
RESEARCH ARTICLE

The Correlation between High-Risk Pregnancy > 35 Years Old with Labioschizis Congenital Disorders

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ABSTRACT

Abnormalities of the lip and palate or commonly referred to as cleft lip or labioschizis, are congenital abnormalities of the gap between the right and/or left sides of the lip. Palatoschizis is the most common congenital abnormality after labioschizis with multifactorial causes and is found in every nation in the world. This congenital anomaly is ranked the third most common based on a survey conducted in 13 major hospitals in Indonesia, and the incidence of cleft lip with or without cleft palate is 1 per 700-1000 births worldwide, and Asians have the highest risk. Among the factors causing it, genetics is agreed to be the main factor. Infants die or are disabled; even mothers die during childbirth, which often occurs in pregnancies aged > 35 years and over. Giving birth at the age of > 35 years and over, babies born are susceptible to genetic disorders. This study is to report cleft lip due to high-risk pregnancy > 35 years old at regional public hospital Drs. H. Amri Tambunan, Deli Serdang, which is a type B regional hospital in North Sumatra, Indonesia. This was a descriptive analysis with the *cross-sectional* retrospective study by using medical records of high-risk pregnancy > 35 years old patients treated from January to December 2019. The data are presented in tabular and pie form. In this study, there were 86 samples of patients with high-risk pregnancies > 35 years, and there were 49 (56.9%) patients in this study. The highest incidence rate was congenital cleft lip in 39 (45.3%) patients. Operations on children with congenital abnormalities such as labioschizis, labiopalatoschizis, and labiopalatognatoschizis are mostly performed when children are > 3 months – 12 months old, as many as 11 (28.2%) patients while 16 (41.1%) patients do not have surgery in this research. The results of this study did not show a relationship between the age of pregnant women > 35 years with the incidence of abnormalities under the cleft lip with a p-value of 0.230 which means a sig value > 0.05. However, based on the data that researchers got, respondents with maternal age of > 35 years tend to experience labioschizis, meaning that the older the age of pregnant women, the riskier they give birth to babies with labioschizis.

KEYWORDS

Cleft Lip, High Risk Pregnancy, Congenital Abnormalities

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1. Introduction

Labioschizis (Cleft Lip) and palatoschizis (Cleft Palate) are the most common craniofacial congenital abnormalities found in plastic surgery cases, which is about 1 in 700 live births.¹ Abnormality of the lip and palate or commonly referred to as cleft lip or labioschizis, are congenital abnormalities of the gap between the right and/or left sides of the lip. This abnormality occurs during the formation of the fetus, sometimes extending to the ceiling and even destroying the aesthetics of the nostrils called labiopalatoschizis or labiognatoschizis.^{2,3}

Patients with cleft lip and/or palate were not a homogeneous group. They can be divided into the cleft lip, cleft palate, and cleft

lip with cleft palate. Cleft lip deformity is usually divided into unilateral and bilateral.⁴ Babies with a cleft lip will have difficulty in coordination, breathing processing, and difficulty sucking while breastfeeding. As a result, children will be confused when they are eating or drinking. Sometimes it even looks like he has stopped breathing and is lazy to eat, even though the child is afraid to swallow because he knows he will choke.¹

The exact cause of cleft lip is not known with certainty. However, the estimated causative factor is a combination of genetic and environmental factors, such as maternal age, medications, infectious diseases experienced by the mother during pregnancy, and pregnant women who consume alcoholic beverages or smoke. The risk of getting this case will be higher in children who have siblings or parents who also suffer from this disorder.⁵ Congenital disorders that occur can be prevented, for example, through vaccination and consumption of certain substances, such as folic acid and iodine, avoiding consumption of drugs that are not recommended by doctors, alcohol or harmful substances such as preservatives and artificial dyes, avoiding exposure to hazardous and toxic substances such as lead, mercury, and pesticides, regular physical activity/exercise and avoiding cigarette smoke during pregnancy.^{1,4}

In a survey conducted by the Indonesian Ministry of Health in collaboration with 13 hospitals to carry out sentinel surveillance, This hospital-based congenital abnormality surveillance has been carried out since September 2014 in 13 government and private hospitals, namely: RSUP. H. Adam Malik (Medan), Budi Kemuliaan Hospital (Jakarta), Bunda Hospital (Jakarta), RSUPN. Dr. Cipto Mangunkusumo (Jakarta), RSAB Harapan Kita (Jakarta). RSU Dr. Kariadi (Semarang), RSUP. Dr. M. Djamil (Padang), RSUP. Sanglah (Denpasar), RSUP. Dr. Sardjito (Yogyakarta), RSUD Dr. Soetomo (East Java), RSUP. Dr. Wahidin Sudiro Husodo (Makassar), Hermina Hospital (Jakarta), and RSUP. Dr. Hasan Sadikin (Bandung). Surveillance is carried out by selecting cases that are easily recognizable at birth and can be diagnosed visually and easily recognized without the aid of supporting equipment, namely: 1) Nervous System Disorders (Spina Bifida, Unenchevaly, Meningo/Encephalocele, and Hydrocephalus); 2) Eye disorders (congenital cataract); 3) Lip and palate abnormalities (cleft palate only, cleft lip only, and cleft lip and palate); 4) Genital and urinary tract disorders (Hypospadias and Epispadias); 5) Musculoskeletal System Disorders (Talipes equinovarus, and reduced extremity), 6) Gastrointestinal tract disorders (Atresia ani with or without fistula), and 7) Other disorders such as Omphalocele, Gartroschizis, and conjoined twins.⁶

Babies born with cleft lips should be treated by specialists from various disciplines because they have to consider hearing, speech, teeth, and psychosocial problems. In general, cleft lip surgery is performed on infants aged 2-4 months.⁷

This study aims to show whether there is a direct relationship between babies born with cleft lip conditions and high-risk pregnancies at the age of > 35 years at the RSUD. Drs. H. Amri Tambunan, Deli Serdang.

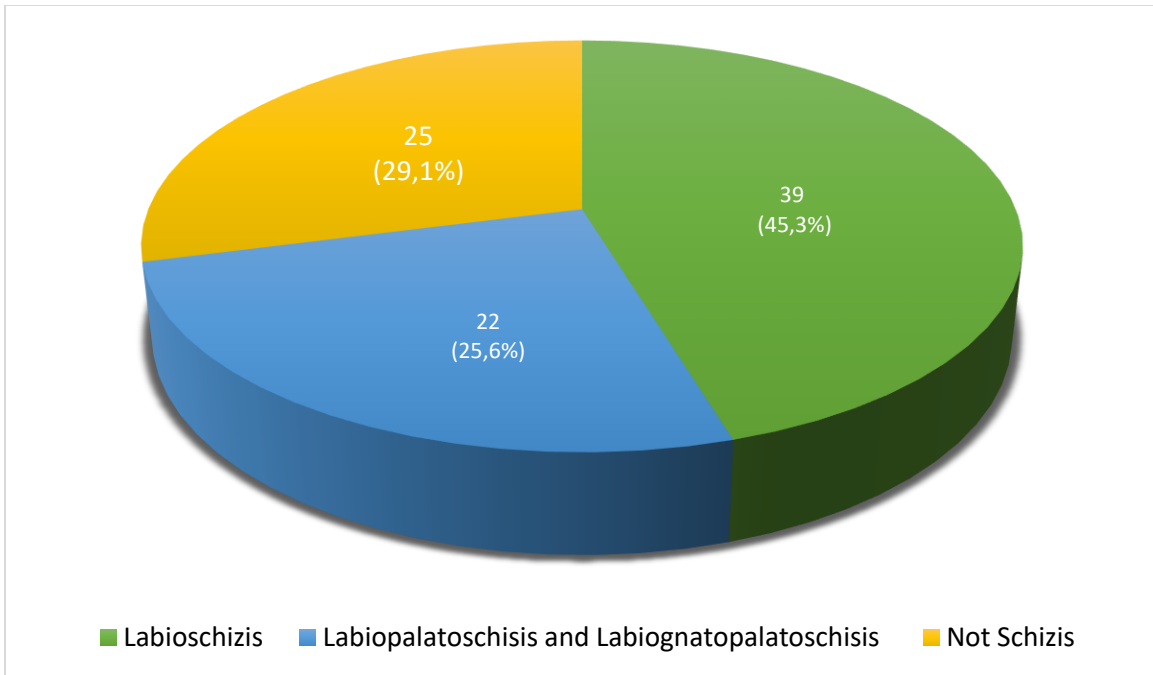
2. Method

This study was a descriptive analysis with a retrospective cross-sectional study. Researchers conducted an evaluation using the medical records of pediatric patients who were born to mothers who were pregnant at the age of over 35 years and were treated at the RSUD. Drs. H. Amri Tambunan, Deli Serdang from January to December 2019. The number of samples in this study was 68 samples. The research design used in this study is cross-sectional, which is where this research is carried out by measuring variables at the same time or at one time. Diagnosis of congenital abnormalities is based on anamnesis results, physical examination, and investigations. Inclusion criteria were infants and children with congenital abnormalities labioschizis treated at the RSUD. Drs. H. Amri Tambunan, Deli Serdang. The exclusion criteria were patients with incomplete data.

The data recorded included the type of cleft palate, maternal age, gender, and age of operation in patients with labioschizis. Variables related to the incidence of congenital abnormalities were analyzed using the chi-square test with a significance level of value <0.05. The data were processed using the SPSS (Statistical Product and Service) version 23 program.

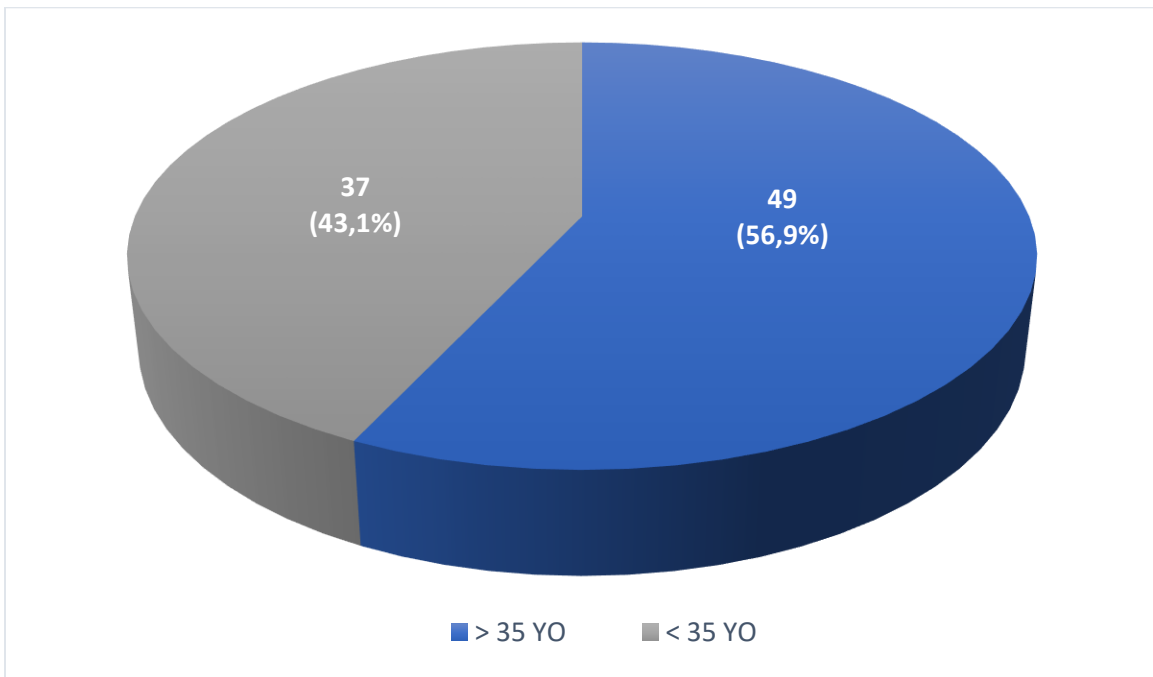
3. Result

This research was conducted in RSUD. Drs. H. Amri Tambunan, Deli Serdang in February 2020. The research sample obtained was 86 patients. Meanwhile, for patients with labioschizis, 39 patients were obtained, and there were 22 patients with labiopalatoschizis and labiognatopalatoschizis. Data was taken from medical records for the period January to December 2019 from a total population of 86 cases.



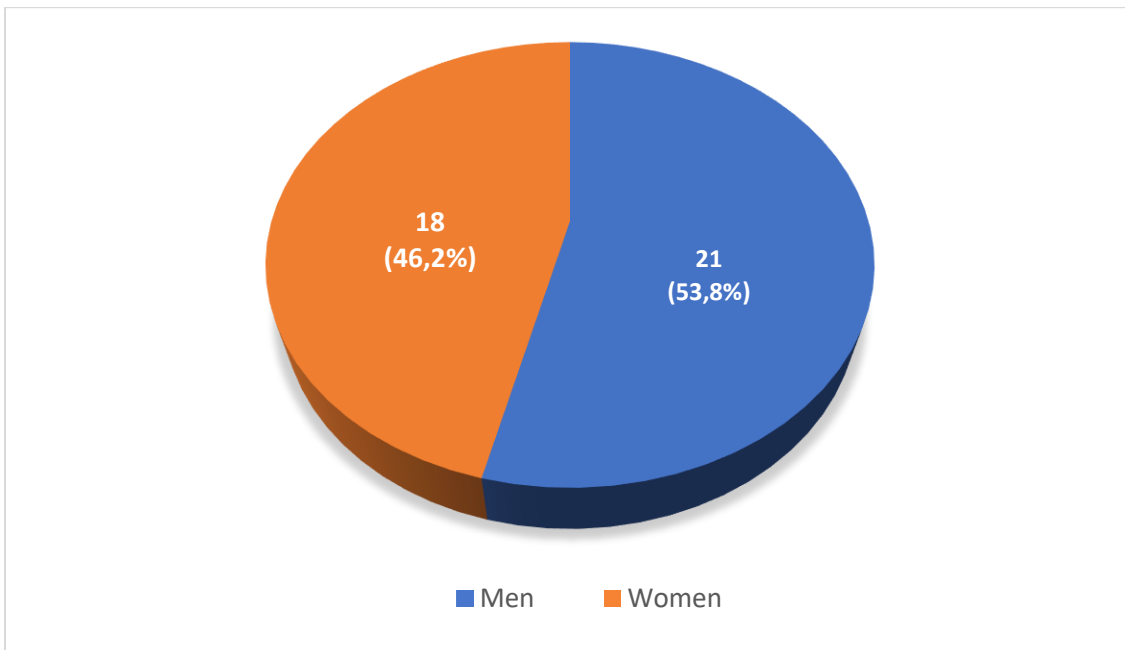
Pie 1. Distribution of Labioschizis, Labiopalatoschizis and Labiognatopalatoschizis or not Schizis

Based on the data above, it can be seen that the majority of the samples had labioschizis, as many as 39 patients with a percentage of 45.3%, patients with labiopalatoschizis and labiognatopalatoschizis as many as 22 patients with a percentage of 25.6%, and not labioschizis, labiopalatoschizis and labiognatopalatoschizis patients with a percentage of 29,1%.



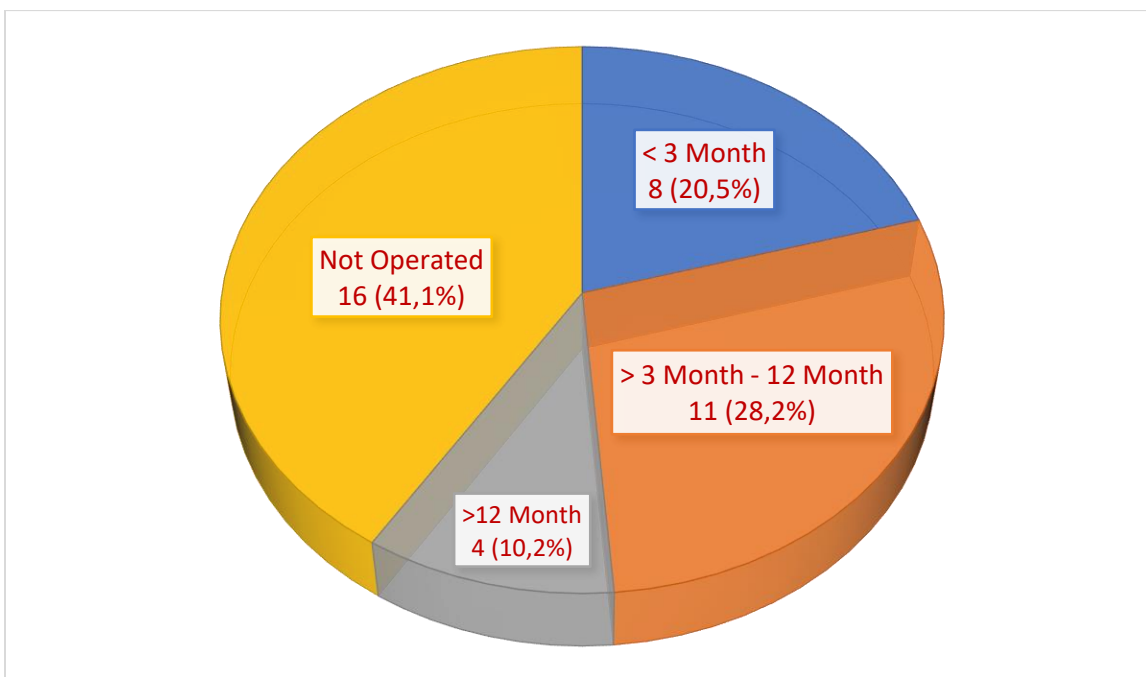
Pie 2. Distribution of Labioschizis based on mother's age

From the results of the study above, it can be seen that the distribution of the frequency of labioschizis based on maternal age was obtained from 39 patients. It can be seen that the maternal age above 35 years amounted to 28 patients with a percentage of 71,7% and maternal age under 35 years with children experiencing labioschizis as many as 11 patients with a percentage of 28,3%.



Pie 3. Distribution of Labioschizis based on the gender of patients

Based on pie 3 above, from a sample of 39 labioschizis patients, most of the patients with labioschizis were male, amounting to 21 patients with a percentage of 53.8%. Meanwhile, there were 18 female patients with a percentage of 46.2%. This shows that more men suffer from labioschizis than women.



Pie 4. Distribution of Operating Age in Patients with Labioschizis

From the data above, it can be seen that most of the patients, namely 16 patients, had not undergone surgery. This is because respondents changed addresses or underwent surgery at other hospitals, or participated in free cleft lip surgery programs held by certain agencies.

3.1 Correlation between maternal age and the incidence of labioschizis

Tests with bivariate analysis were used to test whether or not there was a relationship between pregnant women aged more than 35 years and labioschizis congenital abnormalities in RSUD. Drs. H. Amri Tambunan, Deli Serdang in 2019. This bivariate test with chi-square is to find out whether there is a relationship between variables. The existing data was processed with the SPSS version 23 program.

			Congenital Abnormalities			Total	P Value
			Labio-schizis	Labiopalato-schizis and Labiognatopalatoschizis	Not Schizis		
Mother's Age	> 35 YO	Count	26	10	13	49	0,230
		Expected Count	22.2	12.5	14.2	49.0	
		% within Mother's Age	53.1%	20.4%	26.5%	100.0%	
	< 35 YO	Count	13	12	12	37	
		Expected Count	16.8	9.5	10.8	37.0	
		% within Mother's Age	35.1%	32.4%	32.4%	100.0%	
Total	Count	39	22	25	86		
	Expected Count	39.0	22.0	25.0	86.0		
	% within Mother's Age	45.3%	25.6%	29.1%	100.0%		

Tabel 1. Correlation between maternal age and the labioschizis incidence

Based on the table above shows that the p-value of 0,230 means that the sig value > 0.05, there is no relationship between maternal age and the incidence of childbirth with congenital abnormality labioschizis. However, based on the data that the researchers got, respondents with maternal age over 35 years tend to experience labioschizis, labiopalatoschizis, and labiognatopalatoschizis, meaning that the older the age of pregnant women, the riskier they give birth to babies with labioschizis, labiopalatoschizis, and labiognatopalatoschizis.

The results of the research above are supported by research conducted by Natalia Loho for the period January 2011 to October 2012 at the RSUP. Prof. Dr. R.D. Kandou, Manado, regarding the prevalence of the incidence of labioschizis where the incidence of labioschizis is mostly caused by environmental factors, including maternal age, which is 62%.⁸

Research conducted by Suryandari in 2017 is also in line with this study that there is no relationship between maternal age and the incidence of cleft lip, but the younger or older the age of the pregnant woman, the risk of giving birth to a baby with a cleft lip.³ A meta-analysis study conducted by Herkrath in 2012 found that compared to mothers aged 20-29 years, mothers aged 35-39 years had a 20% higher chance of giving birth to babies with cleft palate, while mothers aged 40 years or older had a 28% higher probability. Mothers aged 40 years or more have a 1.56 times greater risk of giving birth to babies with cleft lip and or without cleft palate than mothers aged 20-29 years.⁹ Another study conducted by Abidin in 2013 found that maternal age at risk, intrauterine infection, insufficient folic acid supplementation, and insufficient antenatal care when standing alone were stated to affect the incidence of facial-oral congenital abnormalities but did not affect the incidence of facial-oral congenital abnormalities orally in neonates when these factors are combined.¹⁰

4. Discussion

In research conducted in RSUD, Drs. H. Amri Tambunan and Deli Serdang conducted research from January 2019 to December 2019 and obtained as many as 86 pregnant female patients with high risk over 35 years of age. The results obtained were 39 patients with congenital abnormalities labioschizis with a percentage of 45.3%, labiopalatoschizis and labiognatoschizis with a percentage of 22 patients with a percentage of 25.6%, and 25 patients with no abnormalities with a percentage of 29.1%. This shows that there are more labioschizis sufferers than labiopalatoschizis and labiognatoschizis sufferers. Research conducted by Suryandari in 2017 found that most of the respondents experienced labioschizis totaling 24 with a percentage of 57%, while patients with labioschizis and labioschizis were 18 with a percentage of 43%, which indicates that there are more labioschizis patients than non-labioschizis.³ This is different from the results of the study conducted by Supandi in the period 2011-2013 at RSUP. Dr. R.D. Kandou, Manado stated that the highest cases found were cleft lip and alveolus cases accompanied by soft and hard palate clefts, namely 93 cases, which means most sufferers are not labioschizis.¹¹

According to Sibuea, in 2013, babies died or were disabled, and even mothers died during childbirth, often occurring in pregnancies of 35 years and over. Giving birth at the age of 35 years and over, babies born are prone to genetic disorders. At reproductive age (25-35 years), the risk of the baby experiencing genetic disorders is 1:1000, while in mothers over 35 years, the risk increases to 1:4.¹² The last study conducted by Berg in 2015 showed that increasing maternal age would increase the risk of having a baby with a cleft lip.¹³ This shows that mothers aged 35 years are more at risk of giving birth to children with labioschizis. This study also showed that more men suffer from labioschizis than women.

The results of this study indicate that many surgeries are not performed, as many as 16 (41.1%) pediatric patients with congenital abnormalities. Meanwhile, as many as 23 patients had surgery. Surgeons used the rule of ten for lip reconstruction with infant criteria of at least 10 weeks of age, the weight of 10 pounds, and haemoglobin of 10 grams/dL. This shows that cleft lip patients aged 1 year old can perform cleft lip surgery. From the data above, the age of cleft lip surgery is the most at the age of 1 year old compared to other ages.

5. Conclusion

Pediatric patients born to high-risk pregnant women above 35 years of age indicate a risk of having children with congenital abnormalities labioschizis, labiopalatoschizis, and labiognatopalatoschizis in RSUD. Drs. H. Amri Tambunan, Deli Serdang, from January 2019 to December 2019, obtained as many as 86 cases of high-risk pregnancies aged over 35 years, and 39 cases were recorded with congenital abnormalities in the form of labioschizis. It was found that there was no direct relationship between high-risk pregnancies over 35 years and the birth of congenital abnormalities such as labioschizis, labiopalatoschizis, and labiognatoschizis as evidenced by the results of the chi-square statistical test with a p-value 0.230 which showed no relationship. However, pregnancy at the age of over 35 years is riskier than pregnancy at the age of 20-35 years.

The results of this study are expected to provide benefits and information to the public about the age group of pregnant women who are at risk of giving birth to a baby with a cleft lip to reduce the incidence of cleft lip. This data may be lacking, considering that Deli Serdang is the largest district in North Sumatra which has many health facilities capable of assisting childbirth, where there is a high probability that many births with congenital abnormalities were not referred to or recorded at the RSUD. Drs. H. Amri Tambunan, Deli Serdang.

5.1 Suggestion

For further researchers who want to conduct further research on the relationship of pregnant women aged 35 years with the incidence of cleft lip in hospitals; Drs. H. Amri Tambunan, Deli Serdang in 2019, it is recommended to pay attention to the weaknesses in this study. It is also recommended to examine the younger age of the mother, namely the relationship of pregnant women aged < 20 years with the incidence of cleft lip.

Conflict of Interest: The authors declare no conflict of interest regarding this study.

Author Contribution: All authors contributed equally in conducting the study as well as writing and revising the manuscript.

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Ethical Clearance: This study's ethical clearance was approved by the faculty of medicine at The Methodist University of Indonesia and RSUD. Drs. H. Amri Tambunan, Deli Serdang.

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