STRESS MANAGEMENT OF PREGNANT WOMEN IN PREVENTING PREECLAMPSIA: QUALITATIVE INTERVIEW STUDY

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ABSTRACT

Maternal mortality remains a critical issue in Indonesia, predominantly caused by the triad of haemorrhage, preeclampsia, and infection. The progression from haemorrhage to preeclampsia and ultimately infection presents a serious threat to maternal health. From a nursing perspective, early prevention strategies, including stress management, are essential in reducing the risk of preeclampsia among pregnant women. This study aims to explore the lived experiences of pregnant women in managing stress as a non-pharmacological nursing intervention to prevent preeclampsia. A qualitative descriptive design has been employed to explore stress management strategies among pregnant women in the context of preeclampsia prevention. Participants were selected through purposive sampling and recruited from two primary healthcare centres. Data were collected over two months using in-depth interviews and focus group discussions (FGDs). All interviews were audio-recorded, transcribed verbatim, and analyzed thematically using OpenCode software for systematic coding and interpretation. The thematic analysis has identified three overarching themes: (1) Sources and experiences of stress during pregnancy; (2) Emotional shifts associated with pregnancy; and (3) Coping strategies adopted to prevent preeclampsia. The third theme included three sub-themes: the use of relaxation techniques to manage stress, the application of distraction methods to redirect stress, and the integration of spiritual practices as a means of emotional regulation. Pregnant women utilize a variety of distraction, relaxation, and spiritual strategies to alleviate stress and manage emotional fluctuations during pregnancy, thereby helping to prevent an increase in blood pressure. This study suggests that preeclampsia prevention can be achieved effectively and economically through non-pharmacological nursing interventions. Future research should consider a larger and more diverse population, potentially incorporating a transcultural nursing approach, to further explore these interventions' applicability across different cultural contexts.

ABSTRAK

Angka kematian ibu masih menjadi isu krusial di Indonesia, yang sebagian besar disebabkan oleh tiga penyebab utama, yaitu perdarahan, preeklampsia, dan infeksi. Perjalanan klinis dari perdarahan menuju preeklampsia dan akhirnya infeksi merupakan ancaman serius bagi kesehatan ibu. Dari perspektif keperawatan, strategi pencegahan dini, termasuk manajemen stres, sangat penting untuk menurunkan risiko terjadinya preeklampsia pada ibu hamil. Tujuan penelitian ini adalah untuk mengetahui pengalaman ibu hamil dalam menghadapi stres untuk mencegah terjadinya preeklampsia. Penelitian ini menggunakan metode penelitian kualitatif untuk mengeksplorasi dan mendeskripsikan strategi manajemen stres ibu hamil untuk mencegah preeklamsia. Jumlah partisipan 18 orang ibu hamil yang dipilih secara purposive sampling. Pengumpulan data dilaksanakan selama dua bulan menggunakan wawancara dengan teknik wawancara mendalam dan diskusi kelompok terfokus pada ibu hamil. Wawancara dicatat, ditranskrip, diberi kode, dan dianalisis. Hasil penelitian ini diperoleh 3 tema yaitu : 1) Stres pada ibu hamil; 2) Perubahan emosi pada ibu hamil; dan 3) Mekanisme coping ibu hamil dalam mencegah preeklampsia, dengan

subtema Relaksasi sebagai manajemen stres; Penerapan metode distraksi untuk mengalihkan stres; dan Spiritual sebagai manajemen stres. Wanita hamil melakukan berbagai macam distraksi, relaksasi, dan teknik spiritual untuk mengurangi stres yang dialami selama kehamilan dan sebagai pengobatan untuk mengurangi emosi untuk mencegah peningkatan tekanan darah selama kehamilan. Dengan penelitian ini Pencegahan preeklamsia dapat dilakukan tanpa banyak biaya dan mudah dengan intervensi keperawatan nonfarmakologis. Penelitian di masa depan dapat dilakukan pada populasi yang lebih luas dengan menggunakan pendekatan keperawatan transkultural.

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INTRODUCTION

Preeclampsia, as defined by the American College of Obstetrics and Gynecology (ACOG), is a pregnancy-related condition characterized by elevated blood pressure, also referred to as gestational hypertension (systolic blood pressure ≥140 mmHg and diastolic blood pressure ≥90 mmHg), along with proteinuria (excess protein in urine), typically occurring after 20 weeks of gestation (Rana et al., 2019). Preeclampsia and eclampsia rank among the top three leading causes of maternal morbidity and mortality globally (Yushida & Zahara, 2020). According to the World Health Organization (WHO), preeclampsia affects approximately 1.3% to 6% of pregnancies in developed countries and 1.8% to 18% in developing countries, leading to an estimated 70,000 maternal deaths and 500,000 infant deaths annually (Renita M., 2019).

In Indonesia, maternal mortality due to hypertension during pregnancy remains a critical public health concern. In 2021, a total of 1,077 maternal deaths were attributed to hypertension in pregnancy, making it the third leading cause of maternal mortality nationwide, following COVID-19 and postpartum hemorrhage (Kemenkes RI, 2022). Specifically, in South Sulawesi Province, 133 maternal deaths were recorded due to hypertensive disorders in pregnancy, with Gowa Regency reporting the highest maternal mortality rate, accounting for 15 deaths, where hypertension was identified as the second most common cause after hemorrhage (Dinas Kesehatan Provinsi Sulawesi Selatan, 2021).

The increasing prevalence of preeclampsia in pregnant women can be attributed to several risk factors. Research identifies key contributors, including chronic hypertension, pregestational diabetes mellitus, obesity (BMI >30 before pregnancy), chronic kidney disease, advanced maternal age (≥35 years), and a family history of preeclampsia (Rana et al., 2019). Additionally, emerging evidence indicates that stress during pregnancy may serve as a significant risk factor for the development of gestational hypertension and preeclampsia (Novelia et al., 2024).

Pregnant women are particularly vulnerable to mood and anxiety disorders, which can disrupt both maternal and fetal immune and endocrine systems (Jagtap et al., 2023). These mental health issues contribute significantly to stress, which underscores the need for effective self-care interventions (Jalal et al., 2024). Self-care practices, including lifestyle changes, proper nutrition, regular physical activity, multivitamin supplementation, and stress management, are essential for preventing and managing stress and preeclampsia (Rasouli M. & Z, 2017). This study aims to explore the experiences of pregnant women in managing stress as a strategy to prevent preeclampsia.

Nurses play a pivotal role in preeclampsia prevention, particularly through the implementation of evidence-based strategies. Preeclampsia, one of the four major hypertensive disorders during pregnancy, is characterized by hypertension and proteinuria after 20 weeks of gestation (Anderson & Schmella, 2017).

METHOD
Research Type

This qualitative study was conducted in South Sulawesi, Indonesia

Research Location and Time

specifically in two primary healthcare centers: Bajeng Health Center and Tinggi Moncong Health Center, both located in Gowa District, Indonesia. The study aimed to explore stress management strategies among pregnant women in the context of preeclampsia prevention. The Research ran 28 February to 30 April 2020.

Respondent

Eighteen pregnant women participated in this study. Nine from the area of the Bajeng Public Health Center and nine from the Tinggi Moncong Health Center area of Gowa Regency, South Sulawesi, Indonesia

Data Collection

Data collection was carried out over a two-month period using focus group discussions (FGDs) and in-depth interviews guided by semi-structured interview protocols. Participants were selected through purposive sampling, with inclusion criteria consisting of pregnant women in their second or third trimester who were attending antenatal care at the selected health centers and provided informed consent to participate.

Interviews and FGDs were conducted at the health centers or during home visits, and were audio-recorded in MP3 format. All data were transcribed verbatim and analyzed thematically using OpenCode software. Field notes were used to capture non-verbal communication, environmental conditions, and other contextual observations that supported data interpretation.The research adhered to the ethical principles of beneficence and respect for human dignity (Polit, Denise F & Beck, 2016). Ethical approval was granted by the Health Research Ethics Committee, Faculty of Medicine, Hasanuddin University (No. 5662/UN4.14.1/TP 01.02/2020, dated February 19, 2020).

The data were analyzed qualitatively using the open coding method, using open code qualitative data analysis.Transcripts were read over and over again to get keywords. The keywords with the same meaning or with similar meanings are categorized, and then related categories are formulated to form the themes generated in the research. Member checks are carried out with participants to verify the accuracy of the data.

Focus Group Discussion (FGD) was used to collect information from pregnant women respondents during group dialogue. The nurse becomes the FGD Facilitator. Data collection was carried out in February and March 2021. Respondents came from 2 districts, namely Bajeng Health Center with respondents as many as nine pregnant women and Tinggi Moncong Health Center as many as nine respondents. If the data has experienced a level of saturation then the data is no longer needed. The discussion was conducted using the local language of the Makassar tribe, Indonesia.

Data Processing and Analysis

All discussion results were transcribed verbatim in Indonesian, to be analyzed using Open Code software by the researcher. After that, the transcripts were cross-checked by the local supervisor to avoid misinterpretation. Using the Open code application determines the reasoning deductively. The deductive results are grouped into categories related to stress management in pregnant women. During the analysis process, inductive reasoning is used to generate new and unexpected ideas. So, it will produce a comprehensive analysis structure.

RESULT

Eighteen pregnant women participated in this study. Nine from the area of the Bajeng Public Health Center and nine from the Tinggi Moncong Health Center area of Gowa Regency, South Sulawesi, Indonesia. Pregnant women aged 18–36 years with a gestational age of 4–8 months at the time of the interview.

Table 1. Characteristics Table Participant

Category	Primary Health Care				
	Bajeng n = 9		Tinggi Moncong n = 9		
	Frequency	Percentage	Frequency	Percentage	Total
Age (Year)					
< 20	0	0	4	44.4	4
21 – 35	8	88.9	5	55.6	13
> 35	1	11.1	0	0	1
Gestation					
Trimester II	5	55.6	9	100	14
Trimester III	4	44.4	0	0	4
Parity					
I	1	11.1	6	66.7	7
II	6	66.7	3	33.3	9
III	2	22.2	0	0	2
Education					
Low	2	22.2	4	44.4	6
High	7	77.8	5	55.6	12

Primary Data Analysis, 2020

The results have been analyzed qualitatively using the open coding application. The results of the Free Synthesis at Primary Health Care Bajeng and Tinggi Moncong have found a theme about stress management with sub-themes of overcoming stress, stress management and rest. Three themes have been generated in this study: 1) stress and emotional changes during pregnancy; 2) coping mechanisms of pregnant women in preventing preeclampsia; and 3) stress management of pregnant women in preventing preeclampsia. Each theme and sub-theme is described as follows.

Theme 1: Pregnancy stress and emotional changes

During pregnancy, participants revealed that they were more likely to experience fatigue and stress than before. This was expressed by the participants as follows:

Patient 1: "During pregnancy, it is easier to get stressed, and usually I am annoyed or angry."

Patient 10: "During pregnancy, you often feel uncomfortable and easily emotional. Usually, that triggers work problems, so that can trigger blood pressure to rise."

In addition to experiencing fatigue and stress, pregnant women also tend to experience emotional changes. It is revealed

Patient 1: "Emotions are fickle."

Patient 2: "Usually, if there is a problem with the child, it sometimes makes him emotional, but sometimes it subsides quickly."

Theme 2: Coping mechanisms of pregnant women in preventing preeclampsia

Pregnant women have different coping mechanisms in emotional states to avoid preeclampsia. Some of them expressed it by crying, some chose to do activities to calm themselves down by lying down, as expressed by participants as follows:

Patient 3: "Sometimes when you are stressed, you usually cry or be alone. Rather than being emotional, your blood pressure will rise."

Inna: "Lie down. You usually lie down so that you can be calmer and not have a headache."

Patient 4: "When I'm stressed, I'm alone. I don't want to hang out."

Coping mechanisms carried out by pregnant women are successful in reducing emotions quickly. Yet, some require a longer time to suppress emotions, so some pregnant women apply stress management techniques as an effort to reduce stress and emotions as a form of preventing an increase in blood pressure.

Theme 3: Stress management of pregnant women in preventing preeclampsia.

Stress management techniques used by pregnant women to prevent preeclampsia consist of relaxation, distraction, and spirituality. Relaxation is carried out by pregnant women by taking deep breaths in a sitting or lying position, as expressed by participants as follows:

Patient 3: "Relax, relax the mind, sometimes lie down and take a deep breath, because it will hit the fetus again if stressed."

Stress management techniques through distraction include listening to music, going for a walk, or engaging in other household activities. This was expressed by the participants:

Patient 5: "When I'm stressed, I play games and watch movies. It can reduce stress a little."

Patient 6: "Eat snacks, or listen to music."

Patient7: "Clean the house, eat before going for a walk."

Stress management in a spiritual way is done by praying a lot, doing dhikr, or listening to murottal. This was stated by the participants:

Patient 8: "Before giving birth like this, so you don't have high blood pressure, just pray, relax, so that you can relax, because if you are afraid, your blood pressure will increase." Don't be afraid of hypertension. "

Patient 9: Pay attention to the Holy Qur'an: "Pay attention to the Holy Qur'an."

Various stress management techniques are carried out by pregnant women as an effort to relax themselves and prevent an increase in stress that can trigger an increase in blood pressure and cause preeclampsia.

DISCUSSION

1. Stress in pregnancy and emotional changes

   Pregnant women are required to be able to adapt to the possibility of changes that occur during pregnancy. This adaptation causes pregnant women to be at risk of experiencing psychological problems or disorders. Psychological issues that arise will have an impact on excessive energy expenditure. Psychological problems, such as stress, are feared to have an effect on the health conditions of the mother and fetus during pregnancy.

   This study showed that pregnant women experience stress and emotional changes during pregnancy. Emotional changes in pregnancy are regular because of hormonal changes in the body of a pregnant woman (Handayani FP, 2018). Pregnant women's emotions change rapidly during pregnancy, which is exacerbated by physical changes that can reduce a woman's confidence because it may trigger a fear of not getting attention from her partner due to changes in body shape (Traylor et al., 2020).

   Several other studies have suggested the causes of emotional and stress changes that occur during pregnancy, namely the health status of pregnant women objectively and subjectively, social relationships, especially partner relationships and economic status (Bedaso et al., 2021; Jagtap et al., 2023). In addition, the mother's previous experience, especially regarding miscarriage or birth defects, and skills related to pregnancy and childbirth, are also important factors (Nuryati & Amir, 2022). These various things can be stressors, which, if not overcome by pregnant women, will cause severe psychological problems such as stress, anxiety, and even depression (Tang et al., 2019).

2. Coping mechanisms of pregnant women in the prevention of pre-eclampsia

   Coping is a cognitive and behavioral effort that changes continuously under certain conditions that cause stress. Every pregnant woman has a different response when responding to stressors, which are known as coping mechanisms for pregnant women. The results of this study indicate several ways that pregnant women do to control emotional changes, namely by crying, lying down, and even being alone. Coping is not a fixed response but rather a continuous process of adaptation, changing in response to the demands of stressful situations. Further classification within the hypertensive group (gestational hypertension, chronic hypertension, and preeclampsia) revealed statistically significant differences, with women diagnosed with preeclampsia showing more depressive symptoms and relying on less adaptive coping strategies. They were found to be less optimistic and more fatalistic in their response to stress (Chapuis-de-Andrade et al., 2022). Several other studies also suggest that most pregnant women prefer to avoid or escape from the feelings of

depression that arise due to stressors (Paulson, 2020). If pregnant women show symptoms of withdrawing from the environment, rarely gathering with each other, preferring to be alone, easily irritated, easily angry, and easily emotional, then this is a sign of depression (Serati & Carnevali, 2018).

Coping in pregnancy can manipulate or prevent negative emotional, behavioral and cognitive responses to the stressor itself. Pregnant women can choose a response that is inexpensive and can be applied to minimize stressors. This response is a resource to increase the defence of the condition of pregnant women and fetuses against the dangers that can occur due to stress during pregnancy (Guardino & Schetter, 2015).

Coping strategies can help pregnant women manage emotional stress and problems that can cause psychological stress. Coping strategies used to manage emotional distress are known as "emotion-focused coping strategies," whereas those used to manage situations that cause distress are known as "problem-focused coping strategies". The results of a similar study summarized five coping strategies for pregnant women, namely: 1) self-acceptance; 2) independence; 3) financial, emotional, and social support from partners; 4) support from health care providers; and 5) support from the church community and spirituality (Ashaba et al., 2017).

These five strategies are helpful in overcoming the psychosocial challenges faced by pregnant women (Ashaba et al., 2017). Pregnant women who experience psychosocial stress have an impact on fetal growth and trigger premature births and low birth weight babies (Mélançon et al., 2020). Stress and anxiety in pregnant women also cause an increase in arterial blood pressure and a decrease in blood flow to the uterus, which can interfere with placental function (McCarthy et al., 2021). Various health problems arise as a result of stress in pregnant women, such as preeclampsia or hypertension.

3. Stress Management for Pregnant Women in Preventing Pre-eclampsia

Stress is a physiological and psychological response that occurs in everyone, including pregnant women. Stress is one of the causes of hypertension. Stress can directly affect the hypothalamic-pituitary-adrenal system and the autonomic nervous system. Abnormal release of catecholamines can inhibit vascular performance. Changes in the sympathetic nerves cause an increase in arterial pressure. This study applies stress management techniques to control sympathetic nerve changes during pregnancy. So that blood pressure can be controlled and prevent the occurrence of pre-eclampsia.

The results of this study also show the process that pregnant women go through in overcoming emotional changes and stress in order to avoid pre-eclampsia, namely by applying stress management techniques such as relaxation, distraction, and spiritual approaches. Several previous studies have found that relaxation therapy and distraction techniques are used to reduce stress in pregnant women (Septianingrum, 2018). The findings of the study indicated that relaxation therapy was effective in reducing maternal stress and was also associated with an increase in offspring birth weight (Abera et al., 2024). Another way to manage stress is by getting closer to the creator or taking a spiritual approach. Spirituality was found to be effective in suppressing depression in pregnant women by up to 30%, reducing symptoms of depression (Handayani & Fourianalistyawati, 2018). The study found a significant negative correlation between pregnant women's levels of spiritual well-being and their levels of depression (Durmuş et al., 2022). Religious attitudes are positively correlated with spiritual well-being, mental health status, and an enhanced quality of life, highlighting the potential role of religiosity in promoting psychological resilience during pregnancy (Nourimand et al., 2020).

CONCLUSION AND SUGGESTION

Pregnant women undertake a range of different distraction, relaxation, and spiritual techniques to reduce stress experienced during pregnancy and as a treatment for reducing emotions to prevent an increase in blood pressure during pregnancy. By this research, prevention of preeclampsia can be done without much cost and easily with non-pharmacological nursing interventions. Future research can be carried out in a broader population using a transcultural nursing approach.

REFERENCES

Abera, M., Hanlon, C., Daniel, B., Tesfaye, M., Workicho, A., Girma, T., Wibaek, R., Andersen, G. S., Fewtrell, M., Filteau, S., & Wells, J. C. K. (2024). Effects of relaxation interventions during pregnancy on maternal mental health, and pregnancy and newborn outcomes: A systematic review and meta-analysis. *PLoS ONE*, *19*(1 January), 1–25. https://doi.org/10.1371/journal.pone.0278432

Anderson, C. M., & Schmella, M. J. (2017). Preeclampsia: Current Approaches to Nursing Management. *AJN*, *117*(11), 1–10. https://doi.org/10.1097/01.naj.0000526722.26893.b5

Ashaba, S., Kaida, A., Burns, B. F., O'Neil, K., Dunkley, E., Psaros, C., Kastner, J., Tsai, A. C., Bangsberg, D. R., & Matthews, L. T. (2017). Understanding coping strategies during pregnancy and the postpartum period: A qualitative study of women living with HIV in rural Uganda. *BMC Pregnancy and Childbirth*, *17*(1), 1–10. https://doi.org/10.1186/s12884-017-1321-9

Bedaso, A., Adams, J., Peng, W., & Sibbritt, D. (2021). The relationship between social support and mental health problems during pregnancy: a systematic review and meta-analysis. *Reproductive Health*, *18*(1), 1–23. https://doi.org/10.1186/s12978-021-01209-5

Chapuis-de-Andrade, S., Moret-Tatay, C., de Paula, T. A., Irigaray, T. Q., Antonello, I. C. F., & da Costa, B. E. P. (2022). Psychological factors and coping strategies in pregnancies complicated by hypertension: A cluster-analytic approach. *Journal of Affective Disorders*, *296*, 89–94. https://doi.org/https://doi.org/10.1016/j.jad.2021.09.049

Dinas Kesehatan Provinsi Sulawesi Selatan. (2021). *Profil Kesehatan Provinsi Sulawesi Selatan tahun 2021*.

Durmuş, M., Öztürk, Z., Şener, N., & Eren, S. Y. (2022). The Relationship between the Fear of Covid-19, Depression, and Spiritual Well-Being in Pregnant Women. *Journal of Religion and Health*, *61*(1), 798–810. https://doi.org/10.1007/s10943-021-01448-7

Guardino, C. M., & Schetter, C. D. (2015). Coping During Pregnancy. *Health Psuchol Rev.*, *8*(1), 70–94. https://doi.org/10.1080/17437199.2012.752659

Handayani, F. P., & Fourianalistyawati, E. (2018). Depresi dan Kesejahteraan Spiritual pada Ibu Hamil Risiko Tinggi. *Jurnal Psikologi Teori Dan Terapan*, *8*(2), 145–153. https://doi.org/10.26740/jptt.v8n2.p145-153

Jagtap, A., Jagtap, B., Jagtap, R., Lamture, Y., & Gomase, K. (2023). Effects of Prenatal Stress on Behavior, Cognition, and Psychopathology: A Comprehensive Review. *Cureus*, *15*(10). https://doi.org/10.7759/cureus.47044

Jalal, S. M., Alsebeiy, S. H., & Alshealah, N. M. J. (2024). Stress, Anxiety, and Depression During Pregnancy: A Survey Among Antenatal Women Attending Primary Health Centers. *Healthcare (Switzerland)*, *12*(22), 1–14. https://doi.org/10.3390/healthcare12222227

Kemenkes RI. (2022). Profil Kesehatan Indonesia 2021. In *Pusdatin.Kemenkes.Go.Id*.

McCarthy, M., Houghton, C., & Matvienko-Sikar, K. (2020). Women's experiences and perceptions of anxiety and stress during the perinatal period: a systematic review and qualitative evidence synthesis. *BMC Pregnancy and Childbirth*, *21*(1), 1–12. https://doi.org/10.1186/s12884-021-04271-w

Mélançon, J., Bernard, N., Forest, J., Tessier, R., M, T. G., Bouvier, D., Giguère, Y., Mélançon, J., Bernard, N., Forest, J., Tessier, R., & M, T. G. (2021). Impact of maternal prenatal psychological stress on birth weight. *Health Psychology*, *39*(12), 1100–1108. https://doi.org/10.1037/hea0001017

Nourimand, F., Forouhari, S., Jahromi, B. N., Asadi, N., Abbasi, Z., Beygi, Z., Karimi, M., & Sarbakhsh, F. (2020). Studying the correlation between spiritual well-being and religious attitude with mental health and quality of life in pregnant women. *Pakistan Journal of Medical and Health Sciences*, *14*(1), 681–684.

Novelia, S., Rukmaini, & Puspita Sari, E. (2024). Stress Levels and Pre-Eclampsia in Pregnancy. *Health and Technology Journal (HTechJ)*, *2*(1), 83–88. https://doi.org/10.53713/htechj.v2i1.135

Nuryati, T., & Amir, Y. (2022). Mental Health Problems of Pregnant Women, the Causes, and the Need for Social Support. *Jurnal Biometrika Dan Kependudukan*, *11*(1), 80–88. https://doi.org/10.20473/jbk.v11i1.2022.80-88

Paulson, Julia L. (2020). Intimate Partner Violence and Perinatal Post-Traumatic Stress and Depression Symptoms: A Systematic Review of Findings in Longitudinal Studies. *Trauma, Violence, & Abuse*, *23*(3), 733–747. https://doi.org/10.1177/1524838020976098

Polit, Denise F & Beck, C. T. (2016). *Essentials of Nursing Research Appraising Evidence for Nursing Practice* (8th ed.). Lippincott Williams & Wilkins.

Rana, S., Lemoine, E., Granger, J., & Karumanchi, S. A. (2019). Preeclampsia: Pathophysiology, Challenges, and Perspectives. *Circulation Research*, *124*(7), 1094–1112. https://doi.org/10.1161/circresaha.118.313276

Rasouli M, P. M., & Z, H. G. (2017). Effect of Self-care Before and During Pregnancy to Prevention and Control Preeclampsia in High-risk Women. *International Journal of Preventive Medicine*, *8*(February). https://doi.org/10.4103/ijpvm.IJPVM_300_17

Renita M., Y. D. P. S. dan A. S. (2019). Kejadian Preeklampsia pada Ibu Bersalin. *Higeia Journal of Public Health Research and Development*, *3*(3), 504–512. https://journal.unnes.ac.id/sju/index.php/higeia/article/view/21390

Septianingrum, Y. (2018). Efektivitas Relaksasi Selama Kehamilan Terhadap Penurunan Stres, Kecemasan Ibu Hamil Dan Respon Janin Dalam Kandungan. *Journal of Health Sciences*, *8*(2), 206–212. https://doi.org/10.33086/jhs.v8i2.206

Serati, M., & Carnevali, G. (2018). Perinatal depression. In *Clinical Cases in Psychiatry: Integrating Translational Neuroscience Approaches*. https://doi.org/10.1007/978-3-319-91557-9_9

Tang, X., Lu, Z., Hu, D., & Zhong, X. (2019). Influencing factors for prenatal Stress, anxiety and depression in early pregnancy among women in Chongqing, China. *Journal of Affective Disorders*, *253*(March), 292–302. https://doi.org/10.1016/j.jad.2019.05.003

Traylor, C. S., Johnson, J. D., Kimmel, M. C., & Manuck, T. A. (2020). Effects of psychological stress on adverse pregnancy outcomes and nonpharmacologic approaches for reduction: an expert review. *American Journal of Obstetrics and Gynecology MFM*, *2*(4). https://doi.org/10.1016/j.ajogmf.2020.100229

Yushida, Y., & Zahara, E. (2020). The risk factors toward preeclampsia events of pregnant women in meureubo and johan pahlawan community health center west aceh. *Open Access Macedonian Journal of Medical Sciences*, *8*(E), 670–673. https://doi.org/10.3889/OAMJMS.2020.5531