

# Association of birth Spacing with birth weight in Baghdad City

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## Abstract

**Background:** Birth spacing might influence infantile under nutrition through its association with preterm births and low birth weight. If a pregnancy occurs too soon after the previous birth, the mother may not have recovered her nutritional status, which can contribute to preterm birth and low birth weight. Birth spacing allows women to recover and be healthy for their next pregnancy.

**Objectives:** To determining the effect of birth spacing with birth weight, also to study the factors effecting birth spacing interval in a sample of women in Baghdad city.

**Materials and methods:** The study design was descriptive study (cross sectional). Which included 100 women collected from Mohammad-Baker-Al-Hakim Hospital in Shua'la city in Baghdad, during the period from 10<sup>th</sup> October 2017 till 10<sup>th</sup> March 2018 during data collection, the questionnaire from each woman was done.

**Results:** This study clarified that the highest percentage of women (46%) had a birth interval (>24) months and (26%) them had a birth interval of (8-12) month. while, lower percentage of women (12%) had a birth interval of (13-18) months. The highest percentage of birth babies of (3.2Kg) and more than (3.2Kg) (51.19%) had a birth interval of (>24) months, while, highest percentage of less than (3.2Kg), (50%) had birth intervals of (8-12) months.

**Conclusions:** The highest rate of women had a birth interval of (>24) months with birth interval of (8-12) months, had a birth interval of (13-18) months. Birth interval was longer in mother of breast feeding. The highest rate of birth space interval was among age group (26-30) years. The highest rate of birth weight babies had birth intervals of (>24) months with birth intervals of (8-12) months.

**Keywords:** Birth, Spacing, Birth Weight, Pregnant.

## Introduction

Birth spacing had been made by the International Organizations based on the information that was available several years ago. While publications by the World Health organizations (WHO) [1] and other international organizations recommend waiting at least 2-3 years between pregnancies to reduce infant and child mortality, and also to benefit maternal health[2].

Several studies have reported greater risks of the adverse pregnancy outcomes low birth weight and small-for-gestational-age (SGA) after short pregnancy intervals [1]. Some investigators have attributed the higher risk of

poor pregnancy outcomes to the associated factors rather than causally relations of short inter pregnancy intervals, such as maternal socio-demographic characteristics and lifestyle [3,4].

Folate depletion, in particular, has been proposed as the nutritional factor that contributes most to the risk of fetal growth restriction [5]. As a consequence, their offspring may be at higher risk of intrauterine growth restriction and low birth weight [6,7]. Data on date of delivery, infant gender, birth weight, and gestational age (based on ultrasound or, if that measurement was not available <10% of cases, on the timing of the last menstrual period as recorded by the obstetric

care providers were obtained via the Youth Health Department at the Municipal Health Service [2,8].

Inter pregnancy interval was calculated as the number of months between the date of delivery and the date of the preceding birth, minus the duration of the pregnancy. The latter was defined by the gestational age at the time of delivery [9,10].

**Materials and Methods**

A descriptive study (cross sectional) was done included 100 women collected from Mohammad-Baker-Al-Hakim Hospital in Shua’la city in Baghdad, during the period from 10<sup>th</sup> October 2017 till 10<sup>th</sup> March 2018. During data collection, the questionnaire from each woman was including the following:

A- Personal particulars: socioeconomic stratum (as described above), age, marital age, educational attainment and employment outside the home, if any.

B- Fertility experience: including gravidity, abortion, number of live births and deaths of children aged less than 5 years.

C- Family Planning: all respondent were asked about their knowledge of the socio-economic benefits of family planning, contraceptive method and the main source of such information. There were asked if they ever used contraception and which type. Women were also asked to indicate when they had started taking supplements- either before or after conception. Women who took folic acid supplements and had begun doing

so before conception were classified as “early users” of folic acid; those who took folic acid supplements but had begun after conception were classified as “late users” and those who did not use folic acid supplements at all were classified as “nonusers” [4]. A number of maternal physiologic, obstetric, lifestyle, and socio-demographic characteristics obtained via the questionnaire were considered as co variables. Physiologic and obstetric variables included age (<25, 25-34, or 35), parity (1, 2, or 3), height (in cm), pregnancy intention as measured by questioning whether the respondent had wanted to become pregnant (yes or no), and start of prenatal care (<18, 18-23, or 24 wk of gestation). Lifestyle variables included alcohol consumption before or during early pregnancy (self-reported previous week’s behavior and behavioral change since pregnancy, recorded as no; yes, but not since pregnancy; or yes, also during pregnancy), smoking habits before and during early pregnancy (self-reported previous week’s behavior and behavioral change since pregnancy, recorded as no; yes, but not since pregnancy; or yes, also during pregnancy), pregnancy body mass index (in kg/m2)based on self-reported height and weight, and psychosocial stress (presence of 0, 1, or 2) [3-6,10]. So this study was designed to determine the effect of birth spacing with birth weight also to study the relation between the factors affecting birth space interval in a sample of women.

**Statistical Analysis:** data were analysis through descript statistical measurement (frequency and percentage).

**Results**

**Table (1) Relationship between birth interval and age group:**

BSI* (months)	age group (years)						Total
	>20	21-25	26-30	31-35	36-40	>40	
8-12	8 27.56	5 27.77	6 23	4 25	3 30	0 0	26 26%
13-18	6 20.68	1 5.55	1 3.8	2 12.5	2 20	0 0	12 12%
19-24	5 17.2	3 16.66	4 15.38	2 12.5	2 20	0 0	16 16%
>24	10 34.4	9 50	15 57.69	8 50	3 30	1 100%	46 46%
Total	29 100%	18 100%	26 100%	16 100%	10 100%	1 100%	100 100%
X=30.78                      df=10                      p-value(p<0.01)							

BSI\* = birth space interval; x =chi-square value; df =degree of freedom; p=probability level.

Table (1) shows that the highest percentage of women (46%) had a birth interval of (>24) months and (26%) than had a birth interval of (8-12) months. While, lower percentage of women (12%) had birth intervals of (13-18) months.

**Table (2) Relationship between birth interval and type of feeding:**

BSI* (months)	Type of feeding			Total
	Breast	Bottle	Mixed	
8-12	7 14.89%	15 44.12%	4 21%	26 26%
13-18	2 4.26%	2 5.88%	8 42%	12 12%
19-24	9 19.15%	5 14.7%	2 10.53%	16 16%
>24	29 61.7%	12 35.29%	5 26.34%	46 46%
Total	47 100%	34 100%	19 100%	100 100%
X=55.43                      df=6                      p-value(p<0.01)				

BSI\* = birth space interval; x =chi-square value; df =degree of freedom; p=probability level.

Table (2) presents that (61.7%) of women who were breast feeding their babies had longest birth interval (>24) months. While (44.12%) of mothers who bottle fed their infants had low birth interval (8-12) months.

**Table (3) Relationship between birth interval educational levels:**

BSI* (months)	Type of education				Total
	Illiterate	Primary	Secondary	University	
8-12	2 15.38%	5 29.41%	13 24%	6 31.58%	26 26%
13-18	4 30.77%	6 35.92%	1 1.96%	1 5.26%	12 12%
19-24	3 23.1%	3 17.65%	6 11.76%	4 21.1%	16 16%
>24	4 30.77%	3 17.65%	3 66.66%	8 42.1%	46 46%
Total	13 100%	17 100%	51 100%	19 100%	100 100%
X=38.25                      df=10                      p-value(p<0.01)					

BSI\* = birth space interval; x =chi-square value; df =degree of freedom; p=probability level.

Table (3) referred that the highest percentage of women had a secondary education (66.66%) with birth interval of (19-24) months. While, (42.1%) of them had university with birth intervals of (>24) months.

**Table (4) Relationship between birth interval and occupation:**

BSI* (months)	Work		Total
	Working	Housewife	
8-12	18 27.27%	8 23.53%	26 26%
13-18	2 3%	10 29.41%	12 12%
19-24	9 13.64%	7 20.59%	16 16%
>24	37 56%	9 26.47%	46 46%
Total	66 100%	34 100%	100 100%
X=29.21                      df=3                      p-value(p<0.01)			

BSI\* = birth space interval; x =chi-square value; df =degree of freedom; p=probability level.

Table (4) shows that (56%) of women was the working women with low birth interval, while housewife (26.47%).

**Table (5) Relationship between birth interval and parity:**

BSI* (months)	Live baby			Total
	1-3	4-7	8-11	
8-12	7 20.59%	13 26.53%	6 35.29%	26 26%
13-18	2 5.88%	1 2%	9 52.94%	12 12%
19-24	13 38.24%	2 4%	1 5.88%	16 16%
>24	12 35.29%	33 67.34%	1 5.88%	46 46%
Total	34 100%	49 100%	17 100%	100 100%
X=13.88                      df=6                      p-value(p<0.01)				

BSI\* = birth space interval; x =chi-square value; df =degree of freedom; p=probability level.

Table (5) presents that the highest percentage of women has (4-7 live babies) in (67.34%) birth interval of (>24) months in comparison with (4-7 live babies) in (4%) birth intervals of (13-18) months.

**Table (6) Relationship between birth interval (months) and contraceptive:**

BSI* (months)	Contraceptive use		Total
	Yes	No	
8-12	6 12.77%	20 37.73%	26 26%
13-18	4 8.51%	8 15%	12 12%
19-24	7 14.89%	9 16.98%	16 16%
>24	30 63.83%	16 30.19%	46 46%
Total	47 100%	53 100%	100 100%
X=66.77      df=3      p-value(p<0.01)			

BSI\* = birth space interval; x =chi-square value; df =degree of freedom; p=probability level.

Table (6) reflects the highest percentage of women (63.83%) who were not using contraceptives and had low birth interval (>24) months. As Compared with (37.73%) who using contraceptive had high birth interval (8-12) months.

**Table (7) Relationship between birth interval and abortion:**

BSI* (months)	Abortion		Total
	Yes	No	
8-12	10 33.33%	16 22.86%	26 26%
13-18	5 16.66%	7 10%	12 12%
19-24	6 20%	10 14.29%	16 16%
>24	9 30%	37 52.86%	46 46%
Total	30 100%	70 100%	100 100%
X=66.77      df=3      p-value(p<0.01)      sig = Ns			

BSI\* = birth space interval; x =chi-square value; df =degree of freedom; p=probability level.

Table (7) shows that the highest percentage of women (52.86%) who not abortion had birth interval (>24) months. Compared with (33.33%) who abortion had birth interval (8-12) months.

**Table (8) Relationship between birth interval and birth weight:**

BSI* (months)	birth weight babies		Total
	Less than 3.2kg	3.2kg and more than 3.2kg	
8-12	8 50%	18 21.43%	26 26%
13-18	2 12.5%	10 11.9%	12 12%
19-24	3 18.75%	13 15.48%	16 16%
>24	3 18.75%	43 51.19%	46 46%
Total	16 100%	84 100%	100 100%
X=26.66      df=3      p-value(p<0.01)			

BSI\* = birth space interval; x =chi-square value; df =degree of freedom; p=probability level

Finally table (8) clarifies the highest percentage of birth weight babies 3.2 kg and more than 3.2 kg (51.19%) had a birth interval of (>24) months, while the highest percentage of birth weight babies less than 3.2 kg (50%) had a birth interval of (8-12) months.

### Discussion

A number of maternal physiologic, obstetric, lifestyle, and socio-demographic characteristics obtained via the questionnaire were considered as co-variables. Physiologic and obstetric variables included age (<25, 25-34, or 35y), parity (1, 2, or 3), height (in cm), pregnancy intention as measured by questioning whether the respondent wanted to become pregnant (yes or no), and starting of prenatal care (<18, 18-23, or 24 wk of gestation).

Life style variables including the national objections, family objections and personal objections decades both professional and public attitude towards

fertility control have changed significant proportion of gynecological practice is now concerned with problems of contraception [6-8,12]. It specifically means the age of the mother at which pregnancy occurs. The most suitable age for reproduction is between 20 and 35 years.

Complications such as difficult labor, failure of lactation, congenital anomalies, prematurity, neonatal mortality and stillbirths will increase [6,13]. Too many births appear to decrease the efficiency of reproduction and lead to maternal depletion. Improving quality of health care is an increasingly important goal of international family planning programs, for a variety of reasons [3,14].

The current study results present that the birth interval was 24 months [8-12,15], which is an inadequate spacing for the health of both the mother and her infant. Similar other studies were proved in India, Yemen and Baghdad in 2005 [4,5,12,16]. Most of mothers birth intervals who were breast feeding their infants than

those who used bottle feeding.

Regarding education, most of women were having secondary education (66.66%) with birth interval of (19-24) months while (42.1%) of them had finished university with birth interval of (>24) months. Higher education level usually reflects longer birth intervals [10,15,17].

Most women here were employed (56%) with low birth intervals. While the un employed women were (26.47%) and these findings were in agreement with a study done in Baghdad during 2005. Prolonged contraception with birth space interval for women in comparison to those ones who did not use any contraceptive the quality of family planning services is an important determinant of contraceptive usage, because it is likely to affect contraceptive on mother and children health [18-20]. Abortion was a factor that affect birth interval in women (52.86%) who were not aborted having birth interval (>24) as compared with (33.33) who had abortion with birth interval (8-12). The highest rate of babies birth weight was (3.2 kg or more than weight 3.2 kg) in (51.19%) associated with birth intervals of (>24) months. And the highest rate of baby's birth weight less than 3.2kg in (50%) of them having birth intervals of (8-12) months.

### Conclusion

In Conclusion, the highest rate of women have a birth interval of (>24) months and them had a birth interval of (8-12) months, had a birth interval of (13-18) months. Birth interval was longer in mother of breast feeding their babies had a birth interval of (>24) months and of mothers who bottle fed had low birth interval of (8-12) months. The highest rate of birth space interval was among age group (26-30) years. The highest rate of birth weight babies had a birth intervals of (>24) months and they had birth intervals of (8-12) months.

**Conflict of Interest :** None

**Source of Funding :** Self

**Ethical Clearance :** From patients and my college .

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