Billings Ovulation Method Intervention as a Contraceptive Method

Inda Corniawati[1(CA)], Riski Setiadi[2], Eli Rahmawati[3], Ratna Wati[4]
[1(CA)]Department of Midwifery, Health Polytechnic of East Kalimantan, Indonesia;
indacorniawatiok@gmail.com (Corresponding Author)
[2]Department of Nursing, Health Polytechnic of East Kalimantan, Indonesia; r12ky_ui@yahoo.com
[3]Department of Midwifery, Health Polytechnic of East Kalimantan, Indonesia; el.rahmadi@gmail.com
[4]Department of Midwifery, Health Polytechnic of East Kalimantan, Indonesia; junlovna@gmail.com

ABSTRACT

NFP methods become pregnancy and birth control options based on the identification of fertile periods. Calendar method is effectiveness 95%, symptomthermal method is effectiveness 96%, amenorrhea lactation method is effectiveness 92%. Interuptus coitus method is effectiveness 78%, ovulation billings method effective in women who stop using hormonal contraceptives, breastfeeding, weaning and menopause effectiveness 97,5%.Maximum effectiveness NFP is the basis for choice of pregnancy control and The effectiveness of NFP reaches 99% if consistent and correct **Research purpose** Effectiveness the BOM on daily observations and intercourse obedience with the rules as NFP. This research is a quasi-experimental post test group during two menstrual cycles based on daily observations of sensation and appearance of the cervical mucus.**Results** Mc Nemar test of daily observations results (0.500) > α (0.05) there was no difference in obedience to do daily self-observation after interventions I and II, however in intervention I there were 30% non-obedience, after intervention II became 20% non- obedience. The intercourse obedience result of (0.250) > α(0.05), there was no difference in obedience to having intercourse after intervention I and II, however intervention I there were 70% non-obedience. Intervention II reduced to55% non-obedience. BOM does not rely on calculations and estimates but makes daily observations of the sensations and appearance of mucus in vulva so as to recognize the time of fertility which is the Basic Infertile Pattern (BIP) **Conclusion** The obedience of Childbearing's couples to apply billing ovulation for 2 cycles period has not maximal yet. Billing ovulation mentoring for 2 cycles of period can increase the obidience.

Keywords: Billings Ovulation Method, Basic fertile Pattern, Billings Ovulation Method Rules

INTRODUCTION

Family planning programs according to UU RI No.52 year 2009 is an effort to regulate the birth of children,the distance,and the ideal age to give birth, regulating pregnancy through promotion, protection, and assistance by reproductive rights to create a quality family. The analysis of 47 countries with a high prevalence of unmet need among Indonesia was caused by concerns about contraceptive side effects and health risks of 29,8% (Sedgh et al., 2016).

The unmet needs rate in Indonesia reaches 11%, covering 4% of sparring and 7% of restricting births. There are areas in Indonesia with high unmet needs, including East Kalimantan (Sejati, 2021). According to DKP3A (2017), the percentage of East Kalimantan's unmet need achievement of 15.7 compared to the national target still has a difference of 2.9 points and is still far from East Kalimantan's target of 8.3 (Goma, 2019). The number of unwanted pregnancies in East Kalimantan is 24,1 above the Indonesian standard of 17,5 (Goma, 2019).

Some married couples choose to use the natural family planning. Less than maximal knowledge of natural family planning will affect the understanding and use of the methods. Natural Family Planning is a type of family planning based on awareness of fertility conditions and its application to achieve the couple's goal of having or preventing pregnancy. Fertility conditions based on observing the signs of a woman's fertile and infertile physiological phase of the menstrual cycle (Calimag et al., 2020).

Midwife's efforts needed to reduce the unmet need for family planning and drop out through increased participation across programs and sectors, education and counseling (BKKBN, 2018). The effectiveness of natural birth control reaches 99% if consistent and correct (Padilha & Deretti, 2021).

Natural family planning methods are chosen to control pregnancy and birth. This type of natural birth control emphasizes awareness of fertility and empowerment of clients with family, identification of whether

healthy and normal, identification of symptoms and signs. Natural family planning suppresses fertility identification methods. Calendar natural family planning failure rate 5%, ovulation billings 3%, simpthotermal temperature accuracy 1%, amenorrhea 8% (Sung & Abramovitz, 2021). Counseling married couples with natural family planning methods has the benefit of independently understanding the reproductive process and detecting reproductive health problems. Limitations of natural family planning related to periodic abstinence, drugs consumed that can interfere eith biological markers (Smoley & Robinson, 2012).

According to the decree of BKKBN No.6668/K.S.002/E2/90 Billings Ovulation Method is accepted as one of the independent family planning units in Indonesia. Billings Ovulation Method is a natural method by recording the sensation and appearance of mucus in the vulva every day so that you can learn to recognize the time of infertility and fertility as well as the time of ovulation which is the Basic Infertile Pattern (BIP). Regulations of BOM to prevent pregnancy, namely avoid intercourse on days of heavy bleeding (menstrual rules), after menstruation period intercourse may be done if the basic pattern is infertile, but carried out alternately to ensure that it is still dry (alternating rules). Rule number 3 starts when there is a change from dry to wet, just a bit slippery avoid intercourse until day four after the peak (peak day rules), after that until the end of the cycle can having intercourse every single day (Billings & Westmore, 2011). The Billings Ovulation Method is based on observation and interpretation of cervical mucus changes to determine the fertile and infertile phases of the menstrual cycle (Calimag et al., 2020).

Each woman is an individual with her cervical mucus pattern, and her unique pattern is a very accurate reflection of her reproductive hormones. At the end of the period should record daily observations of the sensation and appearance of mucus. If you see mucus, write down you observations about its appearance the use a colored sticker or symbol code that represents what has happened (Billings & Westmore, 2011). Many practical benefits in learning billings ovulation method. Not only does it help avoid or achieve pregnancy, but it can also monitor and maintain reproductive health. Changes of mucus are reflection of what happens in the bidy's hormonal system. After learning to recognize what's normal for you, you can more easily identify what's not normal if you notice irregularities in your daily observation patterns (Billings & Westmore, 2011).

Regulation of the natural method of Ovulation Billings requires a strong determination and totality in reproductive health so to succeed in recording every day about the sensation and appearance of mucus in vulva thus can learn to recognize the time of infertility and fertility as well as the time of ovulation which is the Basic Infertile Pattern (BIP) so that interventions are carried to find out the compliance of the couple in carrying out the rules of BOM.

METHODS

The study was a quasi-experimental research post-test group on menstrual cycles 1 and 2 with the population in the sample of couples of Childbearing Age (PUS) who want to plan a pregnancy and want to pursue birth in the working area of Bengkuring Health Center with consecutive sampling amounted to 20 partisipan. Implementation of March-May 2018 with PUS intervention that wants to plan a pregnancy in provided KBA MOB information how to observe and record daily sensations and appearance of mucus in vulva. Observation for 2 menstrual cycles with tutor assistance 1 week 3 timed. Univariate analysis of respondents' goals in implementing MOB, compliance with participants' self-observation and adherence to coitus after the first intervention or second intervention. Bivariate analysis assesses compliance in carrying out self-observation and conducting coitus in accordance with the rules set out in interventions I and II. Data analysis technique using Mc Nemar with SPPS. Etic Clerance: EC061/KEPK/Poltekkes-Smg/EC/2017

RESULTS

Characteristics of the intervention group participants and daily recording during the menstrual cycle in obedience with Billings Ovulation Method regulations as natural family planning.

Table.1. Distribution of characteristics in The Work Area of Bengkuring Health Center

Characteristics	Intervention Group	Post Intervention I and II Group
	N	%
Age	< 30 years	9
	>30 years	11
Education	Primary	4
	Further	16
Religion	Islam	20
	Non Islam	0
Profession	Civil Servant	2
	Private Employee	18
Number of Children	<2	6
	>2	12
	None	2

Table 2. Frequency Distribution according to the purpose of BOM

No	Purpose	Frequency (F)	Persentage (%)
1	Spacing of Pregnancy	14	70
2	Planning a Pregnancy	6	30
	Total	20	100

According to Table 2, 14 participants (70%) aim to space a pregnancy, and 6 participants (30%) planning a pregnancy.

Table 3. Frequency Distribution According to Obedience to Do Daily Self-Observation.

No	Obedience to do daily self-observation	Frequency (F)	Persentage (%)
1	Post Intervention I:		
	a. Disobedient	6	30
	b. Obedient	14	70
2	Post Intervention II:		
	a. Disobedient	4	20
	b. Obedient	16	80
	Total	20	100

According to Table 3, 6 participants (30%) are disobedient to do daily self-observations after intervention I and 4 participants (20%) are still disobedient to do daily self-observations after intervention II.

Tabel 4. Frequency Distribution According to Obedience to Having Intercourse by The Rules

No	Obedience to have intercourse by the rules	Frequency (F)	Persentage (%)
1	Post Intervention I:		
	a. Disobedient	14	70
	b. Obedient	6	30
2	Post Intervention II:		
	a. Disobedient	11	55
	b. Obedient	9	45
	Total	20	100

According to Table 4, 14 participants (70%) are disobedient to intercourse by the rules after intervention I, and 11 participants (55%) are still disobedient to intercourse by the rules after intervention II.

Bivariate analysis of the influence between independent variables (interventions I and II) and

dependent variable (compliance to do self-observation and intercourse by the rules) as follows:

Table 5. Differences of Obedience to Do Daily Self-Observations Post Intervention I and II

Obedience to Do Daily Self-Observations	Post Intervention II		Total	p-value
	Disobedience	Obedience		
Post Intervention I				
Disobedience	4	2	6	0,500
Obedience	0	14	14	
Total	4	16	20	

According to Table 5, 6 participants are disobedient to do daily self-observations after intervention I, and 2 of them turned obedient to do daily self-observations after intervention II. While 14 participants are obedient to do daily self-observations after intervention I. and all of them are still obedient after intervention II.

Analysis statistical test result obtained a p-value (0.500) > α (0.05) statistically, there was no difference in obedient to do daily self-observation after interventions I and II.

Tabel 6. Differences of Obedience to Having Intercourse by The Rules Post Intervention I dan II

Obedience to Having Intercourse by The Rules	Post Intervention II		Total	p-value
	Disobedience	Obedience		
Post Intervention I				
Disobedience	11	3	14	0,250
Obedience	0	6	6	
Total	11	9	20	

According to Table 6, 14 participants are disobedient after intervention I to having intercourse by the rules, and 3 of them turned obedient after intervention II, whereas 6 participants are obedient after intervention I to having intercourse by the rules, and all of them still obedience after intervention II.

Analysis statistical test result obtained a p-value (0.250) > α (0.05) statistically, there was no difference in obedience to having intercourse by the rules after intervention I and II.

DISCUSSION

1. Obedience to Do Daily Self-Observations Post Intervention I and II

Participants in the work area of Bengkuring Health Center, with a total of 20 participants, 14 participants (70%) aim to space a pregnancy, and 6 participants (30%) planning a pregnancy, 11 participants with age >30 years 11 people and <30 years 9 participants. According to Table 5, 6 participants are disobedient to do daily self-observations after intervention I, and 2 of them turned obedient to do daily self-observations after intervention II. While 14 participants are obedient to do daily self-observations after intervention I. and all of them are still obedient after intervention II. Analysis statistical test result obtained a p-value (0.500) > α (0.05) statistically, there was no difference in obedient to do daily self-observation after interventions I and II.

One alternative to support the International Conference on Population and Development (ICPD) 1994 in the United Nations Population Fund year 2018, family planning programs provide opportunities for married couples and individuals to decide freely and responsibly regarding the number of children and the desired space between children, how to obtain and ensure the availability of information, as well as various methods that are safe and effective (Goma, 2019). According to Billings & Westmore (2011), Billings Ovulation Method is a natural method by recording the sensation and appearance of mucus in the vulva every day so that you can learn to recognize the time of infertility and fertility as well as the time of ovulation which is the Basic Infertile Pattern (BIP).

This method doesn't rely on calculations and estimates but performs daily observations to determine whether a woman is fertile or infertile (Smoley & Robinson, 2012). Each woman is an individual with her cervical mucus pattern, and her unique pattern is a very accurate reflection of her reproductive hormones. An increase in respondent's compliance to make daily observations is assumed because there is a role in

mentoring married couples. According to Billings & Westmore (2011), at least two or three cycles to implement the Billings Ovulation Method or until a participant can understand the cycle pattern and can apply it independently.

The Billings ovulation method can identify the first and last day of the fertile window if there are documentation and observations in its interpretation. The hardest part of applying self-observation is the justification of mucus characteristics and sensations (Smoley & Robinson, 2012). Medical researchers in Australia studied the fertile and infertile periods based on cervical mucus characteristics and inferred the vaginal feelings due to the mucus and its appearance. It helps women to recognize and observe the early fertility of their cycles. The Billings ovulation method officially accepted scientifically with an effectiveness rate of 97.0% since the 1970s (Padilha & Deretti, 2021). Smith's (2019) study of Fertility Awareness Based Methods (FABMs) helped users systematically monitor, interpret, and map female biological markers out of a total of 665 female participants, 279 (41.9%) reported disinterest in using the FABM for family planning, and 386 (58%) women were interested. Women who were not interested in using the FABM for health monitoring (n=352) had statistical significance ($p<.05$).

2. Obedience to Having Intercourse by The Rules Post Intervention I dan II

Analysis Mc Nemar test results obtained a p-value (0.250) > α (0.05) statistically, there was no difference in obedience to having intercourse by the rules after intervention I and II. 14 participants are disobedient after intervention I to having intercourse by the rules, and 3 of them turned obedient after intervention II, whereas 6 participants are obedient after intervention I to having intercourse by the rules, and all of them still obedience after intervention II.

The Billings Ovulation method does not rely on calculations and estimates but makes daily observations to determine whether a woman is fertile or infertile (Billings & Westmore 2011). Regulations of BOM to prevent pregnancy, namely avoid intercourse on days of heavy bleeding (menstrual rules), after menstruation period intercourse may be done if the basic pattern is infertile, but carried out alternately to ensure that it is still dry (alternating rules). Rule number 3 starts when there is a change from dry to wet, just a bit slippery avoid intercourse until day four after the peak (peak day rules), after that until the end of the cycle can having intercourse every single day (Billings & Westmore, 2011).

The Billings Ovulation Method family planning regulations are a daily observance of the sensation and appearance of mucus in the vulva so that it can recognize the time of infertility and fertility as well as the time of ovulation which is the Basic Infertile Pattern (BIP). Changes in the pattern and frequency of sexual intercourse between husband and wife with periodic abstinence, by the objectives of family planning (Billings & Westmore 2011). The probability of sexual intercourse that can result in pregnancy varies 4% if doing intercourse five days before ovulation, 25-28% if doing intercourse two days before ovulation, 8% - 10% if doing intercourse 24 hours after ovulation, and almost 0% if doing intercourse on other days or ground nutmeg infertile from the menstrual cycle (Padilha & Deretti, 2021).

The things that must do to support this success are that husband and wife must be confident, cooperating, comply with the rules of the Billings ovulation method, observe themselves and refrain from doing Billing's ovulation (Billings & Westmore, 2011). At the beginning of using this method, there was uncertainty if this method could be effective, but over time and still obedience, the husband and wife became more confident (Padilha & Deretti, 2021).

The researcher's assumption is that married couples must be confident, cooperate, obey the rules of the Billings ovulation method, observe self and restraint, willingness to be accompanied by an effective Billings Ovulation Method coach, become a strong foundation to support reproductive health and family planning and change the view that family planning and reproductive health are identical with women.

Counseling the married couples using the natural family planning method has benefits, particularly they can independently understand their reproductive process and could detect reproductive health problems. The limitations of natural family planning are related to periodic abstinence, consumption of drugs that can interfere with biological markers (Smoley & Robinson, 2012). Billings ovulation method requirements include abstinence from unprotected sexual intercourse from the start of mucus secretion until the 4th night after peak secretion for couples who will delay pregnancy (Kraetschmer, 2018).

Practical benefits of learning the Billings Ovulation Method. Not only can it help avoid or achieve pregnancy, but it can also monitor and maintain your reproductive health. Changes in mucus are a reflection of what is happening in the body's hormonal system. Once you learn to recognize the normal for you, you can more easily identify the abnormal if you notice irregularities in your daily observation patterns (Padilha & Deretti, 2021).

CONCLUSION

The obedience of Childbearing's couples to apply billing ovulation for 2 cycles period has not maximal yet. Billing ovulation mentoring for 2 cycles of period can increase the obedience. Suggestion Develop Intervention The Billings Ovulation Method is based on **record daily observations and** interpretation **of the sensation** of vulva with 6 month mentoring. The create this method can be one of early detection the reproduction illnes and can be the indicator to know the condition of reproduction health in women.

.

REFERENCES

BKKBN. (2018). Laporan Akuntabilitas Kinerja Instansi Pemerintah Badan Kependudukan dan Keluarga Berencana Nasional Tahun 2017. In *Badan Kependudukan dan Keluarga Berencana Nasional* (Vol. 1, Issue 1). https://www.bkkbn.go.id/po-content/uploads/lakip-BKKBN-2017.pdf

Calimag, M. M. P., Corazon, M., Gamilla, Z., T, E. A., Do, D. H. P., Dubouzet, R. V. C., J, C. M., & Duncan, K. D. L. (2020). Natural Family Planning Methods : a Scoping Review Natural Family Planning Methods : a Scoping Review. *Journal of Social Health*, *3*(1), 1–38.

Ecochard, R., Duterque, O., Leiva, R., Bouchard, T., & Vigil, P. (2015). Self-identification of the clinical fertile window and the ovulation period. *Fertility and Sterility*, *103*(5), 1319-25.e3. https://doi.org/10.1016/j.fertnstert.2015.01.031

Goma, E. I. (2019). Situasi Keluarga Berencana Di Provinsi Kalimantan Timur. *Georafflesia*, *4*(2), 201–210. https://doi.org/https://doi.org/10.32663/georaf.v4i2.979

Guspaneza, E., & Martha, E. (2019). Determinant of Unwanted Pregnancy in Indonesia 2017 (a Secondary Data Analysis of 2017 Idhs). *International Conference on Applied Science and Health*, *3*, 287–293.

Kraetschmer, K. (2018). John Billings, an Australian medical pioneer in research on fertility and contraception. *Australasian Medical Journal*, *11*(3), 163–167. https://doi.org/10.21767/amj.2018.3275

Marquez, M. P. N., Kabamalan, M. M. M., & Laguna, E. P. (2017). Ten Years of Traditional Contraceptive Method Use in the Philippines: Continuity and Change. *Demographic and Health Surveys*, *130*(July), 1–36. https://dhsprogram.com/pubs/pdf/WP130/WP130.pdf

Maydiantoro, A., & Nizar, M. (2020). Unmet Need Cause Factors in Lampung Timur District. *International Journal of Multicultural and Multireligious Understanding*, *7*(7), 238. https://doi.org/10.18415/ijmmu.v7i7.1848

Padilha, T., & Deretti, E. A. (2021). Billings ovulation method: Between efficacy and lack of knowledge. *Revista Bioetica*, *29*(1), 208–219. https://doi.org/10.1590/1983-80422021291460

Sedgh, G., Ashford, L. S., & Hussain, R. (2016). Unmet Need for Contraception in Developing Countries: Examining Women's Reasons for Not Using a Method. *Guttmacher Institute*, *June*, 65.

Sejati, S. K. (2021). ANALISIS CLUSTER UNMET NEED KELUARGA BERENCANA DI INDONESIA. *Jurnal Litbang Sukowati : Media Penelitian Dan Pengembangan*, *4*(2), 40–49. https://doi.org/10.32630/sukowati.v4i2.158

Smith, A. (2019). *Fertility Awareness Based Methods (FABMs): Evaluating and Promoting Female Interest for Purposes of Health Monitoring and Family Planning*. https://scholarworks.uark.edu/etd/3279

Smoley, B. A., & Robinson, C. M. (2012). Natural family planning. *American Family Physician*, *86*(10), 924–928. https://doi.org/10.1097/00006254-198208000-00003

Sung, S., & Abramovitz, A. (2021). Natural Family Planning. In *StatPearls*. http://www.ncbi.nlm.nih.gov/pubmed/31536267

Thijssen A, Meier A, Panis K, OmbeletW (2014) 'Fertility Awareness-Based Methods' and subfertility: a systematic review. *Facts, Views and Visions in Obstetrics and Gynaecology* 6, 113–123.

Turner, J. V. (2021). Misrepresentation of contraceptive effectiveness rates for fertility awareness methods of family planning. In *Journal of Obstetrics and Gynaecology Research* (Vol. 47, Issue 7, pp. 2271–2277). https://doi.org/10.1111/jog.14593

UU Republik Indonesia No. 52. (2009). *Undang-Undang Republik Indonesia No. 52 Tahun 2009, Tentang Perkembangan Kependudukan dan Pembangunan Keluarga*. 1. http://data.menkokesra.go.id/sites/default/files/22637790-UU-No-52-Tahun-2009-Perkembangan-Kependudukan-Dan-Pembangunan-Keluarga.pdf