Maternal Factors that Determining Birth Spacing Interval among a Sample of the Women at Child Bearing Age

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Abstract

Background: Birth interval is the length of time between two successive live births. It might be affected with socio-economic factors related to mother as age, education and parity.

Objectives: To determine the rate of birth spacing interval for a sample of women at the child bearing age and to find out any association between maternal factors and birth spacing interval.

Subjects and methods: A cross-sectional study was conducted in Al- Takia PHC center by using special questionnaire from 15th September 2012 to 15th September 2013. Sample size was 184 women at child bearing age.

Results: Out of 184 women at the child bearing age (60.33%) had birth interval less than two years, (68.5%) below 25 years had birth interval shorter than two years, (60%) and (32.9%) of women with birth spacing interval < 2 years and ≥ 2 years respectively were primary school graduates, (83.8%) and (74%) of the studied women with birth spacing interval < 2 years and ≥ 2 years respectively were housewives, (45.9%) of women with birth interval < 2 years had high parity (≥ 5 live births).

Conclusions: All studied maternal factors were significantly associated with length of birth interval except mother's work status.

Keywords: Birth spacing interval, Parity, Contraceptives, Maternal age.
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Introduction

The birth interval can be divided into the period of postpartum amenorrhea, the menstruating interval and the following period of gestation [1]. Natural fertility depends on the duration of effective reproductive span and length of birth interval [2].

In recent years, policy makers and planners have focused a great deal of attention on the birth interval and its determinants. The reasons are that not only does the number of births women may have during her reproductive span depend on the spacing between the births but also there is a significant link between birth spacing and maternal and child health [2].

Children born after intervals of less than 24 months are considered at a higher risk for child mortality and under- nutrition, and mothers with those intervals are at a higher risk of birth complications. Overall, almost one in four births occurred after an interval of less than 24 months [3].

Researchers agree that 2 ½ years to 3 years between births is usually the best for the well-being of the mother and her children [4]. Short birth intervals (<2 years) may lead to maternal depletion syndrome, milk

diminution and competition between siblings close in age

some of which are rooted in social and cultural norms, others in the reproductive histories and behaviors of individual women, utilization of reproductive health services and other background factors [5]. Such as age at marriage of mothers and parity are negatively associated with the length of birth interval [3]. However, short Inter- pregnancy interval, is commonly seen among women in developing countries because of the desire of parents for large family, lack of health education and lack of availability of different contraceptive methods and also women are usually younger and less educated [6].

Healthy timing and spacing of pregnancy (HTSP) is an intervention to help women and families delay or space their pregnancies to achieve the healthiest outcomes for women, newborns, infants and children within the context of free and informed choice taking into account fertility intentions and desired family size [7].

The present study aims to determine the rate of birth spacing interval for a sample of women at the child bearing age and to find out any association between maternal factors and birth spacing interval.

Subjects and Methods

A cross-sectional study was conducted in Al- Takia Primary Health Care Center in Baquba city, the study sample was selected randomly which included (184) women at child bearing age with at least two live births for each woman. During the period from 15th September 2012 to 15th September 2013.

The data collected by direct interview with each woman by using special questionnaire. The information of the questionnaire included Socio-demographic factors related to studied women such as (age, occupation and educational level). Also some information related to reproductive data (Contraceptive use and Parity).

Variables represented in numbers, percentages and graphs by using SPSS program (version 15) for statistical analysis. Chi-square test was applied to find any association between maternal factors and length of birth interval.

Results

Figure (1) shows that the higher percentage of women at child bearing age (60.33%) were among those mothers who had birth spacing interval less than two years.

According to maternal age, higher rate of women (68.5%) who had birth interval < 2 years was among women younger than 25 years. As compared with those women who had birth spacing interval ≥ 2 years, the higher percentage of them (37%) was among mid age women (31-35). Statistical analysis shows that highly significant association between young age groups and short birth spacing interval. As shown in table (1)

Regarding educational level, majority of the study sample (60.4%) with birth spacing interval < 2 years were low educated (primary school) and lower percentage of them (9.9%) were well educated. Whereas the higher percentage of women (54.8%) who practicing a birth interval ≥ 2 years were well educated (secondary school above) and the results of the study indicated that there is a highly significant association between educational level of the mother and birth spacing interval.

The present study which demonstrate that majority of the women either had birth interval < 2 years or ≥ 2 years (83.8%) and (74%) respectively were housewives, and the result of the study not indicated a significant association between employment status and birth spacing interval. As shown in table (3)

About half of women (45.9%) with a birth interval < 2 years had ≥ 5 live births. As compared with those of women who had a birth interval ≥ 2 years, about two thirds of

them (64.4%) had (3-4) live births and the results of the study indicated a highly significant association between parity and birth spacing interval (table 4)

Relationship between contraceptive use and birth spacing interval which revealed that more than half of women (58.6%) who had low birth interval < 2 years were not using contraceptives. As compared with those had a birth interval ≥ 2 years, more than three quarters of them (82.2%) were using Contraceptives, and the statistical analysis indicated a highly significant association between contraceptive use and long birth interval as shown in table (5).

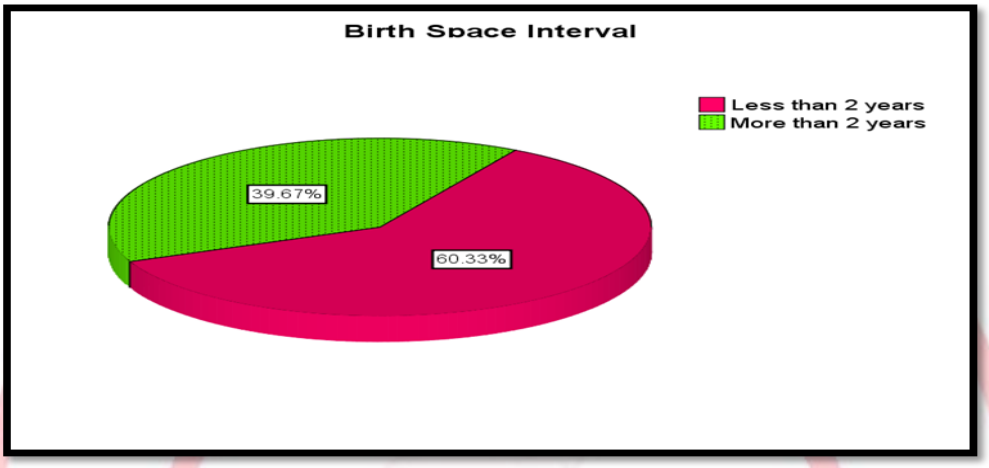

Figure (1): Distribution of the study sample according to birth space interval.

Table (1): Association between maternal age and birth spacing interval.

Maternal age	Birth spacing interval				Total		Statistics
	< 2 years		≥ 2 years				
	No.	%	No.	%	No.	%	
< 25 years	76	68.5	8	11	84	45.7	X^2 = 60.688 df = 3 p-value= 0.000 (HS)
25 - 30 years	17	15.3	22	30.1	39	21.2	
31 - 35 years	11	9.9	27	37	38	20.7	
> 35 years	7	6.3	16	21.9	23	12.5	
Total	111	100	73	100	184	100	

X^2= Chi-square test; df= difference; HS= Highly Significant

Table (2): Association between educational level and birth spacing interval.

Educational level	Birth spacing interval				Total		Statistics
	< 2 years		≥ 2 years				
	No.	%	No.	%	No.	%	
Illiterates	12	10.8	9	12.3	21	11.4	X^2 =15.263 df = 3 p-value= 0.002 (HS)
Primary school	67	60.4	24	32.9	91	49.5	
Secondary school	21	18.9	22	30.1	43	23.4	
Institute or college	11	9.9	18	24.7	29	15.8	
Total	111	100	73	100	184	100	

X^2= Chi-square test; df= difference; HS= Highly Significant

Table (3): Association between mother's work and birth spacing interval.

Work status	Birth spacing interval				Total		Statistics
	< 2 years		≥ 2 years				
	No.	%	No.	%	No.	%	
Working mothers	18	16.2	19	26	37	20.1	X^2 = 2.639 df = 1 p-value= 0.076 (NS)
Housewives	93	83.8	54	74	147	79.9	
Total	111	100	73	100	184	100	

X^2= Chi-square test; df= difference; NS= Non Significant

Table (4): Association between parity and birth spacing interval**.**

Parity	Birth spacing interval				Total		Statistics
	< 2 years		≥ 2 years				
	No.	%	No.	%	No.	%	
2 live births	38	34.2	18	24.7	56	30.4	X^2 = 41.460 df = 2 p-value= 0.000 (HS)
3 - 4 live births	22	19.8	47	64.4	69	37.5	
≥ 5 live births	51	45.9	8	11	59	32.1	
Total	111	100	73	100	184	100	

X^2= Chi-square test; df= difference; HS= Highly Significant

Table (5): Association between contraceptive use and birth spacing interval.

Contraceptive use	Birth spacing interval				Total		Statistics
	< 2 years		≥ 2 years				
	No.	%	No.	%	No.	%	
Yes	46	41.4	60	82.2	106	57.6	X^2 = 29.945 df = 1 p-value= 0.000 (HS)
No	65	58.6	13	17.8	78	42.4	
Total	111	100	73	100	184	100	

X^2= Chi-square test; df= difference; HS= Highly Significant

Discussion

The effect of most maternal factors is not the same for both birth intervals (< 2 years or ≥ 2 years). From the above results, it was found that different factors have different effects on the duration of birth interval. The present study showed that about two thirds of the studied women (60.33%) at child bearing age had a short birth spacing interval (< 2 years) [8]. This comparable to study done by P. Rasheed (2007) in Saudi Arabia, who found that large proportion of women having birth intervals of ≤ 2 years [8]. Also with study done by Samuel, *et al* in Ethiopia (2011), they found that a large proportion (57.6%) of the study subjects had short birth interval [1]. Only 39.67% of the respondents were currently practicing good birth interval length in this study. Similarly Samuel, *et al* (2011) who revealed that 36% of the respondents were practicing optimal birth interval length [1]. Other study found that older mothers tend to have longer inter-birth intervals, this could be due to two reasons: older women are later in their childbearing process and are likely to have achieved their

desired family size and hence likely to have long subsequent spacing; they are also likely to be less fertile leading to long spacing [9]. Birth interval showed difference in the present study by the age of the mother in which younger women had short birth interval more than older ones and this finding is similar with studies conducted in different places [5, 10]. Also similar to the pattern observed in Ethiopian demographic and health survey [11]. And in Iraq- Baghdad [5]. They found that length of birth space interval increasing as the mother's age increased [5].

Education is considered to be one of the most important socio economic factors having an indirect influence on birth interval length through its impact on one or more of the bio-behavioral variables [5]. The present study revealed that highest percentage (60.4%) of less educated women was among those who had not recommended birth interval (< 2 years) and this was not apparent among more educated women who had long birth interval, good educational level lengths the birth spacing interval in the current study. Low education (Primary school and below) was a highly associated with short birth interval in the present study this explained that women practicing shorter birth intervals might have brought the observed relation between birth interval and education among women with non-education and primary education [1]. Higher educational attainment improves a woman's status and opens the door for employment, resulting in an increase in the spaces between births [12].

This study revealed that highest proportion of housewives were in two models (< 2 and ≥ 2 years), because of most of women in the Arabic communities are housewives. This finding was shown in other countries [8, 13]. Significant difference between work status and birth interval was observed, this finding was agreement with Atheer Al Saffar study [9].

The median length of birth interval decreases with the increase in parity [14]**.** Pregnancies that occur too early or too late in a woman's reproductive life, those that are too closely spaced, those that occur in women who have already had too many births [12]. According to parity, about half of women with short birth interval (< 2 years) had high parity (≥ 5) live births. This finding was consistent with study of Chakraborty *et al* in Bangladesh [14]. Increased parity also causes increase in risk of having subsequent birth that is to say that when the parity is increased, the length of birth interval decreases [15]. Parity in the current study was highly significant associated with intervals of less than 2 years, and this was apparent at higher parities; this high statistical significant difference was observed in study done by Al-Saffar [9]. But disagree with result of Suhair study in Baghdad-Iraq 2010 [4]. This may be due to differences in data collection, study designs and participant responses.

Regarding contraceptive use, women who never use contraceptive devices are found to be subject to a hazard of having subsequent birth interval lower than those who use, whereas majority of women (82.2%) were use contraceptive use to prevent the next pregnancy as well as to lengthens the birth interval. This result was coincided in study done by Moataz *et al*, in Saudi Arabia; they found that most husbands approved of family planning [12]. And the results of this study revealed a highly significant association between contraceptive use and long birth interval, this agreement with result of study done by Suhair (2010) in Iraq [4]. And also with study of Samuel *et al* (2011) in Ethiopia [1].

In conclusions, the rate of the birth spacing interval shorter than two years was higher than that of longer than or equal to two years.

Birth interval was shorter in women younger than 25 years, less educated, and those with high parity. While was longer in women using contraceptive devices, and those with well education.

Most of studied maternal factors were significantly associated with birth interval length, except in work status was not significant.

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