10.5958/0976-5506.2019.02905.X

The Relationship of Childbirth Preparation Based on Childbirth Preparation Card with Maternal Morbidity and Fetal Outcomes

Renny Aditya[1], Samuel L. Tobing[1], Zayed Norwanto[2]

[1]Division of Obstetrics and Social Gynecology, [2]Functional Medical Staff of Obstetrics and Gynecology, Ulin General Hospital, Banjarmasin

Abstract

This research aims to determine the level of primigravida childbirth preparation through childbirth preparation card (CPC) and its relationship with maternal morbidity, including postpartum hemorrhage and ruptured perineum, and fetal outcomes (APGAR score, Down score and infant mortality). The researcher used a descriptive-analytical method with a cross-sectional approach. Childbirth preparation is assessed using CPC. The research begins from January to April 2019. The sample in this study were mothers who gave birth in Ulin General Hospital of Banjarmasin, which was 100 respondents when the researchers conducted a study with sampling using a purposive sampling technique. There were 76 respondents (76%) stated that they were ready for the childbirth preparation, and 24 respondents (24%) were not ready for preparation. From 76 ready respondents, as many as 73 respondents were not bleeding (93.6%), 47 respondents did not experience perineal rupture (87.0%), 70 respondents with good APGAR score (97.2%), 70 respondents with good Down score (70%) and 74 respondents did not die (80.4%). Childbirth preparation was associated with the rate of postpartum hemorrhage ($p<0.0001$; OR 92.4), perineal rupture ($p=0.005$; OR 3.93), APGAR score ($p<0.0001$;OR 128.33), Down scores ($p <0.0001$; OR 128.33) and infant mortality ($p=0.002$; OR 12.33). Childbirth preparation is related to the incidence of postpartum hemorrhage, perineal rupture, APGAR score, Down score, and infant mortality.

Keywords: *Childbirth preparation, postpartum hemorrhage, perineal rupture, APGAR score, Down score, infant mortality.*

Introduction

Pregnancy is a susceptible period in women's lives, which is vulnerable to the onset of physical and mental disorders. Maternal health care during pregnancy has been carried out for approximately 100 years. Maternal care during pregnancy is an essential part of the health system that aims to maintain maternal health during pregnancy and childbirth so that the health of the mother and baby are maintained.[1]

Corresponding Author:
Renny Aditya
Division of Obstetrics and Social Gynecology,
The General Hospital Ulin, Jl. A. Yani, Km. 2.5
Banjarmasin Kalimantan Selatan, Indonesia
e-mail: rennyaditya@gmail.com

Based on observations of the World Health Organization (WHO) in 2015, the maternal mortality rate (MMR) during pregnancy, childbirth, and childbed amounted to 303,000 people and the infant mortality rate (IMR) was 10,000,000 (WHO, 2015). The MMR in Indonesia is still very high compared to the Association Southeast Asia (ASEAN), wherein 2012 the MMR was 359 per 100,000 live births. [2,3]

Relationship between attitudes of pregnant women and pregnancy care as stated by Jenifer et al. who reported that poor maternal attitudes towards pregnancy care including pregnancy examinations had an impact on the emergence of negative health status in mothers and infants after childbirth.[4]

Materials and Method

In this study, researchers used a descriptive-analytic method with a cross-sectional approach, namely

by collecting data from the number of respondents in a particular time to determine the preparation of primigravida mothers about childbirth and assess outcomes in the mother and baby (fetal). The research instrument is the CPC questionnaire that has been tested for validity and reliability.[5]

The time of research begins from January to April 2019. This research was conducted at Ulin General Hospital Banjarmasin. The sample in this study were mothers who gave birth in Ulin General Hospital Banjarmasin, which was 100 people with a purposive sampling technique. Inclusion criteria were available to be respondents and Trimester III of primigravida. Exclusion criteria were incomplete history and domicile.

Findings and Discussion

Childbirth Preparation Card

Risk Factors	Yes/No
Mothers understand the signs of labor	
Mother understands the danger signs of labor	
Awareness of at risk pregnancy	
Having a designated place of birth	
The nearest / intended delivery place is a health center, midwife, maternity clinic or hospital	
Distance to place of birth can be reached quickly	
Have transportation to place of birth	
Knowing who to call to take to the place of birth	
Knowing the obstetrician who is intended	
Knowing the intended midwife	
Have a family that accompanies childbirth	
Have a birth preparation funding	
Knowing people who can provide funding for births	
Having health insurance, such as national or governmental health insurance	
Know how to make health insurance	
Husband has a standby	
Baby equipment readiness	
Mother's equipment readiness	
Know the place for blood donor preparation	
Have a family and neighbors who are willing to donate blood if needed	

If Yes Score 1 and No Score 0 . Scoring is divided into 3, namely:

1. Ready, if scoring 10 -20
2. Not ready, if scoring <10

Childbirth Preparation Card

If Not Ready, Immediately Consult the Midwife / Doctor

Mother Conditions when bore:

1. A lot of bleeding ( )
2. Tearing down the birth canal ( )
3. Seizure ( )

Mother's condition after childbirth:

1. A lot of bleeding ( )
2. Pain is not reduced ( )
3. Seizure ( )

Fetal conditions :

1. After born, cry immediately ( )
2. Breath disorders ( )
3. Bump in the head ( )
4. Injury ( )

Identity

Name :

Age :

Address :

Figure 1. Childbirth Preparation Card

Table 1. Distribution and Frequency of Outcomes in Childbirth Preparation Status

Variable	Category	Frequency (n)		Percentage (%)	
		Ready	Not ready	Ready	Not ready
Postpartum Hemorrhage	Yes	3	19	3,99	79,2
	No	73	5	96,1	20,8
Perineal Rupture	Yes	29	17	38,1	70,8
	No	47	7	61,9	29,2
APGAR score	Good	70	2	92,1	8,3
	Poor	6	22	7,9	91,7
Down Score	Good	70	2	92,1	8,3
	Poor	6	22	7,9	91,7
Infant Mortality	Yes	2	6	2,6	25
	No	74	18	97,4	75

Table 2. The Relationship of Childbirth Preparation with Postpartum Hemorrhage, Perineal Rupture, APGAR Score, Down Score, and Infant Mortality

Variable		Readiness				P-value	OR
		Ready		Not			
		N	%	N	%		
Bleeding (Hemorrhage)	Not	73	93.6	5	6.4	p<0.0001	92.4
	Yes	3	13.6	19	86.4		
Ruptur	Not	47	87.0	7	13.0	p=0.005	3.93
	Yes	29	63.0	17	37.0		
Apgar	Good	70	97.2	2	2.8	p<0.0001	128.33
	Bad	6	21.4	22	78.6		
Down	Good	70	97.2	2	2.8	p<0.0001	128.33
	Bad	6	21.4	22	78.6		
Dead	Not	74	80.4	18	19.6	p=0.002	12.33
	Yes	2	25.0	6	75		

Childbirth preparation was associated with the rate of postpartum hemorrhage (p<0.0001 adjusted OR 92.4), perineal rupture (p=0.005 adjusted OR 3.93 APGAR score (p<0.0001 adjusted OR 128.33), Down scores (p<0.0001 adjusted 128,33) and infant mortality (p=0.002 adjusted OR 12.33).

Childbirth preparation was associated with postpartum hemorrhage rates (p<0.0001; OR 92.4). Clinical features of postpartum hemorrhage in the form of bleeding continues-constantly and the patient's condition gradually become more ugly. Pulse rate so fast and weak, decreased blood pressure, the patient turned pale and cold, and his breathing became congested, breathing-breath, sweating, and eventually coma and death. A dangerous situation is that the pulse and blood pressure only show slight changes for a few moments due to the vascular compensation mechanism. Then this compensation function cannot be maintained anymore, the pulse increases rapidly, blood pressure suddenly drops, and the patient is in a state of shock. The uterus can fill up with enough blood even if it looks just from the outside.[5,7]

Based on the results of the study showed that between childbirth preparation and the incidence of bleeding in the mother had a relationship. For women who are ready to give birth, most did not experience postpartum hemorrhage. It is because the physical and psychological readiness of the mother is getting better because the knowledge of childbirth that has been previously possessed, the experience for mothers can ultimately improve the psychological readiness of the mother. The better the preparation for maternity, the risk of postpartum hemorrhage can be minimized so that the incidence of maternal mortality due to labor and childbirth can be reduced. Therefore, it is expected that couples of childbearing age can prepare childbirth well.

Childbirth preparation was associated with perineal rupture (p=0.005 adjusted OR 3.93). Perineal rupture is a tear that occurs when the baby is born, either spontaneously or by using a tool or action. Perineal rupture is divided into four levels, namely degrees I, II, III, and IV rupture. Perineal rupture generally also occurs in labor if the fetal head is born too quickly, labor is not led properly, scarring of the perineum, and shoulder dystocia.[10,11,12]

Childbirth preparation causes a relatively low rate of perineal rupture. It can happen because of many factors; one of them is preparation carefully of the mother who knows the correct pushing technique and the existence of exercises that cause the perineum, not to stiffen.[11,12,13]

Straining techniques can affect the occurrence of perineal rupture in spontaneous maternity. At the time of delivery, the midwife can provide care by teaching the mother to do the correct straining technique that is when the mother contractions are encouraged to follow the impulse naturally and when straining the mother does not hold back the feeling. When straining at the peak of the contraction, the mother is not allowed to lift the buttocks. In the second stage, when the expenditure occurs due to strong and frequent contractions. When the contraction or pressure occurs in the pelvic floor muscles, which can cause a feeling of wanting to strain, causing the perineum to protrude and become wide and

the anus open, followed by labia minor and major, then the fetal head that appears on the vulva. It is at this time that perineal rupture can occur especially in primigravida labor and to do the wrong straining technique.[14,15,16]

Maternal preparation was associated with APGAR scores (p <0.0001; OR 128.33). Based on Apgar score interpretation, if Apgar scores between 4-6, so the baby has not covered asphyxia. If Apgar scores 7-10, baby included in normal childbirth and have adaptations, which is very good with the outside environment. The lower scores on the first-minute test can show that the newborn baby needs medical attention continuously but not necessarily indicate the long term problems, especially if there is increasing scores on the fifth-minute test. If the Apgar score remains under 3 on the next tests (10, 15, or 30 minutes), then there is a risk that the child can experience long-term nerve damage. There is also a small but significant risk of brain damage. However, the purpose of the Apgar test is to determine quickly whether the newborn baby needs immediate medical treatment; and not designed to provide long-term predictions of the health of the baby.[17,18,19,20]

Women who received assistance in childbirth gave a good outcome to infant health with a first-minute APGAR score indicator. The research conducted by Liu J (2014) concluded that there were differences in labor with mentoring and without assistance with the baby's Apgar value in the first minute.[20,21,22]

Maternal delivery was associated with a Down score (p <0.0001; OR 128.33) and infant mortality (p=0.002; OR 12.33). Respiratory Distress Syndrome (RDS) is the difficulty or occurrence of respiratory dysfunction in neonates due to several reasons. Fetal period such as a baby born prematurely and multiple births; labor such as excessive blood loss, postmaturity, sectio); and the neonatal period due to neonatorum infection and asphyxia.[20,22,23]

It is because the unprepared mother has stiffness from the muscle or cervix that will provide a much larger prisoner and can extend labor while the mother who is ready to give birth is a setback of the flexural power (elasticity) of the tissue that has been repeatedly stretched through practice and exercise. Correlation of childbirth preparations with the complication of pregnancy and birth, namely in gestational age, body weight, premature, respiratory distress syndrome, fetal distress, and asphyxia. The risk of emergency breathing occurs in mothers who are not prepared more than ready mothers. There is a relationship between maternal parity and knowledge of childbirth readiness with the incidence of respiratory distress syndrome in Bari General Hospital Palembang with a value of p=0.028.[8,15,17,23,24]

The companion or presence of the second person in childbirth which is to find that mothers who are accompanied by a friend or close relative (especially husband) during labor take place, have a lower risk of complications that require medical action than those without assistance. Mothers with companions in undergoing labor take place faster and easier. In the study, it was also found that the presence of a husband or close relative would bring calm and keep the mother away from stress and anxiety that could complicate the birth and delivery process, the presence of the husband would bring positive psychological effects and had a positive impact on the mother's physical readiness.[15,25,26,27]

Conclusion

Primigravida mother who gave birth at Ulin General Hospital Banjarmasin was 76% ready to give birth. As many as 73 respondents who did not experience bleeding (93.6%), 47 respondents (87.0%) did not experience perineal rupture, 70 respondents (97.2%) with good APGAR score, 70 respondents (70%) with good Down scores and 74 respondents (80.4%) have not died. Childbirth preparation is related to the rate of postpartum hemorrhage, perineal rupture, APGAR score, Down score, and infant mortality.

Ethical Clearance: This research has gone ethical feasibility testing by the Ethical Research Commission of the Faculty of Medicine, University of Lambung Mangkurat.

Source Funding: This study was done by self-funding from the authors.

Conflict of Interest: The authors declare that they have no conflict interests.

References

1. Anung. Health in the Framework of Sustainable Development Goals (SDGs). Jakarta: Director General of Nutrition Development Health of Mother and Child. 2016: 23-24.
2. Ariawan I. Large and sample method in health research. Depok: Biostatistics Department and Population of the UI Faculty of Public Health. 1998.

3. Ministry of the Health Republic of Indonesia. Indonesian health profile. Jakarta: Indonesian Ministry of Health. Thing, 2015: 103-128.
4. Klossner NJ, Hatfield N. Introductory Maternity & Pediatric Nursing. Philadelphia: Lippincott Williams & Walkins, 2006.
5. Ariawan I. Categorical Data Analysis. Depok: Biostatistics Department of the Faculty of Public Health, University of Indonesia. 2008.
6. Bobak IM, Lowdermilk D, Jensen MD. Maternity Nursing. 4th ed. 1995.
7. National Network of Reproductive Health Clinic Training. Comprehensive Emergency Obstetric and Neonatal Service Training Package. Essential Neonatal Care. Jakarta, 2008.
8. Saifudin AB. A practical handbook for maternal and neonatal services. Jakarta: YBP-SP, 2002.
9. Setiyaningrum E. Maintenance of emergency maternity obstetric pathology care revised. Jakarta: In-Media. Matters: 2017; (1): 74-84.
10. Bappenas. Millennium Development Goals. Jakarta: Central Bureau of Statistics, Indonesia Health Demographic Survey. 2007.
11. Callister LC, Semenic S, Foster JC. Cultural and spiritual meanings of childbirth: orthodox Jewish and Mormon women. Journal of Holistic Nursing, 1999; 17 (3).
12. Chitty K. Professional nursing: concepts and challenges. 2nd ed. Saunders, Philadelphia. Dagun SM. Family psychology (father's role in the family). Jakarta: Rineka Cipta, 2002.
13. Ministry of the Health Republic of Indonesia. National network for health-clinic training (JNPK-K). Jakarta: Ministry of Health of the Republic of Indonesia,2007
14. Mander R. Labor pain. *translation*. Sugiarto B, translator. Jakarta: EGC, 2003.
15. Musbikin. Guide for pregnant and childbirth. Yogyakarta: Mitra Pustaka, 2005.
16. Dewi NL, Vivian, Sunarsih. Midwifery pregnancy care. Jakarta: Salemba Medika, 2011: 18-27.
17. Budi I, Sukardi. The difference in first-minute Apgar value for childbirth with assistance and without mentoring. Journal of Health Research Flare Forikes, 2010; 1:286-288.
18. Hermansen CL, Lorah KN. Respiratory distress in descriptive-analytical Newborn. American Family Physician, 2007; 76 (7): 987-994
19. Kleiner MR, et al. Respiratory distress syndrome in near-term babies after caesar section. Switzerland M e d WKLY, 2013;(133): 283-288.
20. Kosim MS. Neonate Emergency in Preterm Labor. Pediatric Sari, 2006; 7(4): 225-3I
21. Liu, Cao JHY, Wang HW. The role of lung in the diagnosis of respiratory distress syndrome in the newborn infant. Iran J. Pediatr, 2014; 24 (2): 147-54.
22. Liu, J., N. Yang, and Y. Liu. The high-risk factor of respiratory distress syndrome in term neonates. Balkan Medical Journal, 2014; (31): 64-68.
23. Djaja S, Soemantri S. Causes of newborn neonatal death and the related health service system in Indonesia: 2001 Household Health Survey (SKRT). Health Research Bulletin, 2003; 31 (3): 155-65.
24. Rukiyah A. Midwifery care II (Childbirth). Jakarta: TIM, 2009. 30 p.
25. Sukarni I, Sudarti. Pathology of pregnancy, childbirth, postpartum and high-risk neonates. Yogyakarta: Nuha Medika. Thing, 2014, 92-8.
26. Sumarah, et al. Maternity care (Midwifery care for maternity). Yogyakarta: Fitramaya, 2009.
27. Hellen V. Varney midwifery. 2 ed. London: Jones and Bartlett Publishers International, 1997.