Birth Spacing Influence on Maternal and Child Health in Nigeria

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Abstract
The study established the influence of birth spacing on maternal and child health in Nigeria. A total of two hundred (200) nursing mothers that registered with the maternal and child care units of Obafemi Awolowo Teaching Hospital Complex in Ile-Ife area constituted the sample for the study. Their ages ranged from 20years to 55 years with a mean age of 34.5 years and standard deviation of 6.5. The two instruments used were author-constructed questionnaires with 0.66 and 0.69 reliability coefficient respectively. The data obtained were analyzed using multiple regression and chi-square statistics. The results obtained from the study indicated that, a combination of the six independent variables significantly predicted the dependent variable F= (115.813); R= .703, R^2 = .494, Adj. R^2= .489; P<.05). The results also indicated that, significant relationship existed between the health histories (B = 5.755, T =8.844), behavior of individual women (B = 5.575, T = 2.284), utilization of reproductive health services (B = 5.558, T =8.495), family background (B = 5.121, T =10.633), contraceptive use (B= -2.670, T= 10.722) and socio-economic status (B =-2.648, T =6.322) and maternal and child health. The results further showed the significant position between health histories (X^2 cal = 33.956) is the most potent factor followed behaviors of the individual women (X^2 cal = 29.762); utilization of reproductive health services (X^2 cal = 16.986); family backgrounds (X^2 cal = 12.716); contraceptive use (X^2 cal = 5.969); and socio-economic status (X^2 cal = 1.268) and maternal and child health. Based on the results of these findings, it was recommended that nursing mothers should be made to be aware of the inherent dangers of inadequate birth spacing such as increased risk of premature membrane rupture, uteroplacental bleeding disorders, poor health for both the mother and the child, miscarriage or induced abortion and consequently death.

Keywords: Reproductive health services, Family backgrounds, Contraceptive use, Maternal and Child health, Health histories.

Introduction
Background to the study
Maternal health refers to the broad apparent and currently accepted means of providing promotive, preventive, curative and rehabilitative health care for mothers [1]. It refers to health of women during pregnancy, childbirth and postpartum period and it is a very important component of reproductive health. Maternal health in developing countries and economically restrained settings remains a daunting and largely unmet global public health challenge [2]. Progress has been slow and some countries with high maternal mortality are experiencing stagnation or even reversals [3,4] with countries in sub-Saharan Africa, including Nigeria being the hardest hit [5,6].

Nigeria has one of the worst maternal health indicators in the world [7] however current progress in maternal mortality ratio reveals 32% reduction from 800 to 545 deaths per 100,000 live births [8]. Over the years, the issue of maternal health has been predominantly seen and treated as a purely feminine matter. The hugely disproportionate representation of men, and their resulting dominance, among those responsible for the planning and provision of health care, has had serious consequences for the health status of women and girls, particularly in developing countries [2].

Birth spacing are influenced by a complex range of factors, some of which are rooted in social and cultural norms, others in the maternal health histories and behaviors of individual women, utilization of reproductive health services and other background factors. Birth spacing is also directly influenced by contraceptive use and induced abortion. Other socio-economic factors such as the mother's place of residence, education and work have also been correlated with birth spacing although the mechanisms by which these background variables influence birth spacing is less clear [9].

A conceptual framework useful for examining birth intervals is one proposed for studying fertility. For years, family planning programs have advocated two year intervals between births for infant and

child health and survival. There are several benefits that contribute to these outcomes including: a longer time period between births allows a mother more time to recover from pregnancy and delivery; the next pregnancy and birth are more likely to be at full gestation and growth; there is less competition between existing children for breastfeeding, food, nutrition, the mother's time, and other resources [10]. More recently, there has been a renewed interest in the effects of spacing and the optimal duration between births because new evidence suggests that three to five years may offer greater health benefits. Multivariate analyses on large data sets from a number of different settings indicate that there could be additional gains to child health by increasing the spacing between births to a minimum of three years [11-13].

Studies conducted in 2007 by in Jordan, Uganda, and Egypt by the Health Communication Partnership (HCP) illustrate how health communication approaches can help change community norms and promote birth spacing. In each country, 12 focus group discussions were conducted among women and men of reproductive ages who had at least one child below the age of five to understand social norms and perceived barriers to birth spacing. Despite different settings in Jordan and Uganda, the studies revealed similar findings, including: Child bearing is the number one expectation for and by couples. Therefore, couples are pressured to start childbearing immediately after union. Birth spacing is not a new concept. The traditionally or religiously sanctioned spacing is two years (birth to pregnancy in Jordan, birth to birth in Uganda). Ugandans even have derogatory terms for women with too short or too long birth intervals. Birth spacing is acceptable but Family planning is more problematic, society condones the concept of spacing births.

Evidence from systematic reviews and meta-analyses indi¬cates that short and long intervals between pregnancies are independently associated with increased risk of adverse maternal, perinatal, infant, and child outcomes [9,13,11]. Interpregnancy intervals shorter than 18 months and longer than 59 months are significantly asso¬ciated with increased risk of adverse perinatal outcomes such as preterm birth, low birth-weight, and small for gestational age [9,14]. Moreover, short intervals are associated with increased risk of premature membrane rupture [13,4] uteroplacental bleeding dis¬orders such as abruption, placenta and previa [9,15] and uterine rupture in women attempting a vaginal birth after previous caesarean deliv¬ery [9,16,17] and long intervals (longer than 5 years) are associated with an increased risk of preeclampsia [9]. Preceding interpregnancy intervals shorter than 36 months are significantly associated with a greater risk of child and under-five-years mortality, and intervals shorter than 24 months significantly increase risk of early neonatal, neo¬natal, and infant mortality [11].

The mechanisms by which short and long intervals between pregnancies may affect maternal, prenatal, infant, and child health have been the subject of much debate. Hypotheses generally adopt either biological or behavioural orientations, but no one framework or hypothesis has emerged as dominant [18-20]. In 2005, a WHO technical consultation on birth spacing recommended the development of a comprehensive theoretical framework to explain and analyse possible causal mechanisms of birth spacing [4]. Toward this end, the present study systematically collates, appraises, and synthesizes the literature on this topic.

It is therefore, not to the knowledge of the researcher that studies linking birth spacing and maternal and child health have ever been conducted. It is against this background that, this study becomes relevant in filling such missing gaps in our knowledge in the issue of birth spacing and maternal and child health in Nigeria.

Purpose of the study
The study examined the relationship between birth spacing on maternal and child health among nursing mothers in Ile-Ife, Osun State, Nigeria.

The following research questions were answered at 0.05 alpha levels:
- To what extent would birth spacing influence maternal and child health?
- What is the relative contribution of each of the factors to the prediction of maternal and child health?
- There will be no significant relationship between birth spacing and maternal and child health.

Methodology
Research design
The study adopted a descriptive survey research design in which structured guided questionnaires with interview schedule were employed in collecting data from the respondents on the variables studied. All nursing mothers living in Ile-Ife Central Local Government Area of Osun State, Nigeria had an equal chance of participating in the study.

Participants
The target participants were nursing mothers of Ile- Ife Central Local government area, which gave nursing mothers from all categories of the whole population the probability of been represented. The target population from which the samples (respondents) were selected from were nursing mothers who fall within the age bracket of 20-55years, registered with the Obafemi Awolowo University Teaching Hospital Complex, Ife, Osun state, Nigeria. A simple random sampling technique was employed to select two hundred (200) respondents from the total population of nursing mothers that registered with the maternal and child care units of Obafemi Awolowo Teaching Hospital Complex in Ile-Ife Central Local government area.

Instrumentation
Two instrument(s) were used in data collection.

Self-Administered Birth Spacing Questionnaire (SABSQ): Self-Administered Birth Spacing Questionnaire (SABSQ) is a four-point likert-scale questionnaire in which participants were asked to indicate their degree of agreement on each statement raised on Attitudes, Knowledge, Practices and Methods of birth

spacing. It contains 30 items response format anchored – Strongly Agreed, Agreed, and disagreed and strongly Disagreed. It has 0.64 and 0.69 as the internal consistency and revalidation reliability respectively.

Maternal & Child Health Inventory (MCHI): Maternal and Child Health Inventory is a 20 items inventory administered to the participants on the health status of the nursing mothers before, during and after pregnancy and also the state of mind of the child and anchored on Very True to Very Untrue. The test-retest reliability of the inventory was found to be 0.61 and 0.66 respectively. The two instruments were author-constructed.

Procedure for data collection

The participants for the study were administered the two questionnaires in Obafemi Awolowo University Teaching Hospital Complex hall, Ile- Ife, Osun state, Nigeria with the help of two research assistants. The collected questionnaires were scored and the data obtained from them were analysed to answer the research questions. On the whole, 200 copies of the questionnaires were distributed and 200 copies were returned fully filled giving a return rate of 100%.

Data analysis

The data collected were analysed using Multiple Regression, and Chi-Square statistics to establish the influence of birth spacing on maternal and child health.

Results

Research Question 1: To what extent would birth spacing influence maternal and child health?

R = 0.703; R Square = 0.494; Adjusted R square = 0.489						
Model	**Sum of squares**	**Df**	**Mean square**	**F**	**P**	**Remark**
Regression	6430.487	5	1286.097	115.813	.000	S
Residual	6596.348	594	11.105			
Total	13026.835	599				

Table 1: Summary of Regression of birth spacing influence on maternal and child health. Source: Field Survey, 2008. S = Significant at 0.05 alpha level.

From table 1 above, the six factors namely: health histories, behaviour of individual women, utilization of reproductive health services, family backgrounds, contraceptive use and socio-economic status have a joint multiple correlation which is positive with maternal and child health (R = 0.703). This implies that the six factors are quite relevant and important towards the determination of maternal and child and health in Nigeria. Furthermore, the table revealed that the six factors explained 48.9% of the total variance in the birth spacing influence (R square = 0.494). By implication, the remaining 51.1% is due to other factors and residuals. While the adjusted R square equals 0.489. Implicit in this result is that, birth spacing control variables have strong relationship with maternal and child health.

The results are in agreement with the findings of [3-4] with

countries in sub-Saharan Africa, including Nigeria being the hardest hit [5,6] that, birth spacing influence are multi-factorial.

Research Question 2: What is the relative contribution of each of the factors to the prediction of maternal and child health?

S/N	Variable Descriptions	Std Reg Wt (B)	SEB	BETA	t-Value	p-Value
1.	Health Histories	-2.055	0.772	5.755	8.844	0.05
2.	Family Background	-2.027	0.759	5.575	2.284	0.05
3.	Utilization of reproductive health services	-2.044	0.773	5.558	8.495	0.05
4.	Family backgrounds	4.239	0.760	5.121	10.633	0.05
5.	Contraceptive use	4.329	0.866	-2.670	10.722	0.05
6.	Socio-economic status	4.277	0.769	-2.648	6.322	0.05
	Constant	52.817	5.184	-	10.189	0.00

Table 2: Testing the significance of Regression Weights on birth spacing influence on maternal and child health. **Source:** Field Survey 2016.

Result on Table 2 indicates the regression coefficients (Standardized and Un-standardized), Standard error estimate, t-value, and the level at which the ratio is significant for each independent variable. The results also indicated that the standardized regression coefficient (B) ranged from -2.027 to 4.329, standard error estimate ranged from 0.759 to 0.866, t-ratio ranged from 2.284 to 10.722 and that, all the six variables were significant at 0.05 alpha level. The results further showed that, health histories (B = 5.755, T =8.844), behaviour of individual women (B = 5.575, T = 2.284), utilization of reproductive health services (B = 5.558, T =8.495), family background (B= 5.121, T =10.633), contraceptive use (B= -2.670, T= 10.722) and socio-economic status (B = -2.648, T =6.322) and maternal and child health. In all, the results revealed that, the six factors of birth spacing significantly influenced maternal and child health in Nigeria. The results stated above corroborated with studies conducted by [9,16,17]; and long intervals (longer than 5 years) are associated with an increased risk of preeclampsia [9]. The significant position of the results was also confirmed by [4,9].

Hypothesis 1: There will be no significant relationship between birth spacing and maternal and child health.

S/N	Variable Descriptions	X^2 cal	Df	X^2 tab	Sig (2 tailed)
1.	Health Histories	16.986	3	7.81	*0.001
2.	Behaviour of individual women	1.268	3	7.81	*0.737
3.	Utilization of reproductive health services	12.716	3	7.81	*0.005
4.	Family backgrounds	33.956	3	7.81	*0.000
5.	Contraceptive use	5.969	3	7.81	*0.113
6.	Socio-economic status	29.762	3	7.81	*0.000

Table 3: X^2 Summary on Birth Spacing and Maternal and Child Health. * Significant at 0.05 alpha level

The result of the research question on Table 3 showed that, each of the independent variables made significant contributions to the prediction of maternal and child health. This implies that, there is a strong relationship between those factors and maternal and child health. The contributions of each of the variables showed that, Health histories (X^2 cal = 33.956) is the most potent factor followed Behaviour of individual women (X^2 cal = 29.762); Utilization of reproductive health services (X^2 cal = 16.986); Family backgrounds (X^2 cal = 12.716); Contraceptive use (X^2 cal = 5.969); and Socio-economic status (X^2 cal = 1.268) in that order. The results stated above was in agreement with studies conducted by [12,13,21].

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