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Anxiety Decreases the Success of Misoprostol Induction

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ABSTRACT

Pregnancy *post term* increasing the duration of waiting time for birth can cause a stress reaction in the form of anxiety. Termination of pregnancy using misoprostol in post term pregnancies is expected to result in immediate labor and end in vaginal delivery. Research analyzes the influence of anxiety experienced by pregnant women *post term* on the success of misoprostol induction. The research design uses *prospective cohort*, sampling technique *consecutive sampling* with a minimum sample size of 37 samples. Data collection uses questionnaires *Hamilton Rating Scale for Anxiety* (HRS-A). Data were analyzed univariately, followed by bivariate tests *Chi Square* using SPSS version 2022. The results 78.3% of pregnant women *post term* experiencing anxiety before giving birth, 59.5% of mothers given misoprostol gave birth vaginally. The results of data analysis showed that there was a significant relationship between anxiety and the success of misoprostol induction (Fisher's p = 0.016, c = 0.473, p = 0.031). Anxiety of pregnant women *post term* influence the success of misoprostol induction.

Keywords: anxiety, misoprostol, post term, pregnancy, vaginal delivery

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BACKGROUND

The Central Statistics Agency reported through the World Health Organization (WHO) that based on the results of the 2020 Population Census (SP2020) the Infant Mortality Rate (IMR) in Indonesia was 16.85 per 1000 live births, while based on birth age it was 0 – 28 days (neonatal) is 9.3 children per 1000 live births. Globally, infectious diseases, including pneumonia, diarrhea and malaria, remain the main causes of under-five deaths, along with premature birth and related intrapartum complications (Kehl, S., *et.al*., 2015). This birth complication may occur in pregnancies that last 42 weeks or more (Sampurna, M. T. A., *et.al*., 2023). Pregnancy *post term* also called serotinous pregnancy, post-term pregnancy, post-month pregnancy, prolonged pregnancy, extended pregnancy, post-date or post-maturity, post-term is a pregnancy that lasts up to 42 weeks (294 days) or more, calculated from the first day of the last menstruation according to the Naegele formula with cycles menstruation averages 28 days (Prawirohardjo S, 2008), or estimated delivery date (EDD) + 14 days (Galal, M., *et.al*., 2012). Pregnancy *post term* is a pregnancy that occurs until 42 weeks of gestation or more (Themes, 2021).

Epidemiological data explains the prevalence of pregnancy *post term* in the world it is 5 – 10% of all pregnancies, while in the United States the prevalence of post term pregnancies is 6% of the approximately 4 million births per year (Chawanpaiboon, S., *et.al*., 2019). Some literature estimates that the prevalence of pregnancy *post term* in Indonesia is around 10%, but national epidemiological studies are still needed for confirmation (Defrin, D.,*et.al*., 2019). Pregnancy *post term* is associated with an increased risk of fetal and neonatal death and morbidity (Sekardira, 2020). Number of births in mothers with pregnancies *post term* At the Blambangan Banyuwangi District Hospital, 38.7% of babies born experienced asphyxia, this adds to the risk of increasing infant mortality due to post-term pregnancies.

Increased fetal death rates due to pregnancy *post term* can be prevented by induction of labor at term, but both doctors and patients are concerned about the risks of labor induction including uterine hyper stimulation, induction failure, and increased frequency of Cesarean sections. According to WHO, labor induction is defined as an artificial process by stimulating the uterus with the aim of starting the labor process. Labor of longer duration is associated with higher infection rates, increased maternal distress, and higher workload of health care providers in ob-gyn units (Zhao, L., *et.al*., 2019). Meanwhile in pregnancy *post term* Mothers feel uncertainty about when the right and accurate time will be for the baby to be born through induction, it could be faster, slower or even fail.

At the Blambangan Banyuwangi Regional Hospital there are around 68% of post term birth cases who were given misoprostol induction and 40% of them were unsuccessful so they had to undergo Cesarean sections. Is the success rate of induction really influenced by maternal anxiety?

METHODS

This research involved 37 pregnant women *post term* without complications who were treated in the period January to March 2024 in the delivery room at Blambangan Hospital, Banyuwangi. The sampling technique used is non-probability sampling, namely consecutive sampling, meaning that the sampling technique with the recruitment of sample members is carried out sequentially according to the subject's arrival at the research site (according to the principle of first come, first choice) until the planned number of sample members is reached within the specified time limit.research that has been determined (Harlan, J, 2018). Data collection was carried out using a questionnaire *Hamilton Rating Scale for Anxiety* (HRS-A) and documentation from medical records.

The officer provided an explanation and *informed consent* to the respondent, then the

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respondent filled out a questionnaire before giving birth accompanied by an officer. Researchers recorded the progress of labor with misoprostol based on data documented in the respondent's medical record. After the respondent has participated in a series of research activities (filling out the questionnaire and completing the delivery process), the respondent is allowed to continue treatment as planned at the hospital. Next, researchers analyzed the data.

Data were analyzed *univariate* to see an overview of the characteristics of each research variable. Next, analysis is carried out *bivariate* to test two variables that are thought to be related using a test *Chi Square*. If a relationship is known, a contingency coefficient (C) test will be carried out to determine the strength of the relationship. Statistical evaluation using SPSS version 2022 with a p value <0.05 is considered statistically significant.

RESULTS

This study consisted of 37 respondents, namely pregnant women *post term* with the characteristics shown in Table 1. 78.3% of the respondents studied experienced anxiety as explained in Table 2. Respondents received misoprostol induction after observing the labor process, there were still those who gave birth by cesarean section (SC) as in table 3. Characteristics suspected to be the cause of anxiety only on the number of living children has a significant result with p = 0.027 (Table 4). The relationship between the level of maternal anxiety and the success of misoprostol induction in post term pregnant women was tested using a test *Chi square* on a 5 x 2 contingency table. Test results *Chi square* it was found that 80% had an expected value of less than 5 so the test *Chi square* cannot be read and is replaced by test *Fisher exact*. The p value of the test results *Fisher exact* smaller than 0.05 so that the relationship between the level of maternal anxiety and the success of misoprostol induction is proven. Next, a strength test was carried out on the relationship between anxiety level and successful induction of Misoprostol, obtaining a contingency coefficient of 0.473 (p = 0.031), which was included in moderate strength (Table 4).

Table 1. Characteristics of Research Respondents

Factor		Mean (min – max)	n (%)
Age (years)		28,43 (15 – 41)	
	<17 th		2 (5,4)
	17-35 th		26 (70,3)
	>35 th		9 (24,3)
Pregnant		2,48 (1 – 5)	
	First 1		11 (29,7)
	Multi 2-4		20 (54,1)
	Large >4		6 (16,2)
Children's history		1 (0 – 4)	
	There are no 0 yet		13 (35,1)
	There are 1 or more		24 (64,9)

Table 2. Post term Mother's Anxiety Level

Score	n	%	Emergency
>41	10	27,0	Experiencing anxiety 29 (78.3 %)
28 - 41	1	2,7	
21 - 27	6	16,2	
14 - 20	12	32,4	
<14	8	21,6	No worries

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Table 3. Success of Misoprostol Induction

Labor	n	%	Success
Vaginal	22	59,5	Succeed
SC	15	40,5	Fail

Table 4. Contingency Characteristics, Success of Respondents' Misoprostol Induction and Anxiety

Emergency Level			Heavy Once	Heavy	Currently	Light	Don't worry	value p Fisher's
Age of Post Term Pregnant Women	<17 th	n	0	0	0	2	0	0,789*
		%	0,0	0,0	0,0	16,7	0,0	
	17 – 35 th	n	8	1	5	6	6	
		%	80,0	100,0	83,3	50,0	75,0	
	>35 th	n	2	0	1	4	2	
		%	20,0	0,0	16,7	33,3	25,0	
Pregnant	Primigravidda	n	3	0	3	3	2	0,883*
		%	30,0	0,0	50,0	25,0	25,0	
	Multiparous	n	4	1	3	8	5	
		%	40,0	100,0	50,0	66,7	62,5	
	Grandemulti	n	3	0	0	1	1	
		%	30,0	0,0	0,0	8,3	12,5	
Number of Living Children	There are no living children	n	8	1	4	3	2	0,027* C = 0,466 (p = 0,036)
		%	80,0	100,0	66,7	25,0	25,0	
	1 or more	n	2	0	2	9	6	
		%	20,0	0,0	33,3	75,0	75,0	
Successful Misoprostol Induction	Succeed	n	3	0	4	7	8	0,016* C = 0,473 (p = 0,031)
		%	30,0	0,0	66,7	58,3	100,0	
	Fail	n	7	1	2	5	0	
		%	70,0	100,0	33,3	41,7	0,0	

*Significant when p < 0.05

DISCUSSION

Respondent Characteristics Data

Data from research respondents still shows a high risk age for pregnancy *post term* those treated at Blambangan District Hospital were aged < 17 years (5.4%) and < 35 years (24.3%), although there were more respondents aged 17 – 35 years. The mother's age is a determinant of the progress of labor, too young or less than 17 years and too old, namely more than 35 years, are considered high risk pregnancies (Hipson & Anggraini, 2021). Mothers at high risk of pregnancy tend to experience problems during the birth and postpartum process. Under 17 years of age, the physical organs and reproductive functions have not yet developed maturely and psychologically they are still emotionally unstable. Ages over 35 years' experience a decrease in reproductive function than before, so the risk of postpartum complications such as bleeding can be greater.

Respondents in this study based on parity, there are still more than 4 (grande multi) (13.5%), most of whom are > 35 years old. A mother who has given birth more than 4 times tends to be at risk of problems occurring, including causing abnormalities in the position of

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the fetus, prolonged labor, postpartum bleeding and rupture of the uterus (Klaurahan Sendangsari, 2019). The public assumption that children are bearers of blessings is one of the reasons why in Banyuwangi there are still > 4 pregnancies even at > 35 years of age. A woman who has a history of divorced marriages when she remarries will of course become pregnant again in the hope of becoming her husband's heir in the future, even though when she remarries she has reached a high risk age. High-risk pregnancies are one of the causes of increasing maternal and infant mortality rates. The maternal mortality rate in Banyuwangi according to MPDN data in 2023 increased to 27 cases of mother mortality rate compared to only 18 cases in the previous year (Ministry of Health of the Republic of Indonesia, 2023).

Maternal Anxiety in Pregnancy *Post term*

The results showed that the majority of women were pregnant *post term*. The respondents experienced anxiety before giving birth. Psychological changes during the third trimester of pregnancy, namely feeling uncomfortable and feeling that the body is unattractive, mothers also feel anxious when the baby is not born on time and are afraid of pain, physical danger that arises during childbirth and worry about the baby being born in an abnormal condition and worried about his safety (Maisah, Nugraheny, E., Margiyati, 2021). Childbirth is a natural process and an extraordinary thing that a woman experiences when giving birth to her baby. The birth process for every mother is not the same, the causes of this can be physical or psychological. Gestational age *post term* increases the duration of the waiting time for the baby's birth, which can cause anxiety. If the mother does not get the right coping, the stress reaction experienced before giving birth can worsen anxiety levels. Previous research states that anxiety during pregnancy can hinder the birth process, so it requires appropriate treatment as well as support and assistance from health workers in a comprehensive and continuous manner (Fauziah, 2021).

Research data shows that there are respondents who experience severe anxiety once as much as 34.5% of the total number of mothers *post term* who are anxious. Respondents who were very anxious had a background of 20% aged > 35 years, 30% and 50% of primigravida and multigravida respectively had a history of not having any living children.

Relationship of Age with Anxiety

Anxiety in mothers giving birth *post term* Based on the age of the mother who was being researched at the Blambangan Regional Hospital VK, the results were not significant, which means there is no relationship between the age of the mother giving birth and the anxiety she experiences when giving birth, age is not a factor that influences the anxiety of the mother giving birth. This is in accordance with research that has been carried out previously that whether a person is mature or not is not only based on age, some are still young but they are ready to become mothers so they do not experience anxiety when facing childbirth (Murdayah et al., 2021).

Relationship between number of deliveries and anxiety

The results of this research analysis show that there is no relationship between the number of deliveries and anxiety. Parity is a woman's ability in relation to the number of births and living children (Dorland, Newman, W.A., *et.al*., 2016). The gap that occurs here is based on data on the number of births which are not always the same as the number of live children who have been born previously. Some are stillborn, born alive and then die due to illness or other causes, even due to miscarriage.

Relationship between Number of Living Children and Emergency

The results of the analysis showed significant results between the history of the number of living children and anxiety. Research data shows that there are (35.1%) pregnant women *post term* with a history of no living children, but not all of them are due to primary pregnancies, but there are also multiple pregnancies, even grand multiple pregnancies.

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Mothers who had live children before giving birth were less anxious, while those who did not have live children experienced more severe anxiety.

Pregnant mother *post term* Those who don't have a living child, which is their first pregnancy, don't have real birth experience, so they tend to be anxious. Mothers who have given birth but have not yet had a living child will tend to be anxious before giving birth because they feel that the unpleasant experience of the previous birth could happen again. The stigma that prevails in the local community is that a family is not complete if it does not have children, so that the family lacks harmony and can even lead to divorce. The concept of premarital education has an important role to play because the main functions of the family according to Government Regulation Number 21 of 1994 concerning the implementation of the development of a prosperous family are religious, social and cultural, love, protection, reproduction, socialization and education, economic, and environmental development functions (Harjianto & Jannah, 2019). The hope is that the family will complement each other, motivate and strengthen each other in facing every problem so that the best solution can be obtained, so that the mother before giving birth will be calmer in facing the birth process because she feels supported by her husband and family.

Identification of Successful Misoprostol Induction in Mothers with Pregnancy *Post term*

Research data shows that respondents who were born vaginally after receiving misoprostol induction were more likely than those who underwent Cesarean sections. Basic management of labor in pregnancy *post term* namely, induction of labor is carried out taking into account the applicable conditions. Induction of labor is an artificial process to start labor or stimulation of uterine contractions after the start of labor spontaneously but progress is considered inadequate (Pinas-carrillo A, Chandraharan E, 2021). Misoprostol is a pharmacological method containing prostaglandins which is used to induce labor and is recommended as a treatment for preterm or post term pregnancies. Misoprostol is a prostaglandin analog which is a cytoprotective which is commonly used in peptic ulcer therapy, but also has uterotonin and uterotropin properties. As uterotropin in the labor phase, prostaglandin causes cervical ripening and gap junction development, while as uterotropin prostaglandin causes uterine contractions (Jordan, Sue, 2002).

Routine induction of labor at <42 weeks' gestation was found to be associated with an increased risk of overall Cesarean section, as well as cesarean section due to failure to progress, when compared with management of pregnancy at ≥42 weeks' gestation (Rydahl et al., 2019). The administration of misoprostol induction to the respondents studied showed that it was in accordance with the results of previous research that the progress of labor continued in vaginal births rather than Cesarean sections ones. A baby born to a mother *post term* Those who received misoprostol were less likely to experience asphyxiation, and even then the cause could be due to the birthing assistance process, the skills of the staff or the mother's own factors such as not being able to bear, not misoprostol as the cause. These results can be used as a consideration that giving misoprostol can be used as the main treatment for labor induction in pregnancy *post term* strict supervision and other maternal complaints.

The Relationship between Post Term Pregnant Women's Anxiety Level and the Success of Labor Induction with Misoprostol.

Most of Pregnant mother *post term* those studied, as many as 29 (78.3%) experienced anxiety before the birth of their baby. Post term pregnancies given induction treatment using misoprostol are related to the level of anxiety experienced by the mother. Test results confirmed that there is a relationship between anxiety and the success of labor using misoprostol induction at VK Blambangan Regional Hospital, Banyuwangi.

Research data shows that there are 3 pregnant women *post term* who experienced

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severe anxiety but were able to give birth vaginally after being given misoprostol induction. All three pregnant women *post term* Those aged 25 years, 27 years and 31 years are the ideal ages, in accordance with the opinion expressed in previous research that the age of 20 - 35 years is the ideal age for pregnancy because it is considered that the reproductive organs are mature and perfect (Purborini & Rumaropen, 2023). All three are multigravidas so their previous birth experience is not an obstacle to their current birth. Pregnant mother *post term* Of course, all three of them do not have living children, this is assumed to be the reason for the mother's high anxiety score because she is worried about the safety of her baby compared to the delivery process.

The research results also showed that there were 5 pregnant women *post term* with mild anxiety but failed to give misoprostol induction so the delivery was carried out by CS. Among the five mothers, there were 2 primigravidas, one of whom was too young, namely 16 years, the other mother was a multigravida but too old (36 years), the other 2 mothers had multiple pregnancies and were of ideal age. Other research states that there are differences in the level of anxiety between primigravida and multigravida when facing childbirth, so medical personnel need to assess the psychological problems experienced by mothers with the help of support from the patient's husband (Shodiqoh & Syahrul, 2014). Failure of induction in primigravida can be assumed to be because the cervix is still immature so it requires more time and effort to stimulate via induction than multigravida. This is in line with research results which state that too old age, null parity, Bishop Score less than 5 are several factors that can increase induction failure (Tadesse *et al*., 2022).

In previous research, it was stated that due to failed induction, the rate of cesarean section increased (Andalas, Mokd., *et.al.*, 2020). A similar study conducted at Aura Syifa Kediri Hospital obtained the same results that anxiety affected the success of misoprostol induction, but at that hospital the failure rate for misoprostol induction was higher, this is thought to be because the pain caused by the induction reaction made the mother uncomfortable so that the labor ended with (Adkha, S.I., *et.al*., 2021).

Anxiety is a risk factor for the success of misoprostol induction, if handled appropriately the success of vaginal delivery will increase. Previous research assumes that a husband's genuine support, whether in the form of financial support, information support or infrastructure support when facing childbirth, can reduce the anxiety felt by the mother (Asiah et al., 2021). This of course needs to be facilitated for mothers who are about to give birth so that their husband or one of their families can wait for them, according to the policy that has been implemented in the VK room at Blambangan Regional Hospital that mothers who give birth can be accompanied by 1 companion, of course it is even better if the birth companion matches the mother's wishes. Blambangan Regional Hospital as one of the government hospitals prioritizes communication, information and education in the development efforts *support system* regarding childbirth faced by pregnant women *post term*.

CONCLUSION

Pregnant mother *post term* experiencing anxiety before giving birth. Induction in post-term pregnancies is quite effective so that vaginal birth occurs, but the anxiety experienced by post-term mothers can influence the success of misoprostol induction. A risk factor that can cause anxiety is the number of living children before this pregnancy. Husband and family support during pregnancy and childbirth play an important role in reducing maternal anxiety.

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