

FACTORS AFFECTING THE BIRTH SPACING AMONG RURAL PREGNANT WOMEN IN SALIN TOWNSHIP, MYANMAR

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ABSTRACT: Maternal and child mortality remains a major health problem in Myanmar, especially in rural area. An adequate birth interval is considered as a positive factor in mothers and their children's health, and improves the chances of mother and their children survival. This study aimed to determine the factors affecting the birth spacing among rural pregnant women in Salin Township, Myanmar. A cross-sectional study was conducted among 425 pregnant women who had at least one child, came to the rural health center in Salin Township, Magway Region, Myanmar in 2012. Data was collected by using semi-structured questionnaire. The descriptive statistics was used to explain birth spacing interval, and other factors. The chi-square and multiple logistic regressions were used to determine the association between birth spacing interval and independent factors. Only 34.8 percent of respondents had good birth spacing (≥ 24 months). Most of respondents (78.4%) were in the age group between 20-35 years. The results from multiple logistic regression show that age at marriage of the respondents (p -value = 0.021), knowledge of the birth spacing (p -value = 0.003) and getting information from the midwives (p -value = 0.025) showed a statistically significant with the birth spacing interval. Therefore, reproductive health promotion programs focusing on the birth spacing should be expanded up to the rural communities and the encouragement and motivation should be done to the midwives.

Keywords: Birth spacing, Rural area, Pregnant women, Myanmar

INTRODUCTION

Birth spacing is the length of time between two successive live births. The adequate birth interval is considered as a positive factor in the health of mothers and their children. Birth spacing has been the main strategy of the health promotion program for mothers and children. The birth spacing has been reported to have a significant effect on the child's future physical and mental capabilities [1]. "World Health Organization (WHO) recommended that the interval between pregnancies should be at least 24 months to minimize the risk of adverse maternal, perinatal and infant outcomes [2]. Postpartum family planning programs are very important for the optimum birth intervals which is

beneficial for the health, social, and economic condition of the family [3].

Many studies have shown that short birth intervals adversely affect the health of mothers and their children's chances of survival. Short birth intervals (less than 24 months) increase maternal risks such as third trimester bleeding, toxemia, malnutrition, anemia, and maternal mortality. It can lead to several serious outcomes for neonates as well, such as prematurity, low birth weight, stillbirth, neonatal mortality and adverse effect on intellectual ability, physical growth and development [4-6]. Longer duration of birth interval (more than 60 months) is also associated with increased risk of maternal death, third trimester bleeding, eclampsia and post-partum hemorrhage [7].

Although the birth spacing project has been

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lunched since 1991 to reduce the maternal mortality ratio (MMR), maternal mortality remains a major health problem in Myanmar, especially in rural area. The Myanmar Health Statistics reported in 2007 that the maternal mortality rate was higher in rural area (136 per 100,000 live births) than in urban areas (94 per 100,000 live births) [8]. It shows that the mortality rates were higher than the ultimate goal of mortality rates in the year 2015, especially in rural area [9]. Moreover, mothers in the rural area are more prone to have close birth interval which can adversely affect their health and that of their children [10]. This may be that reproductive health programs were also less affordable and less accessible in rural area, and the women residing in rural area may have insufficient knowledge on birth spacing methods. This was the reasons that why the rural area was selected as the study area and the factors affecting the birth spacing interval were identified in order to improve the effective maternal and child health campaign. The study aims to explore the birth spacing interval among rural women, and factors affecting the birth spacing interval in Salin Township, Myanmar.

MATERIALS AND METHODS

The cross-sectional study was conducted in 5 Rural Health Centers (RCHs), located in the rural areas of Salin Township, Myanmar which is situated in Magway Region from 15th November 2012 to 30th January 2013, after obtaining approvals from ethics committee at Mahidol University Institutional Review Board of Social Science, Thailand (COA. No. MU-SSIRB 2013/033.0702). All pregnant confirmed patients who had at least one child came to the rural health center to receive antenatal care in Salin Township, Magway Region, Myanmar, were the study population. Multigravida who were willing to participate this study were included. Women who had a previous history of abortion and women with 1st pregnancy were excluded. All pregnant women according to the inclusion criteria were the subjects in this study. The sample size was estimated using confidence interval of 95%, and acceptance error of 5%, and a proportion of pregnant women coming to RHC of 0.5. An attrition rate of 10% was provided to allow for withdrawal of respondents. Thus, the required sample size was at least 425. To measure the birth interval, the researcher used the interval between previous child's birth date and the expected date of delivery of the child to be born of the study pregnant women.

A face-to-face interview by using the semi-structured questionnaire was used in data

collection. The semi-structured questionnaire contains 6 parts. Birth spacing between the last child and the expected date of delivery of the child to be born was measured by 1 question. It was classified into two groups: good (≥ 24 months) and poor (< 24 months) by using WHO criteria [2] as cut-off point. There were 8 questions about socio-demographic factors: age, married age, education level, education level of husband, occupation, occupation of husband, number of living children and family income. The knowledge of pregnant women regarding the meaning of birth spacing and benefits of birth spacing includes 10 questions. A correct answer was given a score of "1" and an incorrect answer was given a score of "0". The level of knowledge was classified into low (less than 60% of the total score), moderate (60% to 80%), and high (more than 80%). The questions about attitude towards birth spacing consisted of 11 questions with three-point Likert scale. The attitudes were categorized as positive and negative by using mean as a cut of point. Reinforcing factors including source of information and husband supports for birth spacing were asked by 6 questions. The use of contraceptive, type of contraceptive used and exclusive breast feeding were also asked by 4 questions. Pretest was carefully done for the reliability of knowledge and attitude. KR20 for knowledge was 0.6 and internal consistency reliability of perception was 0.7, respectively. The data was collected by the researcher and the team who went to the Rural Health Center (RHC) at the time of antenatal care.

STATISTICAL ANALYSIS

The data were analyzed by using the SPSS software. Chi-square test was calculated for bivariate data analysis to identify the relationship between independent variable and birth spacing interval. Logistic regression analysis was used to estimate the crude and adjusted Odd ratios of the determinants of birth interval. A *p-value* of less than 0.05 was used as the statistical level of significance.

RESULTS

Table 1 showed that most of respondents were less than 35 years (78.8%). Three-fourth of respondents (76%) were married when they had aged greater than or equal 18 years. Regarding the education of the respondents and their husbands, nearly half of them attained primary school level and there also have no significantly association between birth spacing and education of the respondents and their husbands. A large proportion

Table 1 Frequency and percentage distribution of respondents by studied variables

Variables	n	%
Age (year)		
≤35	335	78.8
>35	90	21.2
Mean=30, S.D.=5.78, Min=19, Max=45		
Age at marriage (year)		
<18	102	24.0
≥18	323	76.0
Mean=20.47, S.D.= 4.03, Min=14, Max=35		
Education of the respondents		
Illiterate	52	12.2
Primary level	212	49.9
Secondary level	128	30.1
High school level	25	5.9
University	8	1.9
Education of the husband		
Illiterate	56	13.2
Primary level	177	41.6
Secondary level	132	31.1
High school level	48	11.3
University	12	2.8
Occupation of the respondent		
Government official	2	5.0
Small business	14	3.3
Merchant	6	1.4
Private sector employee	1	0.2
Housewife	87	20.5
Farmer	157	36.9
General worker (Laborers)	158	37.2
Occupation of the husband		
Government official	3	0.7
Small business	7	1.6
Merchant	10	2.4
Private sector employee	10	2.4
Farmer	192	45.2
General worker (Laborers)	203	47.8
Monthly family income		
Low (<195000 Kyats)	396	93.2
Middle (195001-370000 Kyats)	20	4.7
High (>370000 Kyats)	9	2.1
Mean=87,491.76, S.D.=92,910.51, Min=20000, Max=900,000		
No of Living children		
1	221	52.0
2	114	26.8
≥3	90	21.2
Knowledge		
Good (> 8)	107	25.2
Fair (6-8)	184	43.3
Poor (<6)	134	31.5
Mean=6.43, S.D.=2.67, Min=0, Max=10		
Attitude		
Negative (<27)	205	48.2
Positive (≥ 27)	220	51.8
Mean=26.74, S.D.=3.902, Min=16, Max=33		
Exclusive breastfeeding		
0 month	86	20.2
1-5 months	146	34.4
≥6 months	193	45.4
Median= 6.0, QD=1.0, Min= 1, Max=12		

Table 1 Frequency and percentage distribution of respondents by studied variables (Cont.)

Variables	n	%
Contraceptive use		
Yes	320	75.3
No	105	24.7
Source of Information*		
Doctor	60	17.6
Midwife	277	81.2
Book/TV/Internet	12	3.5
Birth Spacing		
Good (24-60 months)	148	34.8
Poor (<24 months or > 60 months)	277	65.2
Median=30.0, Q.D.=22 ,Min=10, Max=200		

*Multiple Answers

of the respondents (37.2%) worked as general workers, 36.9% were farmers and 20.5% of them were housewife. In the occupation of the husband, 47.8% of the respondents were general workers and 45.2% were farmers. Monthly family income ranged from the minimum of 20,000 Kyats to the maximum of 900,000 Kyats. The average monthly family income was 87491.76 Kyats. Majority of the families (93.2%) have low income and 4.7% of the respondents have middle incomes. Only 2.1 percent of them were high income group.

In this study, 52.0% of pregnant women had 1 child, 26.8% of them had 2 children and only 21.2% had ≥ 3 children. More than 50% percent of pregnant women had ever to give exclusive breastfeeding to the last child, and about three-fourth of pregnant women used the contraceptive methods before this pregnancy. According to knowledge and attitude towards birth spacing, the results reveal that only one-fourth (25.2%) of pregnant women had good knowledge, and about half (48.2%) of pregnant women had negative attitude. The results also show that 34.8% of respondents have good birth spacing and the rest of the respondents (65.2%) had poor birth spacing. The median birth spacing of the respondents was 30 months, or 2.5 years. The minimum of the birth spacing was 10 months and the maximum was 200 months respectively. Results of the chi-square test in Table 2 show that the birth spacing was associated with 6 variables: age at marriage ($p < 0.05$), knowledge about birth spacing ($p < 0.001$), attitude towards birth spacing ($p < 0.05$), husband support on birth spacing ($p < 0.05$), information from midwife ($p < 0.05$), and exclusive breast feeding ($p < 0.005$). However, multiple logistic regression analysis shows that only age at marriage, knowledge about birth spacing, and information from midwife were significant predicting factors. The results also revealed that

pregnant women who married at the age of less than 18 years were 2.10 times more likely to have poor birth spacing than those who married at the age of 18 years or over. Pregnant women who had a poor level of knowledge were 3.06 times more likely to have poor birth spacing than those who had a good level or fair level of knowledge. In addition, pregnant women who got the information from the midwives were 1.97 times more likely to have poor birth spacing (Table 3).

DISCUSSION

The finding states that the median of birth spacing was 30 months or 2.5 years. This finding was lower than the median birth spacing of Southeast Asia (33.6 months) [11]. It seems to be that there is no problem on birth spacing in rural area of Salin Township, Magway Region, Myanmar because the median falls in the standard of birth spacing according to WHO criteria [2]. However, when considering the proportion of pregnant women having poor birth spacing, it shows that most of pregnant women in rural area of Salin Township had poor birth spacing. The cause of poor birth spacing in this study area was due to knowledge of pregnant women on birth spacing. The results of this study support the cause of poor birth spacing that only 25% of pregnant women had good knowledge. The results also revealed that pregnant women who had a poor level of knowledge were more likely to have poor birth spacing than those who had a good level or fair level of knowledge. It is consistent with the results from previous studies in Bangladesh [12] and Thailand [13] that there was an association between knowledge of the respondents and the family planning. The respondents having not enough knowledge caused poor family planning.

Moreover, a study in Southern Ethiopia [14] revealed that the respondents having greater age

Table 2 Association between independent variables and birth spacing

Variables	Birth spacing interval				Crude OR	95% CI		P-value
	Good		poor					
	No	%	No	%				
Age (years)								
≤35	119	35.5	216	64.5	1.16			
>35	29	32.2	61	67.8	1	0.706	1.902	0.560
Age at marriage								
≥18	125	38.7	198	61.3	1			
<18	23	22.5	79	77.5	2.17	1.295	3.631	0.003*
Education of the respondents								
Illiterate	18	34.6	34	65.4	0.53	0.118	2.370	
Primary level	64	30.2	148	69.8	0.43	0.105	1.783	
Secondary level	49	38.3	79	61.7	0.62	0.148	2.594	0.150
High school level	13	52.0	12	48.0	1.08	0.220	5.326	
University	4	50.0	4	50.0	1			
Husband education								
Illiterate	23	41.1	33	58.9	1.03	0.289	3.632	
Primary level	48	27.1	129	72.9	1.92	0.581	6.339	
Secondary level	50	37.9	82	62.1	1.17	0.353	3.890	0.062
High school level	22	45.8	26	54.2	0.84	0.235	3.037	
University	5	41.7	7	58.3	1			
Occupation of the respondent								
Non-Government	147	34.8	276	65.2	1.88			
Government	1	50.0	1	50.0	1	0.117	30.235	0.576 ^F
Occupation of the husband								
Non-Government	147	34.8	275	65.2	1			
Government	1	33.3	2	66.7	1.07	0.096	11.889	0.721 ^F
Monthly family income								
Low (20000- 195000)	134	33.8	262	66.2	2.44	0.646	9.252	
Middle (195001-370000)	9	45.0	11	55.0	1.53	0.314	7.437	0.248
High (>370001)	5	55.6	4	44.4	1			
No of living children								
1child	80	36.2	141	63.8	1			
2children	32	28.1	82	71.9	0.69	0.420	1.125	0.171
≥3 children	36	40.0	54	60.0	1.18	0.710	1.943	
Knowledge about birth spacing								
Poor (<6 points)	27	20.1	107	79.9	3.10	1.757	5.485	
Fair (6-8 points)	74	40.2	110	59.8	1.16	0.719	1.886	<0.001*
Good (>8 points)	47	43.9	60	56.1	1			
Attitude towards birth spacing								
Positive (≥28points)	88	40.0	132	60.0	1			
Negative (16-27points)	60	29.3	145	70.7	1.61	1.076	2.413	0.020**
Husband's support for birth spacing								
Yes	102	39.1	159	60.9	1			
No	46	28.0	118	72.0	1.646	1.079	2.509	0.020**
Source of Information								
<i>Doctor</i>								
Yes	22	36.7	38	63.3	1			
No	97	34.5	184	65.5	1.098	0.615	1.961	0.751
<i>Midwife</i>								
Yes	89	32.1	188	67.9	1.864			
No	30	46.9	34	53.1	1	1.073	3.237	0.026**
<i>Book/TV/Internet</i>								
Yes	6	50.0	6	50.0	1			
No	113	34.3	216	65.7	1.912	0.603	6.063	0.264

Table 2 Association between independent variables and birth spacing (Cont.)

Variables	Birth spacing interval				Crude OR	95% CI		P-value
	Good		poor			Lower	Upper	
	No	%	No	%				
Exclusive breastfeeding								
0 month	19	22.1	67	77.9	2.497	1.392	4.479	0.007*
1-5 month	49	33.6	97	66.4	1.401	0.896	2.192	
≥6 month	80	41.5	113	58,5	1			
Contraceptive use								
Yes	119	37.2	201	62.8	1	0.952	2.518	0.074
No	29	27.6	76	72.4	1.552			

*P-value <0.01, **P-value<0.05, F= Fisher's Exact Test

Table 3 Adjusted odd ratio for determinants of birth spacing

Independent variables	Adj OR	95%CI		P-value
		Lower	Upper	
Age at marriage				
<18	2.115	1.121	3.990	0.021*
≥18	1			
Knowledge about birth spacing				
Good	1			0.953
Fair	1.016	0.589	1.755	
Poor	3.136	1.464	6.719	
Attitude towards birth spacing				
Negative	1			0.716
Positive	1.100	0.659	1.839	
Exclusive breastfeeding				
0 months	1.101	0.533	2.271	0.795
1-5 months	1.243	0.731	2.113	0.422
≥6 months	1			
Husband's support for birth spacing				
Good	1			0.161
Poor	1.450	0.862	2.438	
Information from midwife				
No	1			0.025*
Yes	1.970	1.091	3.559	

*P-value <0.05, **P-value<0.01

had more knowledge of the birth spacing and caused good birth spacing interval. The result of Southern Ethiopia study also supports the results of this study that pregnant women who married at the age less than 18 years had poor birth spacing, more than those who married at the age greater than or equal 18 years.

The study also revealed that more than 70% of the respondents in this study used the contraceptive methods before this pregnancy, and about 45% of respondents exclusively breastfeed the last child for more than 6 months. It indicated that the use of contraceptive for birth spacing, and exclusive breastfeeding were famously used in rural area. However, the high proportion on the poor birth spacing still occurred. It seems to be that the health promotion program relating to birth spacing in rural area was not successful, although exclusive

breastfeeding and the use of contraceptive were the methods of birth control [15], The results of this study revealed that both of methods didn't affect the length of time between two successive live births. This contradict with the study in Egypt [16] that found significant association between birth spacing and exclusive breastfeeding, and a study in Bangladesh [17] also found that using contraceptives leads to a large and significant increase in the space between births—it increases the interval by about 60%.

Moreover, the results of this study revealed that pregnant women who got the information from the midwives still had poor birth spacing, although antenatal and postnatal care are provided in rural area. It's very surprising that pregnant women did not understand the information or contents that midwives provided. This may occur from literacy

level of pregnant women or the experience of midwives on knowledge transfer to pregnant women. The results of this study contradict with the previous studies [18-20] that the pregnant women who got the counseling about the birth spacing at antenatal and postnatal periods were having good birth spacing than who didn't get the counseling at that time.

CONCLUSION

This study conclude that the most of pregnant women still had poor birth spacing, and had not enough knowledge on birth spacing, although the birth spacing information had been provided by midwives at antenatal and postnatal periods. Therefore, the training for health staffs about technique on knowledge transferring should be conducted for improving knowledge transferring skill of health staffs to communicate and give knowledge to pregnant women properly. This study is cross-sectional study using face to face interview by structured questionnaire. Thus, recall bias in respondents' memories may have occurred and in-depth information may not have been obtained. Therefore, a retrospective study should be conducted in order to get more accurate information on birth spacing.

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