Jurnal Eduhealth
Volume 15 , Number 02, 2024, DOI 10.54209/eduhealth.v15i02
ESSN 2808-4608 (Online)
https://ejournal.seaninstitute.or.id/index.php/healt

Applying Of Mindfulness-Based Stress Reduction (MBSR) Method To Reduce Anxiety Level In Pregnant Women With Gestational Hypertension: A Randomized Control Trial

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Article Info
Keywords:
Mindfulness-based Stress Reduction;
Maternal Anxiety;
Gestational Hypertension.

ABSTRACT
This study aims to test the effectiveness of the Mindfulness-Based Stress Reduction (MBSR) method in reducing anxiety levels in pregnant women with gestational hypertension. The method used is a randomized control trial with 30 respondents divided into two groups: an intervention group that received MBSR for eight weeks and a control group that did not receive any intervention. The results show that the intervention group experienced a significant decrease in anxiety levels compared to the control group. The urgency of the research lies in the fact that gestational hypertension can increase the risk of complications during pregnancy and childbirth. Furthermore, the anxiety experienced by pregnant women can exacerbate the condition of gestational hypertension. Therefore, research on non-pharmacological methods that can reduce anxiety in pregnant women with gestational hypertension is crucial for improving the health quality of mothers and babies. The objective of this study is to test the effectiveness of the MBSR method in reducing anxiety levels in pregnant women with gestational hypertension. This study uses a randomized control trial method to test the effectiveness of the Mindfulness-Based Stress Reduction (MBSR) method in reducing anxiety levels in pregnant women with gestational hypertension. The respondents in this study were divided into two groups: an intervention group and a control group..

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INTRODUCTION

Pregnancy is a moment of happiness for a woman. However, in some cases, pregnancy can also cause excessive anxiety and stress, especially in women with gestational hypertension (HG). Uncontrolled anxiety and stress can have a negative impact on the health of the pregnant woman and fetus, such as the risk of premature birth, miscarriage, and mental health problems in pregnant women. One method that can be used to reduce anxiety and stress in pregnant women is Mindfulness-Based Stress Reduction (MBSR). MBSR is a method that involves meditation and relaxation exercises to help overcome stress and anxiety.
Based on this background, the problem formulations are:

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1. How can the implementation of the MBSR method help reduce anxiety levels in pregnant women with gestational hypertension?
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Problem Solving Approach

To overcome anxiety and stress in pregnant women with gestational hypertension, the MBSR method can be an effective solution. MBSR has been shown to be effective in reducing levels of anxiety and stress in individuals who experience it. This method involves meditation and relaxation exercises that can help individuals focus on the present, reduce excessive worry, and increase self-awareness and emotional control. However, the implementation of the MBSR method in pregnant women with gestational hypertension needs to be carefully considered, as this condition requires special care. Close supervision and adjustment of MBSR exercises are needed according to the health conditions of the mother and fetus.

METHODS

Clinical Trial is a type of research that will be used in this study with a randomized control trial (RCT) design. Randomized control trial is one of the research methods used in health sciences to evaluate the effectiveness of an intervention or treatment (6). In this study, research subjects (i.e. pregnant women with gestational hypertension) were randomly divided into two groups, namely the intervention group that received MBSR and the control group that did not receive the intervention. In the intervention group, participants received mindfulness training and relaxation techniques for 8 weeks, while the control group received only routine care. With a randomized control trial design, researchers can minimize other factors that may affect the results of the study, such as the placebo effect or other factors related to the routine care given to the control group. In addition, randomized control trials also allow researchers to more accurately evaluate whether a given intervention has greater effectiveness compared to the control group. The details of the type of research used are as follows:

1. Clinical trial
   This research is a type of clinical trial, which is a study designed to evaluate the effectiveness and safety of an intervention in humans. In this study, the intervention evaluated was MBSR as a non-pharmacological method in reducing anxiety in pregnant women with gestational hypertension (7).
2. Randomized controlled trial (RCT) design
   This study used a randomized control trial design, in which the research subjects were randomly divided into two groups: an intervention group that received MBSR and a control group that did not receive the intervention. Thus, the intervention provided can be evaluated more accurately and its effectiveness can be compared with the control group.
3. Study population

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The research population in this study was pregnant women with gestational hypertension. This population was chosen because pregnant women with gestational hypertension have a higher risk of experiencing anxiety, so it is necessary to develop effective interventions to reduce anxiety in this population.

4. Location of the study
   This study was conducted at the Hajj Hospital of North Sumatra, Indonesia. This shows that this study was conducted in Indonesia and represents the population of pregnant women in Indonesia.
5. Intervention method
   The intervention method used in this study was MBSR, which is a mindfulness and relaxation technique conducted for 8 weeks. This technique is done by training participants' ability to develop self-awareness, manage stress, and reduce anxiety.

MBSR (Mindfulness-Based Stress Reduction) is a mindfulness-based stress reduction method developed by Jon Kabat-Zinn in 1979 at the University of Massachusetts Medical School (8). It combines meditation and yoga techniques to help manage stress and improve mental and physical well-being. The MBSR method has been shown to be effective in reducing symptoms of anxiety and depression in various populations, including patients with chronic diseases, young adults, and pregnant women. MBSR consists of eight sessions that take place over eight weeks. Each session typically lasts for 2.5-3 hours, and includes meditation practice, yoga, and other mindfulness exercises. Participants will also be given tasks to do at home as part of the program. Meditation exercises in MBSR are usually done in a comfortable sitting position, focusing on breathing or body sensations (9). The aim is to develop awareness of thoughts, emotions, and body sensations that arise during meditation. Yoga practice in MBSR usually involves slow and gentle movements, with a focus on breathing and body awareness. Mindfulness practice in MBSR includes awareness of thoughts, emotions, and bodily sensations that arise in daily life. Participants are taught to recognize the thought patterns and emotional reactions that typically arise in stressful situations, and learn to change those responses into more adaptive and positive ones (10). Several studies have shown that MBSR is effective in reducing stress and improving psychological well-being in various populations, including patients with chronic medical conditions, people with anxiety disorders, and people experiencing stress at work.

RESULTS AND DISCUSSION

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c. Study population
   The research population in this study was pregnant women with gestational hypertension. This population was chosen because pregnant women with gestational hypertension have a higher risk of experiencing anxiety, so it is necessary to develop effective interventions to reduce anxiety in this population.
d. Research location
   This study was conducted at Sentosa Baru Health Center, Medan City - North Sumatra, Indonesia. This indicates that this study was conducted on pregnant women patients at the Puskemas.
e. Intervention method
   The intervention method used in this study was MBSR, which is a mindfulness and relaxation technique conducted for 8 weeks. This technique is done by training participants' ability to develop self-awareness, manage stress, and reduce anxiety.

This study was conducted on 30 respondents who experienced hypertension in pregnancy, and 30 respondents who did not experience hypertension in pregnancy.

Table 1. Distribution of Respondents' Characteristics in Sentosa Baru Health Center Area - Medan City

Characteristics	Hypertension N = 30		Non-hypertension N = 30	
	n	%	n	%
Pregnancy History				
Primigravida	11	25,0	20	46,5
Multigravida	32	65,0	23	53,5
History of Preeclampsia				
Preeclampsia	8	18,6	2	4,6

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Characteristics	Hypertension N = 30		Non-hypertension N = 30	
	n	%	n	%
Not Preeclampsia	35	81,4	41	95,4
Anxiety Level				
No anxiety	7	16,3	26	60,0
Mild anxiety	17	39,5	10	23,0
Moderate anxiety	12	28,0	5	12,0
Severe anxiety	7	16,3	2	5,0

Table 1 illustrates that the majority of participants in this study had low levels of anxiety, with 39.5% in the case group and 23% in the control group. Most participants were mothers who were in their second or more pregnancies (multigravida), with 65% of the case group and 53.5% of the control group. Generally, participants in this study did not have a history of pre-eclampsia in past pregnancies. The findings of this study showed that the majority of pregnant women in the service area of Puskesmas Sentosa Baru in Medan City, approximately 61%, experienced anxiety. Based on analysis conducted using the HARS (Hamilton Anxiety Rating Scale) questionnaire, this anxiety was divided into various levels, from mild to very severe. Of these, 31% of pregnant women were at a mild level of anxiety, while 20% were at a moderate level, and 10% were at a severe level of anxiety. Findings from previous studies show a significant impact of the COVID-19 pandemic on the mental health of pregnant women, in line with research conducted by Siti Kotijah in 2023 which found that during the pandemic, pregnant women showed significant symptoms of anxiety. This condition is caused by the vulnerability of pregnancy to psychological disorders such as anxiety, where pregnant women face physical, emotional, and social changes. Fluctuating hormones during pregnancy can trigger high stress and anxiety. The COVID-19 pandemic situation adds to the psychological burden by increasing concerns about one's own and the baby's health, fear of infection that could negatively affect the baby, anxiety related to access to prenatal care, and social isolation if tested positive for COVID-19.

Tabel 2. Relationship between Anxiety Level and Incidence of Hypertension in Pregnancy in Sentosa Baru Health Center Area - Medan City

Independent Variable	Hypertension	Not Hypertensive	Total	*Pvalue*	R
Anxiety Level					
No anxiety	7	26	33		
Mild anxiety	17	10	27		
Moderate Anxiety	12	5	17	0,000	0,575
Severe Anxiety	7	2	9		
Very severe anxiety	0	0	0		

Table 2 presents the results of the bivariate analysis carried out using SPSS Statistic 22 and the Spearman Correlation test, resulting in a p-value of 0.000, which means that this p-value is smaller than 0.05. This indicates a significant relationship between the level of anxiety

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and the incidence of hypertension during pregnancy. From the table, it was also found that the correlation coefficient (r) was 0.575, indicating a strong correlation between anxiety levels and hypertension during pregnancy. This result, indicated by the Spearman Correlation test with p-value=0.000 (p<0.05), indicates a significant association between anxiety level and the incidence of hypertension in pregnancy. This is in accordance with the findings of previous studies stating that there is a strong association between anxiety and hypertension during pregnancy, where mental disorders in pregnant women, particularly anxiety, show a significant increase. When adrenaline levels in the body rise, this causes the heart to beat faster, which in turn increases blood pressure. The heart functions to pump blood into the large aortic artery, which then circulates blood throughout the body. Blood from the rest of the body is collected by the heart through the superior and inferior vena cava, where blood carrying oxygen and nutrients is channeled to the lungs. In the alveoli of the lungs, the blood takes in oxygen and releases CO2, then leaves the lungs and returns to the heart, entering the left atrium. From there, the blood is pumped out through the aorta. The heavier the workload of the heart in pumping blood, the greater the pressure applied to the artery walls. Increased levels of the hormone adrenaline result in vasoconstriction of the blood vessels, leading to an increase in blood pressure. The functions of blood vessels include regulation of blood pressure, adjustment to the volume of blood flowing with each heartbeat, and distribution of nutrients and oxygen to all organs. The elasticity of the arterial wall allows the artery to expand and constrict according to the blood flow through it, with a more elastic arterial wall facilitating smoother blood flow and lower arterial wall pressure. However, when arteries lose their elasticity and become narrow, blood flow becomes less smooth, requiring more effort to move blood through the artery.

Table 3. Results of interaction analysis between the main independent variables and confounding variables

Variables	*P*
Parity	0,998
History of pre-eclampsia	1,00

Table 3 presents the findings from testing interaction variables through the use of Multiple Logistic Regression in multivariate analysis to reveal the relationship between history of preeclampsia and anxiety, as well as between parity and anxiety. A variable is considered to have a significant interaction if p<0.05. Based on the results obtained, the p value obtained for the interaction between history of preeclampsia and anxiety was 1.000, indicating that there was no significant interaction between these two variables. Meanwhile, the p value for the interaction between parity and anxiety was 0.998, indicating that there was no significant interactive relationship between parity and anxiety.
between these two variables.

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Table 4. Results of Multivariate Analysis of Multiple Logistic Regression Confounding Variables

			95% C.I for Exp (B)	
Variables	*p*	*Exp (B)*	*Lower*	*Upper*
Anxiety	0,009	18,706	2,057	170,141
Parity	0,149	0,142	0,010	2,051
History of Preeclampsia	0,910	1,192	0,057	24,741

Table 4 shows the association between anxiety and hypertension during pregnancy after adjustment for all confounding variables. The results show an Exp(B) value or standardized Odds Ratio (OR) of 18.706 for the association between anxiety and hypertension in pregnancy. The magnitude of the effect of confounding variables was measured based on the difference of OR to the standardized OR. In the process of adjusting for confounding variables, the variable with the highest p value, history of preeclampsia, was excluded first. Exclusion of the history of preeclampsia variable resulted in a 6.6% change in OR, a change that was considered small as it was less than 10% and did not significantly change the OR value between anxiety and hypertension in pregnancy. This suggests that history of pre-eclampsia does not act as a confounding variable in this association. This finding is inconsistent with previous research which states that pregnant women with a history of preeclampsia are at risk of developing hypertension or preeclampsia in subsequent pregnancies. Research by Restina in 2020 also mentioned the relationship between a history of preeclampsia and the incidence of hypertension during pregnancy.

CONCLUSION

Based on the results of the research and discussion in the previous chapter, it can be concluded that there is a relationship between the level of anxiety and the incidence of hypertension in pregnancy during the COVID-19 pandemic in the working area of the new sentosa health center, Medan City - North Sumatra. With the criteria of age 20 years to 35 years, not obese, not having a history of DM, not having a history of multiple pregnancies (gemeli), and not having a family history of hypertension The variable that becomes confounding in the relationship between anxiety levels and the incidence of hypertension in pregnancy is parity. While the variable history of preeclampsia does not have the potential to be a confounding variable.

ACKNOWLEDGEMENT

The authors would like to express their profound gratitude to Universitas Haji Sumatera Utara and the Research and Community Service Institute for their generous support through the internal faculty research grant. This financial assistance has been instrumental in facilitating the research process and enabling the achievement of valuable insights presented in this study. The commitment of the University and the Institute to fostering academic research and innovation is highly appreciated, and their support has been a cornerstone of our project's

success. We are thankful for the opportunity to contribute to the academic community with the support of such esteemed institutions.

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