RESEARCH
www.commprac.com
ISSN 1462 2815

FAMILY EXPERIENCE IN MANAGING PREECLAMPSIA EMERGENCY PLAN: A QUALITATIVE STUDY

Dodoh Khodijah [1]*, Wardati Humaira [2], and Hanna Sriyanti Saragih [3]

[1, 2, 3] Medan Health Polytechnic of Ministry of Health,
Department of Midwifery, Medan, Indonesia.
*Corresponding Author Email: dodoh.kdj@gmail.com

DOI: 10.5281/zenodo.10532207

Abstract

Preeclampsia is still the leading cause of maternal death globally. Maternal mortality in Indonesia is 33.3% due to preeclampsia. Eclampsia is an obstetric emergency condition in the form of seizures in pregnant women which is usually preceded by preeclampsia. Eclampsia appears as an indicator of poor complication preparedness in the community. Family involvement in preventing eclampsia is needed, through preeclampsia emergency planning. to explore families' experiences of preeclampsia emergency plans in the community to prevent the onset of eclampsia. Qualitative research with phenomenology design. Eleven immediate family members of first 6 months postpartum woman with preeclampsia who were involved in the care of preeclamptic woman were purposively sampled and participated in the study. In-depth interviews were used to collect data. Data were analysed using interpretative phenomenology analysis approach. Ppreeclampsia emergency action plans were explored and interpreted. Three themes emerged, namely understanding of blood pressure control, identification of danger signs of preeclampsia and first action to save preeclampsia woman. Informants described a limited understanding of the dangerous limits of hypertension, but they had a positive attitude towards monitoring their blood pressure by reporting to health workers. The prominent symptom of danger sign headache was recognized and taking the patient to the midwife was prioritised in providing immediate rescue by the family. High family interest in the family's preeclampsia emergency treatment action plan. Knowledge deficits about the danger limitations of hypertension did not prevent the family from taking immediate action. This study also underscores the need to provide strong education on the signs and symptoms of preeclampsia during ANC.

Keywords: Emergency Plan, Family, Preeclampsia, Eclampsia.

1. INTRODUCTION

Technological advances in the field of health and medicine have not been able to boost the level of maternal health in the world. The high maternal mortality rate (MMR) reflects the low quality of maternal health services. Estimates of maternal mortality in the world in 2017 show that around 810 women die every day from preventable causes of death related to pregnancy or childbirth. Developing countries account for approximately (94%) of MMR globally [1]. The maternal mortality rate in Indonesia reached 305/100,000 live births (KH) in 2015 [2]. In the Association of Southeast Asian Nations countries, Indonesia's MMR ranks second after Laos [1]. This figure is still far from Indonesia's national target in 2024 of 183/100,000 KH [3], especially the Sustainable Development Goal target in 2030 which is to reduce MMR to less than 70/100,000 KH [4].

The number one cause of maternal death in Indonesia is caused by preeclampsia (33.07%) [5]. Deli Serdang is one of the districts in North Sumatra Province, and is a major contributor to the cause of maternal mortality caused by preeclampsia. Cases of death due to preeclampsia in Deli Serdang Regency were found (18.7%) in 2018 increasing to (28.5%) in 2019 [6]. Eclampsia is an obstetric emergency condition in the form of seizures in pregnant women which usually begins with preeclampsia. Eclampsia appears as an indicator of poor childbirth preparedness and complication

preparedness in the community Perceptions about Eclampsia, Birth Preparedness, and Complications Readiness among Antenatal Clients Attending a Specialist Hospital in Kano, Nigeria.

Preeclampsia control is still a leading programme in Indonesia, but maternal mortality due to preeclampsia has not been reduced. The current management of preeclampsia is more focused on medical interventions that involve preeclampsia woman as sufferers. The role of the family as a supporter in the success of treatment has not been widely involved [7]. Family-centred care is recommended for social support [8]. Involving the family in health education programmes can improve maternal and fetal health [9].

Previous studies have confirmed that all maternal deaths due to preeclampsia occur in hospital A comprehensive home-care program for health promotion of mothers with preeclampsia [9]. However, upon observation through medical records, it was found that they came to the hospital already in eclampsia, suggesting a delay in pre-referral. For this reason, early recognition of the danger signs of preeclampsia by the family needs to be involved in the form of a preeclampsia emergency plan in reaching an adequate health facility. Optimal emergency management of seizures, hypertension, fluid balance and safe referral is essential to minimise morbidity and mortality [10]. Research on preeclampsia emergency plans by families has never been done before in Deli Serdang Regency, so it is important to explore the family's experience in managing preeclampsia emergencies in preventing eclampsia.

2. RESEARCH METHODS

A qualitative phenomenology research design[11], [12] was used to explore families' experiences of preeclampsia emergency plans in the community to prevent eclampsia. These experiences were obtained through indept interviews.

Study Setting and Population. This study was conducted in the working area of Deli Serdang District Health Office. This region is the locus of maternal mortality. Informants were purposively selected based on the patient's medical records from the hospital, with the criteria that the patient was in the postpartum period in the last 6 months at the time of the study and diagnosed with preeclampsia in pregnancy. Patients were contacted by the hospital by telephone and asked for consent to conduct interviews with their families who were directly involved in the care of preeclampsia woman. All interviews were conducted by the first author. Data redundancy was obtained after interviews with 11 participants. The researcher identified participants' willingness to participate and were communicative and co-operative. Informants described their experiences in managing preeclampsia emergency plans in the community to prevent eclampsia. The study was conducted by two researchers who are experienced in qualitative research.

Informants were informed of the purpose of the study and recruited after written and verbal consent was obtained from participants and from the local referral hospital. Interviews were conducted according to agreed and scheduled times. Data were collected through in-depth interviews lasting 30 to 60 minutes, using a semi-structured interview guide developed based on theories of preeclampsia and emergency and validated by experts judment.

During the interview session, informants were free to express themselves without interruption. The interview started with questions about their feelings towards pregnancy with preeclampsia. Participants were encouraged to provide information, free to ask questions or leave the rest of the interview at any time. We wrote field notes after each interview. The interviews were digitally recorded in Indonesian and transcribed verbatim by the researcher. Audio files and transcripts were stored in a secure digital storage system. Participants' names were coded. Data were collected in June and July of 2022. Ethical clearance was obtained from the Ethics Committee of the University of Sumatera Utara. Informants were assured of the confidentiality of their responses.

Data analysis. The data analysis technique used in this research is interpretative phenomenology analysis [13]. Transcripts were read and re-read several times by the author to familiarise herself with the data and understand the family's experiences. During code revision, an iterative process was conducted through data appraisal to generate appropriate themes. During data analysis sessions, any discrepancies regarding themes were resolved through discussion. Finally, for data presentation, sentence quotations from participants were selected and presented as their responses.

3. RESULTS

The majority of preeclampsia woman were accompanied by their husbands during their pregnancy care. The age of the informants ranged from 24-57 years old with the majority of family education in high school. The characteristics of the closest family members involved in caring for preeclampsia woman are summarised in the table below.

Table 1: Family characteristics of preeclampsia patients in the study (N = 11)

Informant	Age	Family Relation	Education	Occupation
1	43	sister in law	elementary school	housewife
2	30	husband	senior high school	employee
3	32	husband	junior high school	employee
4	32	sister	senior high school	hosewife
5	27	husband	junior high school	self employed
6	57	mother	senior high school	trade
7	29	husband	elementary school	driver
8	24	husband	senior high school	employee
9	32	husband	junior high school	labourer
10	46	husband	junior high school	farmer
11	36	brother	senior high school	employee

3.1 Theme

Three main themes emerged from the qualitative data analysis: controlling blood pressure, identifying danger signs of preeclampsia and first action to save preeclampsia woman. Each of these themes had subthemes, as presented in Table 2.

Table 2: Themes of family experiences in managing preeclampsia emergency plans in the community

Main-ordinate Theme	Super-ordinate Theme
Blood pressure control	Controlling blood pressure
	Antihypertensive consumption
Identify the danger signs of preeclampsia	Hypertension
	Oedema
	Headache
	Neck pain
	Abdominal pain/nausea/vomiting
First actions to save preeclampsia woman	Contacting the midwife by telephone
	Take to midwife clinic
	Take to community health centre
	Take to hospital

Blood pressure control. Blood pressure control of preeclampsia woman by the family is very important in preventing the occurrence of eclampsia. During the interviews, what informants said reflected their limited understanding of controlling blood pressure in cases of preeclampsia and the medications taken by the patient. Sub-themes that provide information on this theme are discussed below. *Controlling blood pressure.* Controlling blood pressure can increase family vigilance in recognising signs of preeclampsia with severe symptoms/eclampsia. Blood pressure control by the family can be done by checking the blood pressure by the patient herself or by her family. This was done by the following informant.

> *"When my wife was pregnant, she told me that her blood pressure was always high. In our house we have our own tensi tool, sometimes she tensied herself, sometimes I tensied her. After this I contacted Juli's midwife." I1.*

Informants were of the view that checking their own blood pressure has provided awareness of the dangers of hypertension and thus will encourage them to seek medical help from a doctor or clinic. Monitoring blood pressure at home will help reduce the frequency of antenatal clinic visits, especially for those who come to the clinic only to check blood pressure. Other informants controlled their blood pressure by going to the midwife and checking at the pharmacy.

> *"Once a week she regularly takes his blood pressure at the pharmacy, more often if she feels dizzy, at least check her blood pressure. The dispensary staff check it there. If the results are high after that I take him to the hospital," I4.*

Other informants mentioned the impact of uncontrolled high blood pressure can cause seizures. As in the following quote:

> *"...so every 2 weeks we come to the midwife to check the tension, because we are afraid mum, who knows if the tension suddenly rises again, it's dangerous..can have a seizure" I5.*

When asked about dangerous blood pressure limits for preeclampsia woman. The informant described limited knowledge about high blood pressure in pregnancy. The informants reported that they had received the information from the staff who conducted the blood pressure checks, but they did not know what the danger signs were. They were informed that the blood pressure of preeclamptic women was in the dangerous category based on what the staff told them, not based on the blood pressure limits that they knew.

Anti-hypertension consumption. Most informants have basic knowledge on how to manage hypertension. Blood pressure control measures for preeclampsia woman are carried out by taking anti-hypertensive drugs coupled with multivitamins for pregnant women. As the following statement:

> *"To lower her blood pressure, she is given vitamins and blood pressure medication that she takes every day" I10.*

> *"This pregnant woman is taking dopamed, nonemi, folate and calcium" I3.*

The types of medications that preeclampsia woman take include: dopamed, nonemi, folic acid and calcium.

Identify the danger signs of preeclampsia. One of the challenges to treat and prevent further deterioration of preeclampsia is to enable early detection of preeclampsia danger signs. Red flags that families are able to identify include: hypertension, swollen feet and hands, headache, neck pain, abdominal pain, nausea and vomiting. Statements that provide information about this super-ordinate theme are discussed below.

Hypertension. Hypertension was a danger sign of preeclampsia that was well recognised by all informants. Although most of them do not know the amount of blood pressure that is dangerous, they are aware that hypertension information conveyed by health workers will harm pregnant women and their foetus.

Swollen hands and feet. Oedema of the legs was the first sign recognised by the family. However, some informants considered the odour to be a normal condition that occurs in pregnancy as a sign that birth is imminent. Only one informant recognised odema as a danger sign when it reached the hands and face of the preeclampsia woman.

Headache. A danger sign that informants realised was particularly dangerous was the onset of headaches. All informants reported that preeclampsia patients complained of headaches. They described the headaches experienced by preeclampsia woman in different ways. Informant 3 said he often saw his wife massaging her head when she complained of headaches. Other informants described headaches as pressing, stabbing and lifting weights.

> *"...her body was swollen when she was 8 months pregnant, mum. At the beginning, it was not there, mum. When it was swollen, my wife often complained of dizziness, pain...she just had dizziness...just angry, pain in the head like lifting weights she said" I8.*

Nape pain. Not all informants reported pain in the nape of the neck experienced by people with preeclampsia. The neck pain experienced was described as pulling. This neck pain usually appears together with complaints of dizziness, headache, oedema and tingling. As the following statement:

> *"...Symptoms are dizziness, nape pain, hand numbness, swelling" I11*

Abdominal pain and nausea and vomiting. Another danger sign considered dangerous in preeclampsia woman by informants was abdominal pain and vomiting that could not be restrained. One informant attributed this to a stomach disorder, commonly known as acid reflux. Some informants realised that this vomiting was closely related to the hypertension suffered by preeclampsia woman.

First actions to rescue preeclampsia woman. Preeclampsia rescue is an important part of eclampsia prevention. It aims to minimise the adverse effects that will occur. Families who recognise the danger signs of preeclampsia signal that the condition should immediately seek help and evacuate the patient to a hospital that has comprehensive emergency of obstetric (CEmOC) facilities so that the patient immediately receives treatment and rescue. The family is the bulwark of defence for preeclampsia woman. In the case of life-threatening emergencies, whether or not the patient can be helped is highly dependent on the family in seeking immediate help at that time. The theme of the first action to save the preeclampsia woman by the family consists of the super-ordinate theme: contacting the midwife by phone, bringing to the midwife clinic, bringing to the health centre or to the hospital.

Contacting the midwife by phone. Patients with preeclampsia who experience dangerous symptoms need immediate help. The first step families take in such cases is to call a health worker. Keeping the contact number of the midwife or doctor is important as an emergency contact that the family can access in the rescue process. This was expressed by the following informant.

> *"If you get a headache, it is very dangerous. I immediately called the midwife and was taken there" I1.*
>
> *"My wife keeps the midwife's phone number in this phone. Usually we call the midwife first, and then we usually talk via whatsapp". I3.*

The above expression shows that the informant has saved the midwife's contact number in her mobile phone to make it easier to seek help when a condition is found that requires immediate assistance.

Bringing to the midwife clinic. The role of midwives is highly valued by families, for their support and care. Informants in this study said that midwives were the first health workers to tell them they had preeclampsia. The location of the midwife's practice, which is in the same neighbourhood as the patient, makes patients feel comfortable and free to complain, so midwives are the first choice for the majority of informants to seek help if they find danger signs of preeclampsia.

> *"At that time, she said my sister was suffering from hypertension. I diligently took my sister to the midwife for treatment. If she complains of headache, shoulder pain, I take her to the village midwife". I5.*

Bringing to the health centre. Puskesmas is the second sphere for families to seek first aid. Only 2 out of 11 informants took the patient to the health centre for first aid when danger signs of preeclampsia were found. Some health centres do not provide 24-hour midwifery services, which is a barrier for families to seek treatment at the health centre.

Negative experiences in families who have suffered from preeclampsia have a high awareness of preeclampsia management. This informant immediately brought the preeclampsia woman to the hospital to get immediate treatment when she felt any complaints.

> *"Any complaints of dizziness...anyway, if you feel unwell, run straight to the hospital because the experience of the first child was too ignorant, so the child died in the womb. So this is the slightest complaint immediately run to the hospital" I4.*

The first action to rescue a preeclampsia woman by the family will be hampered by unfulfilled hospital administration. Even in the condition of saving the patient, the officer will not be able to perform rescue actions if there is no family consent. Hospital staff will ask for a signature on the consent form as a form of family consent for medical action. All informants have prepared the files needed to prepare for delivery at the hospital such as identity cards, family cards, Social Security Organisation Agency cards.

4. DISCUSSION

The main findings in this study show that the experience of managing preeclampsia emergency plans by families can prevent the occurrence of eclampsia. This phenomenon is characterised by the family's efforts to control blood pressure, identify the danger signs of preeclampsia and take the first action in saving the preeclampsia woman. The results showed that incomprehensible experiences in recognising the danger signs of hypertension. The majority of families described having done blood pressure checks, although they did not know the limits of dangerous hypertension. Families felt that hypertension was dangerous after confirming the results of the examination with the officer. This result is supported by a study in North Aprika most participants stated that during their attendance at the health facility, they did not receive any information about blood pressure in pregnancy [14].

Indonesian policy, ANC examination for PE is designed to be conducted in hospitals. It is important for health workers to be responsive to the symptoms of PE, to inform and guide pregnant women about the danger signs of PE and further treatment. However, Poon et al [15] stated that PE women who are confirmed to be stable can be managed as outpatients and can be relied upon to monitor blood pressure at home and seek medical advice when there is an increase/increase in blood pressure. Self monitoring of blood pressure (SMBP), where individuals measure their own blood pressure, usually in a home environment, can improve blood pressure control and is an increasingly common part of hypertension management. Such monitoring may be accompanied by additional support such as from a nurse or pharmacist [16]. Self-monitoring can reduce healthcare costs by reducing the number of clinic visits [17].

The findings of this study indicate about adherence to taking anti-hypertensive drugs while suffering from preeclampsia. they said they adhered to taking anti-hypertensive drugs every day. However, a small proportion of preeclampsia patients admitted that they took antihypertensive drugs only when they complained of neck stiffness and headaches. [18] confirmed that patients are not compliant in taking antihypertensive drugs is common. Some participants admitted that they did not take the prescribed medication because it caused side effects such as nausea and vomiting. This is in accordance with the findings by [14], where participants did not comply with prescribed drugs due to nausea and vomiting because they did not understand the health benefits of compliance.

The results showed that oedema that occurs on the face is a danger sign of preeclampsia. the finding of oedema is no longer a limitation in the diagnosis of preeclampsia. The results of the study by Albayrak et al [19] edema is no longer considered an important part of this condition, because it is a common finding in normal pregnancy, and about one third of eclamptic women do not have edema.

The most common finding that families notice in patients with preeclampsia is a complaint of headache. This may or may not be accompanied by additional complaints of neck pain and visual disturbances. Families also recognize symptoms of abdominal pain, nausea or vomiting as red flags. Shortness of breath and visual disturbances were not reported by the family. The findings in this study showed that headache was the main clue for the family that preeclampsia was dangerous. The results of this study are in accordance with the statement of Wibowo et al [20] that if there is a finding of one or more complaints of headache, visual disturbances, pain in the epigastric region / right upper abdominal region is an indication of severe preeclampsia which must be immediately medically managed. If pregnant women, their husbands or family members can increase early warning of potential signs and symptoms of severe preeclampsia, it is possible for pregnant women to receive early intervention to prevent the progression of preeclampsia to eclampsia. Early warning signs of severe preeclampsia can worsen very quickly if there is no immediate intervention [21].

The family's experience of ANC services while caring for pregnant women with PE influences how the family makes decisions in seeking medical care and hospital choices. This has implications for the immediate preeclampsia action plan taken by the family. The interview results showed that only one out of 11 people did ANC check-ups at the hospital, the rest of them did ANC at the nearest midwife. It can be understood that the population of Deli Serdang Regency mostly lives in peripheral areas, health facilities, especially hospitals with CEmOC facility, have not yet spread to these areas. Ideally, preeclamptic women should receive ANC services at the hospital from the first diagnosis of preeclampsia, but this is difficult to achieve because the closest facilities to the community are midwife practices that receive 24-hour midwifery services. This is a strong reason for families to seek first aid for preeclampsia emergencies from midwives.

Severe preeclampsia is an obstetric emergency that requires rapid and appropriate referral for obstetric care. Travel time of 1 hour contributes to the incidence of maternal death in preeclampsia. 16.3% of woman who died from preeclampsia had travelled more than 1 hour. Therefore, pregnant women with severe preeclampsia can quickly arrive at hospitals with CEmOC facilities in less than 1 hour to immediately receive definitive medical care according to their condition [22]. Severe preeclampsia is an obstetric emergency that requires early treatment and referral as soon as possible. Family involvement in planning to seek appropriate first aid when preeclampsia emergencies occur will shorten the mother's time to receive appropriate treatment.

5. CONCLUSIONS

This study shows the high interest of families in preeclampsia emergency management plans in the family although they recognize that there are shortcomings and benefits. Knowledge deficits about the danger limitations of hypertension did not prevent families from taking immediate action.

The study also underlines the need to provide strong education on signs and symptoms of preeclampsia during ANC. Self-monitoring of blood pressure by the family and rapidly identified danger signs of preeclampsia were considered beneficial interventions to prevent the occurrence of eclampsia while reducing the number of maternal deaths due to preeclampsia.

Acknowledgement

The authors would like to thank the promoters and co-promoters. The academic community of the Polytechnic of the Ministry of Health Medan and all individuals who supported this study, participants who provided valuable information, and health practitioners for their assistance in the preparation of data collection.

References

1) WHO, *Maternal mortality : level and trends 2000 to 2017*. UNFPA; UNICEF; WHO; World Bank Group and the United Nations Population, 2019.

2) Badan Pusat Statistik, *Profil Penduduk Indonesia Hasil Supas 2015*, vol. 66. Jakarta, 2016.

3) Kementerian Kesehatan RI, *Indikator Program Kesehatan Masyarakat Dalam RPJMN Dan Renstra Kementerian Kesehatan Tahun 2020-2024*. 2020.

4) WHO, "The Global Health Observatory, SDG Target 3.1 Maternal Mortality," 2021.

5) Dirjen Kesmas Kemenkes RI, "Di Rakernas 2019, Dirjen Kesmas Paparkan Strategi Penurunan AKI dan Neonatal," 2019.

6) D. K. K. D. Serdang, *Profil Kesehatan Kabupaten Deli Serdang tahun 2020*. 2021.

7) M. R. Emha, E. D. Hapsari, and W. Lismidiati, "Pengalaman hidup ibu dengan riwayat kehamilan preeklamsia di Yogyakarta," *Ber. Kedokt. Masy.*, vol. 33, no. 4, p. 193, 2017, doi: 10.22146/bkm.13175.

8) T. Hansson, M. E. Andersson, G. Ahlström, and S. R. Hansson, "Women ´ s experiences of preeclampsia as a condition of uncertainty : a qualitative study," *BMC Pregnancy Childbirth*, vol. 5, pp. 1–10, 2022, doi: 10.1186/s12884-022-04826-5.

9) Z. Rastegari, M. H. Yarmohammadian, F. Mohammadi, and S. Kohan, "A comprehensive home-care program for health promotion of mothers with preeclampsia: Protocol for a mixed method study," *Reprod. Health*, vol. 16, no. 1, 2019, doi: 10.1186/s12978-019-0695-8.

10) P. T. Munro, "Management of eclampsia in the accident and emergency department," *J. Accid. Emerg. Med.*, vol. 17, no. 1, pp. 7–11, 2000, doi: 10.1136/emj.17.1.7.

11) M. F. Azzajjad, H. Halima, A. Rahayu, and D. S. Ahmar, "Treffinger Learning Model Assisted by PPT Media is it Affects Student Learning Outcomes?," *Athena J. Soc. Cult. Soc.*, vol. 1, no. 2, pp. 50–57, Mar. 2023, doi: 10.58905/ATHENA.V1I2.17.

12) A. Muna, A. Ausat, T. Al Bana, and S. S. Gadzali, "Basic Capital of Creative Economy: The Role of Intellectual, Social, Cultural, and Institutional Capital," *Apollo J. Tour. Bus.*, vol. 1, no. 2, pp. 42–54, Mar. 2023, doi: 10.58905/APOLLO.V1I2.21.

13) P. F. and M. L. J.A. Smith, *J.A. Smith, P. Flower and M. Larkin (2009), Interpretative Phenomenological Analysis: Theory, Method and Research .*, vol. 6, no. 4. 2009. doi: 10.1080/14780880903340091.

14) J. Munyungula and S. Shakwane, "Self-monitoring of blood pressure for preeclampsia patients : Knowledge and attitudes," pp. 1–8, 2019.

15) L. C. Poon *et al.*, "A literature review and best practice advice for second and third trimester risk stratification , monitoring , and management of pre- - eclampsia Compiled by the Pregnancy and Non- - Communicable Diseases Committee of FIGO (the International Federation o," vol. 154, no. Suppl 1, pp. 3–31, 2021, doi: 10.1002/ijgo.13763.

16) J. P. Sheppard *et al.*, "Self-monitoring of Blood Pressure in Patients with Hypertension-Related Multi-morbidity: Systematic Review and Individual Patient Data Meta-analysis," *Am. J. Hypertens.*, vol. 33, no. 3, pp. 243–251, 2020, doi: 10.1093/ajh/hpz182.

17) J. A. Hodgkinson *et al.*, "Is self monitoring of blood pressure in pregnancy safe and effective?," *BMJ*, vol. 349, 2014, doi: 10.1136/bmj.g6616.

18) S. Gupta, J. P. Dhamija, I. Mohan, and R. Gupta, “Qualitative study of barriers to adherence to antihypertensive medication among rural women in India,” *Int. J. Hypertens.*, vol. 2019, 2019, doi: 10.1155/2019/5749648.

19) M. Albayrak, I. Özdemir, Y. Demiraran, and S. Dikici, “Atypical preeclampsia and eclampsia: report of four cases and review of the literature,” *J. Turkish Ger. Gynecol. Assoc.*, vol. 11, no. 2, pp. 115–117, 2010, doi: 10.5152/jtgga.2010.014.

20) N. Wibowo *et al.*, “PNPK Diagnosis dan Tatalaksana Preeklampsia,” pp. 1–48, 2016.

21) W. Carter, D. Bick, N. Mackintosh, and J. Sandall, “A narrative synthesis of factors that affect women speaking up about early warning signs and symptoms of pre-eclampsia and responses of healthcare staff,” *BMC Pregnancy Childbirth*, vol. 17, no. 63, pp. 1–16, 2017, doi: 10.1186/s12884-017-1245-4.

22) H. Sriwandoko, W. Purnomo, B. Trijanto, and E. S. Darmawan, “The Effect of Referral and Treatment of Severe Preeclampsia on Maternal Death at Sultan Imanudin General Hospital Pangkalan Bun, Central Kalimantan,” in *Strengthening Hospital Competitiveness for Patient Satisfaction and Better Health Outcomes*, 2019, pp. 174–182. doi: org/10.26911/the6thicph-FP.03.01.