

Relationship Between Knowledge of Mothers, Umbilical Cord Care and Umbilical Cord Infection with Length of Umbilical Cord Detachment in Newborns in Tanjung Lago Village, Banyuasin Regency In 2021

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ABSTRACT

Background: The length of the umbilical cord detachment is influenced by the way the umbilical cord is cared for, the humidity of the umbilical cord, the sanitary conditions of the environment around the neonate, and the incidence of infection in the umbilical cord due to actions or treatments that do not meet hygiene requirements or do not comply with predetermined standards. The impact of incorrect umbilical cord care can result in a longer umbilical cord detachment time and umbilical cord infection. Infection in the umbilical cord can cause sepsis, meningitis, and others. This study aims to determine the relationship between maternal knowledge, umbilical cord care and umbilical cord infection with the length of umbilical cord detachment in newborns. This research method is analytic observational with a cross sectional approach. The results showed that there was a relationship between mother's knowledge of the length of umbilical cord detachment with p value 0.004, there was also a relationship between umbilical cord infection and length of umbilical cord detachment with p value 0.001 and there was no relationship between umbilical cord care with open or open methods. closed to the length of umbilical cord detachment with p value 0.107. The conclusion of this study is that maternal knowledge and infection in the umbilical cord can affect the length of umbilical cord detachment in newborns. Suggestions from this study all mothers should increase their knowledge about umbilical cord care and length of umbilical cord separation through social media, internet, etc., and to pay more attention to hygiene in the area around the umbilical cord in infants to prevent infection. And it is hoped that health workers can improve health promotion, especially regarding the length of the umbilical cord detachment in newborns.

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1. Introduction

WHO (*World Health Organization*) In 2014, many factors influenced the infant mortality rate (IMR) of all neonatal deaths, around 60% of which were infant deaths < 7 days of age caused by perinatal disorders, one of which was asphyxia and infection. WHO noted that about 3% (3.6 million) of the 120 million newborns experienced asphyxia and infection, nearly 1 million babies died [1].

Based on the Indonesian Demographic and Health Survey (IDHS) 2017, the infant mortality rate in Indonesia reached 24 per 1,000 live births. The cause of early neonatal death was infection (57.1%). The infection is tetanus neonatorum caused by improper and sterile umbilical cord care (SKDI, 2017). [2].

Based on data from the Maternal and Child Health (KIA) program report, the number of infant deaths in South Sumatra Province in 2018 was 51 people, this number was lower than the 2018 target of 100 people. Thus the performance indicator for the number of infant deaths in 2018 has reached the final target of the 2018 RPJMD with the percentage of achievement of 149%. The number of infant deaths in 2018 was 51 people out of a total of 161,210 live births. This number has decreased compared to 2017 as many as 98 people. (South Sumatra Health Office, 2018). [3].

The highest number of infant deaths occurred in OKU Regency with 16 people, followed by Muara Enim

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Regency with 7 people and Musi Rawas Regency and Palembang City with 6 people each. The lowest number of infant deaths occurred in Lahat, South OKU, Empat Lawang, Pagar Alam and Lubuk districts with 1 person each, while for OKI, Musi Banyuasin, East OKU, PALI and Prabumulih districts there were no reports of infant deaths (Sumsel Health Office)., 2018). The number of infant deaths in Tanjung Lago District is 5 people [4].

Newborns have a high risk of exposure to infection, especially in the umbilical cord which is a wet wound and can be an entry point for tetanus germs which are very often the cause of sepsis and newborn death (Ellen, 2014).[5]. The umbilical cord is a lifeline for the fetus during pregnancy, because it is through this umbilical cord that all the needs of the fetus are met. After the baby is born this canal is no longer needed, so it must be cut and tied (clamped) with plastic clamps. The rest of the umbilical cord that is still attached to the baby's stomach or also called an umbilical stump requires good care to avoid infection

The remaining pieces of the umbilical cord in infants must be treated, if not treated properly it can slow down the breaking of the umbilical cord and become a place for bacterial colonies that come from the surrounding environment and infection occurs. Transmission of this infection can be prevented by leaving the umbilical cord dry and clean, so that the umbilical cord dries quickly and breaks[6].

Knowledge of the factors that cause bacterial colonization of the umbilical cord is not yet known for sure. The separation that occurs between the center and the umbilical cord can be caused by dryness of the umbilical cord. The care of the umbilical cord is actually simple, the important thing is to make sure the umbilical cord and the area around it are always clean and dry. always wash your hands with clean water and soap before cleaning the umbilical cord, it should not be closed tightly because it will make it moist. Make sure the umbilical cord is exposed to air freely[7].

According to Trijayanti's research, et al (2020) on the difference between open and closed umbilical cord care on the length of umbilical cord detachment at the Sronдол Health Center and the Ngesrep Health Center in Semarang City, said that the length of the umbilical cord detachment with the open method intervention was faster than the closed method.[8].

According to Putri's research (2019) regarding the relationship between umbilical cord care using sterile gauze according to the standard and the length of time the umbilical cord is released in newborns at the Siantan Hilir Health Center, said that the use of sterile dry gauze is very effective for treating the umbilical cord of newborns and in terms of length. umbilical cord detachment is much more effective in releasing the umbilical cord which falls into the normal category.[9].

Based on research by Pitriani, et al. (2017) on Umbilical Cord Care Effectiveness Closed and Open To Release Card Newborns, it was stated that open umbilical cord care was released faster than closed umbilical cord care. [10].

Based on the initial survey conducted by Quattrin, et al (2016) in Italy the length of umbilical cord detachment was caused by umbilical cord care with 70% alcohol.[11].

2. Methods

This study uses analytical quantitative research using a cross sectional research design, the study was conducted in July – August 2021, the sample of this study was part of the mothers who have babies >7 days old in Tanjung Lago Village, Banyuasin Regency, the number of samples in this study was 27 people.

3. Results and Discussion

3.1 Research result

a. Univariate Analysis

Table 1
Frequency distribution of Mother's knowledge in Tanjung Lago Village Banyuasin Regency in 2021

Mother's Knowledge	f	%
Good	27	90
Not enough	3	10
Tbrain	30	100

BerBased on table 1, it can be seen that from 30 respondents with good knowledge, 27 respondents (90%).

more than respondents with less knowledge as many as 3 respondents (10%).

Tabel 2
Distribution of the frequency of umbilical cord care in Tanjung Lago Village Banyuasin Regency in 2021

Cord Care	F	%
Closed	24	80
Open	6	20
Tbrain	30	100

Based on table 2, it can be seen that from 30 respondents with closed umbilical cord care as many as 24 respondents (80%) more than respondents with open umbilical cord care 6 respondents (20%).

Table 3
Distribution of the frequency of umbilical cord infection in Tanjung Lago Village Banyuasin Regency in 2021

Umbilical Cord Infection	F	%
No Infection	28	93.3
Infection	2	6.6
Tbrain	30	100

Based on table 3, it can be seen that from 30 respondents with non-infected umbilical cord infection, 28 respondents (93.3%) were more than respondents with infected umbilical cord infection, namely 2 respondents (6.6%).

Table 4
Frequency distribution of length of umbilical cord separation in Tanjung Lago Village Banyuasin Regency in 2021

Long time out of umbilical cord	F	%
Fast	26	86.7
Long	4	13.3
Tbrain	30	100

Based on table 4 it can be seen that with the length of umbilical cord detachment in the fast category as many as 26 respondents (86.7%) more than the length of the cord detachment in the old category as many as 4 respondents (13.3%).

b. Bivariate Analysis

Table 5
The Relationship of Mother's Knowledge and Length of Umbilical Cord Detachment in Newborns in Tanjung Lago Village, Banyuasin Regency in 2021

No	Penmother's notice	Long time out of umbilical cord				Tbrain	P Valu	OR
		Long		Fast				
		f	%	f	%			
1.	Good	6	31.5	13	68.5	19	100	2.875
2.	Not enough	5	45.5	6	54.5	11	100	
	Tbrain	11	-	19	-	30	-	

From table 5 it is known that from 19 respondents with good knowledge there were 13 respondents (68.5%) whose umbilical cord was released quickly and 6 respondents (31.5%) whose umbilical cord was detached for a long time while from 11 respondents with less knowledge there were 6 respondents (54.5 %) whose umbilical cord detaches quickly and 5 respondents (45.5%) whose umbilical cord is detached for a long time. Based on the results of the Chi Square statistical test at the significance level of $p < 0.05$, it was obtained that the p -value = 0.012, which means that there is a relationship between knowledge and length of umbilical cord detachment, so the hypothesis states that there is a relationship between knowledge and length of umbilical cord detachment.

Tabel 6
Relationship between umbilical cord care and length of umbilical cord detachment in newborns in Tanjung Lago Village, Banyuasin Regency in 2021

No	Cord Care	Long time out of umbilical cord				Tbrain		p-Value	OR
		Long		Fast		F	%		
		f	%	F	%				
1.	Closed	5	25.0	15	75.0	20	100.0	0.007	3,500
2.	Open	5	50.0	5	50.0	10	100.0		
	Tbrain	10	-	20	-	30	-		

In table 6, data obtained from 20 respondents for closed umbilical cord care there are 15 respondents (75%) whose umbilical cord detaches quickly and 5 respondents (25%) whose umbilical cord takes a long time to detach, while from 10 respondents in open umbilical cord care there are 5 respondents (50%) whose umbilical cord detaches quickly and 5 respondents (50%) whose umbilical cord is detached for a long time. Based on the results of the Chi Square statistical test at a significance level of $p < 0.05$, a p -value = 0.007 was obtained, which means that there is a relationship between umbilical cord care and length of umbilical cord detachment.

Tabel 7

Relationship between umbilical cord infection and length of umbilical cord separation in newborns in Tanjung Lago Village, Banyuasin Regency in 2021

No	Umbilical Cord Infection	Long time out of umbilical cord				Tbrain		p-Value	OR
		Long		Fast		f	%		
		f	%	f	%				
1.	No Infection	6	33.3	12	66.4	18	100.0	0.000	6,000
2.	Infection	5	41.6	7	58.4	12	100.0		
	Tbrain	11	-	19	-	30	-		

Table 7 shows that from 18 respondents who had umbilical cord infection who were not infected, there were 12 respondents (66.4%) whose umbilical cord was detached quickly and 6 respondents (33.3%) whose umbilical cord had been detached for a long time. there were 7 respondents (58.4%) whose umbilical cord was detached quickly and 5 respondents (41.6%) whose umbilical cord was detached for a long time. Based on the results of the Chi Square statistical test at a significance level of $p < 0.05$, a p -value = 0.000 was obtained, which means that there is a relationship between umbilical cord infection and length of umbilical cord detachment.

3.2 Discussion

a. Relationship of Mother's Knowledge with Length of Umbilical Cord Detachment

Based on table 5, it shows that the percentage of fast umbilical cord detachment is higher in the knowledge of good mothers compared to less good ones, namely 68.5% compared to 54.5%. The results of statistical tests showed that there was a significant relationship between maternal knowledge and length of umbilical cord separation with a p value of 0.012 ($p < 0.05$).

This study is in line with research conducted by Haryanti (2020) that the length of fast umbilical cord detachment with high knowledge is (85.4%) while the length of umbilical cord detachment with low knowledge is (40.0%). The results of the bivariate analysis of the chi-square test obtained a p value of 0.009 which indicates that there is a relationship between mother's knowledge and the length of umbilical cord detachment in newborns.

Knowledge is the result of knowing this occurs after people sense a certain object. Mother's level of knowledge greatly affects the length of the healing process or the dryness of the umbilical cord. This can be seen from the way and process of caring for the umbilical cord that the mother does. The old umbilical cord is loose because the mother does not maintain cleanliness when changing gauze such as not washing her hands when holding it. The low knowledge of young post partum mothers about umbilical cord care can sometimes cause infection in the umbilical cord after administering umbilical cord care in children. baby. Errors resulting from the low knowledge possessed by post partum mothers at a young age about umbilical cord care, are caused by several factors, including: do not have extensive knowledge, experience, self-confidence, and lack of information and education obtained by post partum mothers about umbilical cord care. While it is often known that the baby's umbilical cord is more susceptible to infection, and the presence of infection in the umbilical cord is caused by the mother's low knowledge and mistakes in the actions that have been taken when caring for the umbilical cord.

b. Relationship between umbilical cord care and length of umbilical cord detachment

Based on table 6, it shows that the percentage of fast umbilical cord detachment is higher in closed than open umbilical cord care, which is 75% versus 50%. The results of statistical tests showed that there was a significant relationship between umbilical cord care and length of umbilical cord detachment with a p value of 0.007 ($p < 0.05$).

This study is in line with Damanik's research (2019) which showed that the results of hypothesis testing using the Chi Square test obtained p value: $0.001 < 0.05$, which means that there is a significant correlation between umbilical cord care and length of umbilical cord detachment.

The cause of the length of umbilical cord detachment is influenced by many factors, one of which is environmental sanitation conditions around the neonate, *C. tetani* spores that enter through umbilical cord injuries, due to actions or treatments that do not meet hygiene requirements. In accordance with the current Normal Childbirth Care which is being developed in Indonesia, for the treatment of the umbilical cord no substances or drugs should be given, and left open. The umbilical cord treatment method is left open, which is the currently recommended method of umbilical cord care while taking into account the background of the birth history. In the process of drying the umbilical cord needs to be facilitated by air and microorganisms.

c. Relationship between umbilical cord infection and length of umbilical cord detachment

Based on table 7 shows the percentage of length of umbilical cord detachment is higher in non-infected umbilical cord infections than those with infections, namely 66.4% compared to 58.4%. The results of statistical tests showed that there was a relationship between umbilical cord infection and length of umbilical cord detachment with a p value of 0.000 ($p < 0.05$).

The umbilical cord that has been cut, must receive good care to keep it clean and avoid possible infection. The effort to prevent infection of the umbilical cord is actually a simple action, the most important thing is that the umbilical cord is always clean and dry, and always wash your hands with soap before treating the umbilical cord. The cause of infection in the umbilical cord is bacteria such as staphylococcal, streptococcal, or other bacteria. If the infection is not treated immediately when signs of this infection are found, it will spread to the area around the umbilical cord, causing redness and swelling in the umbilical cord area. The infection can spread to the inside of the body along the umbilical and will cause venous thrombosis / venous blockage. If the baby is seriously ill, the baby will look gray and have a high fever. Treatment in the early stages usually begins with the administration of antibiotic powder.

4. Conclusion

There is a relationship between maternal knowledge, umbilical cord care and umbilical cord infection with the length of umbilical cord detachment in newborns in Tanjung Lago Village, Banyuasin Regency in 2021.

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