AGE AT FIRST BIRTH AND FERTILITY DIFFERENTIALS AMONG WOMEN IN OSUN STATE, NIGERIA

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Abstract

This paper examines the nexus between age at first birth and fertility differentials among women in Osun State, Nigeria. The rationale for this central objective was based on the fact that a lucid explanation on the relationships that exist between various indicators of socio-economic development and fertility level after controlling for the age at first birth is an important phenomenon in understanding developmental process at both individual and societal levels. Thus, basic knowledge about the intricacies and interrelationship between these variables is of direct relevance to planners and policymakers attempting to integrate population variables into development planning. To achieve the central objective of the paper, empirical quantitative data from Osun State were used. Findings of the study show that irrespective of socio-demographic characteristics of women (such as place of residence, current age, occupational status, educational level, marital status and form of marriage), *women who had their first birth below age 20 years* exhibit significant higher number of children ever born in comparison with *women who had their first birth by age 20 years and above* at *P<0.01 most especially* when the later were at similar categories to the former. Thus, age at first birth is a strong determinant, among others, responsible for relatively high fertility level in the State. Consequently, it is imperative for policymakers and development partners in the State to develop appropriate policies and programmes that will address and inhibit early age at first birth in order to control the high natural population growth rate of Osun State, Nigeria

Keywords: Age at first birth, Fertility differentials, Development, Osun State, Nigeria

Introduction

Fertility can be defined as the actual reproduction performance in a population based on the number of live birth that occurs in a population. It indicates the actual number of children born alive. Various scholars in the past years had carried out studies to establish the socio-economic and cultural context of fertility levels in Nigeria, most especially in Yoruba society (Olusanya, 1967; Olusanya, 1969; Okediji, 1969; Arowolo, 1977; Arowolo, 1979; Adeokun, 1979; Adewuyi, 1982; Omideyi, 1983; Feyisetan, 1985; van de Walle and Omideyi, 1988; Feyisetan and Togunde, 1988; Adewuyi, 1990; Caldwell et al. 1992; Isiugo-Abanihe, 1994; Orubuloye; 1995; Obono, 1998; Omideyi et al. 1998; Omideyi, 1999; Oyekanmi; 1999; Adedokun, 1995a; 1995b; 1995c; 1999; Ebigbola, 2000; Raimi, 2000; Omololu and Oyefara, 2008; Oyefara, 2005a; 2005b; 2008, 2011). But the impact of timing of first child on fertility differentials has not been well documented in the region. Consequently, this study aims at providing explanations on how to understand the importance of timing of first birth and more importantly, the mechanisms by which adolescent childbearing determines fertility differentials among women in Osun State, Nigeria. In order to achieve this main objective, the paper has been divided into four sections. In the first section, previous studies on fertility were reviewed, second section consist of detailed information on the research methods adopted to achieve the stated objective of the study. The third section contained the major findings of the study, while in the fourth and last section, the major findings were discussed and essential recommendations were made. These four sections were presented below respectively.

Previous studies on Fertility

During 1970s about 33 percent of all fertility in Africa was attributed to adolescent mothers (Gyepi-Garbrah, 1985a). Recent data also show that the general level of adolescent fertility in sub-Saharan Africa is quite high compared to the industrialized countries of the west. Births per 1,000 adolescent females aged 15-19 range from 60 births in Burundi to 233 in Niger (UNICEF, 2004, PRB, 2012). It is important to note that adolescent fertility is high in other developing countries of the world apart from sub-Saharan Africa. For example, adolescents in Brazil gave birth to 900,000 babies in 1997, thus accounting for 26.5 percent of all live births in the country in the reference year. Adolescent pregnancy is concentrated in Brazil's poorest regions and sectors with the lowest level of education. It affects 54 percent of young illiterate women, 29 percent of those who have had at least three years of schooling and four percent of those with nine or more years of education (Osava, 1998).

It is imperative to note that fertility levels and patterns vary among adolescents all over the world especially with respect to their marital status, place of residence, educational level and age at first marriage. In sub-Saharan Africa, it has been established that adolescents in rural areas register high levels of fertility than those in urban areas, while those with more education tend to have lower levels of fertility (Njau et al. 1992). Brazil's national fertility data show that the proportional contribution of adolescent fertility (among women aged 15-19 years) to the overall fertility rate (among women aged 15-44 years) has been increasing over time as stated earlier. For instance, the estimates from the Brazil Demographic and Health Survey (DHS) reveal that the percentage of all births among adolescents increased from 12 percent to nearly 19 percent between 1986 and 1996, while the rate among women aged 25-39 dropped from 53 percent to 48 percent during the same period. (Gupta and Leite, 1999). A lag in the decline of adolescent fertility compared to the decline in the Total Fertility Rate (TFR) has been generally observed throughout Latin America. Previous research has suggested that adolescents in this region have taken less advantage of family planning services than older mothers.

The 1996 Brazil DHS reveals that 18 percent of female adolescents have been pregnant at least once. In the Northeastern part of Brazil, an area of high fertility with a TFR of 3.1 lifetime births per woman, some 21 percent of adolescent girls have already become pregnant, despite near universal knowledge of contraceptive methods. Adolescent fertility has steadily risen in the Northeast region of Brazil over the past one decade both in absolute terms (17 percent adolescents had ever given birth in 1996, up from 12 percent in 1986) and in relative contribution to TFR (20 percent of all births were to teenagers in the year preceding the 1996 survey, compared with 12 percent 10 years earlier). The incidence of premarital childbearing among adolescents has also increased: The percentage of all first born infants that belong to a single adolescent's mother rose from 5 percent to 11 percent over the same 10 years period (Gupta and Leite, 1999). Adolescents generally display lower fertility rates than women in the middle of their reproductive years. This reflects the evolution of a woman's reproductive life cycle, with lower fecundity at the onset of the reproductive period and a lower risk of conception, given less-frequent, sexual activity. As noted by the authors, in Northeastern Brazil, older women appear to take better advantage of family planning services than young women, with the result that the contribution of adolescents' fertility to the TFR is increasing.

With reference to those factors that are responsible for differentials in reproductive outcomes among adolescents, the above study on adolescents' fertility in Brazil and many others identified several explanatory variables for the differentials. One of the most consistent findings on the socio-economic or cultural context of adolescents' fertility in developing countries is a strong correlation between the level of women's education and fertility regulation (Martin and Juarez, 1993; Robey et al. 1992; Rutenberg et al. 1991; Silva, 1990). Schooling of women is often viewed as an indicator of socio-economic development and the variable is also negatively correlated with infant mortality, thus reducing overall demand for children. One longitudinal analysis of fertility patterns in Brazil identified education as a critical catalyst in the country's fertility transition (Lam et al. 1993). Other socio-economic variables that emerge from Brazil literature as important influence on fertility behaviour are place of residence, cultural or ideational differences, mass media, and religious affiliation. Fertility levels are expected to be lower in urban areas than in rural areas. This holds true for Brazil generally, where the TFR is 2.3 births per woman in urban areas and 3.5 per woman in rural areas (Gupta and Leite, 1999).

Differences in fertility levels according to race and religious affiliation have been observed throughout the world. In particular, historical studies in North America suggested that Catholics have experienced relatively high fertility rates (Potts and Selman, 1979). In the analysis of Brazil 1996 DHS data, access to the media was found to be the most important predictor of fertility among younger women in the country. Among adolescent females in the country, contraceptive knowledge reaches 99 percent and 100 percent of sexually experienced teenagers are aware of at least one modern method of family planning in Brazil at the time of the survey (Gupta and Leite, 1999). As noted by these authors, in Northeastern Brazil, nearly 85 percent of teenage girls watched television on a weekly basis in 1996, up 17 percentage points from 10 years earlier. The number of adolescent girls watching television weekly is even higher in the Southeastern Brazil (94 percent). The authors argued that the high knowledge of contraceptive among adolescents and teenagers in Brazil may not be divorced from television programmes, particularly Brazilian soap operas (telenovelas) that normally disseminate images that might be interpreted to be supportive of lower fertility.

The results of a bivariate analysis of study on adolescent fertility behaviour in Northeastern Brazil show that there are acute differentials by educational status in the probability of having a first birth during adolescence, a trend that has continued over time. For adolescent girls aged 15-19 years, the probability of a birth among the less educated is consistently at least twice that of their more educated counterparts. In addition, urban

adolescents are less likely to have ever given birth than are rural adolescents. Mass media exposure, as measured through television-viewing habits, also appears to affect adolescent fertility. Young women who watch television often are consistently less likely than those who do not to have had a first birth before age 20 years. Nonwhite adolescents typically demonstrate higher fertility than white. There is no consistent trend by religious affiliation: Differentials between Catholic adolescents and non-Catholic teenagers vary in direction and magnitude over 10 years (Gupta and Leite, 1999).

With reference to the pattern of adolescent childbearing, existing data worldwide show that, each year an estimated 15 million births take place among women ages 15 to 19 (AGI, 1997). Among 50 developing countries surveyed during the Demographic and Health Surveys (DHS), an average of 23 percent of adolescent women, including both married and unmarried women, have given birth or are pregnant. (Zlider et al. 2003). In addition, adolescents' childbearing is most common in sub-Saharan Africa, at 26 percent of women ages 15 to 19. In the Central Africa Republic, Chad, Guinea, Madagascar, Mali, and Nigeria, over one-third of adolescent women are pregnant or have had a child. According to these authors, on average, among 16 surveys in Latin America and the Caribbean, 19 percent of all adolescent women have begun childbearing. The levels are highest in El Salvador and Nicaragua, at 25 percent. In nine countries in Eastern Europe and Central Asia, about 8 percent of adolescent women are mothers (Zlidar et al. 2003).

It is essential to note that most adolescents who are married or in a union are more likely to begin childbearing than their counterpart who are not in any union. In Latin America and the Caribbean, on average, 80 percent of married adolescents have begun childbearing and in sub-Saharan Africa, 73 percent. Among all developing countries surveyed, South Africa has the lowest proportion of married adolescents who have begun bearing children, at 50 percent. Among unmarried adolescents in 49 developing countries with data, an average of about 7 percent has started childbearing. In 13 of 30 sub-Saharan countries with data since 1990, however, between 10 percent and 25 percent of unmarried adolescents were pregnant or had had a child. Elsewhere, the highest level of childbearing among unmarried women ages 15 to 19 is in Nicaragua, at 10 percent (Zlidar et al. 2003).

In Nigeria, the National Population Commission (1998) states that among the adolescent population aged 10-14 years, about 4.0 percent of male and 7.5 percent of female have been married. This information shows how too early the Nigerian adolescents enter into marriage union in some parts of the country. In the light of the early marriage and unprotected sexual intercourse among unmarried adolescents in the country, the 1990 Nigeria

Demographic and Health Survey (NDHS) showed the fertility rate for adolescent girls aged 15-19 years, as 144 births per 1,000 adolescent women. One-half of all women in Nigeria become mothers before age 20; 10-12 percent gives birth before age 15 years and 21-28 percent gives birth between 15 and 17 years (FOS, 1992). Ten years after this survey, there has not been any significant change in the proportion of the adolescent fertility in the country since the current birth per 1,000 adolescent women is still far above 100 live births. According to 1999 NDHS results, the age specific fertility rate for adolescent women aged 15-19 years was 111 births per 1,000 women in the stated year (NPC, 2000). The above literature shows different factors responsible for the levels and patterns of adolescent fertility across different continents of the world. It is imperative to note that existing data in the literature revealed high prevalence of childbearing among adolescents in sub-Saharan African continent than any of the other regions of the world. With this background information, the next section of this paper examined the research methodology adopted to achieve the central objective of the paper.

Methods

Cross-sectional survey was used to generate data in the study. Osun State is composed of thirty (30) Local Government Areas (LGAs) during the time of survey. Two (2) LGAs out of the 30 LGAs in the State were purposively selected for the study with the aid of quota system of sampling method. The procedures adopted here involved the stratification of the 30 LGAs into two main strata on the basis of rural/urban-characteristics of the Local Government Areas in the State. One LGA each was purposively selected from each stratum of the two strata. The two (2) LGAs selected are Osogbo LGA with headquarter in Osogbo the State capital of Osun State and Ola-Oluwa LGA with headquarter in Bode-Osi. Osogbo LGA represents the urban centres in the State. The 2006 Population Census figures show that the total population of this LGA was 155,507 in 2006 and its current estimated population is about 188,197. Ola-Oluwa is purely a rural LGA. The local government is made up of one hundred and fifteen (115) rural communities, out of which 9 are major communities (NPC, 1998). Ola-Oluwa LGA had a total population of 76, 227 people in 1991 and the current estimated total population of the LGA is about 92,251. The LGA represents the rural communities in Osun State for the study.

The study populations of the survey are women within the child bearing age (15-49 years) with the following three distinctive characteristics. One, the respondents must have at least a live birth as at the time of survey. Two, they must have seemly similar socio-economic

background before their first birth. Parental educational and occupational statuses were used to determine the pre-pregnancy socio-economic background of the respondents. It was decided that the fathers of the respondents should posses not more than primary school level education, and should be in occupations that are largely blue-collar in nature (i.e. Artisans, traders, farmers). The paternal educational and occupational status was used to determine the pre-pregnancy socio-economic background of the respondents. Three, an important discriminatory variable was also needful among these women in order to be able to accomplish the research objective. This discriminatory variable is the fact that one group among these women must have had a birth before age 20 (adolescent mothers); this constitutes the study group, while the second group must have given birth by age 20 and above (older mothers), which serves as the control group.

A multistage random sampling technique was utilized to select the respondents in the Survey. The non-existence of a sampling frame (i.e. the list of all women within the childbearing age that posses the three features stated above in Osun State) necessitated the adoption of a multi-stage random sampling technique in the Survey exercise. SPSS software package (version 10.0) was used to analysis survey data. Percentages, means, standard deviation, Pearson chi square, t-test, analysis of variance and post hoc test of homogeneous were the statistical methods used in the interpretation of quantitative data.

Results:

1. Introduction

This part contains data on effects of age at first birth on total number of Children Ever Born (CEB) by the sampled respondents. The section is divided into two main parts. The first part of the section contains information on impacts of adolescent fertility on the total parity of sampled women, while the last and second part of the section contains data on socio-economic differentials in fertility levels of the respondents after controlling for age at first birth of the respondents**.**

2. Age at first birth and number of children ever born

Number of Children Ever Born (CEB) is synonymous to parity. These are demographic concepts, which refer to the total number of live births a woman has ever had as at the time of the study. Data on parity in Table 1 show that there was a significant difference in parity levels of adolescent and older mothers in the study area. Specifically, adolescent mothers had relatively higher parity levels in comparison with older mothers in the study

location. For example, 16.8 percent of adolescent mothers sampled have had at least 5 or more live births in their lifetime. This proportion was more than double of 8.0 percent among older mothers that had the same number of children. Data on Table 1 show that the supposition which states that mothers who had their first birth before age 20 years are more likely to have significantly higher level of number of children ever born compared with mothers who had their first birth by age 20 years and above was accepted at $P < 0.01$. This is because the calculated Pearson chi-square = 53.283 with 4 as degree of freedom and $P < 0.01$. Data generated above revealed that the mean number of children ever born to adolescent mothers was significantly higher than the mean fertility of older mothers in Osun State, Nigeria at 0.01 level of significance.

Table 1: Percentage Distribution of Respondents showing the relationship between Age at First Birth and Number of Children Ever Born (CEB).

Number of children ever born	**Adolescent mothers**		**Older mothers**			
	No	**%**	**No**	**%**	**No**	**%**
One	176	35.2	116	23.2	292	29.2
Two	103	20.6	117	23.4	220	22.0
Three	69	13.8	133	26.6	202	20.2
Four	68	13.6	94	18.8	162	16.2
Five and above	84	16.8	40	8.0	124	12.4
Total	**500**	**100.0**	**500**	**100.0**	**1000**	**100.0**
$X^2 = 53.283$						
d.f. =4, C = 0.255, P = 0.000						
Mean Children Ever Born	**2.74**		**2.72**			

3. Age at first birth and fertility differentials in Osun State

The relationship between various indicators of socio-economic development and fertility level after controlling for the age at first birth is an important topic that is of direct relevance to planners and policymakers attempting to integrate population variables into development planning. Six variables were examined here, these are: place of residence, current age, level of education, occupational status, marital status, and form of marriage of the respondents. These variables were isolated for analyses because they are most efficient predictors of fertility decline and change in different human societies. The results of the analyses can be seen in Tables 2; 3; 4; 5 and 6 respectively.

a. Place of Residence

Previous studies have consistently observed that women living in urban areas have fewer children than their rural counterparts. The explanations for this differences is often that women in urban areas tend to have more education and are more likely to participate in the formal labour market. Consequently, these women are more likely to appreciate the advantage of having a smaller family. At the same time, urban women are assumed to have better knowledge of, and access to modern contraception than women in rural areas (Cohen, 1993:33).

The mean number of children ever born of the respondents by place of residence for both adolescent and older mothers can be seen in Table 2. Data on the table confirmed previous findings in the demographic literature: rural fertility is higher than urban fertility for both adolescent and older mothers. But the differences seem to be substantial and significant only for adolescent mothers. The independent sample t-test analysis showed in Table 2 revealed that there was a significant mean difference in the number of children ever born between rural and urban adolescent mothers in the study. The t-test result pointed out that rural adolescent mothers significantly reported higher fertility than urban adolescent mothers. The average rural-urban fertility differential was 0.48, $t = 3.057$ for adolescent mothers and it was significant at 0.01 level of significance. The difference in average number of children ever born for older mothers living in rural and urban areas was just 0.22 and the difference was not statistically significant even at 0.05 level of significance.

Table 2: Mean Number of Children Ever Born (CEB), Standard Deviation (SD), T-test and Analysis of Variance (ANOVA) by place of residence and current age for adolescent and older mothers

Socio-economic variable	Adolescent mothers			Older mothers		
	Number	Mean CEB	SD	Number	Mean CEB	SD
Place of residence						
Rural	231	3.00	1.76	210	2.85	1.48
Urban	269	2.52	1.69	290	2.63	1.37
Total	**500**	**2.74**	**1.73**	**500**	**2.72**	**1.42**
	T = 3.057, D.F = 498, Sig. (2-tailed) = 0.002			T = 1.691, D.F = 498, Sig. (2-tailed) = 0.091		
Current age						
15 – 19	171	1.36	0.73	-	-	-
20 – 24	132	2.02	0.95	88	1.59	0.95
25 – 29	106	3.82	1.11	185	2.03	0.86
30 – 34	39	4.95	1.05	116	3.21	0.77
35 – 39	33	5.27	1.21	62	3.53	1.04
40 – 44	16	4.94	1.18	34	5.09	1.16
45 - 49	3	7.00	1.00	15	5.13	1.92
Total	**500**	**2.74**	**1.73**	**500**	**2.72**	**1.42**
	F = 192.608, D.F = 6, P = 0.000			F = 99.458, D.F = 5, P = 0.000		

Thus it can be adduced that although place of residence is a significant determinant of rural-urban fertility differentials among women in Osun State, Nigeria, women that delayed

their first births till age 20 years and above are not likely to have significant low fertility differential irrespective of their place of residence (rural/urban), whereas adolescent mothers living in rural areas in the State will have significantly higher number of parity compared with their counterparts living at urban areas.

b. Current Age

Demographic studies in the traditional societies especially where there is little or no use of contraception, show a positive relationship between age and fertility level of women. Women at the end of their childbearing age (i.e. age group 45-49) usually have high parity level in relation to women in other age groups of childbearing age. The main reason behind this is the fact that the more years a woman spent within childbearing ages; the more she is at risk of conception and childbirth, especially when other fertility inhibiting factors (such as delayed marriage, use of contraceptive methods, and induced abortion) are relatively low in the community.

Data on Table 2 showed a positive relationship between age of the respondents and fertility levels of both adolescent and older mothers. It is essential to note also that in each of the age groups, the fertility level of adolescent mothers is consistently higher than the fertility level of older mothers. Furthermore, at the end of childbearing age (i.e. age group 45-49years) the mean number of children ever born by adolescent mothers was 7.00 as against 5.1 among older mothers in the same age group. Thus, it is logical to conclude that if the current fertility rate is maintained, adolescent mothers will have significant higher fertility level at the end of their childbearing age compared with older mothers in the State. The positive relationship between age of the respondents and fertility level was significant at 0.01 level of significance for both adolescent and older mothers, but adolescent mothers exhibit high fertility levels at all levels than older mothers.

c. Educational level

Fertility has also been closely associated with female educational levels, although Cochrane (1979) argued that identifying the direction of any causal relationship between fertility and education is complex. Usually, there is inverse relationship between educational level and the level of women fertility (Olusanya, 1967; Okediji, 1969; Arowolo, 1977; 1979; Adewuyi, 1982; 1990) among women in Southwestern, Nigeria. The explanation for this association revolves around the fact that more educated women are more likely to delay marriage and to work for paid employment in the formal labour market after leaving school.

Consequently, the demand for children maybe inversely related to educational level. Literacy skills may improve women's ability to practice efficient contraception and may empower them with more decision-making authority in the household (Cohen, 1993:33).

Data on the relationships between educational levels and number of children ever born among adolescent and older mothers in Table 3 showed that education has significant effects on fertility differential among adolescent and older mothers in the study area. This is found to be significant starting from secondary to higher levels of education. The mean numbers of children ever born of older mothers with secondary and higher level of education were significantly lower than their counterparts who are adolescent mothers with these same levels of education. Specifically, when the mean number of children ever born of adolescent mothers with higher education was 4.67 live births, the older mothers in the same category had a mean of just 2.68 live births. It is essential to note that older women with primary school level of education and those of them without any formal education had higher fertility rates than their counterparts who were adolescents when they had their first childbirths. It is logical to assume that this difference may be due to age differential rather than educational level. Possibly, older mothers in no formal and primary level categories of education may be older than adolescent mothers in these two categories of education.

The results of post hoc test of homogeneous subset of the mean number of children ever born by educational level of adolescent and older mothers in Table 4 showed that adolescent mothers with primary education have a similar mean children ever born to the secondary and none level of education but not the higher education. Thus, there was a significant mean difference between adolescent mothers with primary education with a mean children ever born of 2.55 and those with higher education with a mean children ever born of 4.67. The post hoc test for older mothers showed significant negative relationship between education and fertility level. None educated older mothers had the highest mean children ever born of 4.47 compared with 2.68 among older mothers with higher education.

These data revealed the importance of age at first birth on the number of achieved family size of women in Osun State, Nigeria especially when educational factor is put into consideration. More importantly, the data show that adolescent mothers in the State with higher education, because they started childbearing earlier, have about 2 children higher than their counterparts who were older when they started their childbearing. The analysis of variance (ANOVA) results for both adolescent and older mothers showed significant differences in the fertility levels among women with different levels of education and this relationship was significant at 0.01 level of significance.

d. Occupational Status

Results of the analysis on fertility differentials among women in different occupational categories after controlling for the age at first birth show the effects of occupational status on fertility levels of women in the study location. According to the results on Table 3, occupational status was not a significant factor that determines fertility differentials among older mothers in the State. This is because the analysis of variance results (ANOVA) for the older mother were F= 1.602 and P= 0.158. Thus the relationship was not statistically significant among older mothers even at 0.05 level of significance since the probability value was far above 5 percent. The ANOVA results for adolescent mothers showed that the mean number of Children Ever Born (CEB) of adolescent mothers across different occupational categories was significant at 0.01 with F= 11. 56 and P = 0.00. It is essential to note further that in each of the occupational categories where data were available for comparative analysis, fertility levels of adolescent mothers were consistently higher compared to older mothers in each of the occupational groups. Specifically, the mean children ever born by adolescent mothers who are civil/public servants was 3.89 compared with 2.27 among older mothers in the same occupational category. In addition, adolescent mothers who were farmers and those who work with local entrepreneurs had 3.52 and 3.38 as their mean children ever born compared with 2.64 and 2.27 among older mothers in the same occupational categories respectively.

Table 3: Mean Number of Children Ever Born (CEB), Standard Deviation (SD) and Analysis of Variance (ANOVA) by educational and occupational status for adolescent and older mothers

Socioeconomic Variable	Adolescent Mothers			Older Mothers		
	Number	Mean CEB	SD	Number	Mean CEB	SD
Educational level						
None	42	3.90	1.95	32	4.47	1.72
Primary	246	2.55	1.69	51	3.22	1.30
Secondary	209	2.70	1.63	326	2.48	1.32
Higher	3	4.67	2.31	91	2.68	1.19
Total	**500**	**2.74**	**1.73**	**500**	**2.72**	**1.42**
	F = 8.950, D.F = 3,			**F = 24.385, D.F = 3,**		
	P = 0.000			P = 0.000		
Occupational status						
Trade/Craft	360	2.92	1.75	358	2.79	1.48
Farming	23	3.52	2.00	11	2.64	1.29
Wage labour (WLE)	40	3.38	1.37	26	2.27	1.51
Civil/Public Servant	9	3.89	2.15	74	2.49	1.14
Professional	-	-	-	27	3.04	1.19
Unemployment	68	1.62	1.02	4	2.00	0.82
Total	**500**	**2.74**	**1.73**	**500**	**2.72**	**1.42**
	F = 11.563, D.F = 4,			F = 1.602, D.F = 5,		
	P = 0.000			P = 0.158		

Table 4: Post Hoc Test of homogeneous subsets of mean Number of Children Ever Born (CEB) by educational level of adolescent and older mothers

Adolescent mothers				
Educational level		**Subset for alpha = 0.05**		
	N	**1**	**2**	
Primary	**246**	**2.55**		
Secondary	**209**	**2.70**	**2.70**	
None	**42**	**3.90**	**3.90**	
Higher	**3**		**4.67**	
Sig.		**0.324**	**0.063**	
Older mothers				
Educational level		**Subset for alpha = 0.05**		
	N	**1**	**2**	**3**
Secondary	**326**	**2.48**		
Higher	**91**	**2.68**	**2.68**	
Primary	**51**		**3.22**	
None	**32**			**4.47**
Sig.		**0.878**	**0.173**	**1.000**

e. Marital status and form of marriage

Data on fertility differentials among adolescent and older mothers on the basis of martial status in Table 5 show that older mothers who were singles (never married) had higher mean number of children ever born than their counterparts who were adolescents when they had their first births. The main reason for this situation may be because most of adolescent mothers were not financially capable to take care of many children without a major support from their husbands/partners. The mean children ever born by married adolescent mothers was 3.06 compared with 2.71 among married older mothers. Furthermore, the mean children ever born by widowed adolescent mothers was 6.0 compared with 4.40

among older mothers in the study location. The major explanation for this wide fertility differential between adolescent and older mothers is early beginning of childbirth by adolescent mothers compared with the older mothers in the study location.

The above assumption has been confirmed by the fertility behaviour of adolescent mothers who were married and living with their husbands, the separated and widowed ones. These sets of women, by the virtue of their marital status, enjoyed relatively fair support from their partners/husbands. Thus, their mean number of children ever born was higher compared with their counterparts in the same marital status categories who are older mothers. The general summaries of the analysis show that marital status was a significant factor that determines fertility levels among both adolescent and older mothers in Osun State, Nigeria and this relationship was significant at 0.01 level of significance.

The results of post hoc test of homogeneous subset of the mean number of children ever born by marital status of adolescent mothers in Table 5 revealed that adolescent mothers who were single (never married) have a similar mean children ever born to the separated women but not the married and divorced. The table showed that there was a significant mean difference between adolescent mothers who were single (never married) with a mean children ever born of 1.20 and those who were widowed with a mean children ever born of 6.00.

Table 5: Mean Number of Children Ever Born (CEB), Standard Deviation (SD), T-test and Analysis of Variance (ANOVA) by marital status and form of marriage for adolescent and older mothers

Socio-economic variable	Adolescent mothers			Older mothers		
	Number	Mean CEB	SD	Number	Mean CEB	SD
Marital status						
Single	79	1.20	0.67	13	1.38	0.96
Married	350	3.06	1.67	446	2.71	1.35
Separated	50	2.28	1.62	23	2.26	1.14
Divorced	17	3.88	1.93	13	4.69	2.25
Widowed	4	6.00	1.41	5	4.40	0.55
Total	**500**	**2.74**	**1.73**	**500**	**2.72**	**1.42**
	F = 30.751, D.F = 4, P = 0.000			F = 12.649, D.F = 4, P = 0.000		
Form of marriage						
Monogamy	231	2.70	1.52	316	2.43	1.12
Polygyny	190	3.45	1.87	171	3.36	1.67
Total	**421**	**3.04**	**1.72**	**487**	**2.76**	**1.41**
	T = 4.510, D.F = 417, Sig. (2-tailed) = 0.000			T = -7.257, D.F = 485, Sig. (2-tailed) = 0.000		

Form of marriage of respondents was also a significant determinant of fertility differentials among women at 0.01 level of significance. Specifically, adolescent mothers at both monogamous and polygynous forms of marriage exhibited high mean number of children ever born compared to their counterparts who are older mothers in each of the two forms of marriage categories. For both adolescent and older mothers in the study area,

women in polygynous unions exhibited high mean number of children ever born compared with women in monogamous unions. Specifically, the independent sample t-test analysis in Table 5 showed that there was a significant mean difference in the number of children ever born between adolescent mothers in monogamous and polygynous unions in the study location.

Table 6: Post hoc test of homogeneous subsets of mean number of Children Ever Born (CEB) by marital status for adolescent and older mothers

Adolescent mothers				
		Subset for alpha = 0.05		
Marital Status	**N**	**1**	**2**	**3**
Single	**79**	**1.20**		
Separated	**50**	**2.28**	**2.28**	
Married	**350**		**3.06**	
Divorced	**17**		**3.88**	
Widowed	**4**			**6.00**
Sig.		**0.483**	**0.106**	**1.000**
Older mothers				
		Subset for alpha = 0.05		
Marital Status	**N**	**1**	**2**	
Single	**13**	**1.38**		
Separated	**23**	**2.26**		
Married	**446**	**2.71**		
Widowed	**5**		**4.40**	
Divorced	**13**		**4.69**	
Sig.		**0.202**	**0.990**	

Discussion of findings and recommendations

The study revealed major findings about fertility differentials along different socio-economic background of women in the State. These findings will be discussed within the context of existing literature in the area of the study. One, the supposition which states that mothers who had their first birth before age 20 years are more likely to have significantly higher level of number of children ever born compared with mothers who had their first birth by age 20 years and above was accepted at $P < 0.01$. This finding corroborates argument of World Health Organization (WHO) in 1989. According to WHO, early child bearing shortens the period between generations, extends the reproductive life span and tends to be associated with high population growth. Thus it is essential to note that life time pattern of fertility is likely to be established during adolescence; those who start having children early generally have more children at shorter interval than those who embark latter on parenthood (WHO, 1989). Two, the study shows that rural fertility is higher than urban fertility for both adolescent and older mothers in the study location. This finding corroborates Adewuyi's (1990) argument about the pattern of rural-urban fertility in Nigeria. According to this scholar, rural fertility is higher than urban fertility in Nigeria. The existing national demographic data in Nigeria support this rural-urban fertility differential hypothesis (for examples, NPB/WFS, 1984; FOS, 1992; NPC, 2000; 2004). In particular, the 2003 NDHS report show that at the end of child bearing age (i.e. age group 45-49 years) age specific fertility rate was 12 for urban women compared with 22 for rural women. In addition, the total fertility rate for urban women was 4.9 children compared with 6.1 children for rural women (NPC, 2004:51).

Three, the study reveals positive relationship between age of the respondents and fertility level and this was significant at 0.01 level of significance for both adolescent and older mothers, but adolescent mothers exhibit high fertility levels at all levels than older mothers. Thus it can be deduced that to reduce fertility level in Osun State, Nigeria, policy makers and programme planners should aim at discouraging early child birth in all its totality in the State. The existing NDHS reports in Nigeria support the significant positive relationship between current age and total number of children ever born of women in Nigeria (FOS, 1992; NPC, 2000; 2004, 2009). For instance, 2003 NDHS shows that for all women, 26.1 percent of women in age group 45-49 years have born 10 and above children compared with 1.2 percent among women in age group 30-34 years (NPC, 2004:56). Four, there is a significant fertility differentials with levels of education and this relationship was significant

at 0.01 level of significance. This finding is similar to previous studies in the literature about the nature of relationship that exist between education and fertility level in Southwestern Nigeria. In the region, it has been stated that education plays significant negative impact on fertility levels (Arowolo, 1979; Adewuyi, 1990). Specifically, the study shows a significant negative relationship between women education and fertility level in the study area. Five, the mean children ever born by adolescent mothers who are civil/public servants was 3.89 compared with 2.27 among older mothers in the same occupational category. In addition, adolescent mothers who were farmers and those who work with local entrepreneurs had 3.52 and 3.38 as their mean children ever born compared with 2.64 and 2.27 among older mothers in the same occupational categories respectively. Previous study in Southwestern Nigeria by Adewuyi (1982:110) and Feyisetan and Togunde (1988:237) also showed significant relationship between female employment and fertility level in the region but more importantly, adolescent mothers exhibit significant higher fertility that older mothers across different female employment categories.

Six, form of marriage of respondents was also a significant determinant of fertility differentials among women at 0.01 level of significance. Specifically, adolescent mothers at both monogamous and polygynous forms of marriage exhibited high mean number of children ever born compared to their counterparts who are older mothers in each of the two forms of marriage categories. For both adolescent and older mothers in the study area, women in polygynous unions exhibited high mean number of children ever born compared with women in monogamous unions. Specifically, the independent sample t-test analysis in Table 5 showed that there was a significant mean difference in the number of children ever born between adolescent mothers in monogamous and polygynous unions in the study location. This finding is similar to what was reported by Feyisetan and Togunde (1988:239) and Oyefara (1998:102) about the effects of nuptiality dynamics of people of Yoruba society on the fertility level of women in the region. These authors reported significant lower fertility rate for women in monogamous marriages to those in polygynous unions. They explained higher fertility within the competition framework. That is, competition of co-wives for children appears to dominate other factors that are inhibiting fertility (higher frequency of divorce, higher incidence of sterility and abstinence from coitus) in polygynous marriage. However, this finding contradicts the report of Isiugo-Abanihe et al. (1995). Using data collected in a national survey of urban areas in Nigeria, their study revealed higher fertility of women in monogamy. The higher fertility for women in monogamy was explained by these

writers as a result of higher coital frequency of women in monogamous unions and childlessness in polygyny.

In summary, data on effects of age at first birth on fertility level in Osun State show that irrespective of socio-economic and demographic backgrounds of women such as place of residence, current age, occupational status, educational level, current marital status and form of marriage, adolescent mothers exhibit higher level of fertility in comparison with the older mothers when the later were at similar categories to the former. Thus, timing of first childbirth is a significant and dominant explanatory variable to explain fertility differentials and high natural population growth rate in the study location. In order to achieve the nation policy of small family norm, conscious efforts should be put together to articulate, design and implement appropriate intervention programmes (such as compulsory education for female children up to senior secondary school level and sex education for the adolescents) that will inhibit teenage pregnancy and marriage and invariably adolescent fertility in Osun State, Nigeria.

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