Changes in modern contraceptive use and women's education in Nairobi slums: Evidence from a decomposition model

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Background

Kenya was one of the pioneer countries in sub-Saharan Africa to initiate a nationwide family planning program in 1967. A strong political will enabled the success of the program throughout the 1980s and early 1990s. As a result, the contraceptive prevalence rate among married women (CPR) increased from 7% in 1978 to 33% in 1993 and 46% in 2008-09. Despite this impressive increase, unmet need for family planning is high and estimated at 24% among married women of reproductive age in 2008-09 with the poor and other socially marginalized groups being more disadvantaged[1]. There are also wide regional as well as social strata differentials in use of contraceptive methods. Family planning utilization is poorest among adolescents with a CPR of 19.6% for any modern method. Over half of HIV positive women have unmet need for FP. This is largely due to inadequate service provision, poor access to FP commodities and lack of support for contraceptive commodity.

A number of factors have been advanced to explain differential and changes in use of modern contraception in Kenya and SSA in general. These include socio-economic and cultural differences among groups. In particular, women's education was often found to be a key factor in explaining modern contraceptive use. Women with higher education are more likely to use modern contraception, mainly because of greater autonomy, financial and access to FP services, and greater social interaction. However, some questions remain unanswered when it comes to the role education plays in promoting contraceptive use among women over time. For example, it is not clear 1) how much of the change in modern contraceptive prevalence rate could be attributed to the compositional change in the population, and 2) how much of the change is actually brought about by growing number of women adopting this new behavior.

In this paper, we use data collected in Nairobi slums in 2000 and 2012 to not only describe the changes in modern contraceptive prevalence by women's education during the period 2000-2012 but also estimate whether these changes are structural or due to changes in population behavior. Recent evidence show that the ongoing increase in CPR in a number of countries in SSA including Kenya is due to changes in behavior, which is in line with the family planning promotion of FP in these countries over the past 30 years [2]. There is need to understand the contraceptive dynamics of this population given the rapid growth of slums and poor SRH indicators including high levels of unwanted fertility among slum populations. This is critical in informing interventions and for policies and programs aimed at reducing fertility [3]. It is apparent that the wellbeing of the urban poor will increasingly drive national development indicators including health and poverty indicators in Kenya. Identifying ways to address the unique poor reproductive and health outcomes among slum dwellers who constitute a substantial part of urban residents is central to achieving development goals such as the Millennium Development Goals (MDGs) in Kenya and other parts of SSA.

Data and Methods

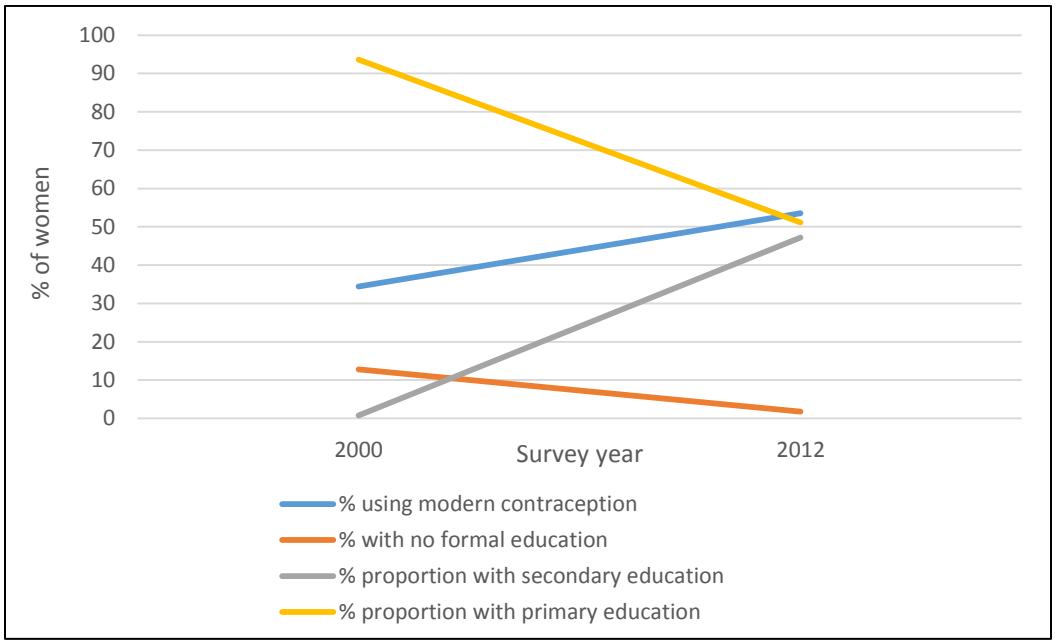
We use unique DHS-type data from the Nairobi Cross-sectional Slum Surveys (NCSS) conducted in 2000 and 2012 in all the slums in Nairobi city, Kenya. The first Nairobi Cross-Sectional Slum Survey (NCSS 1) was conducted in 2000 among a random sample of 3256 women aged 15-49 years living in Nairobi

slums, whereas in 2012, a random sample of 4240 women aged 12-49 years were interviewed in the second NCSS (NCSS 2). We use two complementary methods for analysis: a descriptive and a decomposition model technique. Using the decomposition technique, trends in modern contraceptive use are split into two components: change in female structure by level of education and change in behavior over the study period [4]. By doing so, the approach assumes that the historical change in the use of modern contraceptive methods depends on: (1) trends in the distribution of women of reproductive age (15–49 years) by level of education over time (composition effect); (2) the actual change in modern contraceptive use due to change in reproductive behavior variables are not considered as an error term (μ).

Findings

We present in Figure 1 the changes in use of modern contraception and proportion of women with secondary education. There is a notable 19% increase of use of modern contraception among married women aged 15-49 living in Nairobi slums, from 34.4% in 2000 to 53.5% in 2012. Similarly, the proportion of women with secondary education has considerably increased during the same period, from 1% in 2000 to 47% in 2000. On the contrary, the proportion of women with primary education went down, from 94% in 2000 to about 51% in 2012. At the same time, there is notable decrease of the share of slum resident women with no education. These data show tremendous improvement in educational attainment in Nairobi slums over the 12 year-period. Overall, the improvement in education is positively associated with an increase in use of modern contraception over the period.

Figure 1: Changes in use of modern contraception and proportion of women with primary and secondary education



Analysis by education level shows that the increase in modern contraceptive use is much more important among women who have never been to school (Table 1). In fact, contraceptive use has decreased among women with at least a secondary level of education.

Table 1: Modern CPR (%) by women's level of education and changes between 2000 and 2012

Education level	2000	2012	Absolute change	Relative change
No Education	12.8	32.6	19.8	154.7
Primary Incomplete	28.7	48.7	20.0	69.7
Primary Complete	39.0	56.1	17.1	43.8
Secondary Plus	62.5	53.9	-8.6	-13.8
Total	**34.4**	**53.4**	**19.0**	**55.2**

Table 2 reports results from the decomposition analysis. Findings suggest that the increase of modern CPR among Nairobi slum resident women is due to a change in reproductive behavior – this explains 62% of the observed increase. It is therefore not a composition or structural effect, i.e. the observed increase is not due to an increase in the level of education among the women. Actually, the change in the structure of the female population due to an improvement in education levels contributes to only 38% of the increase in modern CPR between 2000 and 2012. The change in reproductive behavior is consistent with findings from other recent studies [2, 5]. This is probably due to the revival of family planning programs in Kenya over the past few years in line with Kenya's commitment to the achievement of the ICPD and MDG goals, as well as other international development goals and targets [6] [7].

Table 2: Changes in modern CPR by women's education – Findings from decomposition model

	Behavior change effect [1]			Total	Composition effect [2]
	Base[a]	Differentiation [b]	Error [c]		
None	1.25	-0.32	-0.20	0.73	-0.87
Primary incomplete	8.21	-4.22	0.83	4.81	-6.14
Primary complete	16.46	-12.70	4.49	8.26	-12.67
Secondary +	8.18	-8.41	-1.83	-2.06	26.98
Overall	1.79	-1.35	0.17	0.62	0.38

[1]: Actual change in modern CPR due to change in reproductive behavior including: a) Base effect = general changes in the population regardless of the characteristics; b) Variation in some specific groups; and c) Proportion of changes not explained by either public policies and/or changes in groups' behaviors.
[2]: Changes due to variation in the composition of the population given the independent variable

Discussion and Conclusion

Using descriptive statistics and a decomposition model, we examined whether the observed change in modern CPR among slum resident women between 200 and 2012 is due to a change in the population structure or rather a change in reproductive behavior. We used unique DHS-type data collected in 2000 and 2012 among women of reproductive age living in all slums in Nairobi city, Kenya. Findings indicate a

tremendous increase in CPR between 2000 and 2012 in Nairobi slums. The increase is much more considerable among women who have never been to school. Also, findings show that 62% of the observed increase of modern CPR among Nairobi slum resident women is due to a change in their reproductive behavior, which is consistent with findings from a recent study by Emina et al.[2] who demonstrated that changes in behavior explain much of the increase in modern CPR in about 27 countries in SSA including Kenya. This is probably due to the revival of family planning programs in Kenya over the past few years. In the late 1990s, the family planning program suffered from lack of funding that was majorly dedicated to the HIV epidemic and lack of political leadership[8]. Other factors contributing to this situation include social and cultural beliefs and practices, lack of women's empowerment, lack of male involvement, poverty, and weak health management systems. However, a number of policies and programs have been formulated by the government of Kenya to remedy this situation, in line with Kenya's commitment to the achievement of the ICPD and MDG goals, as well as other international development goals and targets [6] [7]. Through these policies and programs, FP has regained momentum in the country and it seems that hitherto underserved segments of the population such as slum dwellers are being reached with FP services. In particular, access to FP services seem to have expanded to non-educated women from slum areas, suggesting a diffusion effect in the whole slum population.

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