ANALYSIS FACTORS OF CAESAREAN SECTION

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Abstract

Sectio Caesarea (SC) surgical process to deliver a fetus through slices on the abdominal wall and walls. WHO sets the average standard of cesarean section in a country is about 5-15% per 1000 births in the world. The increase in childbirth with SC across the country occurred from 2007 to 2008 of 110,000 per birth in Asia. The purpose of the study was to find out the factors that most influence cesarean sectional. The design of this study used a cross-sectional approach with 82 respondents. The sampling technique was total sampling. The results showed that 63.4% of respondents were in reproductive age, mature gestational age was 59.7%, respondents in risky pregnancies were 62.1%, the history of cesarean surgery was 57.3%, and the distance between pregnancies less than two years (56%). The study found a relationship between maternal age (p: 0.008), gestational age (p: 0.003), risky pregnancies (p: 0.000), history SC (p: 0.040) with cesarean surgery. Meanwhile, no relationship between the distance of pregnancies (p: 0.063) and cesarean surgery. The Odds Ratio of risky pregnancy variables was 6.3. It can be concluded that mothers who have a risky pregnancy would labor with SC 6 times higher than other variables. Pregnancy is a happy time, so it needs to be planned by every couple, then the process of childbirth and breastfeeding can be passed safely.

Keywords : Cesarean Surgery, delivery, risky pregnancies.

INTRODUCTION

The target of maternal mortality (MMR) in Sustainable Development Goals (SDGs) in 2030 is below 70 per 100,000 KH (Ministry of Health, 2015). MMR's World Health Organization (WHO) report in 2014 numbered 289,000 people, and in 2016 Indonesia was ranked first MMR in ASEAN with a total of 359 per 100,000 KH (Handayani, & Mubarokah, 2019). The high MMR occurs due to complications during and after pregnancy and childbirth. 75% of maternal deaths are caused by postpartum bleeding, infection, pre-eclampsia and eclampsia, childbirth complications, and unsafe abortion (Sari, & Absari, 2017).

According to the WHO, incorrect procedures to prevent or reduce MMR can be performed with cesarean surgery. Sectio Caesarea is a surgical process to deliver a fetus through slices on the abdominal wall and uterine wall (Hartati & Anik, 2015). However, the act of

cesarean surgery is no longer performed solely due to medical considerations. The greatest threats of women undergoing cesarean surgery are anesthesia, severe sepsis, and thromboembolic attacks, while post-cesarean surgery is an infection, bleeding, and urinary tract injury (Pamilangan, Edwin, Wantania, John, & Lumentut, 2019). WHO sets the average standard of cesarean surgery in a country is about 5-15% per 1000 births in the world. According to the WHO, cesarean surgery increased across the country occurred from 2007 to 2008, of 110,000 per birth across Asia (Sari, & Absari, 2017). Cesarean surgery recorded in 2000 was 12%, and in 2015 up to 21% (Ministry of Health, 2015).

Data from SDKI, as much 7% cesarean surgery of total childbirth in 2007, 12% cesarean surgery in 2012, and 2017 showed that cesarean surgery incidence amounted to 17% of the total number of births in health facilities. From this data, the authors can conclude that there was a 10% increase over ten years period. SDKI 2017 data, 18.8% of cesarean surgery were performed due to KPD, and 13.6% were due to other factors, including abnormalities in the fetus, PEB, and history of cesarean surgery (SDKI, 2017).

Cesarean surgery is performed due to complications and constituents that can lead to death for the mother. Indications of cesarean surgery are clinically divided into 3: maternal indication, utero-placenta, and fetal indications. 1) Maternal indications include maternal age, infectious disease, gestational age, and cesarean surgery history (Reeder, Martin, & Griffin, 2010). 2) Indication of utero-placenta (utero-placenta blood flow / UBF) is very important for the fetus's survival. UBF is affected by uterine artery pressure (uterine arterial pressure / STEAM), uterine pressure uterine (uterine vascular resistance / UVR). Thus all circumstances that lower the average maternal blood pressure or increase UVR will decrease UBF. Eventually, there will be a decrease in umbilical blood flow (UmBF) that can interfere with the fetus's welfare

(Prawirohardjo, 2011). 3) Indications of the fetus include abnormality of the location of the fetus (breech and latitude), emergency fetus, abnormal fetus, umbilical cord abnormality, twins, and macrosomia (Prawirohardjo, 2011).

The annual data of RSUD Karawang cesarean surgery figures in 2018 there were 2,188 deliveries, and the number of cesarean surgery amounted to 1,693 (77.37%), in 2019 the cesarean surgery number was 1,689 with 2,245 births (75.23%). In 2020 from January to February, there were 238 cesarean surgery with various indications such as mother's age, gestational age, risky pregnancy, SC history, and pregnancy distance. Based on the description above, this study was conducted to determine the factors that most influence cesarean surgery.

METHODS

This study's design was quantitative research correlation between the variables of maternal age, gestational age, pregnancy, history of cesarean surgery, the distance of pregnancy with delivery of cesarean surgery. The population in this study was the mother cesarean surgery in RSUD Karawang amounted to 82 respondents. The samples in this study were taken using a total sampling technique of 82 respondents cesarean surgery. Due to pandemic conditions, researchers made changes in the strategy of data collection. Researchers obtained data on cesarean surgery for the last two months. Researchers explain that the research was conducted by Message / Phone, and if agreed, the respondent chooses "Agree" on Google Form. Data collection is done through digital (google form) on cesarean surgery mothers. Data collection was conducted in July 2020.

Univariate data analysis is done by taking the median value and then at the percentage. Bivariate data analysis looked at the relationship between maternal age, gestational age, risky

pregnancy, history of cesarean surgery, the distance between pregnancy analyzed with chi-square statistical test, then the data presented in the form of a table. In comparison, the multivariate statistical test applied the logistics regression test.

RESULTS

Based on the results of studies that have been conducted on the analysis of maternity factors, cesarean surgery presented in the form of a table, namely: characteristics of respondents, analysis of maternal age relationship with cesarean surgery, analysis of gestational age relationship with cesarean surgery, analysis of the distance between pregnancy with cesarean surgery and table multivariate modeling results of cesarean maternity factor analysis.

Table 1. Frequency Distribution characteristics of Mother with Caesarean Surgery

Characteristics	Frequency	%
Maternal Age		
Non- Risky	50	63,4
Risky	32	36,6
Gestational Age		
Mature	49	59,7
Pre/ Post Mature	33	40,3
Risky pregnancies		
Risky pregnancies	51	62,1
Non-Risky Pregnancies	31	37,9
History Sectio Caesarea		
Yes	47	57,3
No	35	42,7
Distance Between Pregnancies		
< 2 year	46	56
> 2 year	36	44

Table 1 shows from 82 respondents who experienced cesarean surgery obtained the most non-risky: 50 respondents (63.4%), dan mature gestational age was 49 respondents (59.7%), Risky pregnancies were 51 respondents (62.1%), history of cesarean surgery (47 respondents: 57.3%) and distance between pregnancies less than two years 46 respondents (56%).

Table 2. Analysis of Maternal Age Relationship with Caesarean Section

Maternal Age	Caesarean Section				Total		P value (á=0.05)	OR (95% CI)
	Maternal Factor		Fetal Factor					
	N	%	N	%	N	%		
Not Risk	35	70.0	15	30.0	50	100	0.008	3.889
Risk	12	37.5	20	62.5	32	100		(1.524 – 9.926)
Total	**47**	**57.3**	**35**	**42.7**	**82**	**100**		

Table 2 showed no maternal risk age of 50 (61.0%) respondents and risked maternal age as much as 32 (39.0%) respondents. The majority of not-risk maternal age due to maternal factor as much as 35 (70%) respondents risk maternal age due to the fetal factor as much as 20 (62.5%) respondents. Chi-square test results obtained a p-value of 0.008 < α 0.05, there was a relationship between maternal age and cesarean surgery. The analysis OR = 3,889 (1,524 – 9,926) means that risk maternal age of childbirth with cesarean section due to fetal factors 3,889 times greater than not risk maternal age.

Table 3. Analysis of Gestational Age Relationship with Caesarean Section

Gestational Age	Caesarean Section				Total		P value (á=0.05)	OR (95% CI)
	Maternal Factor		Fetal Factor					
	N	%	N	%	N	%		
Mature	35	71.4	14	28.6	49	100	0,003	4.375
Premature / Post Mature	12	36.4	21	63.6	33	100		(1.706 – 11.221)
Total	**47**	**57.3**	**35**	**42.7**	**82**	**100**		

The table showed that the gestational age matures as much as 49 (59%) respondents and premature/ postmature as much as 33 (41%) respondents. The majority of mature pregnancies

with cesarean surgery due to maternal factor as much as 35 (71.4%) respondents while premature/ postmature with cesarean surgery due to fetal factor as much as 21 (63.6%) respondents. Chi-square test results are obtained p-value 0.003 < α 0.05 then there is a relationship between gestational age and cesarean surgery. The analysis OR = 4,375 (1,706 – 11,221) means that premature/ postmature is at risk with cesarean surgery due to fetal factors 4,375 times greater than the age of mature pregnancy.

Table. 4 Analysis of Risky Pregnancies Relationship with Caesarean Section

Risky pregnancies	Caesarean Section				Total		P value (ά=0.05)	OR (95% CI)
	Maternal Factor		Fetal Factor					
	N	%	N	%	N	%		
Risky pregnancies	38	74.5	13	25.5	51	100	0,000	7.145
Non-Risky Pregnancies	9	29.0	22	71.0	31	100		(2.631 – 19.404)
Total	**47**	**57.3**	**35**	**42.7**	**82**	**100**		

The table showed that risky pregnancies are 51 (62.1%) respondents and non-risky pregnancies as much as 31 (37.9%) respondents. The majority of pregnancies were at risk with cesarean surgery due to maternal factors, as many as 38 respondents (74.5%). In comparison, there was no risk of cesarean surgery in pregnancy due to fetal factors as many as 22 respondents (71%). Chi-square test results are obtained p-value 0,000 < α 0.05 then there is a link between risky pregnancy and cesarean surgery. From the analysis, OR = 7,145 (2,631 – 19,404) means that risky pregnancy with cesarean surgery because the maternal factor is 7,145 times greater than non-risky pregnancies.

Table 5. Analysis of Sectio Caesarea's Historical Relationship with Caesarean Section

History	Caesarean Section	Total	P value	OR

Sectio Caesarea	Maternal Factor		Fetal Factor				(á=0.05)	(95% CI)
	N	%	N	%	N	%		
History of caesarean section	32	68.1	15	31.9	47	100	0,040	2,844
Haven't History Of caesarean section	15	42.9	20	57.1	35	100		(1.147 – 7.052)
Total	**47**	**57.3**	**35**	**42.7**	**82**	**100**		

The table above showed a history of cesarean surgery as much as 47 respondents (57%) and hadn't a history of cesarean surgery 35 respondents (43%). The majority of cesarean surgery are due to maternal factors 32 respondents (68.1%), while there was no history of cesarean surgery due to fetal factor 20 respondents (57.1%). Chi-square test results are obtained p-value 0.040 < α 0.05 then there is a relationship between the history of cesarean surgery and cesarean surgery. The analysis OR = 2,844 (1,147 – 7,052) means that history of cesarean surgery has a risk of childbirth with cesarean surgery due to maternal factors 2,844 times greater than the group with no history of cesarean surgery.

Table 6. Analysis of Distance Between Pregnancy With Caesarean Section

Distance Between Pregnancy	Caesarean Section				Total		P value (á=0.05)	OR (95% CI)
	Maternal Factor		Fetal Factor					
	N	%	N	%	N	%		
< 2 Years	31	67.4	15	32.6	46	100	0.063	2.583
> 2 Years	16	44.4	20	55.6	36	100		(1.049 – 6.362)
Total	**47**	**57.3**	**35**	**42.7**	**82**	**100**		

Table 6 showed the distance between pregnancy < 2 years as much as 46 respondents (56%) and distance between pregnancy > 2 years as much as 36 respondents (44%). The majority

of pregnancies < 2 years with cesarean surgery due to maternal factor 31 respondents (67.4%), while pregnancies > 2 years with cesarean section due to fetal factor 20 respondents (55.6%). Chi-square test results are obtained p-value 0.063 < α 0.05 then there is no relationship between pregnancy distance and. From the analysis OR = 2,583 (1,049 – 6,362), the distance of pregnancy < 2 years is more at risk of ea due to maternal factor of 2,583 times greater than pregnancy distance > 2 years.

Table 7. Multivariate Modeling Results Of Caesarean Section Maternity Factor Analysis

Variable	B	P value	OR	95%CI	
				Lower	Upper
Maternal's Age	.974	.084	2.649	.877	8.001
Gestational Age	1.370	.015	3.936	1.310	11.825
Risky Pregnancies	1.849	.001	6.354	2.084	19.378

Table 7 showed the multivariate analysis results obtained variables that affect cesarean surgery are maternal age, gestational age, and pregnancy risk. The analysis found the Odds Ratio (OR) of risky pregnancy variables was 6,354, meaning that mothers who had pregnancies were at risk of giving birth with cesarean surgery 6,354 times higher than mothers who didn't suffer from risky pregnancies or fetal factors. Furthermore, judging by exp (B) for significant variables, the greater the exp (B) value means the greater the effect on the dependent variables analyzed. This data implies the risk of pregnancy is greater of cesarean surgery.

DISCUSSION

Maternal Age with Sectio Caesarea

The age of pregnant women who are too young or too old (< 20 years and > 35 years) will cause concise factors in the maternal and fetus while pregnant, labor, or postpartum (Pratiwi, Gunanegara, & Ivone, 2019). Previous research has shown a significant link between maternal

age and cesarean surgery with a p-value of 0.042. The analysis of OR= 2,502 means maternal age has the risk of childbirth with cesarean surgery 2,502 times greater than haven't risk maternal age (Susanto, Praditia, Yoan & Juniarti, 2019).

Based on the results of studies, theories, and supporting research, researchers can assume both risk maternal age or not risk maternal age have a risk of cesarean surgery. From bivariate data, not risk maternal age is higher than risk maternal age. This can occur due to the disease and the history of cesarean surgery to reduce childbirth complications that can lead to death in the fetus or pain in the mother, so that cesarean surgery is considered the best way to give birth to the fetus. From analysis OR, risk maternal age will have childbirth with cesarean surgery due to fetal factors 3,889 times greater than not risk maternal age.

Furthermore, we can see the risk maternal age experiencing cesarean surgery due to fetal factors more significant than the maternal factor. This can be caused by the fetus's developmental factors such as fetal emergency conditions, abnormalities (breech location or latitude location) so that a safe way to carry out childbirth by cesarean surgery. While the results of not risk maternal age having a cesarean surgery because the maternal factor is much more significant than the fetal factor, this can be caused by the absence of other factors such as the disease or the history of cesarean surgery.

Gestational Age with Sectio Caesarea

Gestational age performed with cesarean surgery because the maternal's body does not provide stimulus in the form of contractions, cervical dilation, and fetal decline while in premature pregnancy is performed cesarean surgery due to fetal emergency, etc. (Manuaba, 2010). Previous research has shown p-value = 0.027 (p < 0.05), which means there is a relationship between gestational age and cesarean surgery (Wulandari, & Maharani, 2018).

Based on the results of studies, theories, and supporting research, researchers can assume both risk maternal age or not risk maternal age have a risk of cesarean surgery. From bivariate data, mature pregnancy is higher than the premature/ postmature. This can occur due to the disease factor in the mother so that after entering mature will be terminated with cesarean surgery. From analysis OR premature/ postmature gestational age are risk with caesarean section due to fetal factors 4,375 times greater than mature pregnancy.

Furthermore, we can see that premature/ postmature gestational age delivered by cesarean surgery due to fetal factors, not because of maternal factors. This can be caused by the development of risk factors in the fetus, such as fetal conditions, central cord compression, and stunted fetal growth. A safe way to reduce complications in the fetus is to carry out childbirth with cesarean surgery. Mature pregnancies that have cesarean surgery due to maternal factors are much more significant than fetal factors.

Risky Pregnancies with Sectio Caesarean

Risky pregnancy causes more significant harm and complications, both to the maternal and fetal, so it is necessary to perform cesarean surgery (Hanretty,2014). Previous research has shown p-value = 0.02 (p< 0.05), which means there is a link between risk pregnancies and cesarean surgery (Susanto, Praditia, Yoan & Juniarti, 2019).

Based on the results of studies, theories, and supporting research, researchers can assume both risky pregnancies or non-risky pregnancies have a risk of cesarean surgery. From bivariate data, risky pregnancies are higher than non-risky pregnancies because risky pregnancies were causing more significant harm and complications, both to the mother and fetus, so it is necessary to

perform cesarean surgery. From analysis OR risky pregnancies with cesarean surgery, the maternal factor is 7,145 times greater than non-risky pregnancies.

Furthermore, we can see risky pregnancies that undergo cesarean surgery due to maternal factors greater than fetal factors. This can result from heart disease, gestational hypertension, pre-eclampsia & eclampsia, anemia in pregnancy, gestational diabetes so that mothers with the condition can perform childbirth with cesarean surgery. While the results of non-risky pregnancies having a cesarean surgery because the fetal factor is much more significant than the maternal factor, this can be due to fetal emergency, abnormality of location (breech position or latitude position).

History of Caesaean Section with Caesarean Section

History of cesarean surgery is scar tissue caused by previous uterine surgery. Scar because cesarean surgery can perform rupture uterine for mothers who want normal childbirth in next pregnancy (Reeder, Martin, & Griffin, 2010). Previous research has shown p-value = 0.003 (p< 0.05), which means there is a relationship between a history of cesarean surgery with cesarean surgery (Andayasari et al., 2015).

Based on the results of studies, theories, and supporting research, researchers can assume both histories of cesarean surgery or no history of cesarean surgery have a risk of cesarean surgery. From bivariate data, the history of cesarean surgery is higher than no history of cesarean surgery. This can occur because pregnant women with a history of cesarean surgery in the next delivery will be done by cesarean surgery to avoid rupture uterine. Based on the OR analysis, the history of cesarean surgery having a risk of childbirth with cesarean surgery due to maternal factors 2,844 times greater than the group with no history of cesarean surgery.

Furthermore, we can see in the history of cesarean surgery who experience cesarean surgery due to maternal factors greater than fetal factors. It can be caused by heart disease, gestational hypertension, pre-eclampsia & eclampsia, anemia in pregnancy, gestational diabetes. While the results of no history of cesarean surgery, having cesarean surgery due to fetal factors are much more significant than maternal factors. This can be caused by a fetal emergency, abnormality of location (breech position or latitude position).

Distance Between Pregnancy with Sectio Caesarea

The distance between pregnancy is the distance of the time interval between two consecutive pregnancies of a woman. A woman after childbirth takes 2 to 3 years to recover her body and prepare for pregnancy and subsequent childbirth. If the distance of pregnancy and childbirth is too close, then it tends to cause damage to the reproductive system (Hanretty, 2014). Previous research has shown a p-value of 0.813 which means there is no relationship between pregnancy distance and cesarean surgery (Susanto, Praditia, Yoan & Juniarti, 2019).

Based on the results of studies, theories, and supporting studies, researchers can assume both mothers with pregnancy distance < 2 years or distance of pregnancy > 2 years have a risk of cesarean surgery. From bivariate data, the pregnancy distance < 2 years higher than the pregnancy distance > 2 years. This can occur because the mother has done cesarean surgery in a previous childbirth. Pregnancy distance is too close to the weakening of the strength of the uterine muscles' functions and pelvic muscles, so it causes her power not to strengthen so much. A lot of old partus that result in the mother and fetus's condition is not good, and then they need cesarean surgery. From analysis OR, a distance of pregnancy < 2 years is more at risk due to the maternal factor of 2,583 times greater than pregnancy distance > 2 years.

Analysis of Caesarean Section Factors

Based on multivariate analysis results, obtained variables that affect cesarean surgery are the variable maternal age, gestational age, and risky pregnancy. The analysis found the Odds Ratio (OR) of risky pregnancy variables was 6,354, meaning that mothers who had pregnancies were at risk of giving birth with cesarean surgery 6,354 times higher than mothers who didn't suffer from risky pregnancies or fetal factors. Furthermore, judging by exp (B) for significant variables, the greater the exp (B) value means the greater the effect on the dependent variables analyzed. This data implies pregnancy is at greater risk of cesarean surgery events.

Based on the results of research, theory, and supporting research, it can be assumed that a risky pregnancy is one indication of cesarean surgery such as heart disease, gestational hypertension, pre-eclampsia & eclampsia, anemia in pregnancy, gestational diabetes mellitus and HIV. Those risk condition lead to give birth by cesarean surgery because it can minimize complications, both to the mother and the fetus (Marfuah & Bachri, 2018)

CONCLUSIONS

Cesarean surgery would occur due to maternal or fetal factors, if the mother or fetus have risk conditions. The cesarean surgery is chosen as the fetal in risky health and may no longer be performed. The researchers can further explore things that affect cesarean surgery such as, fetal factors and family support in decision making for cesarean surgery.

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