International Journal of Academic Research and Development
ISSN: 2455-4197
Impact Factor: RJIF 5.22
www.academicjournal.in
Volume 3; Issue 6; November 2018; Page No. 98-104

Socio-demographic and economic factors influencing adolescent fertility in urban Kenya

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Abstract
This study examines the socio-demographic and economic factors influencing adolescent fertility in urban Kenya. The study utilized the Kenya Demographic and Health Survey (KDHS) data of 2008/09. The main methods of data analysis are descriptive statistics and logistic regression. Bivariate findings showed that years of schooling, current marital status, age at first sex, and contraceptive use were significantly associated with adolescent fertility in urban Kenya at the significance level of 0.05. Majority of births occurred among adolescents with 1-7 years of schooling (P=0.001), those that were married (P=0.001), those with age at first sex of <18 years (P=0.002), and those that used contraceptives (P=0.001). Results of the overall logistic regression model indicated that marital status and age at first sex were associated with adolescent fertility. Adolescents in urban Kenya who were not married (OR=0.25, P<0.001) and those whose age at first intercourse was 18-19 years (OR=0.157, P<0.05) were significantly less likely to have initiated childbearing. The main policy implication for these study findings is that the government should develop interventional programmes to delay marriage and age at first sex among adolescents in urban areas.

Keywords: socio-demographic, economic, adolescent fertility, urban Kenya

1. Introduction

Adolescent fertility is an issue of increasing concern in developed and developing countries (Dutta & Sarkar, 2014). At the global level, adolescent fertility rate is falling but remains high. There are approximately 18 million births by adolescents (15-19 years) annually, and this accounts for 11 percent of all births worldwide. More than 95 percent of these adolescent births occur in developing countries. In 2010, the global adolescent fertility rate (15-19 years) was 53 per 1000, 143 per 1000 in sub-Saharan African countries, 72.8 per 1000 in South Asia, and 71.9 per 1000 in Latin America and the Caribbean (Presler–Marshall & Jones, 2012).

Adolescent fertility is a major concern because of the implications it has at the individual, family, and societal levels. Due to their physiological immaturity, adolescent mothers have a higher risk of premature labour and complications during and after delivery, resulting in high mortality and morbidity for themselves and their children (Rutaremwa, 2013). Additionally, early childbearing denies many adolescent mothers the opportunity to pursue education. This is detrimental to their future prospects and lowers their status in society (Oyefara, 2009). Most importantly, high adolescent fertility is a determinant of large family size and leads to rapid population growth, especially in countries where contraceptive use is not well embraced. Early sexual debut lengthens the reproductive period and subsequently increases individual lifetime fertility (KNBS & ICF Macro, 2010).

Adolescent fertility varies with the place of residence. Evidence show that rural adolescents in most regions have higher fertility rates than urban adolescents (Dutta & Sarkar, 2014: Gomes, 2012; Presler–Marshall & Jones, 2012). In Kenya, however, the 2008/9 KDHS results indicated that the urban adolescent fertility was slightly higher than the rural adolescent fertility. 16.1 per cent of urban adolescents had had a live birth by the time of the interview compared to 14.1 per cent of rural adolescents (KNBS & ICF Macro, 2010). This implies that urban adolescents in Kenya experience some unique factors which are not experienced by the rural adolescents, hence making this an area of research interest.

1.1 Problem Statement

Kenya has experienced a decline in total fertility rate; from 8.1 children per woman in the 1960s to 4.6 in 2009, but this has stalled at the national level since the late 1990s (Ezeh *et al* 2009). At 4.6, total fertility rate in Kenya remains high and above the set target of 2.6 (Oketch *et al* 2011). Adolescent fertility contributes significantly to a country's total fertility rate (Beguy *et al* 2013; Dutta & Sarkar, 2014), and much of the high fertility in sub-Saharan Africa can be attributed to first birth occurring at very young ages (Beguy *et al* 2013). At 103 per 1000 adolescent fertility in Kenya remains high as compared to the global average of 53 per 1000. To address the high total fertility rate in the country, attention must also be drawn to adolescent fertility.

The 2008/09 KDHS data indicate that according to type of residence, adolescent fertility is slightly higher in urban Kenya as compared to rural. The factors responsible for a higher adolescent fertility in urban Kenya are not well understood. It is thus important to understand the factors that are driving a higher urban adolescent fertility in Kenya in order to develop effective interventional programmes. This is necessary in order to avoid the persistence of a higher urban adolescent fertility, which will have implications for the country's adolescent fertility rate, total fertility rate, population growth, and overall development.

Although evidence suggests that adolescent fertility

contributes to total fertility rate at different levels (Dutta & Sarkar, 2014; Beguy *et al*., 2013), sufficient research attention has not been directed to understanding the factors that are associated with adolescent fertility specifically in urban Kenya. This study attempts to fill this gap by focusing on the socio-demographic and economic factors associated with adolescent fertility in urban Kenya.

1.2 Justification of the Study

Reducing fertility is one of the country's major aims in a bid to improve development and human welfare. Higher adolescent fertility in urban Kenya contributes significantly to the already high total adolescent fertility in the country. This study contributes to a better understanding of the factors influencing adolescent fertility in urban Kenya. By understanding the socio-demographic and economic factors influencing adolescent fertility in urban Kenya, effective interventions can be developed to address the concern of high fertility rate in the country.

2. Data and Method of Analysis

This study was based on the analysis of the nationally representative secondary data obtained from the 2008/09 Kenya Demographic and Health Survey (KDHS). The 2008/09 KDHS was a survey of 8,444 women of reproductive age 15-49 years from 10,000 households covering 400 sample points (clusters) throughout Kenya, 133 in urban areas and 267 in the rural areas. The survey gathered detailed information on fertility levels, marriage, use of family planning methods, birth histories, and characteristics of eligible women within the age range of 15-49. This study is limited to all married and unmarried women aged 15–19 in urban Kenya that were interviewed during the survey. A sample of 433 women was used in this study.

Logistic regression is fitted to determine the socio-demographic and economic factors associated with adolescent fertility in Kenya. The basic logistic regression equation is:

$$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \ldots\ldots\ldots\ldots\ldots + \beta iXi$$

Where;
Y = dependent variable
β0 = intercept
β1, β2……..βi = regression coefficients
X = independent variables (LaValley, 2008)

3.0 Findings and discussion

Table 1 below shows the socio-demographic and economic variables that this study employed.

Table 1: Socio-demographic and Economic Variables used in the Study

Variable name	Measurement
Adolescent Fertility	Have had a live birth = 1
	Not had a live birth = 0
Socio-demographic and Economic Variables	
Years of schooling	1 = No education
	2 = 1-7 years of schooling
	3 = 8+ years of schooling
Wealth Index	1 = Poor
	2 = Middle
	3 = Rich
Frequency of listening to radio	1 = Not at all
	2 = Less than once a week
	3 = At least once a week
	4 = Almost every day
Religion	1 = Roman Catholic
	2 = Protestant/Other Christian
	3 = Muslim
Current marital status	1 = Married
	2 = Not married
Age at first sex	1 = <18 years
	2 = 18 -19 years
Current use of contraceptives	1 = Using
	2= Not using

3.1 Preliminary Analysis

3.1.1 Characteristics of the Study Population

Table 2 shows the distribution of the study population and their characteristics. Overall, a total of 433 adolescent females aged 15 -19 participated in the 2008/9 KDHS. Of these, 20.6 per cent had had a live birth while 79.4 per cent had not had a live birth. With regard to years of schooling, 5.8 per cent of all the adolescents had no education, 26.3 per cent had between 1 and 7 years of education while 67.9 per cent had 8 or more years of schooling. On wealth index, most (91.7 per cent) of the adolescents were from highest wealth index; 3.5 per cent were poor while 4.8 per cent were from the middle wealth index. With regard to frequency of listening to radio, 67.8 per cent of the adolescents listened to the radio almost every day, while 10.9 per cent of them did not listen to radio at all. 15.3 per cent of the adolescents listened to the radio at least once a week while 6 per cent of them listened to the radio less than once a week. On the other hand, with regard to religion, 21.4 per cent of the adolescents were Roman Catholics, 54.2 per cent were protestant and other Christian while 24.4 per cent were of the Islamic religion. On marital status, most (82.2 per cent) of the adolescents were not married and only 17.8 percent were married. In addition, about three quarters of the

adolescents (84.7 per cent) had their first sexual intercourse aged below 18 years while only 15.3 per cent had their first sex aged between 18 and 19 years.

Table 2: Distribution of the study population and their background characteristics

Variable	Frequency	Percentage
Adolescent Fertility		
Ever bad a live birth	89	21
Never had a live birth	344	79
Years of schooling		
0	25	6
1-7	114	26
8+	294	68
Wealth Index		
Poor	15	4
Middle	21	5
Rich	397	92
Frequency of listening to radio		
Not at all	47	11
Less than once a week	26	6
At least once a week	66	15
Almost everyday	293	68
Religion		
Roman Catholic	92	21
Protestant/Other Christian	233	54
Muslim	105	24
Current Marital Status		
15— 19 years		
Currently Married	77	18
Not Married	356	82
20 -24 years		
Currently Married	319	48
Not Married	351	52
Age at First Sex		
<18 years	144	85
18-19 years	26	15
Current use of contraceptives		
Using	49	11
Not Using	384	89

***Source*:** Analysis 2008/9 KDHS

3.1.2 Bivariate Results

Table 3 shows the preliminary bivariate analysis of socio-demographic and economic factors influencing adolescent fertility in urban Kenya. The results reveal that years of schooling was significantly associated with adolescent births in urban Kenya. Majority of adolescent births (33 per cent) were observed among adolescents with between 1 to 7 years of schooling while the lowest proportion of adolescent births (15 per cent) was observed among adolescents with at least 8 years of schooling. Adolescents who had no education experienced 28 per cent of adolescent births.

Current marital status was significantly associated with adolescent fertility in urban Kenya. Majority (68.8 per cent) of adolescent births occurred to mothers that were currently married while 10.1 per cent occurred to unmarried females. Marriage was thus associated with increased adolescent births.

Age at first sex was an important factor associated with adolescent fertility in urban Kenya. 54.9 per cent of adolescent births occurred among those adolescents that had their first sex when they were aged below 18 years while 23.1 per cent of adolescent births occurred among adolescents that had their first sex when they were aged between 18 and 19 years. This implies that a low age at first sex was associated with increased adolescent births.

Current contraceptive use was also significantly associated with adolescent fertility in urban Kenya. Adolescents that had reported current use of contraceptives had majority (63.3 per cent) of births while those that reported non-use of contraceptives reported 15.1 per cent of births.

Table 3: Association between Adolescent Fertility and Selected Background Characteristics in Urban Kenya, 2008/9 KDHS

Variable	Teenagers have had a live birth		Total (n)	Chi-Square, Df, Significance
	Yes	No		
Years of Schooling				
0	28%(7)	72%(18)	25	$X^2 = 17.872$
1-7	33%(38)	67%(76)	114	Df= 2
8+	15%(44)	85%(250)	294	Sig = 0.001
Wealth Index				
Poor	20%(3)	80%(12)	15	$X^2 = 0.869$
Middle	28.6%(6)	71.4% (15)	21	Df= 2
Rich	20.1%(80)	79.9% (317)	397	Sig = 0.648
Frequency of Listening to Radio				
Not at all	27.7%(13)	72.3%(34)	47	
Less than once a week	34.6%(9)	65.4%(17)	26	X^2=7.866
At least once a week	25.8%(17)	74.2%(49)	66	Df=3
Almost everyday	17.1%(50)	82.9%(243)	293	Sign. =0.48
Religion				
Roman Catholic	18.5% (17)	81.5% (75)	92	$X^2 = 0.643$
Protestant/other Christian	21.9% (51)	78.1% (182)	233	Df= 2
Muslim	19% (20)	81% (85)	105	Sign. = 0.725
Current Marital Status				
Currently married	68.8% (53)	31.2%(24)	77	$X^2 = 133.670$
Not married	10.1%(36)	89.9%(320)	356	Df = I, Sig.=0.001
Age at First Sex				
Below 18 years	54.9%(79)	45.1%(65)	144	X^2= 8.9
18-19 years	23.1% (6)	76.9% (20)	26	Df = I
				Sign. = 0.002
Current Use of Contraceptives				
Using	63.3% (31)	36.7%(18)	49	X^2= = 61.725
Not Using	15.1% (58)	84.9%(326)	384	Df =1
				Sign. = 0.001

Source: Analysis 2008/9 KDHS

3.2 Results of Multivariate Analysis

Results of multivariate logistic regression for socio-demographic and economic factors influencing adolescent fertility in urban Kenya are presented in Tables 4, 5 and 6. Three models were fitted. The first model was fitted by including the socio-demographic factors, i.e. religion, marital status, age at first intercourse, and current use of contraceptives. The second model was fitted by including economic factors, i.e. years of schooling, wealth index, and frequency of listening to radio. The final model was fitted by including all factors (socio-demographic and economic), i.e. religion, current marital status, age at first sex, current use of contraceptives, years of schooling, wealth index, and frequency of listening to radio.

Table 4 shows the results of the analysis for socio-demographic factors influencing adolescent fertility in urban Kenya. This revealed that marital status was associated with adolescent fertility in urban Kenya. Adolescents that were not married were 76 per cent less likely to have initiated childbearing compared to the married adolescents. Additionally, age at first sex was also found to be associated with adolescent fertility. Adolescents who had their first sex aged between 18 to 19 years were 85 per cent less likely to have initiated childbearing compared to those adolescents that had their first sex aged below 18 years

Table 4: Socio-demographic Factors influencing Adolescent Fertility in Urban Kenya

Variable	Urban Kenya		
	B	S.E. (B)	Exp (B)
Religion			
Roman Catholic (RC)	0.000		1.000
Protestant/Other Christian	.999	.615	2.715
Muslim	.968	.529	2.634
Marital Status			
Currently Married (RC)	0.000		1.000
Not Married	-1.426	.373	.240***
Age at First Intercourse			
Below 18 years (RC)	0.000		1.000
18-19 years	-1.871	.559	. 154**.
Current Contraceptive Use			
Using (RC)	0.000		1.000
Not Using	-.573	.413	.564
Constant	1.512	.666	4.537

***p<0.001, **p<0.01, *p<0.05

***Source*:** analysis 2008/9 KDHS

Table 5 shows results of the analysis for the economic factors influencing adolescent fertility in urban Kenya. This reveals that years of schooling and frequency of listening to radio were significantly associated with adolescent fertility. Adolescents that had 8 or more years of schooling were 64 per

cent less likely to have initiated childbearing compared to those that had no education. On the other hand, adolescents that listened to radio at least once a week were 61 per cent less likely to have initiated childbearing compared to those that did not listen to radio at all.

Table 5: Economic Factors influencing Adolescent Fertility in Urban Kenya

Variable	Urban Kenya		
	B	S.E. (B)	Exp (B)
Years of Schooling			
0 years (RC)	0.000		1.000
1-7	-.716	.497	.489
8+	-1.029	.269	.357***
Wealth Index			
Poor (RC)	0.000		1.000
Middle	-.641	.687	1.898
Rich	-.025	.523	.975
Frequency of Listening to Radio			
Not at all (RC)	0.000		1.000
Less than once a week	-.396	.384	.673
At least once a week	-.933	.453	.393*
Almost everyday	-.402	.331	.669
Constant	1.883	.186	6.571

***p<0.001, **p<0.01, *p<0.05
***Source*:** analysis 2008/9 KDHS

Table 6 presents the main findings of socio-demographic and economic factors influencing adolescent fertility in urban Kenya. Results reveal that marital status and age at first sex were the two most important factors influencing adolescent fertility in urban Kenya. These two are socio-demographic factors. Thus this overall model did not find any economic factor to be significantly associated with adolescent fertility in urban Kenya yet the second model for economic factors found years of schooling and frequency of listening to radio to be significantly associated with adolescent fertility. This implies that in urban Kenya, the economic factors work through the socio-demographic factors to influence adolescent fertility.

The results show that marital status was an important factor associated with adolescent fertility in urban Kenya. Unmarried adolescents were found to be 75 per cent less likely to have initiated childbearing compared to those that are currently married. These findings are consistent with the study findings of Rutaremwa (2013); Nyarko (2012); Nwogwugwu (2013); Alemeyehu *et al* (2010); Cesari & Vignoli (2006); Woldemicael (2005); Alemayehu (2008); Beguy *et al* (2013) and Chike (2001) who established that unmarried adolescents were less likely to have initiated childbearing compared to the married adolescents. Marriage exposes adolescents to pregnancy and childbearing. Thus adolescents that are married have a high probability of getting pregnant or bearing a child compared to their unmarried counterparts since they are already predisposed to start their reproductive life.

The results also show that age at first sex is an important factor that is significantly associated with adolescent fertility in urban Kenya. Adolescents that had their first sex intercourse while aged between 18 to 19 years were 84 per cent less likely to have initiated childbearing compared to those that had their first sexual intercourse at an age below 18 years. The results were consistent with the literature reviewed and contribution from different studies. Zaba *et al* (2004) [27]; Ikamari & Towett (2007) [11]; Woldemicael (2005) [26]; Cesari & Vignoli (2006) [4] and Oljira *et al* (2012) [19] found that older age at first sexual intercourse had a negative effect on the probability of being an adolescent mother. This is mainly attributed to the fact that early initiation of sexual activity prolongs the period of exposure to risk of pregnancy during the reproductive span, thus leads to early childbearing.

Table 6: Socio-demographic and economic factors influencing adolescent fertility in urban Kenya

Variable	Urban Kenya		
	B	S.E. (B)	Exp (B)
Years of Schooling			
0 years (RC)	0.000		1.000
1 - 7	.299	.960	1.348
8+	-.474	.421	.622
Wealth Index			
Poor (RC)	0.000		1.000
Middle	.593	.967	1.809
Rich	-.880	.904	.415
Frequency of Listening to Radio			
Not at all (RC)	0.000		1.000
Less than once a week	.019	.564	1.019
At least once a week	-.313	.642	.731
Almost everyday	-1.009	.605	.365
Religion			
Roman Catholic (RC)	0.000		1.000
Protestant/Other Christian	.868	.673	2.382
Muslim	.780	.603	2.182
Marital Status			
Currently Married (RC)	0.000		1.000
Not Married	-1.385	.393	.250***
Age at First Intercourse			
Below 18 years (RC)	0.000		1.000
18-19 years	-1.849	.609	.157*
Current Contraceptive Use			
Using (RC)	0.000		1.000
Not Using	-.592	.438	.553
Constant	1.935	.782	6.925

***p<0.001, **p<0.01, *p<0.05
***Source*:** analysis 2008/9 KDHS

4. Conclusion

This study found marital status and age at first sex to be the major socio-demographic and economic factors influencing adolescent fertility in urban Kenya. Results showed that married adolescents were more likely to have adolescent fertility compared to their unmarried counterparts. Many studies (Rutaremwa, 2013; Nyarko, 2012; Nwogwugwu, 2013; Alemeyehu *et al*, 2010; Cesari & Vignoli, 2006; Woldemicael, 2005; Alemayehu, 2008; Beguy *et al*, 2013, Chike, 2001) established that married adolescents were more likely to have initiated childbearing

compared to their unmarried counterparts. Furthermore, the study showed that the percentage of married adolescents is lower than unmarried adolescents, but, the number of births to married adolescents is higher than unmarried adolescents. This could suggest that married adolescents are expected to start bearing children as early as possible; childbearing immediately after marriage is integral to a woman's social status (Ezeah, 2012).

This study also found that adolescents that had their first sex intercourse while aged between 18 to 19 years were less likely to have initiated childbearing compared to those that had their first sexual intercourse at an age below 18 years. Many studies (Zaba *et al*, 2004; Ikamari & Towett, 2007; Woldemicael, 2005; Cesari & Vignoli, 2006; Oljira *et al*, 2012) also found that older age at first sexual intercourse had a negative effect on the probability of being an adolescent mother. Thus an early onset of sexual activity is associated with increased adolescent births mainly for the fact that early initiation of sexual activity prolongs the period of exposure to risk of pregnancy during the reproductive span, hence leading to early childbearing.

From a policy point of view, these results highlight the need for the government in collaboration with different non-governmental organizations to develop sexual educational programmes that will educate adolescents about responsible and healthy attitudes towards sexuality especially on the need to delay the onset of sexual intercourse. Government should also consider providing adolescents with scholarship opportunities. Apart from improving their literacy, this will make adolescents to dedicate most of their time in studies thus keeping them away from early marriage and engaging in social vices.

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