



Original Article

## Determinants of time-to-first birth Interval after Marriage amongst Women in Enugu South-East Nigeria

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### Abstract

**Background:** Fertility rates in sub-Saharan Africa remains high and this sets it apart from other regions in the world. **Aim:** To identify the determinants of time to first birth interval after marriage among women in Enugu South Eastern Nigeria. **Methods:** This was a cross-sectional study of 423 consecutive eligible women attending the family planning clinics of the University of Nigeria Teaching Hospital (UNTH), Enugu and Enugu State University Teaching Hospital (ESUT) Enugu, Nigeria between November 2019 and July 2020. Multivariate logistic regression was used to determine the variables that have effect on the time from marriage to first birth. **Results:** The mean time to first birth interval after marriage was 28.68 +/- 24.66 months while the median time to first birth interval was 21 months. The determinants of time-to-first birth interval after marriage less than 2 years on multivariate logistic regression were urban residence, participant partners having a skilled job, higher educational level of spouse, being married in a monogamous setting, no history of previous adverse pregnancy event before marriage, non-use of modern contraceptive, no Intimate partner violence and desire for a particular sex of a child after marriage especially male child ( $P = <0.05$ ). **Conclusion:** Longer first birth interval is expected to reduce the total fertility rate of a woman. Hence, propagation of effective contraception and cultural changes are essential to bring changes associated with reduced fertility with improved maternal and child wellbeing through elongated birth interval.

**Keywords:** Marriage, first birth interval, determinants, modern contraceptives

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## **Introduction**

Fertility plays a key role in population growth and the population of a country is a major contributor to cultural and economic growth.<sup>1</sup> Fertility rates in sub Saharan Africa have been identified to exhibit a very unique demographic scenario in the world as it remains high and this sets it apart from other regions in the world.<sup>2</sup> There has been a significant global change in the fertility pattern over the last two decade.<sup>3</sup> This is as a result of the influence of a number of factors such as demographical, social and cultural factors surrounding parturition. Mechanisms of fertility changes is best elucidated from studies on birth intervals.<sup>4</sup> Marriage is a proximate determinate by which fertility is reduced below its biological maximum.<sup>4</sup>

The birth of a woman's first child following marriage is perceived as the first visible outcome of fertility and is viewed in our environment as a turning point, marking a progression into motherhood.<sup>5</sup> In countries with low contraceptive uptake, the marriage to first birth interval has a strong association with fertility and impacts on the reproductive life of women and the society at large.<sup>6</sup> This interval is closely related to the fertility rate of a given people and estimates population growth. This interval also influences the family size because in the absence of any active contraceptive method, women who have their first birth very early in life tend to have a large number of children than those who start late.<sup>7,8,9</sup> Therefore, postponing first births and extending the interval between births may play a role in reducing fertility levels in many countries.<sup>10</sup> The first birth interval is also devoid of lactational amenorrhoea, which is a prime factor for prolonged birth interval, hence in the absence of contraceptive methods; it is a true representation of the fertility index.<sup>8,11,12</sup> Also accurate information known from this timing in a population, could aid physicians during counselling sessions in infertility management.<sup>13</sup>

Studies in some developing countries of Asia and Africa reported median marriage to first child birth intervals of 28 to 30 months.<sup>14–18</sup> However, an earlier study in Nigeria over a decade ago reported mean waiting to conception time amongst antenatal women to be 7 months<sup>13</sup> while a subsequent study that analyzed the 2013 Nigerian demographic health survey (NDHS) reported a median of 21 months.<sup>8</sup> Several determining factors have been reported to affect marriage to first birth interval. In some developing countries in Asia, factors like man's age at the marriage and educational status, interval between marriage contract to marriage ceremony, type of marriage, wife's place of birth, use of modern methods of contraception, family income per month, woman's level of education, religion, access to mass media and age at marriage were reported to have significant impact on the interval.<sup>14,15,17</sup> Studies from some African countries also showed factors that affect the interval to include woman's age, residence area, employment status, contraceptive use, education of women, having lost a pregnancy, woman's knowledge on ovulation cycle, age at first marriage, age at first sexual intercourse.<sup>8,16,18,19</sup>

Population growth is a major challenge in most developing countries, including Nigeria.<sup>4</sup> The exponential population growth caused by increasing fertility level which operates through the timing of first birth and the inter birth interval, poses several challenges to overall development.<sup>4,20</sup> Early first birth is likely to increase the probability of having second or higher order births within a given period.<sup>8,9</sup> This is the case especially for third world countries like Nigeria, with a low modern contraceptive prevalence rate.<sup>10</sup>

There are few studies in Africa accessing the determinants of time to first birth interval after marriage. This present study will determine the fertility index of the population, evince factors that could lead to reforms and provide vital information for policies to modulate the factors to achieve desired population growth amid rising global economic problems. Hence this study is

aimed at identifying the determinants of time to first birth interval after marriage among women in Enugu South Eastern Nigeria.

### **Materials and Methods**

This was a cross-sectional study of 423 consecutive eligible women attending the family planning clinics of the University of Nigeria Teaching Hospital (UNTH), Enugu and Enugu State University Teaching Hospital (ESUT) Enugu, Nigeria between November 2019 and July 2020. The two centers record the highest family planning clinic attendance in the state. UNTH is federal government owned while ESUTH is owned by the state government. Details of the centers have been described in a previous study.<sup>4</sup> Enugu state is one of the five states in the South-East geo-political zone of Nigeria.

Using the mean birth interval from a previous similar study in Enugu,<sup>13</sup> the minimum sample size required for this study at a confidence level of 95% and attrition rate of 10% was 418. However, 450 participants were recruited for the study. The study was commenced after approval by the ethics committee (NHREC/05/01/2008B-FWA00002458-1RB00002323). Following recruitment of participants, structured questionnaires were then administered by an interviewer after counseling and obtaining a written consent. All women of reproductive age group who presented for a family planning method were eligible for the study. Single women, women not living with their husband after marriage, previously divorced women and those who had their first childbirth earlier than 9 months after marriage<sup>18</sup> were excluded from the study. Information on participants' socio demographic characteristic including couples' age at marriage and residence, premarital pregnancy history, contraceptive use, couples' level of education and employment status were obtained. For the purpose of this study, marriage to first birth interval was defined as the interval in months between orthodox marriage contract and birth of a term baby. A pregnancy was regarded 'term' after 37 completed weeks.<sup>21</sup> Intimate partner violence was regarded as any behavior during the period between marriage and the first childbirth that caused physical, psychological, or sexual harm.<sup>22</sup>

Data collected was keyed into the Statistical Package for the Social Sciences (SPSS) software, version 20 for Windows (IBM SPSS, Chicago, Illinois, USA). Continuous variables were analyzed using the mean and standard deviations while categorical variables were expressed as proportion and frequencies. Multivariate logistic regression was used to determine the variables that have effect on the time from marriage to first birth. *P* value of <0.05 was considered statistically significant.

### **Results**

A total of 450 questionnaires were distributed and 423 were correctly filled and returned. This gave a response rate of 94%. The mean age at sexual debut of the participants was 21.12 +/- 4.7 years. The participants' mean age at marriage was 25.02 +/- 4.934 years while that of their spouses were 33.07 +/- 4.6 years. Details of socio-demographic variable are outlined in Table 1. The mean time to first birth interval after marriage was 28.68 +/- 24.66 months while the median time to first birth interval is 21 months. Majority (88.7%, 375/423) of the participants did not use any form of modern contraception at marriage and about two-thirds of them (62.2%, 263/423) were aware of their fertile period. The frequency distribution of determinants of marriage to first delivery interval are shown on Table 2. The determinants of time to first birth interval after marriage less than 2 years on multivariate logistic regression were urban residence, participant partners having a skilled job, higher educational level of spouse, being married in a monogamous setting, no history of previous adverse pregnancy event like ectopic pregnancy, abortions or miscarriages before marriage, non-use of modern contraceptive, no

intimate partner violence (IPV) and desire for a particular sex of a child after marriage especially male child ( $P = <0.05$ ). Details are outlined in Table 3.

**Table 1: Sociodemographic data of participants**

Characteristic		Frequency	Percentage
		n = 423	(%)
Religion	Christian	362	85.6
	Islam	39	9.2
	Tradition	9	2.1
	Others	13	3.1
Tribe	Igbo	287	67.8
	Hausa	49	11.6
	Yoruba	40	9.5
	Others	47	11.1
Marriage setting	Monogamous	369	87.2
	Polygamous	54	12.8
Residence	Urban	335	79.2
	Rural	88	20.8
Level of Education	Primary	21	5
	Secondary	87	20.6
	Tertiary	307	72.6
	Informal	8	8
Job description	Skilled	239	56.5
	Unskilled	184	43.5

**Table 2: Distribution of women by determinants**

Characteristic		Frequency	Percentage (%)
		n = 423	
Age of marriage	< 24 years	177	41.8
	≥ 24 years	246	58.2
Spouse' age at marriage	< 27 years	28	6.6
	≥ 27 years	395	93.4
Contraceptive use after marriage	Yes	48	11.3
	No	375	88.7
Aware of fertile period	Yes	263	62.2
	No	160	37.8
Premarital history of marriage/ TOP/ ectopic pregnancy	Yes	78	18.4
	No	345	81.6
IPV after marriage	Yes	56	13.2
	No	367	86.8
Desire male sex as first birth	Yes	215	50.8
	No	208	49.2

**Table 3: Significant determinants/predictors of time to first birth interval after marriage**

Characteristic		< 24 months	>24 months	P value	OR	95% CI
Residence	Urban	232 (76.3)	103 (86.6)	0.008	0.327	0.143 -0.750
	Rural	72 (23.7)	16 (13.4)			
Spouse's Job Description	Skilled	217 (71.4)	77 (64.7)	0.001	2.906	1.505- 5.612
	Unskilled	87 (28.6)	42 (35.3)			
Spouse' LOE	Primary	18 (5.9)	3 (2.5)	0.024	6.468	1.275 – 32.82
	≥ Primary	286 (94.1)	116 (97.5)			
Marriage setting	Monogamous	268 (88.2)	101 (84.9)	0.005	3.740	1.485 – 9.418
	Polygamous	36 (11.8)	18 (15.1)			
Pre-marital TOP/ Ectopic pregnancy/ miscarriage	Yes	36 (11.8)	42 (35.5)	0.000	0.195	0.095 – 0.401
	No	268 (88.2)	77 (64.7)			
Contraceptive use after marriage	Yes	21 (6.9)	27 (22.7)	0.000	0.209	0.092 – 0.478
	No	283 (93.1)	92 (77.3)			
IPV after marriage	Yes	19 (6.2)	37 (31.1)	0.000	0.212	0.097 – 0.464
	No	285 (93.8)	82 (68.9)			
Desire male child	Yes	170 (55.9)	45 (37.8)	0.004	2.182	1.275 – 3.735
	No	134 (44.1)	74 (62.2)			

## Discussion

The mean marriage to first birth interval was 28.68+/- 24.66 months. Similar mean first birth interval after marriage were reported in Ethiopia (30 months),<sup>18</sup> Uganda (24 months),<sup>16</sup> Iran (38 months)<sup>23</sup> and Bangladesh (25 months)<sup>6</sup> however 20 months was obtained in an earlier study done in Ibadan, western Nigeria.<sup>8</sup> The diverse geographical and cultural differences, traditional norms and values guiding these regions and countries seem to explain the variations in the time of transition to motherhood after marriage.<sup>19</sup> The variation in the timing of these studies may also have a role to play as contemporary lifestyle changes in recent time may explain the differences in the mean first birth interval after marriage.<sup>24</sup>

Our study showed that couples who resided in the urban region were likely to have less time to first birth interval compared to their rural counterparts. This finding is in line with results of earlier studies in Nigeria, Ethiopia and China.<sup>8,19,25</sup> This could be attributed to better financial

and psychological preparedness among women in urban areas and hence readiness for procreation soon after marriage.<sup>8</sup> Rural dwellers have limited access to optimum medical care, maternal health services e.g. antenatal services, and media hence may generally have poor health seeking behavior.<sup>25</sup> These factors may predispose to multiple pregnancy losses with resultant lengthening of marriage to first birth interval.

Though it has been demonstrated in several studies that women's education has a significant role and influence on first birth interval,<sup>6,18,19</sup> in the index study, the level of education of women showed no significance. Their spouses' level of education however was a significant determinant of a shortened interval. The index study showed that spouses who had more than primary level of education had less time to first birth interval after marriage when compared with those with just primary level of education. This is probably because higher education may open doors for higher paying skilled jobs and better social status, hence the man is able to cope with the financial burden associated with early child birth. A similar study failed to show any significant association between the first birth interval and spouses' level of education.[23] This study also showed that couples in monogamous union were more likely to have short time to first birth interval than polygamous unions. Related studies gave similar result.<sup>8,27</sup> This observation may be because a husband who has many wives will divide his time and attention amongst them and limiting adequate coital exposure.[8] The husbands may also have had children from earlier marriages therefore may not be keen to have a child from the newer unions.

Premarital history of pregnancy losses lowered the likelihood of child birth after marriage by widening the time to first birth interval.<sup>8,16,28</sup> This finding may suggest that women without these histories had shorter marriage to first birth interval. This implied that women who had a pregnancy termination prior to marriage were more likely to face delayed births compared to those who never had. This may be because of possible complications of these adverse reproductive outcome.<sup>8,16</sup> This finding is similar to the study by Anuwoje and Albeit.<sup>29</sup> An Iranian study showed that an abortion experience had no significant effect on first birth interval after marriage.<sup>14</sup> This may be because the women recruited for their study had less exposure to abortion.

This study showed that women who used contraceptives after marriage had prolonged first birth interval. Most of these women instituted family planning methods in order to pursue their career or a higher education thereby delaying their first child birth. Similar studies done in Bangladesh and Ibadan, western Nigeria, showed that women who had never been exposed to contraceptive had shortened first birth interval.<sup>6,8</sup>

Women who did not experience intimate partner violence (IPV) after marriage had lesser first birth interval after marriage than those who did. Domestic violence such as verbal abuses, physical assault, financial and sexual deprivation will reduce bonding between the married couple. This disharmony may culminate to reduced coital frequency leading to prolonged first birth interval after marriage. The high rate of divorce among women experiencing intimate partner violence may compel them to prolong first birth after marriage to avoid the burden of single parenthood.<sup>19</sup> In addition, women who had preference for a male child had less first birth interval than those who did not. The high premium on male children is common among the Igbo tribe in Nigeria<sup>30</sup> and a known reason for early initiation of child birth immediately after delivery.

In order to mitigate the negative effects of rapid population growth, these significant determinants of time to first birth interval can be modulated by our government. There is need

to sensitize young ladies about the dangers of unprotected sexual exposures and counsel them on contraceptives to minimize the rate of unwanted pregnancies hence reducing both the risk of sexually transmitted infections and need for unsafe termination of pregnancy. Laws on abortion may need to be reviewed by the legislature to reduce the complications associated with unsafe abortion e.g. infertility. Empowerment of the citizens via quality higher education, gainful employment and higher standard of living will aid them have better control of their reproductive life. Women should be educated on the need to inculcate proper health seeking behaviours such as antenatal and family planning services. Intimate partner violence (IPV) among women should be addressed by couples' family and relevant authorities. The fight against IPV shall target not only fertility but address its psychological impact on the family. The effect of family pressures on the newly wed couples to bear an heir especially in eastern, Nigeria has a significant impact on birth interval after marriage as was demonstrated in this study. Re-orientation of this ideology is necessary to mitigate overpopulation. Modernization may promote cultural changes and adjustments, hence the view of youths on sexual and reproductive matters should reflect these changes and subsequently affect population growth amid scarce resources.

This study has some limitations. These include small sample size, recall bias and presence of interval between marriage contract and marriage ceremony. Further study using larger population may be useful.

### **Conclusion:**

Longer first birth interval is expected to reduce the total fertility rate of a woman. Hence, propagation of effective contraception and cultural changes are essential to bring changes associated with reducing fertility with improved maternal and child wellbeing through elongated birth interval.

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