



Relation Simulation with Midwife Handling of Emergency Obstetry Successfully

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Abstract. Severe pre-eclampsia and hemorrhagic postpartum were main causes of maternal death in Indonesia which could not handling appropriately by midwife as health worker. One of effort to decrease maternal death cause by emergency obstetric is a training skill by simulation to improving midwife responsive skill when handling emergency obstetric cases. The simulation of activities are reduces stress for the midwife as well as risk of injury and discomfort to the client. Thus, effective use of models (humanistic approach) is an important factor in improving the quality of clinical skills. Providing quality emergency obstetric simulation on training reduces the risk of maternal mortality and morbidity. The objective was to review the relation of simulation with midwife handling emergency obstetric case successfully. This study used cross-sectional method with midwife of total sampling. The result view that simulation of handling emergency obstetric case taken by midwife average 2,3 times with 93% when handling case of severe preeclampsia and 98,2% postpartum handling. Then the bivariate analysis using Chi square test obtained there was significant relationship between simulation of frequent with midwife handling emergency obstetric case successfully with ρ value = 0,042 for handling emergency of severe pre-eclampsia and ρ value = 0,034 for hemorrhagic postpartum handling successfully. Conclusion: There are significant result between midwife skills simulation with handling emergency obstetric case successfully.

Keywords: simulation · emergency obstetrics

1 Introduction

Maternal mortality is one indicator to see the success of maternal health efforts. According to the Indonesian Health Profile, there was a decline in the Maternal Mortality Rate (MMR) during the period 1991–2015 from 390 to 305 per 100,000 live births. Despite the decline in the MMR, it failed to achieve the MDGs target of 102 per 100,000 live births in 2015. The government has a target of reducing the MMR to 131 per 100,000 live births by 2030, and seeks to achieve the SDGs target to reduce the MMR to 70 per 100,000 live births in 2030 [1].

Based on the Health Profile of West Java Province, in 2017 the number of maternal deaths in West Java was 696 people [2]. Tasikmalaya Regency ranks 5th contributor to

maternal mortality in West Java, namely 37 people [3]. This high number of maternal deaths requires special attention from the government.

The complications in the process of pregnancy, childbirth and postpartum is one of the causes of maternal death. There are 20% of pregnancies predicted to have complications. Untreated complications can lead to death. In 2013 postpartum hemorrhage was one of the main causes of maternal death, reaching 30.3%, in addition to PEB/eclampsia reaching 27.1% [4].

In 2016 there was a decrease in the percentage of birth attendants by non-health workers and an increase in the coverage of birth attendants by health workers, especially specialist doctors. The data from the survey of national health indicators shows that 29.6% of deliveries occur in hospitals. This is partly due to the referral process. This condition indicates the need for monitoring the quality of delivery services and emergency handling of health workers [5].

In 2012–2016 the Government of Indonesia collaborated with USAID through the EMAS (Expanding Maternal and Neonatal Survival) program which aims to help accelerate the decline in MMR as well as the availability of a referral network system for maternal emergency services that functions effectively, efficiently and fairly. Then in 2016 the West Java Provincial Government replicated the EMAS program into the Mother and Newborn Rescue Program. The strategy built in the Maternal and Newborn Rescue Program to achieve the goal of reducing MMR is to contribute to a 25% reduction in MMR, through strengthening the referral system that is networked between facilities and strengthening the quality of midwife emergency clinical services [6].

One of the efforts made in the Maternal and Newborn Rescue Program in order to strengthen the quality of emergency services is an obstetric emergency simulation activity. This activity aims to train calmness in reacting to obstetric emergencies as well as training skills and training to be responsive if an emergency obstetrics occurs in the future [7]. Clinical simulation training as part of a comprehensive strategy to improve the quality of obstetric care because it is an important step that emphasizes that clinical simulation can significantly improve clinical outcomes for mothers [8].

Francisco's research describes obstetric simulation training with postpartum hemorrhage scenarios. The results show that there is an ignorance of midwives in the management of postpartum hemorrhage and there is an unacceptable delay in the decision to move to the operating room [9]. According to Blum R et al. explained that simulation has the potential to contribute to improving patient safety. And midwives can know the crisis management well. Simulations are used to train and educate medical professionals [10].

The purpose of this study was to determine the relation between obstetrics emergency simulation and the success of obstetric emergencies by midwives.

2 Method

This Research is research analytics and approach *cross sectional* with population whole the midwife who has follow training activity simulation emergency obstetrics that is 57 people and samples set by *total sampling*. Variable free in this research that is obstetrics emergency simulation and variables bound that is success handling Emergency

obstetrics. Instruments used in the form of fill format by providing an assesment of the frequency simulation that have been followed by midwives and secondary data from hospital to determine the success of emergency management in the cases of severe preeclampsia and the cases of postpartum hemorrhage in 114 cases. The data analysis was carried out by univariate, bivariate using the *Chi-Square* test.

3 Results

The results of the research found that the midwife who performed emergency simulation had varying frequency. Likewise, cases of emergency obstetrics are handled (Table 1).

The emergencies cases handled by midwives after attending training and obstetrics emergency simulations focus on handling the emergency cases of severe preeclampsia, eclampsia and postpartum hemorrhage cases. The following is a description of the success handling Emergency cases after midwife perform an emergency simulation (Table 2).

The result of the data analysis frequency of obstetrics emergency simulations with the successful handling of Emergency obstetrics in cases of severe preeclampsia and eclampsia by midwife based on statistical test using *chi square test* obtained p value $0.042 < 0.05$. This means that there is the connection between the frequency of obstetrics emergency simulation with the successfull handling Emergency obstetrics in the cases of severe preeclampsia and eclampsia by the midwife. Besides results, statistical tests were also carried out on frequency simulation emergency obstetrics with successfull handling Emergency obstetrics in the case postpartum hemorrhage by the midwife. Statistical test results using the *chi square* test obtained *p* value $0.034 < 0.05$. This thing show

Table 1. Midwife emergency obstetrics simulation and case management

	Amount simulation	f	%
1	1 time	9	15.8
2	2 times	21	36.8
3	3 times	27	47.4
Amount		57	100

Table 2. Emergency obstetrics management in the cases of severe preeclampsia, eclampsia and postpartum hemorrhage

No	Success	PEB		Bleeding	
		f	%	f	%
1	Succeed	53	93	56	98.2
2	Not succeed	4	7	1	1.8
Amount		57	100	57	100

existence connection frequency emergency obstetrics simulation with the successful handling Emergency obstetrics in the case postpartum hemorrhage by the midwife.

4 Discussion

Based on results of the research is known that the most of the midwives at the SMC Hospital in Kabupaten Tasikmalaya had performed obstetrics emergency simulation even though the frequency was still varied. This is in accordance with research conducted by Vadnais et al., in 2012 that simulation training could produce short-term impacts. Exposure repeated on training simulation after one year could produce benefit additional. Simulation for Emergency midwifery could produce more traits positive to competence in handle emergency, as well enhancement performance individuals and teams [10].

In 2019 in Francisco's research is mentioned that simulation training is very important in workforce management. In a simulation-based course, midwife with an average of two and a half years of experience assisting childbirth participate in simulation training with scenario postpartum hemorrhage [8].

If you see the results of this research, most of the efforts to handling Emergency obstetrics in the case of severe preeclampsia/eclampsia carried out by midwives in having high success level that is 93% and the success handling postpartum hemorrhage is 98.2%. This illustrates that emergency cases handled can be saved because midwives have suitable skills after conducting obstetrics simulation.

The success of the handling cases carried out is in accordance with the results of the publication in America with the title "*Quality Patient Care in Labor and Delivery: A Call to Action*" which recommends that clinical simulation training as part of comprehensive strategy for increase the quality obstetrics services. This Recommendation is an important step to emphasize that clinical simulation could be significantly increase clinical outcomes. Absolutely, this is no the only one factors that will increase obstetrics *outcome*, but efforts to enable individual and team to provide appropriate responses and treatment when obstetrics emergency arise are certainly an important part of a comprehensive strategy to increase maternal *outcome* [7]. Obstetric simulation has the potential to contribute in increase patient safety. Simulation can be used for study how profession could distributed in acute situation and task could delegated. After that, the midwife could knowing how management good crisis. Simulation are used to train and educate medical professional [9].

Although in this research it was known that there were cases severe preeclampsia that could not could be treated. However, failure of the obstetrics Emergency management by the midwife in this case occur because the patient referred to the hospital with condition accompanied by complex Complications, including decom cordis, PPCM, bronchopneumonia, pleural effusion, cardiomegaly and pulmonary oedema. Preeclampsia is a medical problem that often causes complications in pregnancy, as well as an increasing incident of Dead due to complications including seizures, bleeding in the brain, pulmonary edema, failure kidney acute, and clotting/thickening in the blood vessels, solution placenta, IUGR, IUFD, and birth premature. Therefore, is it important to be able to recognize more deeply about this disease [11]. In handling case, the risk factor must be identified as early as possible. Enforcement of the diagnosis need to conducted immediately so that complications do not arise [12].

Rinta et al. in 2012 explained the results that acute pulmonary edema was the most common cause of death in peripartum cardiomyopathy (PPCM) [13]. In accordance with the results of research by Arfianda et al. in 2016, pregnancies with PPCM preeclampsia had higher morbidity and mortality compared to pure PPCM [14]. Hospitals greatly affect the prognosis, mortality and morbidity of patients [12]. In line with Lisnawati's opinion that in handling emergency cases it is necessary to have the participation of various parties in realizing conditions that support the achievement of maternal safety in emergencies through synergism to help the system, work effective, efficient and continuous [15].

The birth process is very close related with potency bleeding. The second stage is one of the risk factors for bleeding, especially during the puerperium. Usually postpartum can be managed actively, namely hemodynamic stabilization. Prolonged hypotension will result in tissue damage and the emergence of DIC [16]. DIC is a complication of obstetrical bleeding such as postpartum hemorrhage. It begins with the entry of tissue thromboplastin or endotoxin into the circulation, inducing activation of thrombin. This results in platelet aggregation and the formation of fibrin monomers which then polymerize into intravascular fibrin.

In addition, placental abruption is one of the etiologies of DIC. In patients with placental abruption, tissue or placental enzymes are released into the uterus and systemic circulation, causing activation of the coagulation system [17]. The clinical manifestations of DIC vary according to the underlying disease, plus additional symptoms of thrombosis, embolism, organ dysfunction, and bleeding. Manifestations that are often seen in DIC include: hemorrhagic shock, decreased consciousness from mild to coma, intracranial bleeding, hypotension, tachycardia, collapse of peripheral blood vessels, hematemesis, hematuria, oliguria, uterine bleeding, and respiratory failure that causes death in this condition. Severe DIC [17]. Therefore, in case management, The risk factors must be identified as early as possible. Enforcement of the diagnosis needs to be done immediately so that complications do not arise [12].

5 Conclusion

Based on the results of the analysis and discussion, it can be concluded: Midwives who have participated in obstetric emergency simulation activities can handle obstetric emergencies in cases of severe preeclampsia/eclampsia and postpartum hemorrhage. The frequency of obstetric emergency simulations carried out by midwives is closely related to the success of obstetric emergency management in cases of severe preeclampsia/eclampsia and postpartum hemorrhage.

There needs to be continuous efforts to improve the skills of midwives through emergency obstetric simulation activities as an effort to improve the quality of services by midwives so as to reduce maternal morbidity and mortality.

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