Becoming sexually active, having a first birth, and getting married in sub-Saharan Africa

Ian M. Timæus
Professor of Demography, London School of Hygiene & Tropical Medicine
Honorary Professor, Centre for Actuarial Research, University of Cape Town

EXTENDED ABSTRACT

Historically, most of sub-Saharan Africa was characterised by early and universal marriage of women (Chojnacka 2000). While ages at first marriage of women have risen across the region in recent decades, ages at first sexual intercourse have risen by less in most countries (Mensch *et al.* 2006). Thus, premarital sexual activity has become more common and so has premarital childbearing (Meekers 1994).

The full implications of premarital sexual activity and pregnancy for the welfare of young women and their babies in sub-Saharan Africa remain unclear. Research into this issue has tended to focus either on the health implications of unsafe illegal abortions or on the implications of teenage childbearing for girls' schooling. In addition, however, as Mensch *et al.* (2006) point out, 'change in the context of sexual initiation is of interest because of its potential significance for family dynamics and spousal relations'.

One line of argument about the consequences of premarital sexual activity and childbearing for marriage emphasises that marriage establishes paternity and legitimates children. Childbearing before marriage disrupts the recruitment of the next generation into social groups. Thus, it is always to a greater or lesser extent socially stigmatising. For example, in some contexts it can significantly harm a young woman's marriage chances (Calvès 1999). An alternative view is that in sub-Saharan Africa 'adolescent pregnancy and childbirth are common outside marriage and … a means of improving status, demonstrating fecundity, and attracting a new partner' (WHO *et al.* 1989). Adopting an intermediate position, Lesthaeghe *et al.* (1989) argue that 'many African societies at present do not have a preference for pregnancies or births occurring prior to marriage but have a certain degree of tolerance toward the phenomenon'.

This paper examines how becoming sexually active and having a baby affect the rate at which young women marry for the first time in sub-Saharan Africa. Comparing young women of the same age, it asks: who is most likely to marry – a virgin, a sexually-active but childless woman, someone who is pregnant, or a single mother? The analysis is based on women's retrospective reports of their own date of birth, the dates of their first birth and first marriage, and their age at first sexual intercourse in the Demographic and Health Surveys (DHS) conducted between 1990 and 2013 in 32 sub-Saharan African countries. I model age-specific first marriage rates by means of survival analysis, treating the different sexual and reproductive statuses through which young women can pass before marrying for the first time as time-varying covariates.

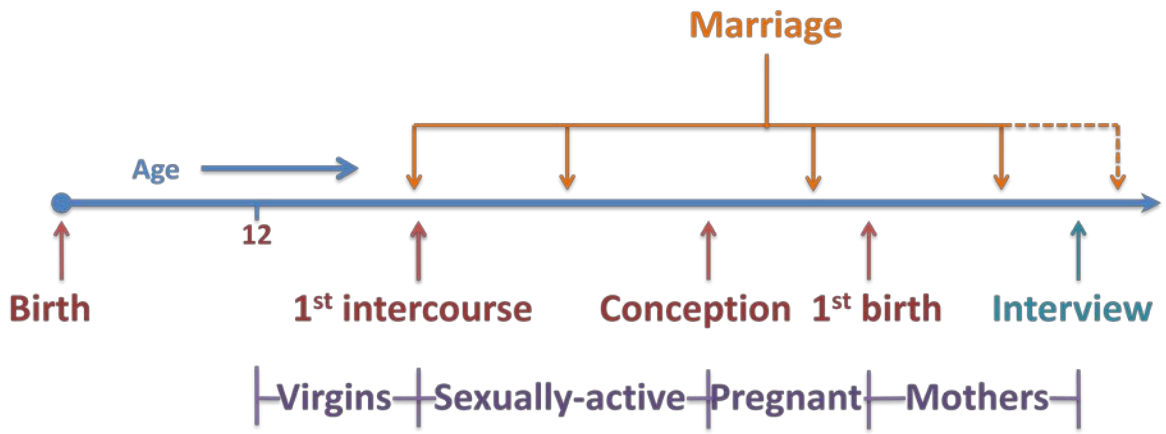

Figure 1: Women's early sexual & reproductive history

The set of sexual and reproductive statuses considered are shown in Figure 1. Women can marry either before they have sexual intercourse for the first time, once they have become sexually active, during the pregnancy that ends in their first live birth, or after becoming mothers for the first time. This analysis does not consider pregnancies that do not end in a live birth, both because no data is collected on such pregnancies in most DHS surveys and because they probably have limited implications for whether women go on to marry. Reported current pregnancies of childless women are considered, however, because both the young women themselves and their potential husbands will expect most of them to end in a live birth. Survival analysis with time-varying covariates is used because single women may remain at an early stage of their sexual and reproductive histories at the time that they are interviewed, leaving their final status when they do marry unknown.

Of course, the retrospective reports in DHS surveys on the events considered here may be either inaccurate or, in the case of age at first sex, incomplete (Missing and incomplete dates of birth for respondents and their children and of first marriage are imputed in the DHS datasets distributed to research community). Some women do not report an age at first intercourse in the DHS despite reporting that they are mothers or pregnant. Others report having first had sex either after the date of their first birth or less than 8 months before it (Figure 2).

The analysis used multiple imputation to estimate ages at first intercourse for such women and quantify the imprecision introduced into the results by these inadequacies in the data (Rubin 2004). Ages at first sex were modelled separately for currently single and ever-married women as a function of their age (if single) or age at first marriage (if ever-married) and date of birth; whether they had given birth or were pregnant when interviewed; their education (none, primary, secondary+); and several stratification variables (survey, region, and urban/rural residence). Ten analytic files were created with stochastically imputed values for the defective ages at first marriage. By repeating the analysis on each dataset, one can use Rubin's rules to calculate the additional imprecision in the estimates that results from the imputation process.

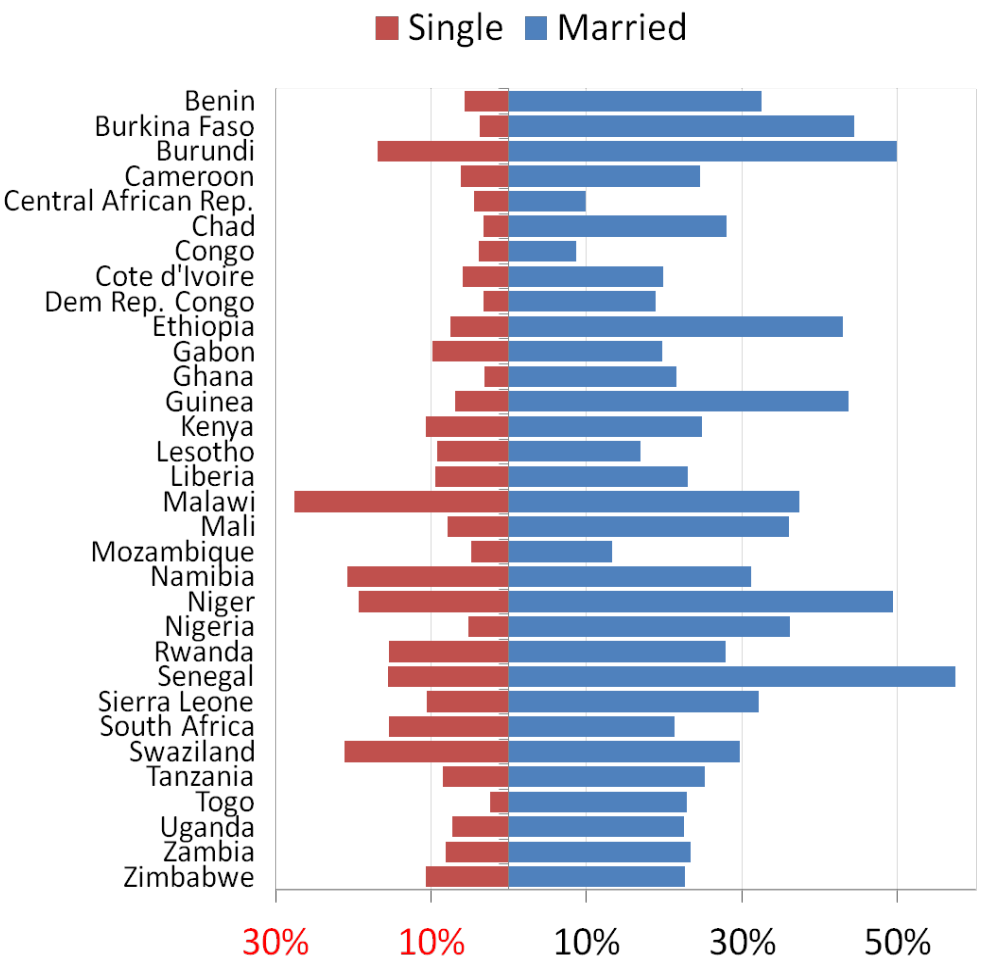

Figure 2: Proportion of women with a missing or implausible age at first intercourse by marital status at interview and country, DHS surveys, sub-Saharan Africa

Analysis of the imputed data reveals that, as one might expect, the reported ages at first intercourse were biased upward. The main effect of imputation was to push back the ages at first sex of women who reported first having sex at marriage, despite already having conceived or given birth. If these imputed dates have been pushed back too far, this will reduce the estimated 1st marriage rates of the sexually-active group and vice versa. The overall effect on the estimated relative risks, however, is fairly small. So is the increase in the standard errors of the estimates. Thus, it is unlikely that bias accounts for many of the differentials in first marriage rates between the sexually-active women who have not yet become pregnant and the virgins. The results for young mothers versus the childless seem even more robust.

Marriage rates are modelled using the following piecewise-exponential proportional-hazards model:

$$\ln\left(\frac{m(x,i,j,k,t)}{S(x,i,j,k,t)}\right) = \beta_0 + \beta_1(x) + \beta_2(i) + \beta_2(j) + \beta_2(k) + \beta_3.t + \varepsilon$$

where:

– $m(x,i,j,k,t)$ is 1st marriages to women with characteristics x, i, j ,k, t

- $S(x,i,j,k,t)$ is years lived before 1st marriage in states x, i, j ,k, t
- x is a set of indicators for age groups 12-13, 14, 15 ... 24, 25-9, 30-4, 35-9
- i is a set of indicators of the stages of the woman's sexual & reproductive history (i.e. virgin, sexually active, pregnant, and single mother)
- j is a set of indicators of educational level (none, primary, secondary+)
- k distinguishes sampling strata, and thereby regions and urban and rural residents
- t is the women's year of birth.

The main results will be presented in two sets of figures. First, I present estimated relative risks of marrying in the four initial stages of women's sexual and reproductive histories for each of the 32 countries, standardizing for age and the educational and residential distribution of women using the most recent survey in each country. Second, I present fitted schedules of age-specific marriage rates for each country, showing for each age the proportion of marriages that occurred to women in each of the four stages of their life cycle.

Wide variations exist across sub-Saharan Africa in the relative likelihood that virgins, the sexually active, the pregnant and young mothers will marry. The proportion of women marrying for the first time drawn from each of these groups also varies greatly between countries. Within this overall picture of diversity in the relationship between young women's sexual and reproductive histories and their likelihood of getting married, striking similarities exist in marriage patterns both between some neighbouring countries and across some major sub-regions of Africa.

The paper concludes, that despite their limitations, DHS data on ages at first sex can be analysed in the way attempted here. It is important to impute the missing and impossible answers but the final results are not very sensitive to the details of the imputation model.

References

Calvès, A.-E. 1999. Marginalization of African single mothers in the marriage market: eveidence from Cameroon, *Population Studies* 53(3): 291-301.

Chojnacka, H. 2000. Early marriage and polygyny: feature characteristics of nuptiality in Africa, *Genus* 56(3/4): 179-208.

Lesthaeghe, R., G. Kaufmann, and D. Meekers. 1989. The nuptiality regimes in sub-Saharan Africa, in R. J. Lesthaeghe (ed.) *Reproduction and Social Organization in Sub-Saharan Africa*. Berkeley: University of California Press, pp. 238-337.

Meekers, D. 1994. Sexual initiation and premarital childbearing in sub-Saharan Africa, *Population Studies* 48(1): 47-64.

Mensch, B. S., M. J. Grant, and A. K. Blanc. 2006. The changing context of sexual initiation in sub-Saharan Africa, *Population and Development Review* 32(4): 699-727.

Rubin, D. B. 2004. *Multiple Imputation for Nonresponse in Surveys* John Wiley & Sons.

WHO, UNFPA, and UNICEF. 1989. *The Reproductive Health of Adolescents: A strategy for action*. Geneva: World Health Organization.