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Prevalence and Determinants of High-Risk Women in Pregnancy, Labor and Postpartum with Premarital Screening in Semarang City, Central Java, Indonesia

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ABSTRACT

Introduction: Maternal Mortality Rate (MMR) is among health indicators in Indonesia. According to IDHS, in 2012 MMR increased to 359 maternal deaths per 100,000 live births but according to SUPAS in 2015, MMR decreased to 305 maternal deaths per 100,000 live births. Maternal Mortality Rate (MMR) in Semarang city is mostly (77%) caused by puerperium. The purpose of this study is to investigate factors affecting maternal mortality in pregnancy, labor and high risk particularly in Semarang City.

Material and Method: This study was conducted in Semarang City of 37 Puskesmas , conducted surveys and observations by using screening for pregnancy women, labor, postpartum and analyzed bivariate and multivariate with logistic regression.

Findings: The factors correlations with premarital screening were maternal secondary infertility risk p-value 0.013 and postpartum haemorrhage with placental retention with p-value of 0.04. The most influential factors with premarital screening that were only partially weakly affected were pregnant with chronic hypertension (OR = 0.39), delivery with history of SC (OR = 0.14), postpartum with placental retention (OR = 0.09) and secondary infertility (OR = 0.05)

Conclusion: Factors influencing high risk for women an effect on morbidity and mortality, in this case are infections in postpartum women with a frequency of 92.4 %. So it is very necessary promotion and preventive efforts with appropriate health care for women preconception. As well as the existence of a comprehensive program premarital with attention to patient privacy and approval of both patients.

Keywords: *Pregnancy, Labor, Postpartum, High Risk, Screening*

INTRODUCTION

According to WHO data, 99 percent of maternal deaths due to labor or birth problems occur in developing countries. The maternal mortality ratio in developing countries is the highest with 450 maternal deaths per 100,000 live births compared to the maternal mortality ratio in nine developed countries and 51 commonwealth countries. However, data from WHO, UNICEF, UNFPA and the World Bank show maternal mortality to date is still less than one percent per year. In 2005, 536,000 women died due to labor problems, lower than the number of 576,000 deaths in 1990[1]. Death during pregnancy or within a period of 42 days after the end of pregnancy, due to all causes associated with or aggravated by pregnancy or handling, but not caused by an accident/injury. The success of the health effort of one sensitive indicator in a country's people is maternal mortality. According to the data of the 2012 SDKI that increased MMR to 359 maternal deaths per 100,000 live births but according to SUPAS 2015 results, MMR

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decreased to 305 maternal deaths per 100,000 live births.

In addition from the data of Maternal Mortality Rate (MMR) in Semarang City many causes are pre-eclampsia, bleeding and others, 77% of bleeding in the puerperium where the city of Semarang ranked second after the city of Brebes in terms of [1]. In the health service close to the community is Puskesmas which is a health facility that serves primary services in public health in a preventive and promotive and affordable for all community groups.

Puskesmas is a health service facility that organizes public health efforts and individual health efforts of the first level, by prioritizing promotive and preventive efforts, to achieve the highest degree of public health in its working area[26].The number of Puskesmas in Semarang city are 37 *puskesmas* can have potential in conducting survey on women with high-risk pregnancy, mothers with high-risk pregnancy and restrictive mother [1]. So it is necessary once the study of the picture for the causes of factors that influence maternal, labor and postpartum become high risk.

MATERIAL AND METHOD

The research method used survey. Survey is one of the research approaches that are generally used for large and multiple data collection. This study was conducted on large populations. Survey research is used to gather information form opinions from a large number of people on a particular topic. There are three characteristics of survey : information is gathered from a large group of people to describe some aspect or certain characteristics, the submission collect of either written or oral questions of a population, information obtained from the sample, not from the population. Survey research is not only intended to determine the status of symptoms, but also to determine the similarity of status by comparing it with the standard that has been selected or determined. In addition, also to prove or justify a hypothesis [2]. The sample in this study were patients who performed the examination of pregnancy, labor, and postpartum at 37 *Puskesmas* Kota Semarang, Central Java, Indonesia in 2017.

Data will be input using SPSS version 17.00. The frequency of distribution is based on the category of screening in pregnant women with high-risk. Survey results are presented with tables and frequencies. The most influential factor by using factor analysis is multiple regression. The data analysis used bivariate and multivariate with logistic regression.

FINDINGS

Total of 37 *Puskesmas* surveys in 1 year showed that the highest risk pregnant women secondary infertility pregnant 2nd> 5 years as many as 5543 (25.54), seen from pregnant mother or suffering high risk most pregnant women with history of chronic hypertension equal to 714 (36.2), birth history the greatest complication of 3647 (88.1) of birth reports was SC, the biggest complication of delivery was severe Preeclampsia of 22 (33.8), postpartum haemorrhage in the puerperium most with retained placenta of 13 (50) and puerperal infections with the highest number of cases sepsis of 5 (71.4).

Tabel 1 Premarital Screening In Puskesmas Semarang City were:

Premarital Screening Test	**N(%)**
Comprehensive Test	15 (40.5)
Partial Test	22 (59.5)
Total	**37(100)**

Table 2 showed that from the total 37 Puskesmas, 15 (40.5%) carried comprehensive screening test, and 22 (59.5%) carried partial screening test. In the comprehensive test, there were laboratory test, comprehensive physical and psychical test proved by anamnesis, TT immunization and in the partial test, the health center provided PP test, HIV rapid test, Hb rapid test, HBsAg rapid test and TT immunization.

Table 2: Bivariate With Premarital Screening in Public Health Center Semarang :

Variable	**Coefficient**	**p-value**
Secondary Infertility	6.182	0.013
Pregnant history chronic hypertension	.778	0.378
History SC	2.754	0.097
Labor Severe Preeclampsia	.028	0.867
Postpartum haemorrhage with retained placenta	4.185	0.041
Postpartum infection	.334	0.563

Table 2 shows the correlation premarital screening at the Puskesmas Kota Semarang with p-value <0.5 is with the mother secondary infertility 2nd>5th risk factor with p-value 0.013 and postpartum haemorrhage bleeding with retained placenta of p-value 0.041.

Table 3 Results of Multivariate Logistic Regression Analysis

	Variable	Koefisien	P	OR (IK 95%)
Step 1	Secondary Infertility	-.019	0.048	0.98(0.96-1)
Partial Test	Pregnant history chronic hypertension	.026	0.391	1.03(0,97-1)
	History SC	.011	0.138	1.01(0.99-1)
	Labor Severe Preeclamsia	-.088	0.867	0.92(0.33-2.56)
	Postpartum haemorrhage with retained placenta	1.314	0.083	3.72(0.84-16.5)
	Postpartum infection	-.897	0.562	0.41(0.02-8.5)
Step 2	Secondary Infertility	-.028	0.046	0.98(0.88-0.98)
Partial Test	Pregnant history hipertension cronic	.029	0.388	1.01(0,95-1,22)
	History SC	.013	0.135	1.01(0.99-1)
	Postpartum haemorrhage with retained placenta	1.311	0.086	3.69(0.82-15.3)

The result according Table 3 that the variables affecting premarital screening are secondary infertility 2nd>5th, pregnancy with chronic hypertension, delivery with history of SC and postpartum with retained placenta. The strength of the relationship from the largest to the smallest was pregnant with chronic hypertension (OR = 0.39), delivery with history of SC (OR = 0.14), postpartum with placental retention (OR = 0.09) and secondary infertility (OR = 0.05). With very weak links with the partial test.

The variables were linked bivariately with premarital screening at the Puskesmas Semarang City, the results showed a premarital screening relationship with maternal secondary infertility risk and postpartum haemorrhage with retained placenta. So we can know the risk factors that need to be prepared in the premarital is about secondary infertility and postpartum haemorrhage with retained placenta. So with knowing the results need to be done prevention and preparation for premarital women to prepare the design of pregnant planning in healthy reproductive age (20-30 years) [5]. The cases mainly related to the mother age which was considered into post healthy reproductive period, so that there were more risk factors during the pregnancy and delivery which may lead to baby defect, baby stuck, and bleeding [20]. The preparation of nutrients that can improve a woman's fertility later. And also sometimes there is the impact of infertility in women if there is a history of abortion with induction and postpartum infections so it is expected when premarital screening can be informed so that it can be planned better conditions [21]. According to another research secondary infertility can occur because of a lot of parity and the causes of infertility that interfere with female reproduction [22].

Prevention of postpartum haemorrhage with retained placenta by taking into account the nutrients that can increase hemoglobin and vitamin Fe consumption in the prevention of blood deficiency in women before marriage [7]. Also, the need for vitamin C can help prepare the needs during pregnancy and breastfeeding by 95 mg/

day[6]. In addition, in preventing cases for premarital it is also advisable to consume folic acid, vitamin B12 in the decrease of anemia, as many premarital women have anemia and hypermenorrhoea supported by the lack of vitamin consumption, dietary patterns and decreased meat consumption[8]. In addition, anemia can be prevented by a combination of iron fortification of the appropriate food combined with iron supplements in certain population groups has proven to be efficient [24]. So it can be used as a premarital screening program in the prevention of postpartum haemorrhage with retained placenta. The preparation given to the premarital can help premarital women begin to pay attention to his health later life during pregnancy, maternity labor and postpartum. The preparation to prevent that women with multiparity will be at risk of postpartum haemorrhage with retained placenta [23].

The expected that experts also play a role in helping the promotion of health with these important messages with media that are interesting and easy to understand every woman who reads can be through premarital classes, attractive leaflets, banners that can make women have a habit of continuing with the health of reproduction [10]. In addition, there is also a program of knowledge of premarital women in reducing the expectation of idealistic marriage is the most important health between couples, and it is very effective to inculcate teenagers in looking for a good and healthy partner [13]. Premarital health education can helpful for women to always care about health besides the above risks also need health education about healthy sex, HIV / AIDS, and hepatitis because it is a contagious disease and at risk later when married[14].

In addition to these findings after multivariate data processing, it was found that with premarital screening, the most significant effect of this study was the most influential sequence of pregnant chronic hypertension (OR = 0.39), delivery with history of SC (OR = 0.14), postpartum with retained placenta (OR = 0.09) and secondary infertility (OR = 0.05). The results show that the risks that can be answered by screening are in part only 4 of the 6 biggest risks in a mother and have not responded to the influence of all risk.

The incidence of the risk that causes the death of the mother can be prevented and the standard of service in providing premarital counseling in preparing healthy reproduction and healthy family planning. As well as in the premarital screening program, the human rights should be kept secret for health data, but apart of screening premarital screening is concerned with the agreement of both patient, but it is worth noting that premarital screening has a good purpose that is effectively used in the prevention of spreading disease and survival of individuals and communities[11]. In other countries, the premarital screening program is very successful and has significantly improved which is better seen from the interpersonal skills and overall relationship quality[12]. Premarital programs are needed knowledge and attitude toward voluntary screening of marriage because all require awareness of each individual so it is necessary once health promotion about it if the premarital screening program is successful and has a very good impact[15]. This premarital education program is also very effective in improving the quality of couples before marriage and can become a reference partner later in forming a healthy family[16]. Premarital counseling can be done with the cooperation of religious clerics in will marry couples by providing advice that can strengthen into a better family[17]. The couples will be better prepared in the deal of marriage later so that the need for experienced providers to be effective in providing premarital counseling[18]. In addition, premarital screening program is very effective in detecting hemoglobinopathies that impacted later when pregnant, but many couples continue their marriage and always check up the disease so it becomes the preventive breakthrough for couples for the importance of premarital screening [19]. The relevancy of premarital screening in mental health for the improvement of health services with expert resources in mental psychology [25].

CONCLUSION

The factors correlations with premarital screening were maternal secondary infertility risk p-value 0.013 and postpartum haemorrhage with retained placenta with p-value of 0.04. The most influential factors with premarital screening that were only partially weakly affected were pregnant with chronic hypertension (OR = 0.39), delivery with history of SC (OR = 0.14), postpartum with retained placenta (OR = 0.09) and secondary infertility (OR = 0.05).

Conflict of Interest : There is no

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Ethical Clearance: The ethical issue of the Medical Research Bioethics Commission of Medicine Faculty of Medicine Universitas Sultan Agung Semarang Central Java Indonesia.

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