistent with contractions, irregular contractions, and lack of coordination and synchronization between contractions can cause abnormalities in the energy component. One of the causes of bleeding is inadequate uterine contractions (uterine atony) caused by maternal weakness and postpartum hemorrhage caused by uterine atony that is not handled properly (Satriyandari, 2017). According to data from the World Health Organization (WHO) in the world in 2019, 303,000 people die annually during pregnancy or childbirth. ASEAN's Maternal Mortality Rate (MMR) is 235 per 100,000 live births. Meanwhile, based on the inter-census population survey (SUPAS), the number of maternal deaths in Indonesia in 2019 was 4,221 cases (Ministry of Health RI, 2019).

Based on data from the West Java Provincial Health Office, the maternal mortality rate (MMR) per district/city of West Java province for January - July 2020 was 1,649 cases, an increase compared to 2019 in the same period of 1,575 cases. In Bekasi district, there was a decrease in the number of maternal deaths in 2016, there were 32 cases of death, and in 2019 there was a

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trend of decreasing cases of death to 22 cases (Ministry of Health RI, 2019). Childbirth is a physiological thing; if, during pregnancy, you do not get clear information and do not carry out regular pregnancy checks, then the physiological process becomes pathological. The general causes of 80% of maternal deaths are caused by several factors such as bleeding 25%; sepsis 15%, hypertension in pregnancy 12%, obstructed labor 8%, complications of unsafe abortion 13%, and other causes were 8% Mortality and mortality in pregnant women and childbirth is a big problem in developing countries (Prawirohardjo, 2010). The result shows poor clinical outcomes (Depkes RI, 2010). Until now, what can be controlled is the problem of power or power, which is increased by pregnancy exercise.

Some of the problems that midwife quite often encounter during childbirth assistance are complications during childbirth, including power problems, mistakes of the mother in the process of pushing, and problems with improper breathing regulation, which can cause a long labor process, so preventive measures that can be improved are exercise pregnant women who can show better clinical outcomes or clinical outcomes at the time of delivery. Exercises specifically designed for pregnant women, namely pregnancy exercise. Therefore, the movement principles used in pregnancy exercises are unique and adapted to the needs of pregnant women. Pregnancy-specific exercises are created to improve a woman's health and fitness, reduce pregnancy-related problems, and prepare a mother mentally and physically for childbirth.

The benefits of pregnancy exercise are also reported to reduce the occurrence of low-birth-weight babies, decrease heart rate, umbilical cord and meconium abnormalities, reduce energy use, reduce pain, reduce the occurrence of premature labor, reduce the incidence of cesarean section, and improve Apgar and psychomotor scores. fetus. Pregnancy exercise can also reduce the risk of stress and pain during childbirth. In addition, the essence of pregnancy exercise is to train breathing before delivery. So that at the time of the birth of the baby, the mother can relax and master the situation (Agustiyadi, 2015; Novelia, Wowor & Pajriyanti, 2022).

This research is supported by previous research conducted by (Titin et al., 2017) entitled "The Effects of Therapeutic Communication and Pregnancy Exercise on the Process of Stage I, II, III, and IV Labor." This study stated that therapeutic communication and pregnancy exercise influence systolic blood pressure, diastolic, pulse, temperature, breathing, and bleeding in stages I, II, III, and IV. This is in line with research conducted by (Maya, 2019) in her research entitled "The Effect of Pregnancy Gymnastics on Long Delivery in Maternal Labor at BPM H Palembang," with statistical test results of the average duration of labor in mothers giving birth with pregnancy exercise is 10.73 ± 1.1 hours, and for women giving birth without pregnancy exercise is 11.93 ± 1.3 hours. The results of the independent t-test analysis obtained a significant level of p: 0.014 (p <0.005), which means that there is a significant difference in the effect of pregnancy exercise on the length of labor in women giving birth.

The Pratama Ratna Komala Bekasi Clinic is a clinic that stands in the middle of a crowd that has an inpatient room and an obstetrics room. Based on an initial survey conducted by researchers, the average number of pregnant women who make antenatal care visits per month is 21 people. The clinic organizes pregnancy exercises trained by professional trainers, but there are not so many pregnant women who do pregnancy exercises; those pregnant women who do pregnancy exercises only participate 3 times a month because there is no time, which takes the mother when there is no exercise. Some mothers say there is no benefit from doing the exercise. Based on the background and previous research, the researcher is interested in conducting research titled "The Effect of Pregnancy Exercise on Clinical Outcome in the Childbirth Process at the Pratama Ratna Komala Clinic Bekasi in 2022."

Volume 01, Number 02
April 2023
p-ISSN: 2986-5662
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METHOD

This research is quasi-experimental with a control group design. This type of research is used to find causation by giving treatment of a treatment technique at a certain time compared to the standard technique that has been used for a long time, then studying the effect of the treatment. The population is a generalization area consisting of objects or subjects with certain qualities and characteristics determined by researchers to be studied and then concluded (Ariani, 2014; Notoatmodjo, 2010). The population used in this study were all pregnant women who had ANC examinations at the Primary Clinic RK Bekasi City in January 2023 with 20 pregnant women. The sample was chosen purposively. The sample is part of the number and characteristics possessed by the population (Ariani, 2014), which is the sample in this study using, an accidental sampling technique, obtained samples in a population of 20 pregnant women divided into 2 groups. Group 1 was given the pregnancy exercise intervention with 10 pregnant women, and Group 2 was not given the intervention with 10 pregnant women. This research has been declared ethically feasible with No. 10.054.B/KEPK-FKMUMJ/I/2023 according to 7 (seven) WHO Standards 2011, namely 1) Social Value, 2) Scientific Value, 3) Equalization of Burden and Benefits, 4) Risk, 5) Persuasion/Exploitation, 6) Confidentiality and Privacy, and 7) Consent After Explanation, which refers to the 2016 CIOMS Guidelines. The fulfillment of indicators for each standard show this.

RESULT

First Stage of Labor

Table 1. The Differences in Blood Pressure, Pulse, Respiration, Temperature, Fetal Heart Rate, and Labor Duration Between Groups in The First Stage

Variable	Group	n	Mean of Rank	Sum of Rank	p-value
Systolic	Experiment	10	13.75	137.50	0.008
	Control	10	7.25	72.50	
Diastolic	Experiment	10	11.50	115.00	0.046
	Control	10	9.50	95.00	
Pulse	Experiment	10	14.70	147.00	0.001
	Control	10	6.30	63.00	
Respiration	Experiment	10	13.25	132.50	0.030
	Control	10	7.75	77.50	
Temperature	Experiment	10	13.80	138.00	0.010
	Control	10	7.20	72.00	
Fetal heart rate	Experiment	10	14.50	145.00	0.002
	Control	10	6.50	65.00	
Labor duration	Experiment	10	13.70	137.00	0.013
	Control	10	7.30	73.00	

Table 1. shows the results of statistical calculations using Mann-Whitney. The results of Sig (2-tailed) for the categories of systolic blood pressure, diastolic blood pressure, pulse, respiration, temperature, fetal heart rate, and duration of labor have a value less than equal to 0.05. The value of each Asymp Sig. (2-tailed) namely, systolic blood pressure was (0.008), diastolic blood pressure was (0.46), pulse was (0.01), respiration was (0.30), temperature was (0.010), fetal heart rate was (0.002), and length of labor was (0.035).

Volume 01, Number 02
April 2023
p-ISSN: 2986-5662
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Second Stage of Labor

Table 2. The Differences in Blood Pressure, Pulse, Respiration, Temperature, and Labor Duration Between Groups in The Second Stage

Variable	Group	n	Mean of Rank	Sum of Rank	p-value
Systolic	Experiment	10	13.10	131.00	0.032
	Control	10	7.90	79.00	
Diastolic	Experiment	10	13.00	130.00	0.028
	Control	10	8.00	80.00	
Pulse	Experiment	10	14.60	146.00	0.001
	Control	10	6.40	64.00	
Respiration	Experiment	10	13.20	132.00	0.025
	Control	10	7.80	78.00	
Temperature	Experiment	10	13.70	137.00	0.012
	Control	10	7.30	73.00	
Labor duration	Experiment	10	13.20	132.00	0.035
	Control	10	7.80	78.00	

Table 2. shows the results of statistical calculations using Mann-Whitney. The results of Sig (2-tailed) for the categories of systolic blood pressure, diastolic blood pressure, pulse, respiration, temperature, and duration of labor have a value of less than equal to 0.05. The amount of each Asymp Sig. (2-tailed) namely, systolic blood pressure was (0.032), diastolic blood pressure was (0.28), pulse was (0.01), respiration was (0.25), temperature was (0.012), and length of labor was (0.035).

Third Stage of Labor

Table 3. The Differences in Blood Pressure, Pulse, Respiration, Temperature, and Labor Duration Between Groups in The Third Stage

Variable	Group	n	Mean of Rank	Sum of Rank	p-value
Systolic	Experiment	10	14.00	140.00	0.003
	Control	10	7.00	70.00	
Diastolic	Experiment	10	13.50	135.00	0.009
	Control	10	7.50	75.00	
Pulse	Experiment	10	13.15	131.50	0.038
	Control	10	7.50	78.50	
Respiration	Experiment	10	13.50	135.00	0.016
	Control	10	7.50	75.00	
Temperature	Experiment	10	14.75	147.50	0.001
	Control	10	6.25	62.50	
Labor duration	Experiment	10	13.00	13.00	0.028
	Control	10	8.00	8.00	

Table 3. shows the results of statistical calculations using Mann-Whitney. The results of Sig (2-tailed) for the categories of systolic blood pressure, diastolic blood pressure, pulse, respiration, temperature, and duration of labor have a value of less than equal to 0.05. The value of each Asymp Sig. 2 tailed, namely systolic blood pressure was (0.03), diastolic blood pressure was (0.09), pulse was (0.038), respiration was (0.16), temperature was (0.001), and length of labor was (0.028).

Volume 01, Number 02
April 2023
p-ISSN: 2986-5662
e-ISSN: 2985-959X

Fourth Stage of Labor

Table 4. The Differences in Blood Pressure, Pulse, Respiration, Temperature, and Labor Duration Between Groups in The Fourth Stage

Variable	Group	n	Mean of Rank	Sum of Rank	p-value
Systolic	Experiment	10	14.10	141.00	0.002
	Control	10	6.90	69.00	
Diastolic	Experiment	10	12.65	126.50	0.044
	Control	10	8.35	83.50	
Pulse	Experiment	10	14.70	147.00	0.001
	Control	10	6.30	63.00	
Respiration	Experiment	10	13.10	131.00	0.033
	Control	10	7.90	79.00	
Temperature	Experiment	10	14.35	143.50	0.003
	Control	10	6.65	66.50	
Labor duration	Experiment	10	6.60	66.00	0.003
	Control	10	14.40	144.00	

Table 4. shows the results of statistical calculations using Mann-Whitney. The results of Sig (2-tailed) for the categories of systolic blood pressure, diastolic blood pressure, pulse, respiration, temperature, and duration of labor have a value of less than equal to 0.05. The value of each Asymp Sig. 2 tailed, namely systolic blood pressure was (0.002), diastolic blood pressure was (0.044), pulse was (0.001), respiration was (0.033), temperature was (0.003), and length of labor was (0.003).

DISCUSSION

This study used a quasi-experimental design with a design and control group. This research was conducted from December 2022-January 2023 with a sample of 20 pregnant women at the Bekasi City RK Primary Clinic. The distribution of the frequency of vital signs in the control group has a good outcome, systolic blood pressure getting an average value of 103.00-107.00. diastole got an average value of 72.00 Pulse got an average value of 78.80-80.90. Respiration got an average value of 20.4, temperature get an average value of 26.45-36.77, duration of labor in the first stage the average value was 486.00, the second stage the average value was 88.50, the third stage the average value was 8.40, and the fourth stage the average value was 86.50. The result where the outcome is not good. Meanwhile, the experimental group had a good outcome, systolic blood pressure with an average value of 111.00-116.00. diastole get an average value of 77.00-79.00. Pulse got an average score of 80.90-82.10, respiration got an average value of 21.30, temperature get an average value of 36.77. The duration of labor in stage I averaged 654.00, stage II averaged 95.00, stage III averaged 9.40, and stage IV averaged 46.00 which is still within the normal threshold.

Based on the frequency distribution of clinical outcomes, 20 respondents had normal results. Based on the observation that respondents who took part in pregnancy exercise had the benefit of knowledge and skills in preparing for childbirth so that they were better prepared to face the birth process calmly, safely, and smoothly. This is in line with research (Jualian, 2011; Maya, 2019) in which pregnant exercise does breathing exercises and cool down pregnancy exercise is a method of relaxation. Abdominal breathing exercises, diaphragm or rib breathing exercises, chest breathing exercises, and cooling exercises do relaxation. So that the labor process is calmer.

Volume 01, Number 02
April 2023
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As for now, there are still people who have not participated in pregnancy exercises due to the knowledge of pregnancy exercises and the traditions of the surrounding environment, which are used to not doing pregnancy exercises. Health workers, especially the gynecology department, must provide direction or knowledge to the public so that they will be more aware of participating in pregnancy exercises in the future. This is supported based on the results of an analysis of the Independent Practice Midwife (BPM) in Palembang in research (Maya, 2019) that some patients are aware of the benefits of pregnancy exercise. Still, limited awareness of pregnant women results in problems that midwives often encounter during the delivery process, namely the mother's fault in the process of pushing and the problem of improper breathing regulation, which results in the length of the labor process.

The results show the differences in systolic blood pressure, diastolic blood pressure, pulse, temperature, respiration, DJJ, and duration of labor in the first stage between the experimental group and the control group had Asymp Sig values. (2-tailed) <0.05 means that there is an effect of changes in systolic blood pressure, diastolic blood pressure, pulse, temperature, respiration, DJJ, and length of labor in the first stage between the experimental group and the control group. The results of the Mann-Whitney statistical test showed that systolic blood pressure, diastolic blood pressure, pulse, temperature, respiration, DJJ, and duration of labor in the first stage between the experimental group and the control group had an Asymp Sig value. (2-tailed) <0.05 means that there is a difference in changes in systolic blood pressure, diastolic blood pressure, pulse, temperature, respiration, DJJ, and length of labor in the second stage between the experimental group and the control group.

The implementation of pregnancy exercise influences the delivery of stage I, stage II, stage III, and stage IV compared to pregnant women who do not participate in pregnancy exercise. This is supported by previous research by (Saifuddin, 2009; Syafruddin, 2011; Titin et al., 2017), which stated that pregnant women who were given pregnancy exercises experienced specific differences. This identified that the pregnancy exercise treatment influenced the labor process in stages I, II, III, and IV. This study's results differ from those conducted (Maya, 2019). In her research, the independent t-test analysis obtained a significant level between pregnancy exercise and the length of labor in women giving birth.

In the opinion of the researchers, the differences in the results of these researchers were suspected to be due to other factors not examined in this study, for example, the mother's compliance with doing pregnancy exercise and the mother's knowledge about pregnancy exercise. If the mother's knowledge about pregnancy exercise is high, it can prevent and reduce pain during delivery. From the results of testing the effect of giving the intervention on pregnancy exercise, it turns out that pregnancy exercise is very influential in assisting the delivery process. This is because pregnancy exercise makes it easier for the mother to carry out labor tasks with strength and self-confidence under the guidance of a helper during normal childbirth (physiology). So that pregnant women who are given the treatment of pregnancy exercise can only physically prepare for labor, namely the strength at the time of delivery (Manuaba et al., 2009).

The benefits of pregnancy exercise are also reported to reduce the occurrence of low-birth-weight babies, decrease heart rate, umbilical cord and meconium abnormalities, reduce energy use, reduce pain, reduce the occurrence of premature labor, reduce the incidence of cesarean section, and improve Apgar and psychomotor scores fetus. Pregnancy exercise can also reduce the risk of stress and pain during childbirth. In addition, the essence of pregnancy exercise is to train breathing before delivery. So that at the time of the baby's birth, the mother can relax and master the situation (Agustiyadi, 2015). A previous study found that exercising with medium intensity positively affects maternal health (Ghandali et al., 2021). Pilates exercise during

Volume 01, Number 02
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pregnancy improved the labor process and increased maternal satisfaction of the labor process without causing complications for the mother and baby.

Based on observations made by researchers at the Bekasi City RK Pratama Clinic, it is known that there are still pregnant women who have not participated in pregnancy exercises and lack knowledge about pregnancy exercises. Hence, most respondents need help with the delivery process. This is the same as observations made by other health workers saying that mothers who give birth experience difficulties in the delivery process. Therefore, health workers can encourage pregnant women to exercise more often at home by watching videos of pregnancy exercises after being given at a health service, making it easier for mothers to do pregnancy exercises and reduce pain in the delivery process.

CONCLUSION

Based on the research objectives, there are differences in clinical outcomes among respondents between those who participate in pregnancy exercise and those who do not. Based on calculations using the Mann-Whitney test on experimental and control pregnant women respondent data, it was found that the Asymp Sig. (2-tailed) < 0.05 so that H0 is rejected and Ha is accepted. Ha is accepted; that is, there is a significant difference between pregnancy exercise on childbirth clinical outcomes. The pregnancy exercise is proven to improve the clinical outcome of delivery.

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CONFLICT OF INTEREST

There is no conflict of interest in conducting this research.

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Volume 01, Number 02
April 2023
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