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Assessment Instruments Based on Need for Help and Self-Care as a Prevention of Emergencies Due to Pre-Eclampsia and Eclampsia

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ABSTRACT
Assessment instruments based on the Need for Help and Self-Care can be instrumental in preventing seriousness in preeclampsia patients. It is hoped that using such instruments can help identify the risk of preeclampsia emergencies early and allow appropriate interventions to prevent further complications. This study aims to develop an application of the assessment instrument for mothers with preeclampsia based on Need for Help and Self-care which has been developed through previous research as an emergency prevention in mothers with preeclampsia. This research is qualitative research with the Delphi method approach. The Delphi method was used to obtain consensus from experts and practitioners on appropriate assessment instruments for patients with preeclampsia based on the Need for Help and Self-care nursing models. The participants in this study were 150 Midwives who worked in the maternity room of Dr. Mohammad Soewandi Hospital Surabaya, Bhakti Dharma Husada Hospital Surabaya, and Husada Prima Hospital Surabaya. This research consists of 2 stages, namely the first stage and the second stage. In the first stage, instrument trials were carried out and practitioners filled out questionnaires and continued with FGD to get expert input. In the second stage, the application of the Mother Assessment Instrument with Preeclampsia will be prepared based on the Need for Help and Self-care. In this study, the results were obtained that the assessment format used in the obstetric room of the three hospitals that were the place in this study was not suitable for mothers with severe preeclampsia, all indicators of the assessment instrument in mothers with severe preeclampsia based on the Need for Help and Self-care models were valid with a corrected item to total correlation value greater than 0.3 and a reliable alpha value greater than 0.6.

Keywords: Instrumen, Pengkajian, Preeclampsia, Eklampsia, Kegawatdaruratan

INTRODUCTION
Postpartum mothers with preeclampsia will experience various risks of life-threatening complications due to preeclampsia that has accompanied their pregnancy or childbirth [1]. Obstetric emergencies that occur in postpartum mothers with preeclampsia involve multiple organs, and require the mother to get prompt and appropriate treatment [6], [7]. Mothers can experience pulmonary edema, severe cerebral hemorrhage that causes hemiplegia, coma, or decreased consciousness, behavior, disseminated intravascular coagulation (DIC), acute kidney failure, metabolic acidosis, and cardiac arrest [1], [7], [8]. In addition, due to eclampsia seizures, the mother can experience psychosis [9], [10]. This condition will increase the risk of morbidity and mortality of the mother and the baby born [11]. For this reason, an assessment instrument is needed that can detect the presence of emergencies early and intervention can be carried out early, which can reduce the possibility of postpartum emergencies due to preeclampsia.

The maternal mortality rate in 2022 is around 183 per 100 100,000 live births, while based on the Millennium

Development Goals (MDG) and Sustainable Development Goals (SDGs) targets, Indonesia must reduce the maternal mortality rate to 102 per 100,000 live births in 2015 and 70 per 100,000 live births in 2030 [3], [4]. The most common cause of maternal death in Indonesia occurs due to preeclampsia, bleeding, and infection. Preeclampsia ranks first in the cause of maternal mortality in Indonesia, which is 33% [5].

Based on this, Suprihatin and Wuryaningsih (2021) have developed an assessment instrument based on the Need for Help and Self-Care to identify the condition of postpartum mothers with preeclampsia [2]. The results of the study recommend that the instrument is important to be tested.

Through the use of appropriate assessment instruments, the risk of serious complications such as stroke, organ failure, or death can be minimized [2]. Based on a study conducted by Suprihatin and Wuryaningsih (2021), the results were obtained that there has been no special instrument used by nurses or midwives at health facilities for postpartum mothers with preeclampsia.

So far, there has been no use of instruments that are specifically used to identify problems that occur in mothers with preeclampsia, so many cases of patients are late in getting help due to the lack of detection of the seriousness. Currently, an Assessment Instrument has been developed for mothers with preeclampsia based on the Need for Help and Self-Care models. The instrument has been declared valid and reliable, but it has not been used so its effectiveness in preventing emergencies is not yet known. The results of previous studies explained that the assessment instrument was able to identify the needs, abilities, and assistance needed at critical times and the independence that patients are expected to carry out when the mother has recovered [2].

The final result of this study is the recommendation for the use of assessment instruments in mothers with preeclampsia to prevent emergencies. The results of this study are expected to provide a reference to hospitals and health centers, which until now do not have appropriate assessment instruments for mothers with preeclampsia. This instrument can be used in all maternal emergency services so that maternal and infant mortality rates can be significantly reduced.

Preeclampsia is a circumferential or vascular endothelial dysfunction disorder that spreads so that vasospasm occurs after 20 weeks of gestation, resulting in decreased organ perfusion and endothelial activation which causes hypertension, non-dependent edema, and proteinuria [8]. It is called severe preeclampsia when systolic blood pressure ≥ 160 mmHg and diastolic blood pressure ≥ 110 mmHg accompanied by proteinuria over 5g/24 hours [12]. Severe preeclampsia is a risk that endangers the mother in addition to endangering the fetus through the placenta, which will result in mortality for both the mother and the fetus. Eclampsia is an advanced condition of severe preeclampsia that is not properly resolved, thus triggering seizures [13].

About 75% of eclampsia seizures occur before delivery, and 50% during the first 48 hours after delivery, but seizures can also arise after 6 weeks postpartum. Eclampsia can lead to coma or even death, either before or after childbirth [14]. As a result of eclampsia seizures, mothers can experience: 1) pulmonary edema due to aspiration pneumonitis at the time of seizure, heart failure due to severe hypertension and excessive intravenous fluid administration; 2) severe cerebral hemorrhage that causes hemiplegia, coma or decreased consciousness; 3) acts due to retinal detachment and ischemia or infarction of the occipital lobe; 4) disseminated intravascular coagulation (DIC) due to increased blood viscosity, hemoconcentration, and blood clotting disorders (Hellp syndrome); 5) acute kidney failure due to decreased glomerular

filtration; 6) Placental solution that can cause postpartum hemorrhage; 7) metabolic acidosis; and 8) cardiac arrest. In addition, due to eclampsia seizures, mothers can experience psychosis which can last for several days to two weeks [9], [10], [15], [16], [17].

In addition to experiencing physical and psychological impacts due to eclampsia seizures, mothers will also experience suffering due to emergency management and unexpected termination of pregnancy. The main therapy in clients with eclampsia is to immediately terminate the pregnancy and administer magnesium sulfate (MgSO4) injections up to two days postpartum to prevent the recurrence of eclampsia seizures at 48 hours postpartum [18]. MgSO4 injection is not without risks and side effects. MgSO4 injection can cause a feeling of warmth/heat that causes discomfort due to vasodilation. MgSO4 administration that exceeds the dose also risks causing intoxication in the form of muscle relaxation, respiratory paralysis, and increased salt retention [19].

Several studies of pregnant women's experiences during emergency treatment for indications of Severe Preeclampsia illustrate that mothers feel their lives are threatened, feel discomfort, try to reduce discomfort, worry about failure of treatment measures, feel close to death, feel less fully supported, expect friendly services and crave a better pregnancy. Mothers at the beginning of severe preeclampsia mentioned that when preeclampsia occurs early in pregnancy, it can take the mother's life out of control, affecting the mother and everything in her life deeply [17]. The sense of loss can cause emotional distress for the mother and leave a deep sense of grief. She expressed the need for support from professionals or social support. Postpartum mothers with eclampsia will experience different physiological changes than physiological postpartum mothers. Postpartum mothers with eclampsia are mostly at risk of infection due to childbirth with section caesarian, at risk of bleeding due to decreased uterine contractility due to the administration of MgSO4, and at risk of postpartum depression due to the loss of the baby and inability to adapt to hormonal changes. For this reason, in order to minimize the impact of severe preeclampsia or eclampsia experienced by mothers, especially psychological impacts, the needs of postpartum mothers with severe preeclampsia and eclampsia should be identified as early as possible [9], [20], [21].

Wiedenbach with the "Need for Help" model reveals that a nurse is a person who can help clients overcome problems and improve their well-being through their actions, thoughts, feelings, words, writings, and body movements, while clients are recipients of help (Need for Help) from health professionals in the form of care, advice, and education. The three goals stated by Widenbach in helping clients are: (1) preventing maternal emergencies, (2) reducing anxiety due to loss, (3) building effective coping to deal with emergencies and losses by collaborating, and coordinating, with other health teams so that clients get the right actions following the handling procedures [22]. Orem with the "self-care" model views that each individual has the ability and potential to take care of himself and achieve well-being. The changes that occur during the postpartum period lead to a decrease in the client's independence to meet his needs. The role of nurses help increase the independence of clients to meet their self-care needs through the learning process or practice in the form of self-care, creating an environment that facilitates the achievement of independence so that the role of nurses shifts from providing full support to supportive educational assistance. The Self Care Theory which believes that an able person will be able to take care of himself independently is a dynamic approach, where nurses work to improve the client's ability to take care of himself and not put the client in a dependent

position because self-care is a behavior that can be learned [22], [23].

The postpartum mother assessment instrument based on the Need for Help and Self-care model is an assessment format that has been developed specifically to identify the existence of emergencies in postpartum mothers due to preeclampsia and the mother's ability to take care of herself at the recovery stage. The format was able to identify data on signs of eclampsia impending symptoms, fluid balance, signs of magnesium sulfate poisoning, risk of pulmonary edema, risk of bleeding, self-care ability, comfort, readiness to be a parent, and meeting basic needs. The assessment instrument has been tested for validity and reliability, and the results obtained are that this instrument is valid and reliable [2].

RESEARCH METHOD

The design used in this study is qualitative research with the Delphi method approach. The Delphi method was modified by way of the preparation of the initial instrument based on the literature and based on the indicators in the previous research. The development of need for help and self-care-based assessment instruments is based on 3 criteria set, namely a minimum consensus average score of 4.9; standard deviation value below 1.5; the Inter Quartile Range (IQR) value is below 2.5. Through the modified Delphi method, 11 indicators of assessment instruments based on the need for help and self-care are arranged.

The participants in this study are all health workers who work in the Maternal Room in three hospitals, namely Dr. Mohammad Soewandi Hospital Surabaya, Husada Prima Hospital Surabaya, and Bhakti Dharma Husada Hospital Surabaya. The rooms used in each hospital are the Ponek room, the Maternity Room, and the Postpartum Room. Health workers (nurses/midwives) who meet the inclusion criteria in the study are those who provide care for antenatal, intranatal, and postnatal mothers with preeclampsia in the maternal room of Dr. Mohammad Soewandi Hospital Surabaya, Husada Prima Hospital Surabaya, and Bhakti Dharma Husada Hospital Surabaya. The number of selected participants determined in this study was 150 health workers spread across the three hospitals. After the data is collected, data analysis is carried out using Delphi data analysis step steps. First, identify the participants' answers to the questionnaire given after the participants conducted a need for help and self-care assessment of preeclampsia mothers. Participants were asked to give their opinions on the assessment instrument using the Linkert scale, namely strongly agree, agree, disagree, and strongly disagree, with a score of 4,3,2,1. Second, the answers from the first stage are summarized and shared with experts, who then have the opportunity to improve their opinions or answers based on feedback from the group. This process continues over several times, with experts reviewing and revising their answers each time, with the aim of reaching a consensus.

RESULT AND DISCUSSION

Demographic Data of Maternal Room Health Workers at Dr. Mohammad Soewandi Hospital Surabaya, Husada Prima Hospital Surabaya, and Bhakti Dharma Husada Hospital Surabaya.

The following table 1 illustrates the results of the study that most of the health workers who work in the maternity room at Dr. Mohammad Soewandi Hospital Surabaya, Husada Prima Hospital Surabaya, and Bhakti Dharma Husada Hospital Surabaya in July – August 2024 are 26-30 years old, educated in D3 Midwifery, have worked for 16-20 years, and have employment status as ASN and P3K.

Table 1. Demographics of Health Workers in the Maternal Room of Dr. Mohammad Soewandi Hospital Surabaya, Husada Prima Hospital Surabaya, and Bhakti Dharma Husada Hospital Surabaya in July – August 2024.

No	Characteristic	Frequency	Percentage
1.	Age		
	20 - 25	13	08,67
	26 - 30	60	40,00
	31 - 35	35	23,33
	36 - 40	23	15,33
	41 - 45	19	12,67
	46 - 50	10	06,67
	51 – 55	5	03,33
	Total	150	100,00
2.	Education		
	D3 Midwifery	123	82,00
	S1 Midwifery	27	18,00
	Total	150	100,00
3.	Length of Work		
	< 5 years	27	18,00
	05 - 10 years	30	20,00
	11 - 15 years	35	23,33
	16 - 20 years	40	26,67
	21 - 25 years old	5	03,33
	26 - 30 years old	12	08,00
	>30 years	1	00,67
	Total	150	100,00
4.	Employment Status		
	ASN and P3K	115	76,67
	Asn name (Compact)	35	23,33
	Total	150	100,00

Opinion of Midwives in the Maternal Room of Dr. Mohammad Soewandi Hospital Surabaya, Husada Prima Hospital Surabaya, and Bhakti Dharma Husada Hospital Surabaya After Using Need for Help *and* Self-Care *Based Assessment Instruments* for Mothers with Preeclampsia

The following is an overview of the Midwife's opinion on the assessment instrument that has been used in conducting a study on mothers with preeclampsia:

Table 2. Opinion of Midwives in the Maternal Room of Dr. Mohammad Soewandi Hospital Surabaya, Husada Prima Hospital Surabaya, and Bhakti Dharma Husada Hospital Surabaya in July – August 2024 on the need for help and self-care-based *assessment instruments*.

No.	Assessment of the instrument	Likert scale								Total	
		Strongly Agree		Agree		Disagree		Strongly Disagree			
		f	%	F	%	f	%	f	%	f	%
1	The terms used are easy to understand	62	41,3	53	35,3	11	7,3	24	16,0	150	100
2	The term used does not give rise to a double meaning	76	50,7	21	14,0	10	6,7	43	28,7	150	100

3	Simple and attractive Instrument display	71	47,3	40	13.3	42	28,0	17	11,3	150	100
4	Instruments are easy to use	64	42,7	56	37,3	30	20,0	0	00,0	150	100
5	Time spent using the Instrument is short	73	48,7	43	28,7	10	6,7	24	16,0	150	100
6	The instrument can identify the needs of patients with preeclampsia to get help	59	39,3	60	40,0	9	6,0	22	14,7	150	100
7	The instrument can identify the ability of patients with preeclampsia	82	54,7	22	14,7	23	15,3	23	15,3	150	100
8	The instrument can identify the independence of patients with preeclampsia	74	43,9	36	24,0	26	17,3	14	9,3	150	100
9	The instrument can identify the physiological condition of patients with preeclampsia	74	49,3	39	26,0	27	18,0	10	6,7	150	100
10	Appropriate instruments are used to identify emergency conditions in patients with preeclampsia	70	46,7	52	34,7	15	10,0	13	8,7	150	100
11	Assessment instruments based *on need for help and self care* identify the need for emergency treatment of preeclampsia patients quickly	68	45,3	46	30,7	7	4,7	29	19,3	150	100
12	The instrument can be used to determine the emergency action of preeclampsia patients quickly and appropriately	84	56,0	40	26,7	16	10,7	10	6,7	150	100
13	Appropriate instruments are used to identify recovery conditions in patients with preeclampsia	71	47,3	71	47,3	5	3,3	3	2,0	150	100
14	Appropriate instruments to identify problems in patients with preeclampsia	67	44,7	40	26,7	12	8,0	31	20,7	150	100
15	Useful instruments to identify problems for patients with preeclampsia	87	58	30	20	16	10,7	17	11,3	150	100
16	Appropriate instruments to identify patient problems with preeclampsia	83	55,3	42	28,0	25	16,7	0	0	150	100

Based on Table 2, it can be illustrated that most of the midwives after conducting a trial of the use of need for help and self-care-based *assessment instruments* for preeclampsia patients, expressed their agreement if the terms used do not cause double meaning, simple and attractive appearance, and the time used is short. In addition, most midwives also state that the instrument can identify the ability, independence, and physiological condition of patients with preeclampsia. Assessment instruments based on *need for help and self-care* are also assessed by most midwives to be appropriate to be used to identify emergency conditions and actions quickly and appropriately, as well as recovery conditions in patients with preeclampsia. However, there are still a small number of midwives who strongly disagree with this, so it is necessary to re-evaluate the instrument.

REFERENCES

[1] S. Rana, E. Lemoine, J. P. Granger, and S. A. Karumanchi, "Preeclampsia: Pathophysiology, Challenges, and Perspectives," *Circus. Nothing.*, vol. 124, no. 7, pp. 1094–1112, Mar. 2019, doi: 10.1161/CIRCRESAHA.118.313276.

[2] E. Suprihatin and S. H. Wuryaningsih, "The development of assessment instrument for postpartum patients with severe preeclampsia-eclampsia based on the need for help and self-care models," *J. Ners*, vol. 17, no. 1, Apr. 2022, doi: 10.20473/jn.v17i1.35029.

[3] H. B. Alexander, "Maternal Mortality Rate Still High, Comprehensive Efforts Needed," *Compass*, Jakarta, December 2023. [Online]. Available: https://lestari.kompas.com/read/2023/12/28/110000286

[4] S. N. Tarmizi, "Reducing Maternal Mortality Rate through Early Detection with Ultrasound Fulfillment in Health Centers," Bureau of Communication and Public Services, Ministry of Health of the Republic of Indonesia. Accessed: Feb. 21, 2024. [Online]. Available: https://sehatnegeriku.kemkes.go.id/baca/rilis-media/20230115/4842206

[5] Ernawati, K. W. Wigati, A. N. Hafizh, B. Santoso, and Nursalam, "Contributing factors of neonatal death from mother with preeclampsia in Indonesia," *Indian J. Public Health Res. Dev.*, vol. 9, no. 11, pp. 375–379, 2018, [Online]. Available: https://doi.org/10.5958/0976-5506.2018.01483.3

[6] S. P V, A. Rai, and C. Wadhwa, "Postpartum Atypical Posterior Reversible Encephalopathy Syndrome in a COVID-19 Patient - An Obstetric Emergency," *J. Stroke Cerebrovasc. Dis. Off. J. Natl. Stroke Assoc.*, Vol. 29, No. 12, p. 105357, Dec. 2020, doi: 10.1016/j.jstrokecerebrovasdis.2020.105357.

[7] P. G. Meloy, M. C. Henn, D. Rutz, and A. Bhambri, "Eclampsia," *J. Educ. Teach. Emerg. Med.*, vol. 5, no. 3, pp. O1–O27, Jul. 2020, doi: 10.21980/J8M93D.

[8] G. Khalil, "Preeclampsia: Pathophysiology and the Maternal-Fetal Risk," *J. Hypertens. Manag.*, vol. 3, no. 1, Dec. 2017, doi: 10.23937/2474-3690/1510024.

[9] L. Chen, X. Wang, Q. Ding, N. Shan, and H. Qi, "Development of Postpartum Depression in Pregnant Women with Preeclampsia: A Retrospective Study," *BioMed Res. Int.*, vol. 2019, p. 9601476, 2019, doi: 10.1155/2019/9601476.

[10] N. Frawley, C. East, and S. Brennecke, "Women's experiences of preeclampsia: a prospective survey of preeclamptic women at a single tertiary center," *J. Obstet. Gynaecol. J. Inst. Obstet. Gynaecol.* Vol. 40 No. 1 pp. 65–69, Jan. 2020, doi:10.1080/01443615.2019.1615040.

[11] Z. E. Barber, T. D. Dobbs, J. A. G. Gibson, M. Latibeaudiere, and A. O. Robb, "Long-term seizure recurrence after eclampsia: A systematic review and meta-analysis," *Int. J. Gynaecol. Obstet. Off. Organ Int. Fed. Gynaecol. Obstet.*, vol. 151, no. 2, pp. 175–179, Nov. 2020, doi: 10.1002/ijgo.13347.

[12] M. A. Brown *et al.*, "Hypertensive Disorders of Pregnancy: ISSHP Classification, Diagnosis, and Management Recommendations for International Practice," *Hypertens. Dallas Tex 1979*, vol. 72, no. 1, pp. 24–43, Jul. 2018, doi: 10.1161/HYPERTENSIONAHA.117.10803.

[13] K. Tsabitah, B. Wicaksono, and S. Handayani, "Severe preeclampsia leads to higher prevalence of mortality and morbidity affecting

maternal outcomes in single tertiary hospital," *Maj. Obstet. Gynecologist.*, vol. 28, no. 3, p. 99, Dec. 2020, doi: 10.20473/mog. V28I32020.99-103.

[14] S. Braunthal and A. Brateanu, "Hypertension in pregnancy: Pathophysiology and treatment," *SAGE Open Med.*, vol. 7, p. 2050312119843700, 2019, doi: 10.1177/2050312119843700.

[15] D. Atikawati, D. Ekawati, P. Kusumajati, Prasenohadi, and M. Rasmin, "Respiratory Failure in Severe Preeclampsia Accompanied by Peripartum Cardiomyopathy," *J. Respirologi Indones.*, Vol. 37, No. 4, p. 325, October 2017.

[16] A. H. Setiawan, P. S. Airlangga, and E. Rahardjo, "Complications of Pulmonary Edema in Cases of Severe Preeclampsia and Eclampsia," *JAI J. Anesthesiol. Indonesians.*Vol. 11 No. 3 pp. 136–144, Nov. 2019, doi: 10.14710/j.v11I3.23911.

[17] R. Fox, J. Kitt, P. Leeson, C. Y. L. Aye, and A. J. Lewandowski, "Preeclampsia: Risk Factors, Diagnosis, Management, and the Cardiovascular Impact on the Offspring," *J. Clin. Med.*, vol. 8, no. 10, p. 1625, Oct. 2019, doi: 10.3390/jcm8101625.

[18] G. M. Peres, M. Mariana, and E. Cairrão, "Pre-Eclampsia and Eclampsia: An Update on the Pharmacological Treatment Applied in Portugal," *J. Cardiovasc. Dev. Dis.*, Vol. 5 No. 1 p. 3 Jan. 2018, doi:10.3390/JCDD5010003.

[19] L. A. Magee *et al.*, "Guideline No. 426: Hypertensive Disorders of Pregnancy: Diagnosis, Prediction, Prevention, and Management," *J. Obstet. Gynaecol. Can. JOGC J. Obstet. Gynecol. Can. JOGC*, Vol. 44, No. 5, pp. 547-571.A1, May 2022, Curd: 10.1016/J.Jag.2022.03.002.

[20] B. Mbarak, C. Kilewo, S. Kuganda, and B. F. Sunguya, "Postpartum depression among women with pre-eclampsia and eclampsia in Tanzania; a call for integrative intervention," *BMC Pregnancy Childbirth*, vol. 19, no. 1, p. 270, Jul. 2019, doi: 10.1186/s12884-019-2395-3.

[21] M. Hats *et al.*, "Postpartum depression after mild and severe preeclampsia," *J. Womens Health 2002*Vol. 20 No. 10 pp. 1535–1542, OCT. 2011, doi: 10.1089/JWH.2010.2584.

[22] M. Alligood, *Nursing theorists, and their work*, 10th ed. Philadelphia: Elsevier, Inc, 2021.

[23] I. Clement, *Textbook of Nursing Foundation*, 2/e. India: Jaypee Brothers Medical Publishers (P) Ltd., 2017.