

EFFECTIVENESS OF NIPPLE STIMULATION ON THE AMOUNT OF POSTPARTUM BLEEDING IN WOMEN IN THE FOURTH STAGE OF LABOUR AT PMB TRIANA FIRLIYANTI SY, S.TR.KEB KARANG ANYAR LAMPUNG SELATAN

Umi Kalsum¹, Nurliyan², Dessy Hermawan³, Vida Wira Utami⁴

Midwifery Study Program, Faculty of Health Sciences

Email : habibie.handrason@gmail.com, nurliani@malahayati.ac.id, hermawan.dessy@gmail.com
vida_harmawan@yahoo.com

ABSTRAK : EFEKTIFITAS STIMULASI PUTING SUSU TERHADAP JUMLAH PENGELUARAN PERDARAHAN PADA IBU BERSALIN KALA IV DI PMB TRIANA FIRLIYANTI SY, S.TR.KEB KARANG ANYAR LAMPUNG SELATAN

Perdarahan postpartum merupakan penyebab sekitar 30% dari keseluruhan kematian akibat perdarahan. Tujuan penelitian ini untuk mengetahui stimulasi puting susu terhadap jumlah pengeluaran perdarahan pada ibu persalinan kala IV di PMB Triana Firliyanti, S.TR.Keb Karang Anyar Lampung Selatan Tahun 2025

Metode penelitian dengan jenis kuantitatif, Penelitian di laksanakan PMB Triana Firliyanti, S.TR.Keb Karang Anyar

Lampung Selatan pada Januari-Juni 2025. Desain penelitian *pra eksperimen* yaitu *intact group comparison two grup pretest-posttest*. Populasi seluruh ibu bersalin normal di PMB Triana Firliyanti, S.TR.Keb Karang Anyar Lampung Selatan berdasarkan katong persalinan sebanyak 48 ibu dan jumlah anggota sampel 32, teknik *non-probability* dengan teknik *purposive sampling*.

Rata-rata sebelum diberikan stimulasi puting susu (kelompok intervensi) 311,38 sesudah 134,56, sebelum

pemantauan (kelompok kontrol) 323,06, sesudah pemantauan (kelompok kontrol) 164,75. Hasil nilai *p value* $0,000 \leq \alpha (0,05)$ yang artinya H_0 ditolak dan H_a diterima. Nilai *p value* $0,004 \leq \alpha (0,05)$ artinya ada perbedaan pada kelompok intervensi dan kelompok kontrol terhadap jumlah pengeluaran perdarahan pada ibu persalinan kala IV di PMB Triana Firliyanti, S.TR.Keb Karang Anyar Lampung Selatan Tahun 2025. Diharapkan dengan dilakukan penelitian ini dapat meningkatkan pengetahuan responden dalam penatalaksanaan perdarahan kala IV dengan metode non farmakologi.

Kata kunci : stimulasi puting susu, perdarahan kala IV, persalinan

ABSTRACT

Post partum bleeding is responsible for approximately 30% of overall mortality due to bleeding. The aim of this study is to investigate nipple stimulation on the amount of bleeding in women in the fourth stage of labour at PMB Triana Firliyanti, S.TR.Keb Karang Anyar Lampung Selatan in 2025.

Method type of research is quantitative, research conducted at PMB Triana Firliyanti, S.TR.Keb Karang Anyar Lampung Selatan from January to June 2025. The design of the pre-experimental research is an intact group comparison two group pretest-posttest. The population consists of all normal delivering mothers at PMB Triana Firliyanti, S.TR.Keb Karang Anyar Lampung Selatan based on the childbirth registration of 48 mothers and the number of sample members is 32, using a non-probability technique with purposive sampling.

The average results before nipple stimulation (intervention group) was 311.38 and after was 134.56, before monitoring (control group) was 323.06, and after monitoring (control group) was 164.75. The *p-value* result was $0.000 \leq \alpha (0.05)$ which means H_0 is rejected and H_a is accepted. The *p-value* of $0.004 \leq \alpha (0.05)$ indicates a difference between the intervention group and the control group regarding the amount of bleeding in mothers during the fourth stage of labour at

PMB Triana Firliyanti, S.TR.Keb Karang Anyar, South Lampung in 2025. It is hoped that this research will increase respondents' knowledge in managing fourth stage bleeding using non-pharmacological methods.

Keywords: nipple stimulation, fourth stage bleeding, childbirth

INTRODUCTION

Childbirth is the process of expelling (birth) the products of conception that can live outside the uterus through the vagina to the outside world. This process can be said to be normal or spontaneous if the baby is born in a position at the back of the head and takes place without the help of tools or assistance, and does not injure the mother and baby. In general, this process takes place in less than 24 hours (Nurliyani, 2024)

Postpartum hemorrhage accounts for approximately 30% of all deaths due to hemorrhage. *The United Nations Children's Fund* (UNICEF) reported in 2019 that maternal hemorrhage rates remain very high, with 30.3% of maternal deaths due to hemorrhage. Most cases of postpartum hemorrhage occur due to placental retention, with 16-17% of cases of placental retention leading to hemorrhage (Sari and Sunarsih 2020).

Mortality and mobility in pregnant and childbirth women are high in developing countries. *The World Health Organization* (WHO) estimates that 800 women die every day due to complications of pregnancy and childbirth. Approximately 99% of all maternal deaths occur in developing countries. Approximately 80% of maternal deaths are due to complications during pregnancy, childbirth, and after childbirth (ICD-10, 2015; WHO 2019). According to the WHO report in 2019, the Maternal Mortality Rate (MMR) in the world was 223 per 1,000. The United States is 5.64. North Africa 303,000, and Southeast Asia 4,005 maternal deaths in Southeast Asian countries, namely Indonesia 189 per 100,000 live births, the Philippines 170 per 100,000 live births, Vietnam 73.8 per 100,000 live births, Thailand 75.3 per 100,000 live births, Brunei 75.5 per 100,000 live births, and Malaysia 63.9 per 100,000 live births (WHO, 2023).

Maternal mortality rate (MMR) As one of the indicators of health development, is still high in Indonesia, based on the 2023 Indonesian Demographic and Health Survey (SDKI), the maternal mortality rate in Indonesia is still high at 370 per 100,000 live births (Indonesian Health Profile 2023).

When viewed based on the death cases in Lampung Province in 2023 based on reports from the districts, it can be seen that maternal death cases (maternal deaths during pregnancy, childbirth and postpartum) were 36 cases in total, heart and blood vessel disorders 10, autoimmune disorders 1, cerebrovascular disorders 1, hypertension 24, infections 4, COVID 19 as many as 1, other cases

as many as 28 (Lampung Province Health Profile 2023). The number of maternal deaths (MMR) in South Lampung was 5 cases (South Lampung Health Profile, 2023).

Bleeding is anything that occurs after birth, before, during, and after the placenta is delivered. By definition, blood loss exceeding 500 ml during the first 24 hours and beyond is called late postpartum hemorrhage (Eksaka, 2020).

According to Sari and Handayani (2012) in Nuriyati (2020), the normal amount of blood loss during the fourth stage of labor in postpartum mothers is approximately 100-300 cc. This bleeding is caused by the placenta detaching from the implantation site, causing the blood vessels where the placenta is attached to open wide. If contractions are not good, this will increase the amount of bleeding. With contractions, the open blood vessels will close again, reducing the amount of bleeding during the fourth stage of labor.

Prevention is a step that can significantly reduce maternal pain and blood loss after delivery. Steps considered effective in preventing postpartum hemorrhage include active management of the third stage of labor, administration of uterotonics, and breastfeeding or nipple stimulation (Dewi, 2017).

Nipple stimulation is an action or treatment given to the nipple, so that it can cause a certain response. The stimulation given can be in the form of nipple stimulation in the form of gentle stimulation of the nipple area with the palmar part of the fingers which is done alternately as well as with the baby's sucking (Indonesian Midwives Association, 2017).

If the uterus does not contract adequately, it will cause bleeding. Uterine contractions are crucial for controlling postpartum bleeding. Another form of nipple stimulation that can help the uterus contract is finger stimulation. Uterine contractions are crucial for controlling postpartum bleeding. Another form of nipple stimulation that can help the uterus contract is finger stimulation (Widyastuti, 2015).

Stimulating the nipples after birth can influence the hypothalamus to naturally release the hormone oxytocin, which will accelerate uterine contractions and thus reduce postpartum hemorrhage. Uterine contractions are crucial for controlling postpartum bleeding. Another form of nipple stimulation that can help the uterus contract is finger stimulation. Meanwhile, according to Manuaba (2015), breast milk stimulation stimulates the pituitary gland to secrete oxytocin, which can cause uterine contractions. Besides sucking, according to Manuaba (2015), the placental

birth process can be achieved by stimulating the nipples through twisting (Dewi, 2017).

Meanwhile, for mothers, touch and sucking on the mother's breasts encourage the formation of oxytocin because when the baby sucks the mother's nipple, it will stimulate the sensory nerve endings in the areola, triggering a *neuroendocrine reflex* that produces milk secretion from leukocytes into the alveoli. *The posterior pituitary releases oxytocin, stimulating myoepithelial cells to squeeze milk from the alveoli so that it can flow into the lactiferous ducts, collect in the lactiferous duct sinuses and exit through the pores of the mother's nipples so that together with the formation of prolactin by the anterior pituitary, the stimulation originating from the baby's sucking is continued to the posterior pituitary (Neurohypophysis) which then releases oxytocin which can cause contractions of the uterus so that the placenta is released and reduces the amount of bleeding* (Rathod 2019).

In line with research conducted by Nurliati (2020) Group of mothers who did IMD. The majority of the amount of blood in the fourth stage was ≤ 200 cc as many as 10 respondents (100%) and the minority of the amount of blood in the fourth stage was >200 cc as many as 0 respondents (0%). Group of mothers who did not do IMD. The majority of the amount of blood in the fourth stage was > 200 cc as many as 8 respondents (80%) and the minority of the amount of blood in the fourth stage was ≤ 200 cc as many as 2 respondents (20%). The average amount of blood in the fourth stage of respondents who did IMD was 150.63 with a standard deviation of 22,149. while respondents who did not do IMD had an average amount of blood in the fourth stage was 166.09 with a standard deviation of 21,580. d. Statistical tests obtained a p value = 0.000 meaning that there is an effect of Early Initiation of Breastfeeding (IMD) on the Amount of Blood in the Fourth Stage of Labor at the Suherni Amd Midwife Clinic. Beringin District, Deli Serdang Regency in 2019.

Based on a pre-survey on February 12, 2025 at PMB Triana Firliantisy, S.TR.Keb Karang Anyar, South Lampung in 2024 from the data of mothers giving birth in the last three years (89) mothers giving birth, where 8 people (9.6%) experienced bleeding, compared to PMB Satria S.TR.Keb Karang Anyar, South Lampung, in the last three years there were (120) mothers giving birth, where there was no bleeding in the mothers giving birth. Meanwhile, in 2025, from January to February, the number of deliveries in Firliantisy, S.TR.Keb Karang Anyar, South Lampung was 36 mothers giving birth.

RESEARCH METHODS

The type of quantitative research is a scientific approach method that views a reality as classifiable, concrete, observable and measurable, the relationship between variables is causal in nature where the research data is in the form of numbers and the analysis uses statistics. This research has been carried out at PMB Triana Firliantisy, S.TR.Keb Karang Anyar South Lampung. This research was conducted from January to June 2025. In this study, a quantitative approach was used with a *pre-experimental research design*, namely *intact group comparison*, which is a pre-experimental study with the same design as *the two-group pretest-posttest* where the study was divided into two groups, namely the intervention group (given nipple stimulation therapy) and the control group (only monitoring was carried out). The population in this study was all mothers who gave birth normally in and samples were taken 32 times from the number of variables studied. PMB Triana Firliantisy, S.TR.Keb Karang Anyar South Lampung who will give birth in April, May, June 2025 based on the delivery group of 48 mothers. The sampling procedure used in this study was *non-probability* with a purposive sampling technique.

RESEARCH RESULTS

Research Site Overview

Independent practice of midwife PMB Triana Firliantisy, S.TR.Keb Karang Anyar South Lampung. The working area of the Suratini Amd. Keb Midwife Practice is 54.12 meters, located in an urban area. Services at the BPM include ANC, childbirth, postpartum care, family planning, pre-conception counseling, and disease treatment. Facilities available at the Suratini Amd. Keb Midwife Practice include 2 postpartum care rooms, 1 pregnancy examination, 1 VK examination room, 1 waiting room, and 1 pharmacy.

General Characteristics Of Respondents

Based on the results of research based on the characteristics of respondents conducted on 16 respondents in the intervention group at PMB Triana Firliantisy, S.TR.Keb Karang Anyar South Lampung in 2025 with the most respondent age characteristics category, namely 20-35 years old with a total of 10 (62.6%) respondents, the most respondent education characteristics were high school education with a total of 8 (50.0%) respondents, the most occupational characteristics were mothers who did not work or were housewives with a total of 7 (43.8%) respondents, the most

parity characteristics were primipara with a total of 11 (68.8%) respondents, the most maternal gestational age characteristics were 39 weeks of gestation with a total of 6 (37.5%) respondents.

housewives with a total of 9 (56.3%) respondents, the most parity characteristics were primipara with a total of 10 (62.5%) respondents, the most maternal gestational age characteristics were 39 weeks of gestation with a total of 8 (50.0%) respondents.

Table 1
Characteristics of Respondents in the Intervention Group at PMB Triana Firliyantisy, S.Tr.Keb Karang Anyar South Lampung in 2025

Characteristics	Amount	Presentation
Respondent's age		
20-35 years	10	62.6%
>35 years	6	37.5%
Respondent education		
Bachelor	6	37.5%
Senior High School	8	50.0%
Junior High School	2	12.5%
Respondent's occupation		
Honorary	1	6.3%
Housewife	7	43.8%
Trader	4	25.0%
Civil servant	4	25.0%
Respondent Parity		
Multipara	5	31.35
Primigravida	11	68.8%
Gestational age		
38 Weeks	3	18.8%
39 Weeks	6	37.5%
40 Weeks	4	25.0%
41 Weeks	3	18.8%

Based on the results of research based on the characteristics of respondents conducted on 16 respondents in the control group at PMB Triana Firliyantisy, S.Tr.Keb Karang Anyar South Lampung in 2025 with the most respondent age characteristics category, namely 20-35 years old with a total of 12 (75.0%) respondents, the most respondent education characteristics were high school education with a total of 9 (56.3%) respondents, the most occupational characteristics were mothers who did not work or were

Table 2
Characteristics of Respondents in the Control Group at PMB Triana Firliyantisy, S.Tr.Keb Karang Anyar South Lampung in 2025

Characteristics	Amount	Presentation
Respondent's age		
20-35 years	12	75.0%
>35 years	4	25.0%
Respondent education		
Bachelor	2	12.5%
Senior High School	9	56.3%
Junior High School	5	31.3%
Respondent's occupation		
housewife	9	56.3%
Trader	5	31.3%
civil servant	2	12.5%
Respondent Parity		
Multipara	6	37.5%
Primigravida	10	62.5%
Gestational age		
38 Weeks	3	18.8%
39 Weeks	8	50.0%
40 Weeks	3	18.8%
41 Weeks	2	12.5%

Normality Test

Based on the table above, it can be seen that the *Shapiro-Wilk* value for the value of the amount of blood volume in the nipple stimulation intervention group with results before $0.394 \geq 0.05$, after $0.106 \geq 0.05$. While the results in the control group (monitored) with results after $0.080 \geq 0.05$ and blood volume after $0.081 \geq 0.05$. Thus, it can be concluded that the data of this study is normally distributed, and continued to be tested statistical data using dependent and independent T- tests.

Table 3
Results of the Normality Test of Variables Before and After Treatment in the Intervention Group and Control Group Test of Normality

Test score value	Shapiro wilk value	Information
Nipple stimulation intervention group		
Blood volume before	0.394	Normal
Blood volume after	0.106	Normal
Control group (monitored)		
Blood volume before	0.080	Normal
Blood volume after	0.081	Normal

Univariate analysis

Based on the results of research conducted on 16 respondents to determine the average amount of bleeding in mothers in the fourth stage of labor who were given nipple stimulation (intervention group) at PMB Triana Firliyantisy, S.TR.Keb Karang Anyar South Lampung in 2025 with the results of the mean value before 311.38, standard deviation 28.768, standard error 7.192

and the minimum value for the amount of blood volume of postpartum mothers in the fourth stage before was 250cc and the maximum value after was 100cc. The results after being given nipple stimulation with a mean value of 134.56, standard deviation 28.390, standard error 7.093 and the minimum value for the amount of blood volume of postpartum mothers in the fourth stage after was 100cc and the maximum value was 190cc.

Table 4

Average Amount of Bleeding in Mothers in the Fourth Stage of Labor Before and After Nipple Stimulation (Intervention Group) At PMB Triana Firliyantisy, S.TR.Karang Anyar District South Lampung in 2025

Intervention group	N	Mean	Mean difference	Standard deviation	Standard Error	Min	Max
Blood volume before	16	311.38	176,813	28,768	7,192	250	350
Blood volume after		134.56		28,390	7,093	100	190

Table 5

Average Amount of Bleeding in Mothers in the Fourth Stage of Labor Before and After Monitoring (Control Group) at PMB Triana Firliyantisy, S.TR. Keb Karang Anyar, South Lampung 2025

Control group	N	Mean	Mean difference	Standard deviation	Standard Error	Min	Max
Blood volume before control	16	323.06	158,313	23,851	5,963	280	350
Blood volume after control		164.75		27,187	6,797	115	213

Based on the results of research conducted on 16 respondents to determine the average amount of bleeding in mothers in the fourth stage of labor before monitoring (control group) at PMB Triana Firliyantisy, S.TR.Keb Karang Anyar South Lampung in 2025 with the results of the mean value before 323.06, standard deviation 23.851, standard error 5.963 and the minimum value for the amount of blood volume of postpartum mothers in the fourth stage before was 280cc and the maximum value was 350cc. While after being given monitoring the mean value was 164.75, standard deviation 27.187, standard error 6.797 and the minimum value for the amount of blood volume of postpartum mothers in the fourth stage before was 115cc and the maximum value was 213cc.

Bivariate analysis

Based on the results of research that has been conducted using the dependent T-test or using the paired sample t-test by looking for the effect of nipple stimulation on the amount of bleeding in mothers in the fourth stage of labor at PMB Triana Firliyantisy, S.TR.Keb Karang Anyar South Lampung in 2025 with the results of the mean value of 176.813 and the results of the *p* value or significant value are $0.000 \leq \alpha$ (0.05) which means H_0 is rejected and H_a is accepted, where there is an influence of nipple stimulation on the amount of bleeding in mothers in the fourth stage of labor at PMB Triana Firliyantisy, S.TR.Keb Karang Anyar, South Lampung in 2025.

Table 6

The Effect of Nipples on the Amount of Bleeding in Mothers in the Fourth Stage of Labor at Pmb Triana Firliyantisy, S.Tr.Keb Karang Anyar South Lampung in 2025

Variables	N	Mean	CI 95%	T	p- value
Amount of bleeding before intervention group	16	176,813	160,133-200,367	19,098	0,000
Amount of bleeding after intervention group					

Table 7

The Effect of Monitoring (Control Group) on the Amount of Bleeding in Mothers in the Fourth Stage of Labor at PMB Triana Firliyantisy, S.Tr.Keb Karang Anyar Lampung South 2025

Variables	N	Mean	CI 95%	T	p- value
Amount of bleeding before the control group	16	158,313	136,383-180,242	15,387	0,000
Amount of bleeding after control group					

Based on the results of research that has been conducted using the dependent T-test or using the paired sample t-test by looking for the effect of monitoring (control group) on the amount of bleeding in mothers in the fourth stage of labor at PMB Triana Firliyantisy, S.TR.Keb Karang Anyar South Lampung in 2025 with the results of the mean value of 158.313 and the results of the

p value or significant value are $0.000 \leq \alpha$ (0.05) which means H_0 is rejected and H_a is accepted, where there is an influence of monitoring (control group) on the amount of bleeding in mothers in the fourth stage of labor at PMB Triana Firliyantisy, S.TR.Keb Karang Anyar, South Lampung in 2025.

Table 8

Differences Between the Intervention Group and the Control Group on the Amount of Bleeding in Mothers in the Fourth Stage of Labor at PMB Triana Firliyantisy, S.TR.Keb Karang Anyar Lampung South 2025

Variables	N	Mean	P value
Before the intervention group after the intervention group	16	176,813	0.004
Before the control group after the control group	16	158,313	0.004

Based on the research results, it can be concluded that the *independent t-test results* obtained a *p-value* of $0.004 \leq \alpha$ (0.05), meaning that there was a difference between the intervention group and the control group in the amount of bleeding in mothers in the fourth stage of labor at PMB Triana Firliyantisy, S.TR.Keb Karang Anyar, South Lampung in 2025.

DISCUSSION

Univariate Analysis

Average Amount of Bleeding in Mothers in the Fourth Stage of Labor Before and After Nipple Stimulation (Intervention Group) at PMB Triana Firliyantisy, S.TR.Karang Anyar Regency, South Lampung in 2025

The average amount of bleeding in mothers in the fourth stage of labor who are given nipple stimulation (intervention group) at PMB Triana Firliyantisy, S.TR.Karang Anyar Regency, South Lampung in 2025 with the mean value before 311.38 , standard deviation 28.768 , standard error 7.192 and the minimum value for the amount of blood volume of postpartum mothers in the fourth stage before is 2.50 cc and the maximum value after is 100 cc. The results after nipple stimulation with a mean value of 134.56 , standard deviation 28.390 , standard error 7.093 and the minimum value for the amount of blood volume of postpartum

mothers in the fourth stage after is 100 cc and the maximum value is 19 0cc .

Postpartum hemorrhage is bleeding of more than 500 cc that occurs after a baby is born vaginally or more than 1,000 mL after an abdominal delivery. Conditions during labor make it difficult to determine the amount of bleeding that occurs, so the limit of the amount of bleeding is stated as bleeding that is more than normal which has caused changes in vital signs, including patients complaining of weakness, dizziness, cold sweats, shivering, hyperpnea, systolic blood pressure ≤ 90 mmHg, pulse ≥ 100 x / minute, Hb levels ≤ 8 g / dL (Khasanah, 2017).

The most common cause of postpartum hemorrhage is uterine atony. Uterine atony is the failure of the uterus to contract within 15 seconds of the placenta's delivery. Uterine atony is a condition where the myometrium is unable to contract, and when this occurs, blood flows from the placental site uncontrollably (Yuliaswati, 2016).

Bleeding occurs primarily because the blood vessels in the uterus are still open. Detachment of the placenta severing the blood vessels in the *stratum spongiosum* , opening the maternal sinuses at the placental insertion site. When the uterus contracts, these open blood vessels close, and blood clots block the blood vessels, stopping the flow. Impaired uterine muscle retraction and contractions inhibit blood vessel closure, leading to

excessive bleeding. This condition is a major contributing factor to postpartum hemorrhage. Extensive injuries, such as tears and perineal lacerations, will increase bleeding (Yuliaswati, 2016).

There are many ways to stimulate labor, one of which is nipple stimulation, which involves selecting the mother's nipples before labor. Nipple stimulation can increase the intensity of uterine contractions because the stimulation of these stretch receptors stimulates the release of *oxytocin from the posterior pituitary*. Nipple stimulation causes an erection and stimulates the sensory nerve endings in the nipples. This stimulation, via afferent fibers below the hypothalamus at the base of the brain, then triggers the anterior pituitary to release the hormone prolactin, which increases milk production. This stimulation also stimulates the hypothalamus to release oxytocin from the posterior pituitary. Oxytocin stimulation causes the myoepithelial cells surrounding the alveoli in the mammary glands to contract.

Therefore, the small holes around the nipples are the openings of the lactiferous ducts, the ends of the muscle fibers arranged in a circular pattern. Therefore, when there is a contraction, the lactiferous ducts will contract and cause the nipples to become erect. The nipple stimulation test is also performed by women by rubbing one of their nipples through their clothes for 2 minutes or until a contraction occurs, then repeating the action after 5 minutes if the first nipple stimulation has not triggered 3 contractions in 10 minutes.

Stimulating the nipples after birth can influence the hypothalamus to naturally release the hormone oxytocin, which will accelerate uterine contractions and thus reduce postpartum hemorrhage. Uterine contractions are crucial for controlling postpartum bleeding. Another form of nipple stimulation that can help the uterus contract is by performing finger stimulation. Meanwhile, according to Manuaba (2015), breast milk stimulation stimulates the pituitary gland to secrete oxytocin, which can cause uterine contractions. Besides sucking, according to Manuaba (2016), the placental birth process can be achieved by stimulating the nipples by twisting (Dewi, 2017).

In line with research conducted by Hadi (2023), the results of the study showed a significant influence between IMD and the amount of bleeding in the fourth stage. The average amount of bleeding in the fourth stage of respondents who underwent Early Initiation of Breastfeeding was 4.50 with a standard deviation of 12.683. Meanwhile, respondents in the control group had an average amount of bleeding in the fourth stage

of 12.50 with a standard deviation of 19.291. In statistical tests, the P value = 0.001.

According to the researcher's assumption, the stimulation of the nerve endings mechanism in the nipple and areola mammary. The stimulation will then be transmitted to the hypothalamus and cause the posterior pituitary to secrete oxytocin into the bloodstream, including the myometrium. Membrane receptors for oxytocin are found in both uterine and mammary tissue, this oxytocin hormone causes contraction of the smooth muscles of the uterus to contract so that it can reduce bleeding. According to the researcher's assumption, through hand stimulation such as massage on the nipples can increase the release of the mother's oxytocin hormone for the reflex of milk release and uterine contractions, stimulating breastfeeding on the breast occurs more often when the baby breastfeeds which takes place in a lying position to facilitate the release of breast milk.

Average Amount of Bleeding in Mothers in the Fourth Stage of Labor Before and After Monitoring (Control Group) at PMB Triana Firliyantisy, S.TR. Keb Karang Anyar, South Lampung 2025

Average amount of bleeding in mothers during the fourth stage of labor during monitoring (control group) at PMB Triana Firliyantisy, S.TR.Karang Anyar Regency, South Lampung in 2025 with the results of the mean value before 323.06, standard deviation 23.851, standard error 5.963 and the minimum value for the amount of blood volume of postpartum mothers in the fourth stage before is 280 cc and the maximum value is 250cc. While after being given monitoring the mean value is 164.75, standard deviation 27.187, standard error 6.797 and the minimum value for the amount of blood volume of postpartum mothers in the fourth stage before is 115 cc and the maximum value is 213 cc.

Generally, during a normal delivery, after the fetus is born, the uterus continues to contract, causing *the uterine cavity*, where the placenta is implanted, to shrink. As a result, the placenta detaches from its implantation site. This detachment can begin from the center or edge of the placenta. The first method is characterized by the umbilical cord protruding from the vagina longer without vaginal bleeding. The second method is characterized by vaginal bleeding if the placenta begins to detach. Generally, the bleeding does not exceed 400 ml; if it exceeds it, it is considered pathological (Eksakta, 2020).

Therefore, placental delivery is always accompanied by bleeding because the maternal sinuses at the insertion site in the uterine wall open. Usually, the bleeding is not heavy, because contractions and retractions of the uterine muscles compress the blood vessels due to the blood clot (Eksakta. 2020).

If part of the placenta is detached while the other part is not, bleeding will occur because the uterus cannot contract properly at the boundary between the two parts. Furthermore, if part of the placenta has been delivered, but if a small part is still attached to the uterine wall, bleeding can occur in the uterine wall, which can cause bleeding during the postpartum period (Prawiraharjo, 2016).

Postpartum hemorrhage is bleeding of more than 500 cc that occurs after a baby is born vaginally or more than 1,000 mL after an abdominal delivery. Conditions during labor make it difficult to determine the amount of bleeding that occurs, so the limit of the amount of bleeding is stated as bleeding that is more than normal which has caused changes in vital signs, including patients complaining of weakness, dizziness, cold sweats, shivering, hyperpnea, systolic blood pressure <90 mmHg, pulse rate >100 x/minute, Hb levels <8 g/dL (Khasanah, 2017)

Bleeding is the leading cause of maternal death in Indonesia, and generally occurs after delivery. The most common cause of postpartum hemorrhage, which is 50- 60%, is due to weak or absent uterine contractions. The frequency of postpartum hemorrhage is 5-15% of all deliveries, the most common cause being uterine atony with the highest percentage rate of 50-60%, placental retention 16-17%, retained placenta 23-24%, birth canal lacerations 4-5%, and blood clotting disorders 0.5-0.6% (Nugroho, 2010 in Lanny Apriani 2016) .

Normal labor and birth is the process of expelling a fetus that occurs during full-term pregnancy (37-42 weeks), born spontaneously with a posterior presentation that occurs within 18 hours, without complications for either the mother or the fetus (Yulizawati, 2019).

Childbirth is the process of expelling (birth) the products of conception that can live outside the uterus through the vagina to the outside world. This process can be said to be normal or spontaneous if the baby is born in a position at the back of the head and takes place without the help of tools or assistance, and does not injure the mother and baby. In general, this process takes place in less than 24 hours (Nurliyani, 2024)

Labor is the process of expelling a fetus during a full-term pregnancy, namely around 37-42 weeks and is born spontaneously with a posterior presentation of the head that lasts for 18-24 hours without complications (Nurasih & Nurkholifah, 2016 in Wahyuni, 2023).

Postpartum hemorrhage is vaginal bleeding of 500 cc or more after the third stage is completed after the placenta is delivered). The phases of labor begin with the first stage, namely the cervix opens less than 4 cm until the head begins to descend, then the second stage where the cervix has fully opened to 10 cm or the fetal head is visible, then continued with the third stage of labor which begins with the birth of the baby and ends with the expulsion of the placenta. Postpartum hemorrhage occurs after the third stage of labor is completed (Saifuddin, 2014 in Prawirohardjo, 2016).

In line with research conducted by Sari (2020), this study showed that the average amount of blood loss in the intervention group was 258.67, while in the control group it was 313.33. It is known that there is an effect of nipple stimulation on the amount of blood loss in mothers in the fourth stage of labor at BPM Ari Saptuti, S.ST Banyumas, Pringsewu Regency in 2017. The t-test results obtained a p value of 0.000 < α (0.05). It is recommended for health workers, especially midwives, to perform nipple stimulation as an alternative to prevent bleeding in mothers in labor.

According to researchers' assumptions, heavy bleeding is a complication of childbirth, so if it does not subside, it will cause further complications during childbirth. According to researchers, if bleeding is not managed properly, it can cause problems during delivery. Bleeding in the fourth stage of labor can lead to complications, and continued bleeding can lead to blood volume depletion and further complications.

Bivariate analysis

The Effect of Nipples on the Amount of Bleeding in Mothers in the Fourth Stage of Labor at PMB Triana Firliyantisy, S.TR.Keb Karang Anyar, South Lampung in 2025

The results of the research that has been conducted using the dependent T-test or using the paired sample t- test by looking for the effect of nipple stimulation on the amount of bleeding in mothers in stage IV labor at PMB Triana Firliyantisy, S.TR.Keb Karang Anyar South Lampung in 2025 with the result of the mean value of 176.813 and the result of the *p value* of $0.000 \leq \alpha$ (0.05) which means H_0 is rejected and H_a is accepted, which means there is a significant relationship between the two

variables, where there is an effect of nipple stimulation on the amount of bleeding in mothers in stage IV labor at PMB Triana Firliyantisy, S.Tr.Keb Karang Anyar South Lampung in 2025.

Bleeding is anything that occurs after birth, before, during, and after the placenta is delivered. By definition, blood loss exceeding 500 ml during the first 24 hours and beyond is called late postpartum hemorrhage (Eksaka, 2020).

According to Sari and Handayani (2012) in Nuriyati (2020), the normal amount of blood loss during the fourth stage of labor in postpartum mothers is approximately 100-300 cc. This bleeding is caused by the placenta detaching from the implantation site, causing the blood vessels where the placenta is attached to open wide. If contractions are not good, this will increase the amount of bleeding. With contractions, the open blood vessels will close again, reducing the amount of bleeding during the fourth stage of labor.

According to Saifuddin (2019), by providing nipple stimulation after the baby is born, it can influence the hypothalamus to naturally release the hormone oxytocin which will accelerate uterine contractions thereby reducing postpartum bleeding. Uterine contractions are crucial for controlling postpartum bleeding. Another form of nipple stimulation that can help the uterus contract is finger stimulation.

Prevention is a step that can significantly reduce maternal pain and blood loss after delivery. Steps considered effective in preventing postpartum hemorrhage include active management of the third stage of labor, administration of uterotonics, and breastfeeding or nipple stimulation (Dewi, 2017).

Nipple stimulation is an action or treatment given to the nipple, so that it can cause a certain response. The stimulation given can be in the form of nipple stimulation in the form of gentle stimulation of the nipple area with the palmar part of the fingers which is done alternately as well as with the baby's sucking (Indonesian Midwives Association, 2017).

In line with the research conducted by Dewi (2020) Data analysis using *Independent T-test*. Results: This study showed that the average amount of blood loss in the intervention group was 258.67, while in the control group it was 313.33. It is known that there is an effect of nipple stimulation on the amount of blood loss in mothers giving birth in the fourth stage at BPM Ari Saptuti, S.ST Banyumas, Pringsewu Regency. The t- test results obtained a p value of $0.000 < \alpha (0.05)$.

According to the researcher's opinion, based on the research results, it was found that

there was a difference in blood loss in the group that underwent nipple stimulation and the group that did not undergo nipple stimulation, where the amount of blood loss in the intervention group or the group that underwent nipple stimulation was less than in the group that did not undergo nipple stimulation.

According to the researcher's assumption based on the results of the study in the group that underwent nipple stimulation and did not undergo nipple stimulation, the amount of blood loss varied. This was not only caused by stimulation of the nipple but also due to other factors, namely parity, maternal age and gestational age, where mothers who had their first parity would experience less blood loss compared to mothers who had given birth and mothers with older age would experience more blood loss compared to mothers who were younger.

The Effect of Monitoring (Control Group) on the Amount of Bleeding in Mothers in the Fourth Stage of Labor at PMB is Known Triana Firliyantisy, S.Tr.Keb Karang Anyar South Lampung in 2025

The results of the research that has been carried out using the dependent T-test or using the paired sample t- test by looking for the effect of monitoring (control group) on the amount of bleeding in mothers in the fourth stage of labor at PMB Triana Firliyantisy, S.Tr.Keb Karang Anyar South Lampung in 2025 with a mean value of 158.313 and the results of the p value or significant value, namely $0.000 \leq \alpha (0.05)$ which means H_0 is rejected and H_a is accepted, where there is an influence of monitoring (control group) on the amount of bleeding in mothers in the fourth stage of labor at PMB Triana Firliyantisy, S.Tr.Keb Karang Anyar, South Lampung in 2025

The mother's physiological needs during labor were met, and she received support and encouragement from her husband. Throughout the labor process, the mother was accompanied by her husband. He fulfilled his role as a companion. Nutritional needs during the first stage of labor were met, assisted by her husband, who provided her with warm water with sugar and two slices of bread. Elimination needs were met. Elimination was met by encouraging the mother to urinate. This aims to prevent a full bladder, which can slow the descent of the lower part of the fetus, causing discomfort (JNPK-KR, 2017).

Loving maternal care to reduce pain was performed by practicing breathing relaxation and massaging the mother's buttocks, assisted by the husband. Monitoring of the active phase of the first

stage was performed using a partograph. Monitoring included labor progress and maternal and fetal well-being, uterine contractions, and fetal heart rate (FHR) and pulse monitoring every 30 minutes. Cervical dilation, descent of the presenting part of the fetus, and blood pressure and temperature were recorded every 4 hours. The results of monitoring maternal and fetal well-being were within normal limits.

In line with Hidayah's research (2020), the results of this study were obtained based on the implementation of postpartum maternal care, the majority chose good, as many as 22 respondents (73.3%), based on the type of delivery, some chose vaginal delivery and some CS, while the implementation of postpartum maternal care was not good. Postpartum maternal care based on the type of delivery with the type of CS delivery the majority chose good as many as 10 respondents (66.7%), and the implementation of postpartum maternal care with the type of vaginal delivery the majority chose good as many as 12 respondents (80.0%). The conclusion from the description of the implementation of postpartum maternal care based on the type of delivery is that the majority is good and it is hoped that health workers will continue to implement postpartum maternal care.

According to the researcher's assumption, monitoring bleeding during the fourth stage involves providing loving maternal care. The loving maternal care provided includes teaching the mother and husband how to assess contractions and perform uterine fundal massage to prevent bleeding, how to keep the baby warm by keeping a hat and blanket on to prevent hypothermia and other danger signs of the postpartum period, and facilitating the fulfillment of maternal nutrition and fluids.

The Difference Between the Intervention Group and the Control Group Regarding the Amount of Bleeding in Mothers in the Fourth Stage of Labor at PMB Triana Firliyantisy, S.TR.Keb Karang Anyar, South Lampung in 2025 Was Known

The results of the study can be concluded that the results of the *independent t test* obtained a *p value* of $0.004 \leq \alpha (0.05)$ meaning that there was a difference in the intervention group and the control group regarding the amount of bleeding in mothers in the fourth stage of labor at PMB Triana Firliyantisy, S.TR.Keb Karang Anyar, South Lampung in 2025.

Nipple stimulation is an action or treatment given to the nipple, so that it can cause a certain response. The stimulation given can be in the form

of nipple stimulation in the form of gentle stimulation of the nipple area with the palmar part of the fingers which is done alternately as well as with the baby's sucking (Indonesian Midwives Association, 2017).

If the uterus does not contract adequately, it will cause bleeding. Uterine contractions are crucial for controlling postpartum bleeding. Another form of nipple stimulation that can help the uterus contract is finger stimulation. Uterine contractions are crucial for controlling postpartum bleeding. Another form of nipple stimulation that can help the uterus contract is finger stimulation (Widyastuti, 2015).

By providing nipple stimulation after the baby is born, it can influence the hypothalamus to naturally release the hormone oxytocin which will accelerate uterine contractions, thereby reducing postpartum bleeding. Uterine contractions are crucial for controlling postpartum bleeding. Another form of nipple stimulation that can help the uterus contract is finger stimulation. Meanwhile, according to Manuaba (2015), breast milk stimulation stimulates the pituitary gland to secrete oxytocin, which can induce uterine contractions. Besides sucking, Manuaba (2015) also states that the placenta can be delivered by stimulating the nipples through twisting (Dewi, 2017).

Meanwhile, for mothers, touch and sucking on the mother's breasts encourage the formation of oxytocin because when the baby sucks the mother's nipple, it will stimulate the sensory nerve endings in the areola, triggering a *neuroendocrine reflex* that produces milk secretion from leukocytes into the alveoli. *The posterior pituitary releases oxytocin, stimulating myoepithelial cells to squeeze milk from the alveoli so that it can flow into the lactiferous ducts, collect in the lactiferous duct sinuses and exit through the pores of the mother's nipples so that together with the formation of prolactin by the anterior pituitary, the stimulation originating from the baby's sucking is continued to the posterior pituitary (Neurohypophysis) which then releases oxytocin which can cause contractions of the uterus so that the placenta is released and reduces the amount of bleeding* (Rathod 2019).

In line with research conducted by Nurliati (2020) Group of mothers who did IMD. The majority of the amount of blood in the fourth stage was ≤ 200 cc as many as 10 respondents (100%) and the minority of the amount of blood in the fourth stage was >200 cc as many as 0 respondents (0%). Group of mothers who did not do IMD. The majority of the amount of blood in the fourth stage was > 200 cc as many as 8 respondents (80%) and the minority of the amount of blood in the fourth stage

was ≤ 200 cc as many as 2 respondents (20%). The average amount of blood in the fourth stage of respondents who did IMD was 150.63 with a standard deviation of 22,149. while respondents who did not do IMD had an average amount of blood in the fourth stage was 166.09 with a standard deviation of 21,580. Statistical tests obtained a p value = 0.000 meaning there is an effect of Early Initiation of Breastfeeding (IMD) on the Amount of Blood in the Fourth Stage of Labor at the Suherni Amd Midwife Clinic. Beringin District, Deli Serdang Regency in 2019.

According to the researcher's assumption, nipple stimulation can prevent bleeding, where the amount of blood loss in the intervention group or those who underwent nipple stimulation was less than those who did not undergo nipple stimulation. Another form of nipple stimulation that can help the uterus contract, namely stimulation with fingers, is very important for controlling bleeding after birth. Nipple stimulation is an action or treatment given to the nipple, so that it can elicit a certain response. The stimulation given is in the form of stimulation of the nipple such as gentle stimulation of the nipple area with the palmar part of the fingers which is done alternately and with the baby's sucking.

According to research opinion in the group that did nipple stimulation and did not do nipple stimulation, the amount of blood loss was different. This was not only caused by stimulation from the nipple but also due to other factors, namely parity, maternal age and degree of perineal tear, where mothers who had their first parity would experience less blood loss compared to mothers who had given birth and mothers with older age would experience more blood loss compared to mothers who were younger, while at the degree of perineal tear mothers who experienced a higher degree of perineal tear would experience more blood loss compared to mothers who experienced a lower degree of perineal tear.

The results of the research that has been conducted show a difference in the volume of bleeding in the fourth stage in the control and intervention groups, where this is caused by the characteristics of the respondents themselves, including maternal age less than 20 years or more than 35 years, number of children more than 4, the spacing of the last pregnancy is less than 2 years, anemia and upper arm circumference less than 23.5 cm.

Parity and maternal age are factors that influence the occurrence of postpartum hemorrhage. Primigravida mothers under 20 years old, physically, their reproductive organs are still in the

growth and development stage, psychologically because of the unpreparedness of young mothers in facing their first delivery, is a factor causing the mother's inability to handle complications that occur during pregnancy, childbirth and postpartum. Maternal age is also related to the inability of organs in the reproductive process, women under 20 years old, pregnancy conditions will make her share her nutrition for the growth of the fetus in the womb, while in mothers aged 35 years or more, the body's organs begin to show the effects of the aging process, such as hypertension and diabetes which can inhibit the intake of fetal food through the placenta.

Likewise, with high parity mothers (more than 3), their reproductive organs experience a decline. functions that can affect uterine contractions, so that the risk of postpartum bleeding becomes greater.

Several factors can influence the occurrence of postpartum hemorrhage, such as prolonged labor, high parity, uterine overstretching, stimulation of uterine contractions with an oxytocin drip, anemia, and surgical delivery. Prolonged labor is defined as labor lasting more than 24 hours in primigravida and more than 18 hours in multigravida. Prolonged labor can cause uterine inertia due to fatigue in the uterine muscles, resulting in weak uterine contractions after birth, which increases the risk of postpartum hemorrhage.

CONCLUSION

1. The average before nipple stimulation (intervention group) was 311.38, standard deviation 28.768, standard error 7.192. After nipple stimulation (intervention group) was 134.56, standard deviation 28.390, standard error 7.093.
2. The average amount of bleeding in mothers in the fourth stage of labor before monitoring (control group) was 323.06, standard deviation 23.851, standard error 5.963, after monitoring (control group) 164.75, standard deviation 27.187, standard error 6.797.
3. The results of the p value $0.000 \leq \alpha$ (0.05) which means H_0 is rejected and H_a is accepted, which means there is an effect of nipple stimulation on the amount of bleeding in mothers in the fourth stage of labor at PMB Triana Firliantisy, S.TR.Keb Karang Anyar, South Lampung in 2025.
4. P value results or significant value, namely $0.000 \leq \alpha$ (0.05) which means H_0 is rejected and H_a is accepted, where there is an influence of monitoring (control group) on the

amount of bleeding in mothers in the fourth stage of labor at PMB Triana Firliyantisy, S.TR.Keb Karang Anyar, South Lampung in 2025

5. The p value is $0.004 \leq \alpha$ (0.05) meaning that there is a difference between the intervention group and the control group in the amount of bleeding in mothers in the fourth stage of labor at PMB Triana Firliyantisy, S.TR.Keb Karang Anyar, South Lampung in 2025.

SUGGESTION

It is hoped that by conducting this research, mothers who have just given birth will be encouraged to immediately breastfeed or stimulate the nipples to help the uterus contract and speed up the stopping of bleeding.

REFERENCES

- Ambarwati. (2020). Postpartum Midwifery Care. Yogyakarta: Mitra Cendikia
- Ayati, Nurun, and Wiwit Sulistyawati. (2017) Postpartum and Breastfeeding Textbook. CV. Kekata Group: Surakarta
- Abidin, Z., Widiastuti, H. (2015). Improvement Quality Of Agarose From Gracilaria verrucosa Red Algae By Using NaOH And EDTA. International Journal of PharmTech Research, 2(9), 13-18.
- Benakappa, Asha D. 2021. "Breastfeeding in the First Hour of Birth: Science and Skills." Karnataka Pediatric Journal 35(2): 72-75
- Baktiyani, SCW, Meirani, R., & Khasanah, U. (2016). The Relationship Between Prolonged Labor and Early Postpartum Hemorrhage in the Delivery Room of Dr. Saiful Anwar General Hospital, Malang. FKUB Health Magazine, 3 (4).
- Fitriana Y, Nurwiandani W. 2020. Comprehensive Childbirth Care: Concept of Childbirth in Midwifery Care. I. Umayyah Luatul N, editor. Yogyakarta: Pustaka Baru Press. 208 p
- Hadi (2023) with the title "The Effect of (Early Breastfeeding Initiation) IMD on the Number of Fourth Stage Bleeding at the Tanjung Primary Clinic, Deli Tua District in 2023"
- Hazma, Y., Nurliyani, N., & Suharman, S. (2023). The Effect of Counter Pressure on the Scale of Labor Pain in Active Phase I. *JKM (Jurnal Kebidanan Malahayati)*, 9 (1), 88-94.
- Ministry of Health of the Republic of Indonesia. (2020). Guidelines for Antenatal, Childbirth, Postpartum and Newborn Services in the Era of Adapting to New Habits, Revision 2. Jakarta: Healthy Living Community Movement.
- Ministry of Health of the Republic of Indonesia. (2021). Indonesian Health Profile 2020. Jakarta: Ministry of Health of the Republic of Indonesia
- Manuaba Ida Ayu Candranita. 2015. Obstetrics, Gynecology, and Family Planning. Jakarta: EGC Nurliyani, S.St., M.Keb & Fijri Rachmawati, S.St., M.Keb. (2024) Non-Pharmacological Management of Childbirth. Published by CV Tahta Media Group
- Nurianti (2020) with the title " The Effect of Early Initiation of Breastfeeding (IMD) on the Amount of Blood in the Fourth Stage of Labor"
- Nurhayati, N., Juniarni, L., & Sumiati, M. (2019). The Perception Of Post-Partum Women With Hiv/Aids About Psychosocial Support In Bandung City. *Journal of Maternity Care and Reproductive Health*, 2 (1).
- Nur AF, Rahman A, Kurniawan H. Risk Factors for Postpartum Hemorrhage at Anutapura General Hospital, Palu. 2019;5(1):26- 31.
- Notoatmodjo, S. (2016). Health Research Methodology. Jakarta: Rineka Cipta
- Prawirohardjo, (2016). Maternal and Neonatal Health Services. Jakarta: Pt Yayasan Bina Pustaka Prawirohardjo
- Pradana MARA, Asshidiq MRF. The Relationship Between Parity and the Incidence of Postpartum Hemorrhage. *J Ilm Kesehat Sandi Husada*. 2021;10(1):326-31.
- Ratna Dewi (2024). Textbook of Midwifery Care During the Postpartum Period and Breastfeeding for Diploma Three Students. By Nuansa Fajar Cemerlang Publisher, Jakarta
- Sari, YR, Yuviska, IA, & Sunarsih, S. (2020). Factors influencing exclusive breastfeeding in infants aged 0- 6 months. *JKM (Jurnal Kebidanan Malahayati)*, 6 (2), 161-170.
- Sari, DY (2017). The Effect of Nipple Stimulation on the Amount of Blood Loss in Mothers in the Fourth Stage of Labor at Bpm Ari Saptuti, S. St Banyumas, Pringsewu Regency, 2017. *Holistic Health Journal*, 11 (4), 204-208.
- Surani E, Wahyuni S. The Relationship Between Age, Polyhydramnios, and Postpartum Hemorrhage at Sultan Agung Hospital, Semarang. *Intan Husada J Nursing Science*. 2019;7(1):85-92

- Simanjuntak L. Postpartum Hemorrhage (Postpartum Hemorrhage). *J Visi Exakta*. 2020;1(1):1–10
- Sulistiyan CN. The Relationship between Maternal Age and Postpartum Hemorrhage Incidence at Panti Wilasa Dr. Cipto Semarang Yakkum Hospital Semarang Branch. *Angew Chemie Int Ed* 6(11), 951–952. 2017;8(2):33–42.
- Sugiyono. 2019. Quantitative, Qualitative, and R&D Research Methods. Bandung: ALFABETA.
- Vitrilina Hutabarat (2020). Postpartum Textbook for Bachelor of Midwifery Volume III. Mahakarya Citra Utama Infinity Office, Bellezza BSA 1st Floor Unit 106, Jl. Letjen Soepeno, Kebayoran Lama, South Jakarta
- Walyani, ES, Purwoastuti, E. (2019). *Midwifery Care for Childbirth and Newborns*. Yogyakarta: PT Pustaka Baru
- Wahyuni Seri (2023) *Textbook of Midwifery Care for Childbirth and Newborns*. Cv. Science Techno Direct Pangkalpinang Korpri Housing Complex
- WHO (2019). *Contraception*. World Health Organization The Global Health
- Yulizawati, Alinda Ayunda Insani, Lusiana El Sinta, and Feni Andriani. 2019. *Midwifery Care During Childbirth Midwifery Care During Childbirth*. Sidoarjo: Indomedia Pustaka.