

## **Birth intervals and reversible contraception in sub-Saharan Africa**

Kandala Ngianga-Bakwin      Research Fellow

R William Stones\*              Senior Lecturer in Obstetrics and Gynaecology

‘Opportunities and Choices’ Programme of reproductive health research

Southampton Statistical Sciences Research Institute

University of Southampton

\*Correspondence:

Level F(815)

Princess Anne Hospital

Southampton SO16 5YA

UK

[r.w.stones@soton.ac.uk](mailto:r.w.stones@soton.ac.uk)

The interval between births is associated with child survival in the developing world. Short birth intervals contribute to mortality risk extending beyond the first year of life and the effect is apparent even after taking into account other potential determinants such as maternal ill health or access to health services, and allowing for the uneven quality of data available for use in multivariate analyses (1).

### **Participants, methods, and results**

We analysed data from successive Demographic and Health Surveys (2) undertaken in nine sub-Saharan African countries: Burkina Faso (1992 and 1999), Cameroon (1991 and 1998), Ghana (1993 and 1998), Kenya (1993 and 1998), Madagascar (1992 and 1997), Malawi (1992 and 2000), Niger (1992 and 1998), Tanzania (1992, 1996 and 1999), and Zambia (1992, 1996 and 2001). We tabulated the percentages of women reporting a preceding birth interval of  $\leq$  or  $>$  24 months with the percentages reporting current use of modern reversible contraception. We used a logistic regression of pooled data from the four countries where use of reversible contraception is substantial to calculate the crude odds ratio of having a birth interval of  $\leq$  24 months during 1991-3 (reference group) and 1999-2001. We then added residence in urban or rural areas, education, mother's age, household income and breastfeeding practice to the model.

The table shows that there have been small changes in the percentage of birth intervals  $\leq$  24 months reported during the five to nine years between first and last surveys in the nine countries, ranging from a decrease of 6.5% (Cameroon and Madagascar) to an increase of 6.4% (Ghana). Over the same period use of modern methods of reversible contraception fell in Burkina Faso (-0.4%) and Ghana (-4.7%) but rose in the other countries with Malawi showing the greatest increase of 15.3%. Use of intrauterine contraception was low in the initial surveys but fell further in all

countries. In countries with relatively high use of reversible contraception the overall odds ratio for the trend was 0.90 (95%CI 0.88 to 0.92) and this was unaffected by adjusting for the other variables. The odds of a short birth interval were reduced among those exclusively breast feeding (OR 0.82, 95% CI 0.74 to 0.90) and increased by use of injectable contraception (OR 1.23, 95% CI 1.15 to 1.31).

### **Comment**

Our results show that use of modern reversible contraception in the region is low, and where use has increased substantially as in Malawi, Tanzania and Zambia this has not been accompanied by any impact on the percentage of short birth intervals. Progress towards attainment of the Millennium Development Goals for child mortality is well behind target in sub-Saharan Africa. This has been ascribed to the presence of civil unrest in some countries and to the burden of the HIV epidemic (3). These risks are magnified by around one fifth of births still occurring at an interval of less than two years. Provision of effective reversible contraception is critical in a setting where breastfeeding advice and behaviour are changing through interventions to prevent maternal to child transmission of HIV; breastfeeding duration has long been recognised as the major determinant of birth interval (4) and our findings demonstrate its continued importance. Surprisingly, we have shown the use of injectable contraception to be associated adversely with birth interval, thus not contributing any potential child survival benefit.

Our study highlights the very low and declining use of intrauterine contraception in the region; international guidelines with restrictive medical eligibility criteria (5) are currently under revision. Research is needed to assess whether renewed emphasis on the IUD among a broad mix of contraceptive methods has potential to reduce the proportion of short birth intervals in Africa.

## References

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Table: Preceding birth interval, Demographic and Health Surveys.

Country	Year of survey		Birth Interval % (No)		Modern Reversible Contraception		
			≤ 24 months	> 24 months	All methods % (No)	Injectables %	IUD %
Burkina Faso		1992	17.6 (821)	82.5 (3858)	6.1 (357)	0.3	1.0
Cameroon	1999		19 (925)	81 (3946)	5.7 (337)	1.2	0.3
		1991	28 (746)	72 (1923)	5.4 (180)	0.5	0.6
Ghana	1998		21.5 (377)	78.5 (1380)	6.5 (151)	0.9	0.2
		1993	14.9 (260)	85.1 (1489)	7.9 (174)	1.1	0.4
Kenya	1998		21.3 (705)	78.7 (2605)	3.2 (131)	3.6	0.3
		1993	30.6 (1494)	69.4 (3383)	20.6 (1257)	7.6	2.2
Madagascar	1998		26.7 (707)	73.3 (1939)	21.9 (773)	10.5	1.0
		1992	35.1 (1461)	64.9 (2706)	4.3 (225)	1.7	0.4
Malawi	1997		28.6 (812)	71.4 (2026)	7.5 (275)	4.4	0.2
		1992	23.9 (871)	76.1 (2781)	7.9 (357)	1.6	0.3
Niger	2000		20.7 (1861)	79.3 (7141)	23.2 (2772)	18.2	0.1
		1992	29.8 (1743)	70.2 (4100)	6.4 (443)	1.5	0.5
Tanzania	1998		23.6 (920)	76.4 (2981)	7.3 (349)	2.2	0.2
		1992	21.3 (1349)	78.7 (4971)	4.9 (402)	5.9	0.3
Zambia	1999		20.1 (1066)	79.9 (4250)	14.9 (1009)	7.4	0.4
		1992	21.5 (538)	78.5 (1961)	16.8 (541)	0.2	0.5
	1996		22.8 (1121)	77.2 (3786)	7.6 (480)	0.2	0.3
		1996	22.9 (1297)	77.1 (4357)	12.5 (906)	0.9	0.1
	2001		19.9 (1065)	80.1 (4282)	18.1 (1241)	4.2	0.03