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The Influence of Deep Breathing Toward High Anxiety Mothers with Pre-eclampsia

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ABSTRACT

Cognition and anxiety influence pregnant women with pre-eclampsia risk. Anxiety on pregnant mothers must receive immediate care because anxiety can influence the emotional condition and blood pressure of the mother. One of them is a non-pharmacological procedure by providing deep breathing exercises to relieve anxiety. This research deep breathing on the anxiety levels of mothers with pre-eclampsia risk. This research applied one group pretest-posttest design. The samples were 60 respondents taken with purposive sampling. The researcher collected the data with the questionnaires of HARS. The applied statistical test was the Wilcoxon test. The results showed most respondents were aged between 20 and 35 years old 78.3%. Most respondents had SHS educational background 43.3% and worked as entrepreneurs 51.7%. They were in the third trimester 45.0% and had primigravida parity 58.3%. The obtained p-value was 0.000, indicating the deep breathing to relieve the anxiety of pregnant women suffering from pre-eclampsia risk. The researcher suggests future researchers pay attention to the room, rotating tool, and respondent size.

INTRODUCTION

The Maternal Mortality Rate (MMR) is an indication for finding solutions for the welfare of the mother. MMR is the number of maternal deaths during pregnancy, childbirth and after giving birth but not due to other consequences due to tragedy or in 100,000 safe births. As a result of complications during pregnancy and childbirth in developed countries, the death rate reaches 1 in 5,000 women, lower than in developing countries, which is 1 in 11 women (Ministry of Health, 2020). According to the Ministry of Health (2020), this is still a topic of discussion in Southeast Asian countries and Indonesia. In Indonesia alone, there are three major causes of maternal death, including bleeding (30%), preeclampsia (25%) and infection (12%).

The prevalence risk of preeclampsia is as high as 10% of pregnant women in the world and causes some 76,000

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maternal deaths and 500,000 infant deaths each year. The World Health Organization (WHO) announced that the risk of preeclampsia in developing countries is seven times higher than in developed countries at 18%:1.9% (Rifah et al., 2021). WHO report on the health situation in achieving the Sustainable Development Goals (SDGs) states that, throughout the world approximately 830 women die every day due to complications during pregnancy and childbirth, as many as 216 per 100,000 safe births, up to 99% maternal mortality.

Maternal mortality in Central Java Province 64.18% occurred during postpartum, 25.72% during pregnancy, and 10.10% during childbirth. On the other hand, for the age group, aged 20 to 34 years, 64.66% had the highest maternal mortality rate, followed by 31.9% for those aged >35 years. In Central Java Province, the highest cause of death was 29.9%, namely hypertension in pregnancy (Central Java Provincial Health Service, 2020). Based on data obtained from a preliminary study at the Gunungpati Community Health Center, in 2022 the population of pregnant women will be 879. Based on data from a preliminary study at the Sekaran Health Center in 2022, the population of pregnant women will be 583.

Pregnancy with Hypertension is one of the risk factors for preeclampsia, other factors include age, parity, primigravida, obesity, previous history of preeclampsia, multiple pregnancies, history of comorbidities, and late pregnancy (Veftisia & Khayati, 2018). Preeclampsia is a complication of pregnancy at 20 weeks, increasing the risk of disease by 3-8% of all maternal diseases (Rahayu et al., 2020). Previously, preeclampsia itself was explained as having hypertension and proteinuria that occurred only during pregnancy, usually called new onset hypertension with proteinuria. The exact cause of preeclampsia is still not known, so it is called "the disease of theories." But the risk of preeclampsia must be detected as early as possible (Silaban & Rahmawati, 2021).

Pregnant women who experience stress will experience an increase in the hormone cortisol, cortisol will enter the placenta and affect the fetus. The hormone cortisol which increases due to stressors experienced by the mother during pregnancy will activate the HPA (Hypothalamus Pituitary Adrenal). The fetus can experience stress and produce CRH (Corticotrophin Releasing Hormone) in the fetal plasma (Sari et al., 2019). Apart from affecting the hormone cortisol, during pregnancy there is an increase in the hormone progesterone which causes emotional disturbances and makes the mother tired quickly, thus having an anxious effect on pregnant women. The hormone adrenaline also increases, causing dysregulation of the body's biochemistry so that there is physical tension in pregnant women, such as being quick to anger, easily restless, unable to concentrate, and experiencing anxiety (Wulandari & Ambarwati, 2019).

Anxiety in pregnant women with a risk of preeclampsia can be reduced with non-pharmacological deep breathing therapy. Deep breathing relaxation is a technique of inhaling deeply, inhaling slowly and exhaling slowly. Relaxation carried out deeply and continuously is expected to provide a positive response to pregnant women (Putri & Margaretta, 2021). During relaxation, muscle fibers lengthen, the sending of nerve impulses to the brain decreases, brain activity and other body functions decrease. The characteristics of the relaxation response are marked by a decrease in pulse rate, number of breaths and a decrease in blood pressure. This also influences feelings of calm and relaxation so that it can reduce anxiety (Sumartini & Miranti, 2020). Through deep breathing relaxation, the inhaled air goes deep into the lungs and is exhaled when the diaphragm contracts and expands. By increasing awareness of breathing patterns it can reduce muscle tension and anxiety with stress-related symptoms or thoughts. Deep breathing relaxation is the easiest way to elicit a relaxation response (Syatoto, 2018).

This research applied one group pretest-posttest design. The samples were 60 respondents taken with purposive sampling. The researcher collected the data with the questionnaires of HARS. The applied statistical test was the Wilcoxon test.P value < 0.05 means there is an influence of deep breathing on the mother's anxiety level and the risk of preeclampsia if P value > 0.05 means there is no effect of giving deep breathing on the mother's anxiety level and the risk of preeclampsia.This research deep breathing on the anxiety levels of mothers with pre-eclampsia risk.

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METHODS

The design of this research is quantitative research with a pre-experimental research design with a one group pre test - post test approach without a control group, where the experimental group is looked at pre-test before treatment and post-test after treatment to determine the effect of giving Deep Breathing on the mother's anxiety level by risk of preeclampsia. In this study, anxiety levels were measured using the same questionnaire before and after the intervention during the study. The intervention provided is expected to have an influence or change on the anxiety level variable. The population in this study were maternal patients at risk of preeclampsia at the Gunungpati Health Center and Sekaran Community Health Center. Where the sampling method in this research uses purposive sampling. Where purposive sampling, a sample of 60 respondents was obtained, with details of 30 respondents at the Gunungpati Community Health Center and 30 respondents at the Sekaran Community Health Center. This research was conducted from April 24 – May 25 2023.

The research instruments used for data collection include: the Hamilton Anxiety Rating Scale (HARS) questionnaire to measure anxiety levels consisting of 14 component items which must be scored in different numbers to provide scoring, demographic data of respondents. Univariate analysis in this study included: age, education, occupation, gestational age, parity, history of hypertension with a frequency distribution table. Bivariate analysis in this study was using the Wilcoxon test with the research results showing that there was an influence with a value of 0.000 or p value <0.05, which means there was an influence of deep breathing on the mother's anxiety level and the risk of preeclampsia .

RESULT AND DISCUSSION

Results

1. **Univariate analysis**
   a) **Respondent characteristics**

Table 1.1

Frequency Distribution of Respondents Based on Age, Education, Occupation, Gestational Age, Parity, History of Hypertension
At the Gunungpati Community Health Center and the Sekaran Community Health Center Semarang in 2023 (n=60)

Variables	Number(f)	Presentation(%)
Pregnant mother's age		
Age <20 years	4	6.7
Age 20 – 35 years	47	78.3
Age >35 years	9	15.0
Education		
Elementary school	5	8.3
JHS	15	25.0
SHS	26	43.3
College	14	23.3
Work		
Civil servants	4	6.7
Businessman	1	1.7
Self-employed	31	51.7
Other	24	40.0
Gestational Age		
1st trimester	11	18.3
2nd trimester	22	36.7
3rd trimester	27	45.0
parity		
First	35	58.3
Second	22	36.7
Thrid	3	5.0
History of hypertension		
Yes	3	5.0
No	57	95.0
Total	60	100

Based on table 1.1, it can be seen that the age range of the majority of pregnant women is between 20 – 35 years, amounting to 47 people (78.3%). Pregnant women aged 20 - 35 years, the age considered mature, can also experience anxiety, this is influenced by other supporting factors such as hormonal changes, failed labor, changes in the body, parity, abnormalities in the fetus which can increase anxiety in pregnant mother.(Susanty, 2021). Meanwhile, the majority have SMA/SMK education, amounting to 26 people (43.3%). Educational history is closely related to health behavior. Lack of educational attainment is often associated with the risk of preeclampsia. This is related to the lack of information about health which can increase anxiety in pregnant women(Kristianti et al., 2020).

The majority's job characteristics are self-employed, amounting to 31 people (51.7%). Work is also

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associated with physical activity and stress, which are risk factors for preeclampsia. Maternal occupational factors can influence the risk of preeclampsia or eclampsia. Women who work outside the home have a higher risk of experiencing preeclampsia compared to housewives(Ruffa'ida, 2019). At the highest gestational age, namely the third trimester of pregnancy, there were 27 people (45.0%). Gestational age is a risk factor for preeclampsia. In the third trimester of pregnancy or close to the birth process, pregnant women sometimes experience feelings of anxiety and fear about childbirth, worry about the condition of the fetus, and changes in becoming parents. Likewise, if it happens that blood circulation in the body can change with increasing gestational age due to the enlargement of the uterus. This affects the work of the heart which must adapt to pregnancy. This carries the risk of increasing blood pressure, resulting in a risk of preeclampsia(Haslan & Trisutrisno, 2022).

The highest parity with first pregnancy was 35 respondents (58.3%). The large number of mothers who experience anxiety generally occurs in primigravidas. This is caused by the experience of a first pregnancy that has never been felt before(Verawaty & Widiastuti, 2020). The majority had a history of hypertension, amounting to 57 respondents (95.0%). Mothers who do not have a history of hypertension can experience anxiety, this is influenced by other supporting factors such as hormonal changes, failed labor, changes in the body, parity, abnormalities in the fetus which can increase anxiety in pregnant women. Pregnant women who experience anxiety can increase the hormone adrenaline.(Wulandari & Ambarwati, 2019).

b) HARS Anxiety Frequency Distribution

Table 1.2
Frequency Distribution of HARS Anxiety Levels
At the Gunungpati Community Health Center and the Sekaran Community Health Center
April – May 2023
(n=60)

Variable	Amount (f)	Percentage (%)
Pretest Anxiety		
Heavy	12	20.0
Currently	48	80.0
Light	0	0
Posttest Anxiety		
Heavy	0	0
Medium	2	3.3
Light	58	96.7
Total	60	100

Based on table 1.2, it shows that the indicator of the anxiety level of pregnant women before the intervention pretest was carried out with the highest score was moderate anxiety level with a total of 48 people (80.0%).

Meanwhile, the indicator of anxiety level after the intervention posttest with the highest score was mild anxiety level with 58 people (96.7%).

2. Bivariate analysis

a) The Effect of Giving Deep Breathing

Table 1.3
Effect of Anxiety Level with Deep Breathing
At the Gunungpati Community Health Center and the Sekaran Community Health Center
April – May 2023
(n=60)

Variable	*Negative Ranks*	*Positive Ranks*	*Ties*	*P value*
Worry				
Pre Post	60	0	0	.000

Based on table 1.3, it can be seen that before and after deep breathing was given, the Wilcoxon Test score was 0.000, less than 0.05, so it can be concluded that there is an effect of deep breathing on reducing anxiety levels. The table above also shows that the level of anxiety has decreased which can be seen from the negative ranks and can be concluded from the ties that there is no similarity in the pretest and posttest scores on the level of anxiety. Deep breathing was given for three meetings and was able to reduce anxiety levels.

b) Mean Level of Deep Breathing Anxiety

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Table 1.4
Distribution of Mean Levels of Deep Breathing Anxiety
At the Gunungpati Community Health Center and the Sekaran Community Health Center
April – May 2023
(n=60)

Variable	N	Mean	Median	Mode
Pre Test	60	24.08	23.00	21
Post Test	60	16.88	16.50	15

Based on table 1.4, data shows that the average level of anxiety before being given deep breathing was 24.08, included in the moderate anxiety category with a median value of 23.00, mode value 21. Meanwhile, after being given deep breathing, the average anxiety level was 16.88, including in the mild anxiety category with a median value of 16.50, mode value 15. From the table above it can be concluded that deep breathing can reduce anxiety levels.

CONCLUSION

Based on the results of research on the effect of giving deep breathing on maternal anxiety levels and the risk of preeclampsia, the conclusions obtained are:

1. Characteristics of respondents: the majority of pregnant women aged 20 - 35 years were (78.3%). The last high school/vocational school education history was (43.3%). The majority of pregnant women's jobs are self-employed (51.7%). Meanwhile, gestational age in the third trimester is (45.0%). The majority did not have a history of hypertension, 57 people (95.0%). And the majority of pregnant women are 35 primigravidas (58.3%).
2. The results of identification before and after administering deep breathing on anxiety levels showed a reduction in mild anxiety by (96.7%) to moderate anxiety by (80.0%).
3. Based on the results of the Wilcoxon statistical test (p value = 0.000)

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