

Conference Paper

JKN and Maternal Mortality Phenomenon at the Banyuwangi Referral Hospital, Indonesia

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Maternal mortality is a persisting problem in Indonesia. JKN can realize universal health coverage so that the service quality and its utilization can be improved. Maternal mortality in the referral hospital of Banyuwangi was stagnant during the JKN implementation. This study was a comparative analysis of the maternal mortality characteristics before and during the implementation of JKN in Banyuwangi. The study used mixed methods with sequential explanatory design. The study began with a quantitative method and was confirmed in depth by qualitative research. The study was conducted at four secondary hospitals, joined by BPJS Kesehatan. In the quantitative research, the characteristics analysed were the incidence of maternal death, cause of death, time of death, and period of death. Results showed that the proportion of maternal mortality increased after the JKN implementation [from 0.19% to 0.25%] PR = 1.31. Also, patients who died of uterine rupture and pre-eclampsia increased during the JKN implementation – from 15.39% to 18.75%, PR = 1.22 and from 7.69% to 25%, PR = 3.25, respectively. Death time < 48 hr and puerperal death also increased during the JKN implementation – from 61.5 % to 68.75%, PR 1.12 and 46.15% to 53.34%, PR = 1.15, respectively. The tiered referral and non-massive early detection affected the increase in maternal mortality. Many factors contributed to the increase in the proportion of maternal mortality characteristics at the Banyuwangi referral hospital. However, several policies of JKN need to be improved to be more effective in reducing maternal mortality.

Keywords: maternal mortality, health insurance, delay in referral, early detection.

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1. Introduction

Maternal mortality in Indonesia is still a problem until now. Indonesia cannot achieve the target for maternal mortality set by the MDGs. The maternal mortality rate in Indonesia in 2015 was 305 per 100,000 live births. In fact, the MDGs set a target that the maternal

mortality rate in 2015 was 102 per 100,000 live births [1]. Meanwhile, the SDGs set a target mortality rate in 2030 of 70 per 100,000 live births [1]. Many factors determine maternal mortality, one of which is the utilization and quality of health services [2]. Empirical evidence suggests that many developing countries, including Indonesia, have a persistently high burden of maternal mortality with huge regional and wealth disparities in maternal healthcare utilization [3].

The utilization of health services is important to prevent maternal mortality [2]. In Indonesia, the utilization of health services is also a major determinant of maternal mortality [4]. Inequality in getting health services causes the utilization of health services to be less than optimal [5]. In addition, the quality of health services is also a determinant of maternal mortality [2]. In Indonesia, the quality of health services also contributes to maternal mortality [6]. Many things that fall into the category of quality of health care can lead to maternal mortality, like equipment shortage, drug shortage, inadequate care, and care not following protocols [6].

As an effort to realize universal health coverage, Indonesia implements national health insurance [JKN]. JKN program has been implemented since 2014. In its implementation, this program uses a cost and quality control system. Supervision of costs and quality of health services is carried out strictly so that Indonesian people get guaranteed quality services [7]. With JKN, the utilization of health services for women should be increased. In addition, the quality of health services that women get is guaranteed. Finally, maternal mortality can decrease with this health insurance.

In fact, maternal mortality is still a problem in Banyuwangi District. The total of maternal mortality during JKN implementation showed stagnation. The total of maternal mortality from 2011 to 2012 tended to be low. In 2011 total of maternal mortality showed 17 deaths and in 2012 there were 15 deaths. In 2013, there was an increase in the total maternal deaths to 33 deaths. Indeed, there was a decrease in maternal mortality in 2014. However, in the following year, maternal mortality in Banyuwangi tended to be stagnant. Maternal mortality in 2014 was 22 deaths. Then the following year showed a stagnant total maternal mortality, in 2015 was 23 deaths and in 2016 was 21 deaths [8].

2. Material and Method

The study was conducted at four referral hospitals in Banyuwangi [Blambangan Public Hospital, Genteng Public Hospital, Nahdlatul Ulama' Private Hospital, and Muhammadiyah Private Hospital]. This research was conducted in December 2017-July 2018. This study used mixed methods with sequential explanatory design. In the first step,

this study used quantitative research with a longitudinal retrospective design. This step was used to analyse differences in the characteristics of maternal mortality before and during JKN. These characteristics included the incidence of maternal death, cause of death, time of death, a period of death. The sample for quantitative research was pregnant women, women in labour, and postpartum women in four referral hospitals on before and during JKN implementation. The sampling technique was total sampling, with a sample size of 6812 [before JKN] and 6512 [during JKN]. Data collection in quantitative research was obtained from the medical record from four referral hospitals. The statistical analysis used bivariate analysis to analyse the significant comparison between maternal mortality characteristics before and during JKN implementation. This analysis used a prevalence ratio measurement.

In the second step, this study used qualitative research with a case studies design. The qualitative measure was used to confirm in-depth findings of quantitative data. Informants in this measurement included regional midwives, obstetricians, Banyuwangi district health offices, traditional birth attendants, and Posyandu cadres.

3. Results

Based on Table 1 show that there is an increase in the proportion of maternal mortality during the implementation of JKN. The proportion of maternal deaths before the implementation of JKN was 0.19% and there was a significant increase to 0.25% during the implementation of JKN [PR > 1,1]. The increase in the proportion of maternal deaths was not only due to the JKN policy, but there were many contributing factors. It could not be concluded that the existence of JKN caused maternal mortality in the four Banyuwangi referral hospitals to increase. Referring to the three delays theory, it stated that there were several determinants of maternal mortality.

TABLE 1: Maternal mortality before and during JKN implementation at four referral hospitals of Banyuwangi.

Period time	Maternal mortality			
	Maternal mortality		Maternal life	
	n	%	n	%
Before JKN	13	0.19%	6706	99.81%
After JKN	16	0.25%	6451	99.75%
PR	1.31 [PR > 1.1]		0.999 0.9 < PR < 1.1	

Source: Author's own work.

The proportion of time to death <48 hours increased during JKN at the four referral hospitals. The proportion of deaths <48 hours before JKN was 61.54% and increased

significantly to 68.75% during JKN [PR> 1,1]. In addition, the proportion of maternal mortality in postpartum also increased during JKN. The proportion before JKN implementation was 46.15%, then it increased significantly to 53.34% during JKN [PR> 1.1]. Delays in referral were mostly found in these four referral hospitals during JKN. This was why this characteristic increased during JKN implementation. Many referral cases did not plan to come to the hospital, so women were already in a bad condition. Usually, women who give birth were helped by midwives. However, complications occurred in the delivery process, so a referral was made to the hospital. In addition, the lengthy decision-making process in families and communities caused delays in referrals. The reason for the lengthy decision making was the cost used for the referral process. These costs are usually incurred for transportation, accommodation for overnight stays, and meals. Several informants stated this obstacle occurs in people who are members of Health Card [KIS]- Contribution Assistance Recipients [PBI]. Because accommodation costs cannot be covered by BPJS. In fact, people who are included in this health insurance include people who are classified as poor or financially disadvantaged.

In the JKN era, a tiered referral system was strictly implemented. Several informants stated that this tiered referral system made the referral process difficult because the tiered referral system took longer. The lengthy bureaucracy leads to a lengthy referral process. Moreover, if the distance between primary and secondary facilities was far, it would take more time. This condition was felt by the public health centre in one area in Banyuwangi, namely Pesanggaran. Geographically, Pesanggaran has far access to secondary health facilities. Moreover, there were remote areas in Pesanggaran that have geographic conditions that were difficult to access. This condition can be anticipated with massive early detection. So, planned referrals can be made. Early detection should be carried out in primary health facilities to detect complications from the start. When early detection was carried out early, a planned referral could be made to women who have complications. In Banyuwangi, the implementation of early detection in mothers with high risk has not been maximal. Less massive early detection was one of the causes of referral delay.

Direct causes were the most dominant cause of maternal mortality in the Banyuwangi Regency. During the implementation of JKN, direct causes dominated maternal mortality in four referral hospitals in Banyuwangi Regency. There were no deaths caused by indirect causes during JKN. Haemorrhage Postpartum [HPP], uterine rupture, preeclampsia, and eclampsia were the dominant causes of death during the implementation of JKN. However, the proportion of deaths caused by HPP decreased significantly during the implementation of JKN. The proportion of HPP before JKN was 30.77% and decreased

significantly to 25% [PR <0.9]. Meanwhile, deaths caused by uterine rupture increased significantly during the implementation of JKN. Before JKN, the proportion of deaths due to uterine rupture was 15.39% and increased significantly to 18.75% during the implementation of JKN [PR>1,1]. Besides, there was a significant increase in the proportion of deaths caused by eclampsia during JKN. Before the JKN, the proportion of deaths caused by eclampsia was 23.08%. After that, there was an increase to 25% during JKN. After the proportion comparison analysis was carried out, the increase in the proportion of deaths caused by eclampsia did not increase significantly [0,9<PR<1,1]. Whereas deaths due to preeclampsia increased significantly during the implementation of JKN. The proportion of deaths caused by preeclampsia before JKN was 7.69%, then there was a significant increase during JKN to 25% [PR> 1.1].

Confirmation of informants explained that less massive early detection increased the risk of obstetric complications. Of course, this has contributed to increasing the proportion of maternal mortality during JKN. Obstetric complications could be prevented through high-risk detection in antenatal care. For example, preeclampsia, this obstetric complication could be detected early in antenatal care. Many women had high-risk pregnancies in Banyuwangi. Many women get pregnant at risky ages, too young or too old. This occurred because women did not have the authority to make decisions about pregnancy plans. Decisions regarding pregnancy plans were mostly done by the husband.

Informants also explained that the increase in mortality due to uterine rupture was caused by midwives forcing to give vaginal delivery to women with a history of caesarean delivery. They also explained that the reason the midwife insisted on providing this service was the reimbursement system that was not following the real cost. Midwives would not get reimbursement for the services that they provided before referring to the hospital. In addition, this condition also occurred because mothers and their families forced them to continue giving birth to the midwife. Although, midwives have made planned referrals. This condition occurred because they trusted midwives to provide delivery services more than doctors.

4. Discussion

During the implementation of JKN, the proportion of maternal mortality in the four referral hospitals in the Banyuwangi District had increased significantly. The increase in maternal mortality during the implementation of JKN also occurred at other hospitals in Indonesia. In Surabaya, maternal mortality in the hospital has increased during the

TABLE 2: Maternal mortality characteristics before and during JKN implementation at four referral hospitals of Banyuwangi.

Characteristics		Before JKN		After JKN		PR
		n	%	n	%	
Causes of death	Preeclampsia	1	7.69	4	25	3.25 [PR > 1.1]
	Eclampsia	3	23.08	4	25	1.08 [0.9 < PR < 1.1]
	Haemorrhage Postpartum	4	30.77	4	25	0.81 [PR < 0.9]
	Rupture Uterine	2	15.39	3	18.75	1.22 [PR > 1.1]
	Antepartum Bleeding	1	7.69	0	0	0 [PR < 0.9]
	Puerperal Sepsis	1	7.69	1	6.25	0.81 [PR < 0.9]
	Indirect Causes	1	7.69	0	0	0 [PR < 0.9]
Time of death	<48 hr	8	61.54	11	68.75	1.12 [PR > 1.1]
	>48 hr	5	38.46	5	31.25	0.81 [PR < 0.9]
Period of death	Pregnancy	5	38.46	6	33.33	0.87 [PR < 0.9]
	Childbirth	2	15.39	2	13.33	0.87 [PR < 0.9]
	Puerperium	6	46.15	8	53.34	1.15 [PR > 1.1]

Source: Author's own work.

implementation of JKN. In 2013 amounted to 85.7% and increased to 94%[9]. The same thing happened to the government hospital in Sidoarjo. Maternal mortality has also increased from 2013 to 2014 [10]. Maternal mortality at the Tugurejo government hospital in Semarang has also increased during JKN. From 2012, maternal mortality continued to increase until 2015 [11]. Informants explained that JKN was not the only factor that causes an increase in the proportion of deaths in these four hospitals. According to the three delays theory, factors that cause maternal mortality include socioeconomic and cultural conditions, access to health services, and quality of services [2]. However, there were several obstacles to the implementation of JKN in Banyuwangi, which had become factors that trigger maternal mortality.

The less massive early detection was one of the obstacles that contributed to increasing maternal mortality in these four hospitals. Less massive early detection caused delays in referrals because women did not plan referrals from the beginning. One of the studies explained that women referred to in an emergency will increase the risk of death [12]. Indeed, 90% of maternal mortality in Indonesia were preventable deaths [13]. Early detection has a role in preventing complications and maternal mortality. Thus, the quality of this service must be improved and planned referrals can be made immediately [14]. An analysis of secondary data in the East Java Maternal Perinatal Audit conducted in 2012 explained that 40.91% of mothers who died did not get high-risk pregnancies

early detection massively [15]. It was necessary to detect high-risk pregnancies and ensured that they received adequate treatment [15].

From the point of view of service users, deciding to utilize health services was also an obstacle to the referral process during JKN. According to one of the studies, explained that delays in decision making could increase the risk of maternal mortality [16]. Taking too long a decision was a delay in the first referral. Most of the cases of maternal mortality occurred due to the first delay [decision-making process,12]. Decision making that was too long would be at greater risk if women were in an emergency condition [17]. The results of this study explain that the cost constraint for the referral process needed to be an important consideration in the decision-making process. This obstacle was usually felt by families that were classified as poor. This was in line with a study in Ghana. Although women in this country get health insurance, they had a problem with the cost of transportation to utilize health services [18]. Other studies also explained that accommodation costs can become an obstacle to decision making. Taking too long decisions will cause delays and maternal death [19].

These constraints caused delays in referrals, delays in referrals often occurred during the implementation of JKN. Moreover, a tiered referral system was strictly implemented during JKN implementation. There was one area in Banyuwangi that was experiencing difficulties in accessing health services. This was a factor in the increasing proportion of time to death <48 hours and the period of postpartum death. In fact, a good referral system could provide optimal service to women. However, to get optimal service it was necessary to make referrals on time [20]. Indeed, delay in reaching health facilities can increase the risk of death by 40.4% [21]. The constraints that usually caused this delay was prolonged travel time [22]. Research in East Java stated that the geographical situation was one of the problems related to maternal mortality. This problem can become an obstacle to accessing adequate health services and will sometimes result in late referrals [15].

During the implementation of JKN, referral services were carried out in emergency conditions. In fact, the World Health Organization [WHO] has made a standard that referrals must be made for every woman and newborn with a condition that cannot be treated [20]. The delay in getting adequate action was caused by late emergency referrals [15]. The three delays theory stated that most maternal deaths were caused by delays in getting measures [2]. In Serang, 53.4% of maternal deaths were caused by delays in referral [23]. A study in Cilacap stated that delay in referral was a factor in maternal mortality. Delay in a referral when complications occurred, would provide a 50.8 times greater risk of maternal death [12]. Another study also stated that women who

experience delayed referral have a 3 times greater risk of experiencing complications and death [24].

There were two categories of causes of maternal mortality, namely direct and indirect causes. Maternal mortality caused by complications of pregnancy, childbirth, and childbirth was included in the category of direct causes. Meanwhile, deaths caused by illnesses suffered by the previous mother or not caused by obstetric disorders fell into the category of indirect causes [25]. Direct causes were the most dominant cause of maternal mortality in the Banyuwangi. Preeclampsia and uterine rupture were causes of death which increased significantly during the implementation of JKN. Early detection of high-risk pregnancies was not massively into the cause of this increase. High-risk detection was very important as an effort to prevent preeclampsia. Early detection can be done by collecting detailed medical history, biophysical and biochemical parameters [26].

Midwives forcing to give vaginal delivery to women with a history of cesarean delivery was a factor in increasing the proportion of deaths caused by uterine rupture. The guideline made by the American College of Obstetricians and Gynecologists explained that vaginal birth after cesarean delivery [VBAC] was indeed allowed, but this action must reflect several requirements. This guideline also stated that trial of labor after cesarean delivery [TOLAC] should be evaluated by an obstetrician or other obstetric care providers. Moreover, TOLAC has a greater risk of uterine rupture compared to elective repeat cesarean delivery [ERCD,27]. 0.71% of women who gave birth using the TOLAC method had a uterine rupture. Meanwhile, only 0.02% of women who gave birth with ERCD had a uterine rupture [28]. In fact, the guidelines established by the ministry of health stated that pregnant women with a history of CS should be referred to a secondary health facility [29].

The discrepancy between the real cost of the reimbursements to be one indication of this service was made by midwives. Problems in service cost reimbursement will indeed indicate adverse selection and moral hazard [30]. From the supply side of health care, payment effect the response of health workers in providing services. Incentive systems using capitation will influence provider behaviour. There will be indications of fraud in providing services, such as fraud in the decision to make a referral [31].

5. Conclusion

The tiered referral and non-massive early detection affected the increase in maternal mortality. Many factors contributed to the increase in the proportion of maternal mortality

characteristics at the Banyuwangi referral hospital. However, several policies during JKN need to be improved to be more effective in reducing maternal mortality.

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Conflict of Interest

The authors declare that there is no conflict of interest.

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