

## FACTORS INFLUENCING COLOSTRUM PROVISION AMONG POST-CESAREAN MOTHERS

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### Abstract

*Colostrum provision is a vital effort in reducing infant mortality, as it contains essential nutrients and antibodies for newborns. However, post-cesarean mothers are at greater risk of delayed or absent breastfeeding initiation due to postoperative discomfort. This study aimed to identify the factors influencing colostrum provision among post-cesarean mothers at RSI Al-Ikhlas Pemalang, focusing on age, education, knowledge, parity, and family support. A quantitative analytical method with a cross-sectional design was employed. Data were collected through structured questionnaires from 66 post-cesarean mothers. Bivariate analysis using the chi-square test revealed that education, knowledge, and family support significantly influenced colostrum provision ( $p < 0.05$ ), whereas age and parity did not show a significant relationship ( $p > 0.05$ ). Furthermore, multivariate analysis using logistic regression identified family support as the most dominant factor affecting colostrum provision. The findings highlight the importance of strengthening educational interventions and fostering family involvement to support early breastfeeding practices in post-cesarean mothers. In conclusion, education, knowledge, and particularly family support plays crucial roles in ensuring the successful provision of colostrum, with family support emerging as the most influential factor. Health professionals are encouraged to engage families as active participants in promoting optimal breastfeeding practices.*

**Keyword:** Colostrum, Factor, Sectio Caesarea.

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### 1. Introduction

The World Health Organization (WHO) states that one way to reduce infant mortality is by providing breast milk, especially colostrum. Colostrum contains tissue debris and residuals found in the alveoli and ductus of the mammary glands. Colostrum contains antibodies and immunoglobulins which are used as immune substances for babies, colostrum can prevent and neutralize bacteria, fungi, parasites and

viruses in babies. Colostrum is a natural laxative to clean unused substances in the digestive tract of newborns, and that means colostrum can help babies in removing meconium, which is the first feces that comes out. Colostrum also functions to regulate the digestive system for babies [1]. According to research, there are frequent factors that influence the low coverage of colostrum provision in newborns, including

lack of knowledge, fear of lack of nutrition for babies, and the role of socio-cultural factors on health, especially parents and in-laws who require mothers to immediately provide a taste in the form of honey or sugar solution [2]. According to research in various regions, especially Java, it is often found that the first breast milk of mothers is deliberately expressed and thrown away because it is often considered a dirty material, parents and families still believe in the myth that breast milk does not come out of nipples that are inverted, babies can be given honey, babies who are 5 months old are not enough with breast milk alone. Things like this are what make mothers unmotivated in giving colostrum [3].

Other factors such as delivery factors also have an impact on the success of providing breast milk, such as mothers with post-CS have a higher risk of not providing breast milk, especially colostrum, this often occurs due to pain in the CS stitches felt by the mother [4]. This is confirmed by research that giving colostrum to post-CS mothers is often associated with discomfort felt by the mother, such as pain that results in fear of moving, fear of stitches coming loose, and feeling that breast milk is not coming out [5]. Based on a survey conducted in the obstetrics room of Pekanbaru Medical Center Hospital in May 2021, it was found that pediatricians and nurses had provided education on providing colostrum, but it was found that out of 10 post-cesarean mothers, only 3 gave colostrum, as many as 7 post-CS mothers did not give colostrum for various reasons including stitches, breast milk had not come out and could not mobilize. In the study of the vaginal delivery group, 15 respondents (42.9%) started giving colostrum <1 hour after birth, while in the CS group, 21 respondents (80.8%) started giving colostrum 7-23 hours after birth [6].

Breastfeeding coverage in Pemalang Regency in 2022 was only 52.78%, a decrease compared to the coverage of breastfeed in 2021 which was 58.72%. This is still very far from the national target in providing breastmilk, which is 80%. Al-Ikhlas Islamic Hospital Pemalang is one of

the hospitals in Pemalang Regency, in 2022 at RSI Al-Ikhlas Pemalang there were 554 post-SC mothers and 297 (54%) of them provided prelactation to their babies. Based on a preliminary study conducted by researchers in September 2023 at RSI Al-Ikhlas Pemalang, 50 post-SC mothers were found, and 29 of them (58%) provided prelactation to their babies.

Based on the background above, the researcher is interested in conducting research on "Factors Influencing the Provision of Colostrum to Post-Caesarean Section Mothers at RSI Al-Ikhlas Pemalang".

## 2. Methods

This type of research is analytical quantitative research, using a cross-sectional approach to determine the factors that influence the provision of colostrum to post-CS mothers, including age, education, knowledge, parity, and family support at the Al Ikhlas Islamic Hospital, Pemalang, from November 1, 2023, to December 15, 2023.

The population in this study were all post-section caesarean mothers at RSI Al-Ikhlas Pemalang, totaling 78 people. The sampling technique in this study used a non-probabilistic technique, namely total sampling with the inclusion criteria of mothers willing to be respondents, mothers on the 2nd day of CS, who have been given motivation and taught the correct breastfeeding techniques, and mothers and babies in 1 room (rooming in). The number of excluded samples was 12 people, so the number of respondents in this study was 66 people.

The study used a questionnaire to measure knowledge and family support, which was based on earlier research by Lina Yudhie Kusuma in 2017, and it was found to be reliable with a Cronbach's Alpha value of 0.825.

Bivariate data analysis was carried out using the chi-square test, and multivariate analysis was carried out using the logistic regression test.

### 3. Results and Discussion

#### a. Bivariate Analysis

**Table 1.** Relationship between age factors and colostrum administration

Age Group	Colostrum Provision				Total	%	P value	OR
	Colostrum	%	Colostrum and Supplementary Feeding	%				
At risk	8	50	8	50	16	100	0,780	0,852
Reproductive Age	27	54	23	46	50	100		
Total	35	53	31	47	66	100		

The table above shows that there were 50 respondents, of which 27 respondents (54%) only gave colostrum to their babies and 23 respondents (46%) gave colostrum and other additional foods to their babies.

The results of the chi square correlation test in table 2 with a 95% confidence level obtained a p value = 0.780 > 0.05, so it can be concluded that H0 is accepted and Ha is rejected, so there is no relationship between age factors and colostrum administration in infants. The age factor has an influence of 0.852 times in colostrum administration.

Age is the mother's age stated in years according to the mother's confession, age can shape thought patterns, with increasingly mature age it is expected that thought patterns will also be better, but in reality age alone cannot guarantee a person's thought patterns, many external factors can

influence thought patterns such as the environment and support from the family. This is in accordance with research [7] where there is no significant relationship between age and colostrum administration in infants, many factors influence the behavior of colostrum administration such as support from the closest people, health workers, and the residential environment which are strong factors in influencing perceptions and behavior in administering colostrum. Research on factors that cause colostrum administration, where one of the variables is age, obtained p = 0.124 > 0.05 it can be concluded that there is no effect of age on colostrum administration in postpartum mothers in the Camar I room of Arifin Achmad Hospital, Riau Province in 2019 where age is not related to a person's maturity in caring for and breastfeeding their babies [8].

**Table 2.** Relationship between education factors and colostrum provision

Education	Colostrum Provision				Total	%	P value	OR
	Colostrum	%	Colostrum and Supplementary Feeding	%				
Basic	13	38,2	21	61,8	34	100	0,013	0,281
Secondary	22	68,8	10	31,3	31	100		
Total	35	53	31	47	66	100		

The table 2 shows that there is a group with a basic education level of 34 respondents, where 13 respondents (38.2%) only gave colostrum to their babies and 21 respondents (61.8%) gave colostrum and other additional foods to their babies.

The results of the chi square correlation test in table 3 with a 95%

confidence level obtained a p value = 0.013 < 0.05 so it can be concluded that H0 is rejected and Ha is accepted, so there is a relationship between education factors and colostrum administration in infants. The education factor has an influence of 0.281 times on colostrum administration.

Education is a supporting factor towards a better direction, the higher a person's education, the easier it is to interpret information so as to create something good. Higher education provides confidence and opens wider access to knowledge so that it has the potential to do good and right things. This is in accordance with the study where out of 30 respondents studied, 24 respondents had a high school education level (80%) and it was obtained ( $p = 0.10$ ) so it can be concluded that there is a

relationship between education level and colostrum provision in newborns with post-cesarean mothers [6]. Education can function to develop abilities and form the character and civilization of a dignified nation in order to make the nation's life intelligent, someone who has low education will be influenced in the process of thinking to make decisions and vice versa. Someone who has low education will be influenced in receiving the latest information that is more relevant.

**Table 3.** Relationship between parity factors and colostrum administration

Parity	Colostrum Provision				Total	%	P value	OR
	Colostrum	%	Colostrum and Supplementary Feeding	%				
Primipara	10	43,5	13	56,5	23	100	0,255	0,554
Multipara	25	58,1	18	41,9	43	100		
Total	35	53	31	47	66	100		

The table 3 above shows that there were 43 respondents, of which 25 respondents (58.1%) only gave colostrum to their babies and 18 respondents (41.9%) gave colostrum and other additional foods to their babies.

The results of the chi square correlation test in table 4 with a 95% confidence level obtained a  $p$  value =  $0.225 > 0.05$ , so it can be concluded that  $H_0$  is accepted and  $H_a$  is rejected, so there is no relationship between the parity factor and the provision of colostrum to infants. The parity factor has an influence of 0.554 times on the provision of colostrum. Parity is often associated with experience, mothers who already have 2 or more children have experience in caring for their babies, but often bad experiences such as the experience of not breastfeeding on the grounds that the previous child was not breastfed because

breast milk did not come out, making multiparous mothers more likely not to provide colostrum compared to primiparous mothers.

This is confirmed by research where in the research on parity and colostrum administration, the results obtained were  $p = 0.214 > 0.05$ , which means that  $H_0$  is accepted and  $H_a$  is rejected, thus there is no relationship between parity and colostrum administration [9]. Primiparous mothers tend to seek more sources of information about colostrum, while multigravida mothers tend to learn and repeat from previous experiences, making it more likely not to provide colostrum. Other factors such as the availability of sources of information about colostrum can raise awareness to influence behavior towards the breastfeeding process [10].

**Table 4.** Relationship between knowledge factors and colostrum administration

Knowledge level	Colostrum Provision				Total	%	P value	OR
	Colostrum	%	Colostrum and Supplementary Feeding	%				
Good	30	66,7	15	33,3	45	100	0,001	6,400

Fair	5	23,8	16	76,2	21	100
Total	35	53	31	47	66	100

The table 4 shows that the group with a good level of knowledge was 45 respondents, where 30 respondents (66.7%) only gave colostrum to their babies and 15 respondents (33.3%) gave colostrum and other additional foods to their babies.

The results of the chi square correlation test in table 5 with a 95% confidence level obtained a p value = 0.001 <0.05 so it can be concluded that H0 is rejected and Ha is accepted, so there is a relationship between the knowledge factor and the provision of colostrum to infants. The knowledge factor has a 6.4-fold influence on the provision of colostrum.

Knowledge can be obtained from information from the mass media and the environment. With good knowledge about colostrum, it is hoped that it will be able to influence the mother's behavior towards giving colostrum to her baby [11]. This is in accordance with the study Where in the study of the influence of knowledge on breastfeeding behavior obtained p = 0.041 <0.05 so it can be concluded that there is an influence of knowledge on maternal behavior in breastfeeding, where mothers who lack knowledge of breastfeeding tend to have passive behavior in breastfeeding their babies, while mothers with sufficient and

good knowledge tend to be more active in breastfeeding their babies. Respondents who are classified as having good knowledge are 6 times more likely to give colostrum to their babies when compared to respondents with less knowledge. Lack of knowledge from mothers that colostrum has high immune and nutritional substances causes mothers not to believe that breast milk alone is enough to meet their baby's nutritional needs [12].

Mothers' knowledge about colostrum is closely related to the support of health workers, the minimal role of health workers in providing information or counseling about colostrum will have a negative impact on the provision of colostrum. One of the factors that influences the process of providing colostrum is the exposure to colostrum promotion carried out by health workers (midwives). Mothers who have been given health counseling by midwives have a 13 times higher chance of providing colostrum to their babies. This counseling can be given during pregnancy or after the delivery process [13]. This is in line with the research which obtained results (p<0.013) and it can be concluded that there is an influence of the role of health workers (midwives) in providing colostrum by mothers to newborns.

**Table 5.** Relationship between family support factors and colostrum provision

Family Support	Colostrum Provision				Total	%	P value	OR
	Colostrum	%	Colostrum and Supplementary Feeding	%				
Supportive	13	81,3	3	18,8	16	100	0,009	5,515
Not Supportive	22	44	28	56	50	100		
Total	35	53	31	47	66	100		

The table 5 shows that the group that did not receive family support consisted of 50 respondents, of which 22 respondents (44%) only gave colostrum to their babies and 28 respondents (56%) gave colostrum and other additional food to their babies.

The results of the chi square correlation test in table 5.7 with a 95%

confidence level obtained a p value = 0.009 <0.05 so that it can be concluded that H0 is rejected and Ha is accepted, so that there is a relationship between family support factors and colostrum provision in infants. Family support factors have a 5.515-fold influence on colostrum provision.

Family support is the attitude, actions and acceptance of the family towards its

members. Family involvement in providing physical and psychological support will increase the behavior of giving colostrum to their babies. This is in line with research [12] about factors related to giving colostrum to newborns, where respondents with support from their husbands and families have a 3 times greater chance of giving colostrum to their babies, if the mother feels supported by her husband and family in giving breast milk, then positive emotions will emerge which will increase the production of oxytocin which is beneficial for the smooth flow of breast milk during breastfeeding, and is confirmed by research [14] where there is

b. Multivariate Analysis

a relationship between family support and breastfeeding obtained  $p = 0.005 < 0.05$  which means there is a relationship between family support and breastfeeding, where family support is one type of social support that describes the role of other people such as family members to provide assistance and support in the form of material, emotions, or information so that breastfeeding mothers feel cared for, appreciated, and loved. According to the greater the support the family gives to the mother to continue breastfeeding, the greater the mother's ability to persist in breastfeeding her baby [15].

**Table 6.** Results of Multivariate Analysis of Factors Influencing Colostrum Provision

Variabel	B	S.E	Wald	df	Sig	Exp (B)	95% C.I for EXP (B)	
							Lower	Upper
Age	0.742	0.838	0.784	1	0.376	2.100	0.406	10.847
Education	-1.008	0.643	2.456	1	0.117	0.365	0.103	1.287
Parity	-0.776	0.650	1.425	1	0.233	0.460	0.129	1.646
Knowledge Level	2.244	0.813	7.620	1	0.016	9.433	1.917	46.418
Family support	2.388	0.928	6.619	1	0.010	10.891	1.766	67.166

The table above shows the results that the family support factor is the most dominant factor influencing the provision of colostrum at RSI Al-Ikhlas Pemalang with a  $p$  value =  $0.010 < 0.05$ . From the results of the logistic regression analysis test, the OR or Exp (B) value was obtained at 10,891, so it can be concluded that the higher the family support given to post-SC mothers in providing colostrum, the more mothers can provide colostrum to their babies by 10,891 times.

The low percentage of colostrum provision in this study was greatly influenced by family support. Family support in this case is the involvement of the family in helping mothers obtain information about colostrum, helping mothers in the process of providing

colostrum, helping to find solutions related to problems during the process of providing colostrum, calming and providing comfort to mothers during the process of providing colostrum and so on.

Family is a primary social group that can influence and be influenced by individuals in a family. The success of a mother in providing breast milk to her baby is also supported by psychological preparation since pregnancy, the mother's attitude in providing breast milk is influenced by various factors such as customs, beliefs about breastfeeding so that the role of the family can directly influence the exclusivity of the breastfeeding process [16]. The role of the father himself can make the breastfeeding process a success, namely actively participating in decision making, having a positive attitude, knowing extensive knowledge about breastfeeding,

helping in baby care. Other family roles that support the breastfeeding process in terms of the social environment include providing a sense of comfort to breastfeeding mothers, providing support that mothers can breastfeed well, reminding mothers to always be active in breastfeeding their babies.

Many factors influence family support including socioeconomic class including income or job level and education level. In middle class families, a more democratic and fair relationship may exist, while in lower class families, the relationship is more authoritative and autocratic. In addition, parents and middle social class have higher levels of support, affection and involvement than parents with lower social class. Another factor is education level, the higher the level of education, the higher the support given to family members. This is in line with research on factors related to giving colostrum to newborns, where respondents with husband and family support have a 3 times greater chance of giving colostrum to their babies, if the mother feels supported by her husband and family in giving breast milk, then positive emotions will arise which will increase the production of oxytocin which is useful for the smooth flow of breast milk during breastfeeding, and confirmed by the research obtained the results of the analysis of the relationship between family support and giving breast milk obtained  $p = 0.005 < 0.05$  which means there is a relationship between family support and giving breast milk, where family support is one type of social support that describes the role of other people such as family members to provide assistance and support in the form of material, emotions, or information so that breastfeeding mothers feel cared for, appreciated, and loved. The greater the support the family gives to the mother to continue breastfeeding, the greater the mother's ability to continue breastfeeding her baby [12].

#### 4. Conclusion

The results of this study indicate that there are 3 variables that influence the provision of colostrum, namely the education variable with  $p = 0.013$ , the

knowledge variable with  $p = 0.001$ , the family support variable with  $p = 0.009$  and 2 variables that do not influence the provision of colostrum, namely the age variable with  $p = 0.780$  and the parity variable with  $p = 0.255$ .

Multivariate analysis conducted using logistic regression test in this study obtained the greatest influence in providing colostrum to post-section caesarean mothers at RSI Al-Ikhlas Pemalang seen from the odds ratio value of 10,891 where the more the mother gets support from her family to provide colostrum, the greater the chance of providing colostrum to her baby by 0.104 times.

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