



RESEARCH ARTICLE

Emergency Management of Preeclampsia-Eclampsia at Primary Services in Surabaya

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Abstract

To reduce maternal mortality due to the relay referral system, initial doses of Sulfas Magnesium (SM) therapy have been established in primary care before being referred, but in practice, magnesium sulfate drugs are often not available at the primary care level or are not used according to guidelines. This study aims to explore the management of emergency preeclampsia-eclampsia in primary services in Surabaya. This research was conducted in 5 primary health services in Surabaya. The sample in this study was health workers who carried out emergency management of the preeclampsia and were selected by disproportionate stratified random sampling, which consisted of doctors, midwives, and nurses. Data were analyzed using Partial Least Square (PLS). The results showed that organizational characteristics and individual characteristics significantly affected the management of emergency preeclampsia-eclampsia. The magnitude of the coefficient estimate for the characteristics of the officers for the management of emergency preeclampsia-eclampsia was 0.277669 and for the management of emergency preeclampsia / eclampsia was 0.284305. The coefficient was positive, meaning that the better the characteristics of the organization and health workers, the higher the accuracy of the management of emergency preeclampsia. The results of the study indicated that primary health services in Surabaya need to increase the provision of facilities and infrastructure as well as drugs for emergency management of preeclampsia and eclampsia, for health workers it is advisable to increase knowledge especially about the administration of initial doses of magnesium sulfate in preeclampsia-eclampsia patients before being referred.

Keywords: *Preeclampsia, Eclampsia, Emergency Management, Primary Health Services.*

Introduction

East Java is one of the five provinces that contribute the highest maternal mortality rate, which is 50% of the maternal mortality rates in Indonesia. Based on data on the Health Profile of East Java Province (2012), the biggest causes of direct maternal death in a row are severe preeclampsia / amounting to 34.88%; bleeding 25.09%; 4.98% infections; and other causes 26.98% [1].

The maternal mortality rate in East Java 60% was found in the city of Surabaya with the most common causes being preeclampsia-eclampsia, which amounted to 29.9% [2]. The most dominant phenomenon causing maternal mortality with severe preeclampsia and eclampsia is the inadequacy in the management of emergency preeclampsia by health workers in the primary care setting [3,

4]. Many factors cause inadequate emergency handling of preeclampsia in Surabaya, including relay referrals and the lack of ability of health workers to provide initial magnesium sulfate before referring patients with emergency preeclampsia-eclampsia [2].

Based on the results of a preliminary study conducted at one of the health centers in Surabaya conducted by interviewing 5 midwives of independent practice and having encountered preeclampsia cases, it was found that all midwives said they knew of giving $MgSO_4$ in the handling of preeclampsia before referencing, and all of them were available at $MgSO_4$. Practice, but only 1 midwife gave $MgSO_4$ before referring to the case of preeclampsia and 4 other midwives did not give $MgSO_4$ before referring.

To overcome this, a variety of support is needed for health workers in primary care in order to be able to manage emergency preeclampsia correctly. To provide this support, concrete support data are needed that illustrate the emergency management of preeclampsia-eclampsia by health workers in the primary care setting. So far there are still limited studies that explore the management of emergency preeclampsia-eclampsia by health workers in the primary care setting in Surabaya, so it is important to conduct studies to explore these obstacles. Through a case study, this research aims to explore the management of emergency preeclampsia-eclampsia in the primary service setting in Surabaya.

The accuracy of emergency management of preeclampsia-eclampsia in the primary service structure is influenced by several factors [3-5]. Some of these factors can originate from the organizational characteristics of the primary service setting, the characteristics of health workers, and the characteristics of work. Organizational characteristics include reward systems, vision and mission, selection, training, leadership, organizational structure and work culture.

Characteristics of health workers include knowledge, skills, abilities, motivation, attitudes, and values and norms. Job characteristics include performance objectives, feedback, work design, and work schedules. These three things greatly affect how preeclampsia patients with emergency conditions will get proper management in primary care [6]. In the management of emergency preeclampsia in basic services, the role of the organization is very important

in the provision of infrastructure and medicines.

Likewise, the availability of regulations by organizations in the management of Preeclampsia. Knowledge, attitudes and skills of health workers in primary care can also affect the accuracy in the management of preeclampsia emergencies [2].

Methods

This research was an analytic research with cross sectional approach. The sample in this study were some health workers in primary care settings in Surabaya who had managed preeclampsia or eclampsia patients, namely Simomulyo Health Center, Pacar Keling Health Center, Sidotopo Wetan Health Center, Banyu Urip Health Center, and Jagir Health Center. Sampling was done using disproportionate stratified random sampling technique.

Data was collected through interviews and observations about the emergency management of preeclampsia-eclampsia by health workers in the primary care setting in Surabaya. The categorical data were analyzed descriptively in the form of frequency and percentage [7]; and analytically using Partial Least Square (PLS) [8].

Results

The Characteristics of Health Organizations in the Management of Emergency Preeclampsia in the Primary Care Setting

In summary, the results of the descriptive analysis of Organizational Characteristics variables can be seen in Table 1.

Table 1: Organizational Characteristics of Community Health Centers in Surabaya

Indicator	Category						Total	
	Lacking		Sufficient		Good		n	%
	f	%	f	%	f	%		
Training and development	0	0	9	30	21	70	30	100
Leadership	0	0	13	43.3	17	56.7	30	100
Organizational structure	0	0	8	26.7	22	73.3	30	100

Individual Characteristics

In summary, the results of the descriptive analysis of the characteristic variables of health workers can be seen in Table 2.

Table 2: Characteristics of Health Workers at Community Health Centers in Surabaya

Indicator	Category						Total	
	Lacking		Sufficient		Good		n	%
	f	%	f	%	f	%		
Knowledge	11	36.7	18	60	1	3.3	30	100
Experience	5	16.7	6	20	19	63.3	30	100

Emergency Management for Preeclampsia / Eclampsia

In summary, the results of the descriptive analysis of emergency management variables for preeclampsia / eclampsia can be seen in Table 3.

Table 3: Emergency Management of Preeclampsia-Eclampsia at Community Health Centers in Surabaya

Indicator	Category				Total	
	Less precise		Precisely		n	%
	f	%	f	%		
Management of emergency preeclampsia / eclampsia	18	60	12	40	30	100

Effect of Organizational Characteristics and Characteristics of Health Workers on the Management of Emergency Preeclampsia-Eclampsia

In summary, the results of the analysis of the effect of organizational characteristics and individual characteristics on the management of emergency preeclampsia-eclampsia can be seen in Table 4.

Table 4: Results of Analysis of the Effects of Organizational Characteristics and Individual Characteristics on Emergency Management of Preeclampsia-Eclampsia

Variable	Convergent Validity		Validity of Extracts	Discriminant validity	Reliability	Original Sample (O)	T Statistics (O/STERR)	PLS Coefficient Value
	loading factor	T Statistics (O/STERR)						
Training & Development	0.849186	11.595798	0.714902	0.849186	0.882537	0.284305	2.390200	0.284305
Leadership	0.879303	16.821798		0.879303				
Organizational structure	0.806482	8.870851		0.806482				
Knowledge	0.9797541	9.640473	0.724683	0.979541	0.836664	0.277669	2.103880	0.277669
Experience	0.699904	2.688846		0.699904				
Emergency Management of Preeclampsia / Eclampsia	1.00000		1.00000	1.00000				

Discussion

The Characteristics of Health Organizations in the Management of Emergency Preeclampsia in the Primary Care Setting

The results showed that the majority (70%) had received training in both categories, which had attended both of their training. The results of this study illustrate that most health organizations in the primary care

setting have improved the ability of health workers in managing emergency preeclampsia / eclampsia. Good category means that most of the major health workers have attended training in the Management of Preeclampsia / Eclampsia and Basic Emergency Neonatal Obstetric Services. This effort is very good to ensure that health workers are able to provide the best service based on the latest knowledge, bearing in mind that the management of preeclampsia / eclampsia continues to experience changes following the results of research and case developments.

This is consistent with the results of a study, that the implementation of training can improve employee competencies, including the competency of health workers in managing pre-eclampsia / eclampsia [9]. The results showed that the majority (56.7%) of leadership in primary services in Surabaya regarding the management of preeclampsia / eclampsia was included in both categories.

In this case, it was identified that the majority of the heads of the Community Health Centers had advocated for emergency management of preeclampsia carried out independently by health workers and ensured the availability of tools and medicines as well as the infrastructure for handling emergency preeclampsia-eclampsia. Provision of advocacy by the Head of the Community Health Center strongly supports the implementation of emergency management for preeclampsia / eclampsia, because without advocacy from the leadership, health workers can experience a variety of psychological problems when taking action in emergency conditions.

This is illustrated in a study that health workers can experience powerlessness in handling emergency conditions caused by lack of knowledge, fear of endangering patients, losing authority, fear of lawsuits, and lacking incentives [10]. For this reason, it is suggested the importance of the role of the Head of the Community Health Center in supporting health workers to increase their empowerment in taking action. The loss of authority can be overcome by advocating ensuring that health workers can independently carry out emergency management of preeclampsia in accordance with delegated authority. In this study it was identified that the majority of the Head of the

Public Health Center had confirmed the availability of tools and medicines for the management of emergency preeclampsia / eclampsia well, although this study also found a lack of availability of 10% calcium gluconate and also obtained outdated magnesium sulfate.

The availability of equipment and emergency medical supplies for preeclampsia / eclampsia is very important, given that magnesium sulfate injection is the best therapy to prevent seizures and treat seizures. In the administration of magnesium sulfate, an absolute requirement is required, namely the availability of antidote, in this case calcium gluconate 10%, so the lack of availability of calcium gluconate will cause fatality during magnesium sulfate intoxication.

In this study, it was found that most (73.3%) primary service organization structure in Surabaya regarding the management of preeclampsia / eclampsia was included in both categories. Organizational structure is the existence of clarity in charge and command lines of the Organization in managing emergency services for preeclampsia at the primary or basic level.

In this study, the results showed that most of the Community Health Centers have clear responsibility and command lines as well as clear standard operating procedures (SOP) in the management of emergency preeclampsia. The existence of a clear SOP is very helpful for health workers to take appropriate and quick actions, because they will avoid wasting time wasted in debating decisions. With SOP, health workers will be confident in conducting emergency assistance independently [11].

Individual Characteristics

The results showed that most (60%) knowledge of health workers about the management of emergency preeclampsia / eclampsia is included in the sufficient category. The experience referred to in this study is the experience of health workers in carrying out stabilization, giving Mg So4 initial doses and referring patients with severe preeclampsia and eclampsia, in this case how often health care workers carry out emergency management of preeclampsia-eclampsia. In this study, it was found that the majority (63.3%) had good experience in managing emergency preeclampsia/

eclampsia. In this study, knowledge that is still lacking in health workers is about the use of magnesium sulphate which is not suitable for use in primary care. In theory, what they know is true that magnesium sulfate as an anti-seizure drug is given at an initial dose of 4 grams given intravenously.

According to the East Java Task Force Penakib (2016) that in primary care prior to a referral, the handling of preeclampsia and eclampsia emergencies is to give an initial dose of magnesium sulfate by a combination of intravenous and intramuscular methods, which is given 4 grams intravenously and then 30 minutes and then given 10 grams intramuscular to the buttocks Right and left. Most health workers stated that after being given 4 grams of intravenous immediately followed by administration of magnesium sulfate through an infusion. The administration of magnesium sulfate drip by infusion is considered to be less effective because the patency of the dose is doubtful during the trip [12-15]. In addition to this, lack of knowledge in health workers is about examining the requirements for administration of magnesium sulfate, namely positive tendon reflexes, breathing more than 12 times per minute and urine production of at least 25 cc per hour, and the availability of calcium glukonas. Most health workers cannot mention it in full. Requirements for magnesium administration are important to note because the effects of magnesium sulfate can cause respiratory depression due to decreased respiratory muscle contractility [9, 13].

Emergency Management for Preeclampsia / Eclampsia

The results showed that the management of emergency preeclampsia and eclampsia in primary care was mostly (80%) inaccurate. In this case what is meant by the accuracy of emergency management of preeclampsia-eclampsia in primary care includes stabilization measures, administration of initial dose of magnesium sulfate, pre-referral and referral. Most health workers are correct in stabilizing, but they are not appropriate in administering initial doses of magnesium sulphate and in making pre-referral preparations, which is lack of communication with families clearly, so families are less cooperative to make referrals. This is consistent with the results of a study in the Pekalongan Regency area,

that there is a tendency for the Independent Practice Midwife to make a referral case for preeclampsia without first giving MgSO₄ but instead being taken directly to a public health center that has Basic Emergency Neonatal Obstetric Services and only gets MgSO₄ in the first referral place.

Based on the results of interviews with 5 midwives of independent practice and have met preeclampsia cases. All midwives said they were aware of MgSO₄ in handling preeclampsia before referring, and all MgSO₄ was available at the practice site, but there was only 1 midwife who gave MgSO₄ before referring to preeclampsia cases and 4 other midwives did not give MgSO₄ before referral because direct referral was made to a health center.

People who have Basic Emergency and Neonatal Obstetric Services and Hospitals on the grounds there is still no courage to give it and fear if complications occur after MgSO₄ because there is no doctor or person in charge of administering MgSO₄. This is very risky for patients because eclampsia can attack at any time and will increase maternal mortality that occurs during the referral process because there is no effort to stabilize patients with Magnesium Sulfate (MgSO₄) [16].

The accuracy of emergency management of preeclampsia and eclampsia in primary care greatly influences the outcome of maternal and infant health. The administration of magnesium sulfate in each health service unit in different countries experiences a difference but the combination of administering magnesium sulfate intravenously and intramuscularly at the initial dose is reported to have significance with the improvement of the mother's condition after being in the reference site compared with drip administration by infusion [5, 12].

Effect of Organizational Characteristics and Characteristics of Health Workers on the Management of Emergency Preeclampsia-Eclampsia

In this study, the estimated coefficient of the Organizational Characteristics of Emergency Management for Preeclampsia-Eclampsia is 0.284305. The coefficient is positive which if the organizational characteristics are improved the higher the Preeclampsia-

Eclampsia Emergency Management. Conversely the lower the organizational characteristics, the lower the Emergency Management of Preeclampsia-Eclampsia. The estimated coefficient of the Characteristics of Officers towards Emergency Management of Preeclampsia-Eclampsia is 0.277669.

The coefficient is positive which if the health workers characteristics are improved the higher the Management of Emergency Preeclampsia-Eclampsia. And conversely the lower the characteristics of the officers, the lower the Emergency Management of Preeclampsia-Eclampsia. To ensure the presence or absence of a direct influence, a t-test is performed. The value of the t-count of the Characteristics of the organization towards the Management of Emergency Preeclampsia-Eclampsia is 2.390200. This value is greater than the standard t value of 1.96 so that there is a significant effect of organizational characteristics on the management of emergency Preeclampsia-Eclampsia. The value of the t-count of the Characteristics of Officers towards the Management of Emergency Preeclampsia/Eclampsia is 2.103880.

This value is greater than the standard t value of 1.96 so that there is a significant effect Characteristics of officers on the Management of Emergency Preeclampsia-Eclampsia. Thus the organizational and individual characteristics have a significant influence on the emergency management of Preeclampsia-Eclampsia.

The role of organizations and health workers in primary care in the management of emergency preeclampsia-eclampsia has proven to be very important. This was also revealed in a study, that the ability of health workers to do initial handling that lacked confidence caused them not to do the right treatment, and the support of the Head of the Community Health Center was also very important to provide various facilities, SOP, and advocacy [10].

Conclusions and Recommendations

Organizational and individual characteristics significantly influence the management of emergency preeclampsia-eclampsia in the primary service setting. The magnitude of the coefficient estimate that is positive with both characteristics illustrates that if health

organization characteristics and individual characteristics are increasingly improved, the higher the emergency management of preeclampsia in primary care.

Stakeholders should pay more attention to the availability of magnesium sulfate and calcium gluconate, and maintain good leadership characteristics and organizational structure and the need for refresher training in emergency management of eclamptic preeclampsia by using the latest guidelines specifically carried out in primary services.

Furthermore, efforts should be made to increase knowledge about the administration of initial magnesium sulfate for primary services in accordance with the guidelines set by the stakeholders. In order to obtain a clearer picture of the obstacles perceived by officers in carrying out first aid in emergency preeclampsia, qualitative phenomenological research needs to be done.

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