4T Risk Factors on Pregnancy and Labor

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Abstract. Background: It is necessary to make optimal efforts to prevent or reduce the frequency of pregnant women who are at high risk and treatment needs to be done immediately to reduce maternal and child mortality.

Aim: to explore 4t risk factors on pregnancy and labor

Methods: This type of research is a simple descriptive quantitative research from the documentation in the medical record to determine the completeness of the inclusion and filling. The population of this study is all medical records of pregnant and maternity cases with a 4T risk that occurs for 1 year (1 January 2021-December 2021). The sampling technique uses a total sampling technique. Data analysis in this study used univariate and bivariate analysis.

Results: Cases of pregnant women with the highest 4T risk were cases with too close 4T risk (distance between last delivery and current pregnancy < 2 years) as many as 39 people (50.6%).There were 34 people (44.2%) of pregnancy complications and this figure cannot be underestimated that mothers with high-risk pregnancies are likely to experience greater complications both for the mother and the fetus having high-risk pregnancy complications. The most types of pregnancy complications were anemia (Hb < 11 g%) which was 19 people (24.7%) and the least was pregnancy with myopia as many as 2 people (2.6%).

Conclusion: The results of statistical analysis using the chi square test obtained value = 0.05 which means <, which means that there is a relationship.

Keywords: 4T risk factors · pregnancy complications · labor complications

1 Introduction

One indicator that is sensitive to the quality and accessibility of health care facilities is the Maternal Mortality Rate (MMR). The number of maternal deaths is 303,000 deaths. Based on the 2019 Indonesian Health Profile, the Maternal Mortality Rate (MMR) in Indonesia is still very high, at 305 per 100,000 live births. According to the Indonesian Ministry of Health in 2019, the most common causes of maternal death were bleeding (1,280 cases), hypertension in pregnancy (1,066 cases), infection (207 cases) [1].

Death during childbirth, caused by bleeding, too young, too old, too close and too many children (4T). This condition is then supported by being late in recognizing signs, being late in reaching the service center and being late in getting help.2 Therefore, it is necessary to make optimal efforts to prevent or reduce the frequency of pregnant women

S. Pranata et al. (Eds.): LSISHS 2022, AHSR 60, pp. 382–391, 2023.
https://doi.org/10.2991/978-94-6463-132-6_43

who are at high risk and treatment needs to be done immediately to reduce maternal and child mortality [2].

The cause of the high maternal mortality rate in Indonesia can be seen from the following various factors, namely bleeding, abortion, prolonged labor, eclampsia, infection and others.1 During childbirth, most of the deaths caused by bleeding and four too (4T) which is too young, too old, too close to pregnancy and too many children. There are three delays (3T), namely being late in recognizing the signs, being late in getting help and being late in arriving at a help center that supports these conditions. 4T and 3T factors that determine the health and safety of childbirth [3].

High risk pregnancy is a pregnancy that can cause pregnant women and babies to become sick or die before birth takes place. 5 Characteristics of pregnant women are known that important factors causing high risk in pregnancy occur in the 35 year old age group, height less than 145 cm, underweight than 45 kg, the distance between the last child and the current pregnancy is less than 2 years, the number of children is more than [4].

The impacts that can be caused by high-risk pregnant women themselves can include miscarriage, obstructed labor, antepartum bleeding, fetal death in the womb (Intra Uterine Fetal Death), poisoning in pregnancy, babies born before term, and low birth weight babies [5].

Until now, the city of Semarang is still running the program to reduce the MMR and IMR. As is known, the incidence of MMR in 2021 has increased from the previous year as many as 21 cases. Of the AKI deaths, the cause of death was 4T with an incidence of 4T in 2020 44% and an increase in 2021 by 47%. The distribution of 4T during the period 2018–2022 (cut April) included 26% of pregnancies less than 20 years old, 30% of pregnancies over 35 years old, 36% too many children and 6.7% too close birth spacing. Apart from being one of the contributors to AKI in the city of Semarang, the 4T case is also one of the contributors to the IMR including during the period until 2022 the 4T factor causes the incidence of LBW as much as 28.5%; the incidence of asphyxia as much as 33%; congenital abnormalities as much as 28.5%; and other consequences as much as 10%.

Padangsari Health Center itself is one of the health centers in the Semarang City Region with a fairly large incidence of 4T among the risk factors that accompany pregnancy where until 2022 there are 4 cases of pregnancies less than 20 years old, 5 cases of pregnancies > 35 years old, too many children 2 cases and too close to birth spacing as many as 52 cases.

2 Method

The design in this study is descriptive analytic using a cross sectional approach. The sample of this study was medical records, namely medical record data for cases of pregnant and giving birth women with 4T risk factors. The sampling technique used the total sampling technique. Data analysis in this study used univariate and bivariate analysis. The place of this research is in the Padangsari Health Center area (Table 1).

Table 1. 4T Risk Factors in the Padangsari Public Health Center, Semarang City

Category	Frequency	%
Too Young (<20 Years Pregnant)	5	6.5%
Too Old (>35 Years Pregnant)	29	37.7%
Too close (Last delivery with current pregnancy < 2 years)	39	50.6%
Too Often (Pregnant > 4x)	4	5.2%
	77	100%

3 Results and Discussion

3.1 4T Risk Factors in the Padangsari Public Health Center, Semarang City

Based on the results of research taken from the cohort of pregnant women for the period January-December 2021, cases of pregnant women with a 4T risk at the Padangsari Health Center Semarang City out of a total population of 77 people, the most are cases with a 4T risk too close (distance between the last delivery and pregnancy). Now < 2 years) as many as 39 people (50.6%), while the smallest is the risk factor for being too frequent (>4x pregnant) as many as 4 people (5.2%). Based on data from the Indonesia Health Profile in 2017 regarding the incidence of high-risk pregnancies, it was found that one of the factors increasing the risk of 4T is that there are still many mothers who do not use family planning so that pregnancy at a young age, in old age, and in mothers who already have many children is unavoidable.

Manuba (2010) stated that pregnancies with a distance of less than 2 years also have a great chance of developing anemia during pregnancy. This is because when pregnant women do not rule out breastfeeding their previous child who is less than 2 years old. When the nutritional state is not optimal, the mother is required to meet the nutritional needs of the fetus she is carrying. Anemia during pregnancy can cause several risks during labor and the puerperium, such as inadequate uterine contractions.

The results also show that the second risk of 4T is too old (pregnant at age > 35 years) as many as 29 people (37.7%). Where age or age based on the Indonesian Ministry of Health (2009) is a unit of time that measures the time of existence of an object or creature, both living and dead. In this case, age is the result of calculating the current age with the date of birth. If you look at the 4T risk criteria in terms of age in pregnant women, there are 37.7% of the total too old category at the Padangsari Health Center, Semarang City, this figure is still quite a lot because the 4T risk will trigger complications and death in the mother.

The age of pregnant women more than 35 years can occur because the mother does not understand the family planning program and has a healthy reproductive age. In pregnant women over the age of 35 years, a decrease in cardiac output can occur which can increase the risk of pregnancy complications such as miscarriage, eclampsia, and bleeding. Another problem with the mother's body is that there is a change in the tissue of the uterus and birth canal due to the aging process, becoming stiffer and there is a high possibility that the baby will be born with defects. Complications that can occur

Table 2. Pregnancy Complications that occur in the Padangsari Public Health Center, Semarang City

Category	Frequency	%
There are complications	34	44.2%
No complications	43	55.8%
	77	100%

Table 3. Types of Pregnancy Complications that occur in the Padangsari Public Health Center, Semarang City

Category	Frequency	%
Anemia (Hb < 11 g%)	19	24.7%
KEK (LILA < 23.5 cm)	5	6.5%
Abortion	5	6.5%
Pregnant with Pre-eclampsia/eclampsia	3	3.9%
Pregnant with myopia	2	2.6
No complications	43	55.8
	77	100%

during delivery are obstructed labor and postpartum bleeding [7]. Pregnancy for mothers over 35 years will allow certain risks to occur, including the risk of pregnancy which is caused by the increasing age of the mother. According to Rochjati, mothers aged >

3.2 Pregnancy Complications that Occur in the Padangsari Public Health Center, Semarang City

Based on Table 2 the description of pregnancy complications in this study is categorized into two, namely there are complications and no complications. The results showed that most of them had no complications in their pregnancies, namely 43 people (55.8%). However, even so, there are still 34 people (44.2%) of pregnancy complications and this figure cannot be underestimated because as we know that mothers with high risk pregnancies are likely to experience greater complications both for the mother and the fetus in the womb and can cause complications. Cause death, illness, disability, discomfort and dissatisfaction compared to mothers who do not have high-risk pregnancy complications [8].

Table 3 shows that the highest incidence of pregnancy complications is anemia (Hb < 11 g%) which is 19 people (24.7%) and the least is pregnancy with myopia as many as 2 people (2.6%).

Table 4. Delivery Complications that occurred in the Padangsari Health Center Area, Semarang City

Category	Frequency	%
There are complications	55	71.4%
No complications	22	28.6%
	77	100%

Table 5. Types of Childbirth Complications that occur in the Padangsari Public Health Center, Semarang City

Category	Frequency	%
Abortion	5	6.5%
Postmature	9	11.7%
premature	12	15.6%
Delivery with SC	29	37.7%
Normal Delivery	22	28.6%
	77	100%

3.3 Complications of Childbirth that Occurred in the Padangsari Public Health Center, Semarang City

Based on Table 4 the description of labor complications in this study is categorized into two, namely there are complications and no complications. The results showed that most of the complications in childbirth were 55 people (71.4%).

Table 5 shows that the highest incidence of childbirth complications is anemia with cesarean delivery, which is 29 people (37.7%), followed by complications of premature labor 12 people (15.6%) and the least is abortion by 5 people (6.5%).).

3.4 The Relationship of 4T Risk Factors to Pregnancy Complications

Based on Table 6 about the relationship of Four Too (4T) to pregnancy complications at the Padangsari Health Center, Semarang City, it shows that the results of statistical analysis using the chi square test obtained value = 0.05 which means <, which means there is a relationship Four Too (4T) with pregnancy complications at Padangsari Public Health Center, Semarang City.

Table 7 shows that the incidence of pregnancy complications in the risk factor 4 conditions is the most anemia which is found in too close conditions (distance between last delivery and current pregnancy < 2 years) as many as 12 people (30.8%). The same condition also occurred in the risk factor for being too young (pregnant at the age of 20 years) for pregnancy complications, namely anemia in 5 people (40%). The risk factor for getting pregnant too often is pregnancy complications in the form of anemia

Table 6. Distribution of the Frequency of Pregnancy Complications in Condition 4 Too

Category 4 Too	Pregnancy Complications				
	There is		There isn't any		Total %
	F	%	F	%	
Too Young (<20 Years Pregnant)	3	60	2	40	100
Too Old (>35 Years Pregnant)	10	34.5	19	65.5	100
Too close (Last delivery with current pregnancy < 2 years)	19	48.7	20	51.3	100
Too Often (Pregnant > 4x)	2	50	2	50	100
	34	44.2	43	55.8	100
p value	0.05				

Table 7. Frequency Distribution of Types of Pregnancy Complications in condition 4 Too

Category 4 Too	Types of Pregnancy Complications												Total %
	Anemia		KEK		Abortion		PE		Myopia		There isn't any		
	F	%	F	%	F	%	F	%	F	%	F	%	
Too Young (<20 Years Pregnant)	5	40	0	0	1	20	0	0	0	0	2	40	100
Too Old (>35 Years Pregnant)	4	13.8	1	3.4	2	6.9	2	6.9	1	3.4	19	65.5	100
Too close (Last delivery with current pregnancy < 2 years)	12	30.8	4	10.3	2	5.1	0	0	1	2.6	20	51.3	100
Too Often (Pregnant > 4x)	1	25	0	0	0	0	1	25	0	0	2	50	100
	19	24.7	5	6.5	5	6.5	3	3.9	2	2.6	43	55.8	100

in 1 person (25%). This shows that the majority of conditions 4 can cause pregnancy complications, namely anemia (Hb < 11 g%), in addition to other complications, namely abortion, pregnancy with pre-eclampsia and KEK (chronic energy deficiency).

Health problems or complications during pregnancy often occur and are influenced by various factors, including maternal age, birth spacing, and parity. According to the BKKBN (2017), the age of 20–35 years is a safe age for pregnancy and childbirth. 35 years) had more anemia than pregnant women with non-risk ages (20–35 years). This is because at too old age (>35 years) there is a decrease in body resistance and various diseases that often occur at this age.

Table 8. Distribution of the Frequency of Childbirth Complications in condition 4 Too

Category 4 Too	Labor Complications				
	There is		There isn't any		Total %
	F	%	F	%	
Too Young (<20 Years Pregnant)	3	60	2	40	100
Too Old (>35 Years Pregnant)	22	75.9	7	24.1	100
Too close (Last delivery with current pregnancy < 2 years)	27	69.2	12	30.8	100
Too Often (Pregnant > 4x)	3	75	1	25	100
	55	71.4	22	28.6	100
p value	0.00				

Manuba (2010) stated that pregnancies with a distance of less than 2 years also have a great chance of developing anemia during pregnancy. This is because when pregnant women do not rule out breastfeeding their previous child who is less than 2 years old. When the nutritional state is not optimal, the mother is required to meet the nutritional needs of the fetus she is carrying. Anemia during pregnancy can cause several risks during labor and the puerperium, such as inadequate uterine contractions. Anemia is also prone to occur in pregnant women with too much gravida due to physical and psychological factors. According to Manuba (2010), during pregnancy, women will use Fe reserves in their bodies, so the more often women experience pregnancy, the more anemia they cause because they lose a lot of Fe reserves.

3.5 The Relationship of 4T Risk Factors to Labor Complications

Based on Table 8 regarding the relationship of Four Too (4T) to childbirth complications at the Padangsari Health Center, Semarang City, it shows that the results of statistical analysis using the chi square test obtained value = 0.00 which means <, which means there is a relationship Four Too (4T) with Complications of childbirth at Padangsari Health Center Semarang City.

Table 9 showed that the incidence of labor complications in the risk factor condition 4 too was the highest in cesarean delivery and preterm birth in condition 4 too.

Childbirth that occurs at the age of over 35 years causes various risks due to complications that occur during pregnancy. This is in accordance with the statement of Manuba (2010) that when compared with healthy reproductive age (age 20–30 years), complications that occur in pregnancies that are too young (<20 years) and too old (>35 years) will have a higher probability of complications. That is pre-eclampsia, where complications during this pregnancy will lead to complications during delivery. Pregnancy at a young age is one of the predisposing factors for preterm labor. The results of the study are in line with the research of Xi-Kuan Chen, et al. (2007) in Kurniawati, (2018) which states that teenage pregnancy shows an increased risk of neonatal death which is mostly

Table 9. Distribution of the Frequency of Childbirth Complications in condition 4 Too

Category 4 Too	Types of Labor Complications										
	Abortion		Postmature		premature		SC		Normal		Total %
	F	%	F	%	F	%	F	%	F	%	
Too Young (<20 Years Pregnant)	1	20	0	0	1	20	1	20	2	40	100
Too Old (>35 Years Pregnant)	1	3.4	6	20.7	5	17.2	10	34.5	7	24.1	100
Too close (Last delivery with current pregnancy < 2 years)	3	7.7	2	5.1	5	12.8	17	43.6	12	30.8	100
Too Often (Pregnant > 4x)	0	0	1	25	1	25	1	25	1	25	100
	5	6.5	9	11.7	12	15.6	29	37.7	22	28.6	100
P value	0.01										

due to premature labor and low birth weight in adolescent mothers, Meanwhile, according to Gibbs, et al. (2012) in (Kurniawati (2018), pregnant women aged < 15 years are 1.68 times more likely to have premature births compared to those aged 20–24 years. Insufficient nutrition during pregnancy can result in the incidence of LBW (Low Birth Weight) and other complications of pregnancy and childbirth, because adolescents need more nutrition for their physical growth, resulting in competition with nutritional needs for the fetus [13].

Manuba (2012) in Syarif (2016) states that maternal age > 35 years also increases the incidence of prematurity, this is because at that age the function of the reproductive organs declines and the emergence of various health problems such as chronic diseases and anemia that can facilitate the occurrence of preterm births (premature). According to Nugroho (2014) one of the predisposing factors that can cause preterm labor is the distance between deliveries that is too tight (< 2 years). One of the main causes of perinatal death in developing countries is preterm birth. In premature babies, the growth and development of vital organs is not optimal, causing the baby to still not be able to live outside the womb, thus the baby will have difficulty in adapting which ends in morbidity and mortality.4 have a 2.4 times greater chance of experiencing premature birth when compared to mothers with parity 2 and 3. Ningrum, et al. (2016) stated that scar tissue in the endometrium due to repeated pregnancies can cause the uterus to become weaker.

4 Conclusion

Cases of pregnant women with the highest 4T risk were cases with too close 4T risk (distance between last delivery and current pregnancy < 2 years) as many as 39 people (50.6%).There were 34 people (44.2%) of pregnancy complications and this figure

cannot be underestimated that mothers with high-risk pregnancies are likely to experience greater complications both for the mother and the fetus having high-risk pregnancy complications. The most types of pregnancy complications were anemia (Hb < 11 g%) which was 19 people (24.7%) and the least was pregnancy with myopia as many as 2 people (2.6%). Most of them had complications in their delivery, namely 55 people (71.4%). The most type of delivery complications was anemia with cesarean delivery, namely 29 people (37.7%), followed by complications of premature labor 12 people (15.6%) and the least was abortion by 5 people (6.5%). The results of statistical analysis using the chi square test obtained value = 0.05 which means <, which means that there is a relationship.

Acknowledgments. We would like to thank all those who have participated and supported this research.

Author's Contribution. In this study, all researchers carried out their duties well. Researcher one and researcher two carry out their duties according to their duties.

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