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Mind Nursing Intervention for Improving Coping Mechanisms among Mother with Preeclampsia: A Quasy-Experimental Study

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ABSTRACT

Background: Preeclampsia is one of the complications of pregnancy with the highest morbidity and mortality rates. This condition often triggers women with preeclampsia who must undergo conservative therapy to feel stressed, anxious, and traumatized. This will make the coping mechanisms of mothers with preeclampsia become maladaptive.

Objective: This study aims to examine the effectiveness of mind intervention (consist of guided imagery and progressive muscle relaxation) for improving the coping mechanisms of mothers with preeclampsia.

Methods: A quasi-experimental study with pre and post-test was perform among 60 ofpreeclampsia mother (30 of control and 30 of intervention groups). The control groups were given standard therapy, while the intervention groups were given standard therapy and three sessions of mind intervention. Data on coping mechanisms were measured and analyzed using Wilcoxon and Mann-Whitney test to evaluate the effectiveness of the intervention.

Results: The results showed that before the intervention, there was no significant difference in coping mechanisms between the control (Mean±SD: 76,93±19,285) and treatment groups (Mean±SD: 75,47±19,541). However, after the intervention, a significant difference was observed, with the control group scoring (Mean±SD: 79,93±19,285) and the treatment group scoring (Mean±SD: 92,47±19,541), and a p-value = 0.035.

Conclusion: Mind's intervention is effective for improving the coping mechanisms of preeclampsia mothers. Therefore, it can be recommended as a complementary nursing care approach to enhance psychological resilience and promote better outcomes in managing preeclampsia.

Keywords: coping mechanism, guided imagery, mind nursing intervention, preeclampsia, progressive muscle relaxation

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BACKGROUND

Preeclampsia is a pregnancy complication marked by hypertension and proteinuria after 20 weeks of gestation, resulting from abnormal placentation and placental ischemia. This condition triggers oxidative stress and maternal endothelial dysfunction, causing systemic inflammation. Preeclampsia is not only a significant physical burden but also a psychological stressor for pregnant women, often leading to anxiety, fear, and uncertainty about their health and their baby's well-being. The strict medical treatments, prolonged bed rest, and the label of a high-risk pregnancy can lead to negative perceptions, self-blame, and feelings of failure, exacerbating psychological stress. (Azimian et al. 2017; Kehler et al. 2016; Roberts, Davis, and Homer 2017; Williamson et al. 2018).

Qualitative studies have shown that mothers with preeclampsia frequently experience negative thoughts about their condition, fearing for their health and the survival of their baby. Many report feelings of being misunderstood and unsupported by healthcare providers, with unclear guidance on treatment plans adding to their stress. This lack of communication and emotional support during treatment can lead to frustration, trauma, and an increased risk of postpartum depression, particularly in mothers who face uncertainty and emergency interventions during childbirth. (Abedian et al. 2015; Harris et al. 2014; Kehler et al. 2016).
The stress and anxiety associated with preeclampsia often disrupt coping mechanisms. Ineffective coping can lead to disorientation, problem-solving difficulties, and maladaptive behaviors, worsening both physical and psychological health. Mothers with poor coping abilities may struggle to adapt to their condition, hindering their ability to cooperate with treatment and worsening their outcomes (Abedian et al. 2015; Abazarnejad et al. 2019; Kehler et al. 2016).

Nurses have a critical role in addressing not only the physical challenges of preeclampsia but also the psychological distress it causes. By providing holistic nursing care, including interventions to strengthen coping mechanisms, nurses can help mothers manage their stress and adapt to their condition. This approach improves not only the maternal experience during treatment but also long-term outcomes for both the mother and the baby (Chapuis-de-Andrade et al. 2021; Hassan et al. 2020).

OBJECTIVE

This study aims to examine the effectiveness of mind intervention (consist of guided imagery and progressive muscle relaxation) for improving the coping mechanisms of mothers with preeclampsia.

METHODS

This study employed a quasi-experimental design with a pre- and post-test approach. A total of 60 mothers with preeclampsia were selected through purposive sampling based on specific inclusion criteria, such as being diagnosed with preeclampsia and undergoing conservative treatment at RSUD dr. Soetomo. The respondents were randomly divided into two groups, with 30 participants in the intervention group and 30 participants in the control group. The study was conducted over a period from February to September 2021.

The control group received standard therapy as part of the conservative treatment for preeclampsia, while the intervention group received standard therapy supplemented with three sessions of mind therapy. The mind therapy intervention was structured into three sessions: the first session involved exploring the respondents' perceived stressors to identify psychological challenges; the second session included progressive muscle relaxation therapy for 15 minutes to reduce tension and promote relaxation; and the third session provided

guided imagery therapy for 15 minutes to help respondents visualize positive outcomes and alleviate stress.

After the intervention group completed the three sessions of mind therapy and the control group underwent three days of standard treatment, both groups were asked to fill out a validated coping mechanism questionnaire to measure their ability to manage stress and adapt to their condition. The data on coping mechanisms were collected and analyzed using the **Wilcoxon Signed-Rank test** was applied to assess the pre-test and post-test differences within each group. Futhermore, the Mann-Whitney test to evaluate the differences in scores between the intervention and control groups, providing insights into the effectiveness of the mind therapy intervention.

RESULTS

Table 1. Characteristics of Respondents

Variable	Sub Variable	Treatment Group		Control Group		Total	
		N	%	N	%	n	%
Age	< 20	0	0	0	0	0	0
	20-35	15	25,0	13	21,7	28	46,7
	> 35	15	25,0	17	28,3	32	53,3
Level of education	Primary school	8	13,3	12	20,0	20	33,3
	High School	17	28,3	16	26,7	33	55,0
	University	5	8,3	2	3,3	7	11,7
Income	Yes	20	33,3	24	40,0	44	73,3
	No	10	16,7	6	10,0	16	26,7
Job	Housewife	22	36,7	24	40,0	46	76,7
	Private employees	2	3,3	4	6,7	6	10,0
	Entrepreneur	3	5,0	1	1,7	4	6,7
	Employee	1	1,7	0	0	1	1,7
	Freelancer	1	1,7	0	0	1	1,7
	Government employees	1	1,7	0	0	1	1,7
	Farmer	0	0	1	1,7	1	1,7
Miscarriage history	No	21	35,0	24	40,0	45	75,0
	Yes	9	15,0	6	10,0	15	25,0
Number of pregnancies	Primipara	6	10,0	9	15,0	15	25,0
	Multipara	23	38,3	19	31,7	42	70,0
	Grandemultipara	1	1,7	2	3,3	3	5,0
History of twin pregnancy	No	26	43,3	27	45,0	53	88,3
	Yes	4	6,7	3	5,0	7	11,7
History of pregnancy complication	No	22	36,7	23	38,3	45	75,0
	Yes	8	13,3	7	11,7	15	25,0
History of preeclampsia	No	20	33,3	22	36,7	42	70,0
	Yes	10	16,7	8	13,3	18	30,0
Mother's BMI during pregnancy	*Underweight*	2	3,3	4	6,7	6	10,0
	Normal	5	8,3	9	15,0	14	23,3
	Overweight	1	1,7	9	15,0	10	16,7
	Obesitas I	9	15,0	3	5,0	12	20,0
	Obesitas II	13	21,7	5	8,3	18	30,0
Pregnancy interval	3-5 years	20	33,3	11	18,3	31	51,7
	<3 years	3	5,0	10	16,7	13	21,7
	>5 years	7	11,7	9	15,0	16	26,7

Table 1 shows that most of the respondents are over 35 years old in all groups 32 respondents (53.3%), having a secondary education level (SMA or equivalent) which is 33

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respondents (55.0%). The majority of respondents have income 44 respondents (73.3%), working as housewives 46 respondents (76.7%). Most of the respondents did not have a history of miscarriage 45 respondents (75.0%). Most of the respondents were in the multiparous category 42 respondents (70.0%), had no history of multiple pregnancies 53 respondents (88.3%), no history of disease during pregnancy 45 respondents (75.0%), and no history of preeclampsia. Previously, there were 42 respondents (70.0%). Most of the respondents fall into the category of obesity II 18 respondents (30.0%) and most of the respondents have a pregnancy interval of 3-5 years 31 respondents (51.7%).

Table 2. Wilcoxon Signed-Rank Test Results for Pre-Test and Post-Test Coping Strategy Scores

Variable	Group	Pre-tes (Mean±SD)	Post-tes (Mean±SD)	Z-Value	P-Value
Coping Strategy	Intervention	75,47±19,541	92,47±19,541	-4.123	0,000
	Control	76,93±19,285	79,93±19,285	-1.354	0,176

The results of the Wilcoxon Signed-Rank Test for coping strategy scores in the intervention and control groups are presented in the table. In the Intervention group, there was a significant improvement in coping strategies from pre-test (75.47 ± 19.541) to post-test (92.47 ± 19.541), with a Z-value of -4.123 and a p-value of 0.000. This indicates that the mind therapy intervention significantly enhanced the coping mechanisms of the participants. In contrast, the Control group showed no significant change in coping strategies, with a pre-test score of 76.93 ± 19.285 and a post-test score of 79.93 ± 19.285, resulting in a Z-value of -1.354 and a p-value of 0.176. This suggests that the standard treatment without additional mind therapy did not lead to a significant improvement in coping strategies. Therefore, the findings highlight the effectiveness of the mind therapy intervention in improving the coping mechanisms of preeclampsia mothers, while the control group did not experience significant changes in their coping strategies.

Table 3. Mann-Whitney Difference Test Results Between Treatment And Control Groups

Variable	Group	Post tes (Mean±SD)	Min-Maks	*Mean Rank*	*Sum of Rank*	*P (Mann Whitney)*
Coping Strategy	Intervention	92,47±19,541	60-118	35,23	1057,00	0,035
	Control	79,93±19,285	60-118	25,77	773,00	

The results from the Mann-Whitney test in Table 3 show a significant difference in coping strategy scores between the intervention and control groups after the post-test. The Intervention group had a mean score of 92.47 ± 19.541, with a range from 60 to 118, and a mean rank of 35.23. The Control group had a mean score of 79.93 ± 19.285, with a range from 60 to 118, and a mean rank of 25.77. The p-value for the Mann-Whitney test was 0.035 ($p < 0.05$), indicating that the difference in coping strategies between the two groups is statistically significant.

This suggests that the mind therapy intervention significantly improved the coping mechanisms of the participants in the intervention group, as reflected in the higher mean rank and scores compared to the control group. The control group, which received only standard care, showed lower mean scores and ranks, highlighting the effectiveness of the mind therapy intervention in enhancing coping strategies for preeclampsia mothers.

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DISCUSSION

Coping strategies are defined as efforts, both mental and behavioral, to master, tolerate, reduce, or minimize a stressful situation or event. Or it can also be said as problem-solving behavior, which is a behavioral tendency that individuals use in dealing with and managing a problem that causes stress in avoiding, avoiding, and reducing stress or by solving and seeking social support (Palant and Himmel 2019).

Coping is a response to situations that threaten him both physically and psychologically (Bapu et al, 2015). Reducing work-related stress can lead to changes in the organizational context of nursing or the individual nurse's approach to work. Improving the work environment can be seen as a managerial responsibility to minimize work-related stressors, such as negative thoughts and bad thoughts during pregnancy (Kerns et al. 2018).

Each individual will experience stress due to a stimulus (stressor), where the stimulus can cause changes or problems (stress) that require a way to resolve or adjust conditions to the problem (coping) so that individuals can become better or become adaptive. One of them is the provision of information related to pregnancy in high-risk pregnant women. Stress that is too great to exceed the limits of individual abilities and there is no effective coping will cause a person to experience several symptoms (Tan et al., 2018). The best way to improve coping mechanisms is to reduce the symptoms of stress experienced through relaxation therapy.

Progressive muscle relaxation is effective in reducing stress, anxiety and maintaining blood pressure within normal limits in pregnant women with gestational hypertension. Guided imagery, which is one of the relaxation therapies, is also highly recommended to increase the relaxation of pregnant women with preeclampsia because it is easy to do without the need to increase significant activity so that changes or increases in blood pressure do not occur. Counseling is also significant in reducing stress, improving coping mechanisms, and preventing depression in pregnant women with pregnancy complications (Abazarnejad et al. 2019; Esfandiari et al. 2020; Kerns et al. 2018; Sutherland et al. 2020).

Progressive muscle relaxation is a method that is often used to reduce stress and anxiety. Progressive muscle relaxation (PMR) is a relaxation therapy in which movements tighten and relax muscles in one part of the body at a time to provide a feeling of physical relaxation. The motion to progressively tighten and relax this muscle group is carried out in succession. When the body and mind relax, automatically the tension that often makes the muscles tighten will be ignored. When performing PMR, the client's attention is directed to distinguish the feelings experienced when the muscle group is relaxed and compared to when the muscles are tense. Based on the description above, it can be said that PMR, which is a form of relaxation therapy, can be used as a therapy of choice in patients who experience stress or anxiety, which often manifests as muscle tension (Nasiri et al. 2018; Sulaeman et al. 2018).

PMR is a method that can reduce mental health problems for pregnant women at high risk. This PMR includes a series of nerve and muscle exercises that help the mother to tolerate pregnancy and various stages of labor with the fewest complications. Jacobson introduced Progressive Muscle Relaxation (PMR) in 1934. When doing PMR our mind will be taught to focus on parts of the body, and through this focus, it is hoped that external stressors will disappear and we will be more relaxed and comfortable. Also, muscle training reduces the stimulating effect of the sympathetic nervous system and by balancing the sympathetic and parasympathetic systems, reducing the respiratory rate and heart rate, and creating a sense of security and comfort. That way pregnant women with high risks will be more relaxed, comfortable, and able to increase attachment with their fetuses so that pregnant

women will feel more in control of their body parts and pregnancy (Ahmadi et al. 2019; Azimian et al. 2017).

Guided Imagery is a stress management technique, which uses imagination to describe a person, place, or time that makes us feel relaxed, peaceful, and happy. Guided imagery uses all of our five senses to describe or produce more relaxed thoughts. For example, in our imagination, we hear the sound of birds singing, see dew drops on the grass, feel the wind on our skin, smell wildflowers, and taste a refreshing drink. Guided imagery will lead us to use all senses to create an extraordinary relaxation experience. Because of this, guided imagery is considered to be able to help reduce negative thoughts, make us think more positively so that we can overcome stress and anxiety (Cumming and Anderson 2020; Nasiri et al. 2018).

There have been many studies that have shown that Guided Imagery is very beneficial for reducing stress, improving sleep quality, controlling hypertension, and having a good impact during childbirth. That's why the use of guided imagery in preeclamptic mothers who are at risk of experiencing pregnancy termination will have a very positive impact. It is not only able to reduce stress, but several studies have also shown that the provision of guided imagery can improve the well-being of pregnant women who are at risk, such as prolonging pregnancy, thereby reducing immature labor to reducing the mortality rate for newborns who require hospitalization in the NICU (Azimian et al. 2017; Nasiri et al. 2018).

Guided imagery can be done independently by pregnant women. Pregnant women will be guided by using audio guided imagery which will lead them to create images in their minds by involving the five senses. Guided imagery will give maximum results if done every day for 7 days or until the client has terminated the pregnancy (Cumming and Anderson 2020).

Mind intervention will reduce the stress experienced by the mother so that the mother will feel relaxed and comfortable and feel in control of her body. This condition will increase cognitive ability, self-confidence and increase positive belief. These two conditions will make the mother motivated and able to focus on solving the problem or problem-focused coping. So that the mother will focus on finding solutions, maintaining the health of herself and the baby no longer burdened with the psychological problems she is experiencing. Thus, the mother's adaptability in undergoing preeclampsia treatment is also increasing (Azimian et al. 2017; Nasiri et al. 2018).

CONCLUSION

Mind's intervention is effective for improving the coping mechanisms of preeclampsia mothers. Therefore, it can be recommended as a complementary nursing care approach to enhance psychological resilience and promote better outcomes in managing preeclampsia.

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