

Maternal Mortality Is Declining, but Not Enough To Meet Millennium Development Goal 5

Although the global rate of decline in maternal mortality has accelerated since 2003, few countries are on track to reduce their maternal mortality ratio to the degree specified in the Millennium Development Goals, according to an analysis from the Global Burden of Disease Study.¹ The researchers estimate that between 1990 and 2013, the annual number of maternal deaths worldwide fell from 376,000 to 293,000, and the maternal mortality ratio decreased from 283 to 209 deaths per 100,000 live births, equivalent to an average annual decline of 1.3%. The mean rate of decline was even greater—2.7% annually—during the final decade of the study period. However, from 1990 to 2013, only 16 countries, including seven in developing regions, attained the 5.5% average annual reduction needed to reach Millennium Development Goal 5, which set a target of a 75% reduction in the maternal mortality ratio (from its 1990 level) by 2015.

The new analysis used data from a range of sources—including vital registration data, sibling histories, census data, maternal mortality surveillance and verbal autopsies—to estimate levels of and trends in maternal mortality, identify the timing and key causes of maternal mortality, and make projections for 2030. Data were available for 180 of the 188 countries included in the analysis; for the others, the researchers relied on statistical models. Deaths were classified as maternal deaths if pregnancy was a direct or indirect cause, and if they occurred during pregnancy or within a year of delivery. In addition to small differences in data sources, the study differs from other recent global analyses in its inclusion of late maternal deaths (those from six weeks to one year after delivery) and in its treatment of deaths among women with HIV; on the basis of the limited data available from previous studies, the researchers assumed that 12% of HIV-related deaths during pregnancy and the first year postpartum can be attributed to maternal causes. To estimate maternal mortality by age, they created a variety of models using a subset of the data on nine variables

associated with maternal mortality (e.g., age-specific fertility rates, proportion of deliveries occurring in a facility) and tested the models using the data that had been held back; the best performing model was used to make estimates for all available data. Because reliable data on births to 10–14-year-olds are scarce, maternal deaths in this age-group were not included in estimates of maternal mortality ratios, but they were included in overall counts of maternal mortality.

Additional models were used to estimate the proportion of maternal deaths that were attributable to each of nine key causes, and the proportion that occurred within four time windows: before the onset of labor; during labor or within 24 hours of delivery; 1 to 42 days after delivery; and six weeks to one year after delivery. Finally, the investigators estimated maternal mortality outcomes for 2030 in each country by extrapolating from the average rate of decline in the maternal mortality ratio from 2003 to 2013; if a country's maternal mortality ratio had increased during that period, the authors assumed that it would remain constant between 2013 and 2030.

The researchers estimate that the annual number of maternal deaths worldwide fell from 376,000 to 293,000 between 1990 and 2013. Moreover, the maternal mortality ratio decreased from 283 to 209 deaths per 100,000 live births, which translates to an annual rate of decline of 1.3%; the average annual decline was greater between 2003 and 2013 (2.7%) than between 1990 and 2003 (0.3%). Decreases occurred in all age-groups, though risk varied widely with age; for example, the maternal mortality ratio among women aged 45–49 was 9.5 times that of women aged 20–24.

The average annual rate of decline in the maternal mortality ratio between 1990 and 2013 was smaller in developing countries (1.4%) than in developed ones (3.1%). Among developing regions, the decline was particularly striking in East Asia (8.9%) and, to a lesser extent, Andean Latin America (2.9%) and Southeast Asia (2.8%); in con-

trast, the ratio increased by an average of 2.7% annually in Southern Africa, despite an annual decline of 5.6% during the last 10 years of the study period.

Declines occurred in seven of the nine causes of maternal death. The biggest reduction was in the number of women dying each year from maternal hemorrhage, which fell from 71,000 to 44,000. However, the number of late maternal deaths and HIV-related deaths increased during the study period, and although the number of abortion-related deaths declined globally, it rose in Sub-Saharan Africa. HIV contributed to 0.4% of maternal deaths globally, compared with 1.5% of those in Sub-Saharan Africa.

About half of maternal deaths occurred during pregnancy (25%) or during or immediately after delivery (28%); a third occurred 1–42 days after delivery (36%) and the remainder (12%) were late maternal deaths.

Between 1990 and 2013, only 16 countries, including seven in developing regions, attained or exceeded the 5.5% annual decline in the maternal mortality ratio necessary to achieve Millennium Development Goal 5. Twenty-four other countries had that level of decline in either 1990–2003 or 2003–2013, but not over the course of the full study period. On the other hand, the maternal mortality ratio increased in 50 countries between 1990 and 2003, and in eight countries between 2003 and 2013.

If each country's maternal mortality ratio continues to decline at its 2003–2013 pace (or remains at its current level, in the case of countries that had an increase during that period), then approximately 184,000 maternal deaths will occur worldwide in 2030. But even in this “fairly optimistic” scenario, the researchers note, 53 countries—nearly three-fourths of them in Sub-Saharan Africa—will still have maternal mortality ratios of more than 100 deaths per 100,000 births.

Limitations of the study include the likely misclassification of many deaths; the authors note that some deaths to pregnant women, such those related to injury, may have been

incorrectly categorized as maternal deaths, while some true maternal deaths, such as those caused by unsafe abortion, may have been underreported. Other limitations include the substantial amount of uncertainty in the reported estimates, the sparse amount (or complete lack) of data for many countries, and the absence of a definitive approach for determining which deaths among pregnant women with HIV should be considered maternal deaths. Achieving further reductions in maternal mortality will require a multi-pronged approach, the researchers emphasize; key strategies will likely include promoting skilled birth attendance and delivery in facilities, discouraging early motherhood, reducing unsafe abortion and curbing malnutrition. In addition, the countries in which declines in maternal mortality have accelerated in recent years “should be carefully studied to provide qualitative insights into what has worked in different settings.”—*P. Doskoch*

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Repeat Abortions Are Common in Vietnam, May Be Linked to Son Preference

Although sex-selective abortion is illegal in Vietnam, the likelihood that an abortion is not a woman’s first may nonetheless be linked to the gender of her children, according to a recent study conducted in three Vietnamese regions.¹ In this setting—a country with one of the world’s highest abortion rates and a high incidence of repeat abortion—the odds that an abortion was a repeat (rather than first) abortion were greater among women with at least two daughters than among those with only one (odds ratio, 2.9), and lower among those with no sons than among those who had one (0.4). Repeat abortion was also associated with women’s age, location and number of children.

The data come from a cross-sectional study of women obtaining abortion services at 62 health facilities selected to be representative of the three cities or provinces in which they were located: Hanoi, Khanh Hoa and Ho Chi Minh City. The study, conducted from

August to December 2011, included all hospitals and health centers specializing in sexual and reproductive health services, as well as a random selection of 50% of general hospitals. All women obtaining an abortion at a facility in the province or municipality in which they lived were eligible to participate; nearly 100%, some 1,224 women, completed the survey. Women were asked about the abortion they had just obtained, past abortions, social and demographic characteristics, knowledge and attitudes about abortion and abortion services, reproductive and contraceptive history, and contraceptive and childbearing intentions. Multivariate analyses examined the gender of a woman’s children in two ways: by using variables for number of sons (0, 1 or 2–4), number of daughters (0, 1 or 2–4) and parity (0, 1, 2 or 3–8), or using a sex composition variable with nine categories (no children, no sons and one daughter, no sons and 2–4 daughters, etc.).

Respondents were, on average, 29 years old, and half lived in Ho Chi Minh City. The majority were married (80%), had at least a high school education (58%) and had one or more children (69%). Half of women reported that they had been using contraceptives, typically either the pill or condoms, at the time the aborted pregnancy was conceived. Eighty-seven percent of women planned to use a contraceptive method in the future, and 43% reported wanting no more children.

Thirty-two percent of participating women had had a previous abortion. Women having a repeat abortion were more likely than those having a first abortion to be married (90% vs. 75%), to be from Hanoi (51% vs. 35%), to have more than one child (68% vs. 33%), to want to stop childbearing (64% vs. 34%) and to have had a surgical procedure (86% vs. 73%). Women undergoing repeat abortion were also more likely to report an intention to use a user-independent contraceptive method (sterilization, IUD or injectable; 34% vs. 26%) and less likely to report an intention to use a user-dependent method (57% vs. 69%).

In a multivariate analysis that controlled for social and demographic characteristics, the odds of having a repeat abortion were lower among women living in Khanh Hoa (odds ratio, 0.5) or Ho Chi Minh City (0.6) than among those in Hanoi. The odds were higher among women aged 35 or older (3.0) than among those aged 20–24, and among women with two children (2.2) than among those who had one. The odds that an abor-

tion was a repeat abortion were reduced if a woman had no sons (0.4) rather than one, and elevated if she had 2–4 daughters (2.9) rather than one. In the alternative approach that used nine categories for family sex composition but did not adjust for parity, the odds of a repeat abortion were lower among women with no children and those with no sons and one daughter (0.3 for each) than those with one son and one daughter.

The researchers conclude that preference for a son may drive some women’s abortion-related decisions and state that their findings are consistent with previously established “correlations in Vietnam among son preference, the high abortion rate, and the sex ratio imbalance at birth.” The researchers also note the heavy dependence of the study population (and especially of those obtaining repeat abortions) on less effective contraceptive methods, including the pill and the condom, as well as a larger pattern of concurrently high levels of both contraceptive use and repeat abortion. They suggest that the Vietnamese national family planning program should improve the availability of long-acting, reversible contraceptives and “determine how to adequately support women presenting for terminations to adopt and continue using the contraceptive of their choice.”—*H. Ball*

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HIV Stigma Is Related To Testing Among Women But Not Among Men

Young adult black men and women in South Africa differ with regard to the association between HIV-related stigma and testing behavior, a cohort study finds.¹ Women who held HIV-related stigmatizing attitudes (reflecting negative moral judgment of infected individuals) were more likely than other women to have been tested for the virus (odds ratio, 3.0). In addition, women who perceived that others viewed and treated HIV-infected people negatively or who had witnessed others discriminating against infected individuals had reduced odds of having been tested (0.6 and 0.4, respectively). None of these stigma-related measures was associated with HIV

testing among men, however.

Researchers analyzed data from the Cape Area Panel Study, which followed a representative sample of adolescents in Cape Town as they moved into young adulthood. The current analysis used data from the study's 2009 wave, which was conducted when participants were aged 20–30, and was restricted to HIV-negative black respondents who had had sexual intercourse. During interviews, participants reported whether they had ever been tested for HIV and provided information on their demographic, social and other characteristics. In addition, they answered questions pertaining to three dimensions of stigma—holding stigmatizing attitudes, perceiving stigma in the community and directly observing enacted stigma (i.e., witnessing action indicative of stigma). For each dimension, participants answered three questions; responses were analyzed both in a binary fashion (whether participants had answered “yes” to any of the three questions) and in a continuous fashion (by tabulating the number of “yes” responses). The researchers computed descriptive statistics for the sample and performed bivariate and multivariate analyses to assess associations between HIV-testing history and each stigma dimension.

The analytic sample consisted of 553 men and 674 women. On average, respondents were 25 years old, had 10 years of education and lived in households with a monthly income of about US\$100. Only 4% of men and 12% of women were married.

Overall, 55% of men and 38% of women held at least one stigmatizing attitude (e.g., believing that “HIV is a punishment for sleeping around”); 57% and 62%, respectively, perceived that others stigmatized HIV-positive individuals (e.g., by treating them badly or unfairly); and 35% and 45% had directly observed others treating HIV-positive persons in a manner consistent with stigma (e.g., rejecting them as family members). Larger proportions of men than of women answered “yes” to each of the questions pertaining to stigmatizing attitudes, whereas larger proportions of women than of men reported having observed enacted stigma.

Overall, 63% of men and 69% of women had been tested for HIV. In multivariate analyses among men, no associations were apparent between any of the dimensions of stigma and the odds of having been tested, regardless of whether the dimension was assessed in a binary fashion or continuous fashion.

Men's odds of testing increased with number of years of education (odds ratio, 1.1), and they were higher among men who correctly answered both rather than neither of two HIV knowledge questions (1.6) and those who knew someone with HIV (1.4–1.5, depending on whether the model treated stigma as a binary or continuous variable). Relative to peers who believed that they had no risk of infection, men who did not know their risk were less likely to have been tested (0.5).

Women, however, had sharply elevated odds of having been tested for HIV if they held any stigmatizing attitude (odds ratio, 3.0), and the odds rose with the number of attitudes endorsed (2.0 for each item). On the other hand, women were less likely to have been tested if they perceived stigma in others (0.6) or had observed others enacting stigma (0.4), and the odds fell as the number of questions answered affirmatively rose (0.7 for each). Women's likelihood of having been tested was elevated if they knew someone with HIV (1.4–1.5, depending on the model); it was lower if their perceived risk of infection was low (0.6), moderate or high (0.2–0.3) or unknown (0.5), rather than none.

The findings were generally similar in additional analyses that examined each stigma question individually. They were also much the same after exclusion of participants who had been tested for HIV by 2006 (to assess associations with recency of testing) or of participants who reported having had an STI or

having ever been pregnant (as HIV testing is routinely offered to those groups).

The study may have been limited by unmeasured confounders, its cross-sectional nature, self-report bias, attrition, questionable generalizability to older persons and the potential influence of repeated questioning about HIV over time, according to the researchers. The results nonetheless underscore the need to investigate various dimensions of stigma individually, and to examine associations with HIV infection separately for men and women, they maintain. The seemingly counterintuitive finding that women with stigmatizing attitudes had elevated odds of having been tested for HIV may reflect that such women had assumed that their test result would be negative, the investigators speculate; the observed sex differences may be related to the much higher prevalence of infection among women than among men, and to women's lower ability to avoid stigma, in this setting. “Our findings...point towards the need for interventions designed specifically to limit the degree to which stigma in the broader social environment discourages the uptake of HIV testing among young women,” the researchers conclude.—S. London

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Women Who Have Four Antenatal Visits Rarely Receive All Recommended Services

Although the majority of pregnant women in many developing countries receive at least four antenatal care visits, they do not receive all of the services that they should, according to an analysis of Demographic and Health Survey (DHS) data.¹ For example, even though about nine in 10 women in the Dominican Republic and Colombia who had had a birth in the past two years had had four or more antenatal care visits, only one in three had received the full set of antenatal services (e.g. blood pressure measurement, HIV testing) assessed in their country's survey. In most other countries, the proportions were far smaller. Even among women in the study countries who had had at least four antenatal visits, only 60%, on average, had

received any particular antenatal service.

Although the conventional regimen of antenatal care in developed regions often involves a dozen visits, an abbreviated schedule consisting of four or more visits has become the benchmark of adequate care for health systems in developing regions. Those four visits, however, may not provide all of the services that pregnant women should receive. To explore this issue, researchers analyzed DHS data from 41 developing countries. Countries were included if a DHS survey conducted between 2005 and 2011 had collected data on women's receipt of at least five of the following antenatal services: blood pressure measurement, tetanus vaccination, urine testing (for bacteriuria and other ab-

normalities), counseling about danger signs, HIV counseling and testing, iron and folate supplementation, early antenatal care (prior to four months' gestation) and provision of at least two doses of medication to prevent malaria. The researchers examined, among women who had had a birth in the past two years and had had at least four antenatal visits, the proportion who reported having received each antenatal service; they then averaged the proportions to create an indicator of the degree to which these women had received adequate care. Calculations of these averages were limited to the particular services assessed by the country's DHS survey; for example, provision of treatment for malaria prevention was assessed only in Sub-Saharan Africa, where the disease is endemic. Women who said they did not know whether they had received a particular service were classified as having not received it. In addition to examining receipt of services among women who had at least four antenatal care visits, the researchers conducted similar analyses for all women who had had a birth in the past two years.

On average, 57% of women in the 41 countries had had four or more prenatal visits. Among these women, service coverage—the proportion who had received any particular service—averaged only 60%. While most women had had their blood pressure measured (91%) or received protection against tetanus (79%), fewer than a third had received at least 90 days of supplementation for iron and folate (30%) or, if applicable, received preventive treatment for malaria (25%). Only about half (55%) had had a visit before their fourth month of pregnancy.

Average coverage of services was highest in Colombia, the Dominican Republic, Nepal and the Maldives (81–85%); it was lowest in the Democratic Republic of Congo, Burundi, Niger and Madagascar (32–39%). The proportion of women who had had four antenatal visits was not necessarily related to the average level of coverage; for example, only about half of women in Sierra Leone (56%) and Nepal (53%) had had at least four visits, but among those who had, the average level of service coverage was much higher in the latter than in the former (83% vs. 44%). Similarly, the proportion of women in Indonesia who had had at least four visits was 81%, among the highest levels in the study, but average service coverage in the country (58%) was slightly below the mean.

To further illustrate that having four antenatal visits was not an indicator of adequate antenatal coverage, the researchers examined receipt of services among all women. In four countries—the Dominican Republic, Colombia, Peru and the Maldives—at least 87% of women had had at least four antenatal visits. However, only 34% of women in the first two countries had received all of the measured services, and the proportion was even lower in the Maldives (28%) and Peru (7%). In fact, in only nine countries had as many as 5% of women received the full slate of antenatal services measured by the country's DHS, and in more than a third the proportion was essentially 0%.

The authors conclude that although the number of antenatal care visits that a woman receives matters—"in the sense that each visit provides an opportunity for provision of needed care"—the four-visit threshold typically used as an indicator of program performance is not a sufficient indicator of quality. Moreover, "continued use of this indicator reinforces the impression that an abbreviated schedule of antenatal care is adequate." They suggest that the four-visit measure be replaced by an alternative indicator, such as the measure they used (the average of the proportions of women who received a set of specific services). Such a shift, they argue, would help ensure that the quantity of antenatal visits does not take precedence over their quality, and "would reflect much better how well the needs of the population are actually being met."—*P. Daskoch*

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South African Intervention Improves Likelihood Of Consistent Condom Use

An intervention aimed at reducing the risk of HIV and other STIs increased the likelihood of condom use among South African men, according to a neighborhood-randomized trial conducted between 2007 and 2010.¹ Compared with peers who received a general health intervention unrelated to sexual risks, men who received the HIV risk-reduction intervention had 30% higher odds of having

consistently used condoms during vaginal intercourse and 40% higher odds of having used them at last vaginal intercourse. These differences were apparent for both sex with steady partners and sex with casual partners.

For each of 22 matched pairs of neighborhoods in Eastern Cape Province, South Africa, investigators assigned one neighborhood to an HIV risk-reduction intervention and the other neighborhood to a control intervention targeting diet, physical activity and alcohol intake to improve health. The former aimed to strengthen behavioral beliefs that support condom use, increase skill and self-efficacy to use condoms, and improve knowledge of how to reduce HIV risk. Both interventions were delivered in three weekly sessions to groups of 9–15 men by trained facilitators and used interactive exercises, games, brainstorming, role playing, take-home assignments, group discussions and locally filmed videos.

Participants were recruited from a variety of community venues and were eligible for the study if they were aged 18–45 and had had vaginal intercourse in the past three months. They answered questions about their social and demographic characteristics and sexual behaviors during audio computer-assisted self-interviews at baseline and at six and 12 months. The primary outcome of interest was consistent condom use during vaginal sex (i.e., every time) in the past three months, although other outcomes were also assessed. The investigators compared outcomes between groups over time using descriptive statistics and logistic, linear and multinomial generalized estimating equation models.

The 1,181 men included in analyses were 27 years old, on average, at baseline. Only 6% were married, but 80% had had a steady partner and 51% a casual partner in the past three months. Forty-four percent had completed high school. Roughly seven in 10 were unemployed and six in 10 were alcohol dependent.

At baseline, participants in the HIV intervention group had consistently used condoms in the past three months with 34% of their steady partners and 55% of their casual partners; at the two follow-up surveys, consistent condom use had risen to 39–40% with steady partners but had not increased with casual partners (51–54%). In the control group, levels of consistent condom use showed little variation across the three time points, with either steady partners (32–34%) or casual partners (50–52%).

In multivariate analyses that combined

data for the two follow-up surveys and adjusted for consistent condom use at baseline, men in the HIV risk-reduction intervention group had higher odds of reporting consistent condom use in the past three months compared with their peers in the general health intervention group (odds ratio, 1.3). They also were more likely to report having used a condom at last vaginal intercourse (1.4) and having talked with their steady partner about such use (1.5), and their frequency of condom use—measured on a five-point scale—was higher (1.4). In addition, the proportion of vaginal intercourse acts in which they had used a condom increased to a greater extent (mean difference, 0.1). Tests of potential interactions indicated that these associations were similar for behavior with steady partners compared with casual partners and for the 6-month follow-up compared with the 12-month follow-up. The control and risk-reduction groups were statistically indistinguishable with respect to the odds of

reporting unprotected vaginal intercourse, heterosexual anal intercourse and vaginal intercourse with multiple partners.

Study limitations included reliance on self-reported behavior and a possible lack of generalizability to all South African men, according to the investigators. Nonetheless, they contend, the study is noteworthy for being the first large trial to find significant improvements in sexual risk behaviors associated with an HIV intervention among South African men, and the findings demonstrate that targeting men can be an effective strategy in this setting. “Additional research might strengthen the impact of the intervention on multiple partnerships and address the generalizability of the present findings to biological outcomes,” the investigators conclude.—*S. London*

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In Kenya and Nigeria, the Common Stereotype Of Emergency Contraceptive Users Does Not Apply

In urban Kenya and Nigeria, women who have used emergency contraceptives in the past year are more likely than those who have never used the method to be in their 20s, unmarried and educated, according to a recent study.¹ Although recent users of emergency contraceptives in Kenya were more likely than never-users to have had two or more sex partners in the past year (coefficient, 0.7), users generally were no more likely than nonusers to have engaged in risky sexual behavior. These findings contrast with the common perception that the typical emergency contraceptive user in Africa is an adolescent who frequently has risky sex.

Nigeria and Kenya have the highest rates of emergency contraceptive use in Sub-Saharan Africa, though only 2–3% of women in these countries report having used the method. To address the lack of data on the characteristics and motivations of users, researchers included a module on emergency contraception in a large-scale, representative household survey conducted in five cities in Kenya and six cities in Nigeria in 2010–2011. All women aged 15–49 in the selected households were eligible to participate. The individual response rate was 85% in Kenya and 95% in Nigeria. The cur-

rent analyses were limited to sexually experienced women—7,785 in Kenya and 12,652 in Nigeria. The main survey included questions on social and demographic characteristics, family planning use, exposure to family planning messages and fertility intentions; the emergency contraception module added questions on knowledge, use and sources of the method. Researchers used multinomial logistic regression to examine associations between women’s emergency contraceptive use—classified as recent (past 12 months), nonrecent or never—and their social and demographic characteristics; the analyses controlled for age, education, employment status, religion, relationship status, parity, socioeconomic status and city. Descriptive analyses were stratified by marital status.

In Kenya, 54% of the women were aged 20–29 and 40% were aged 30–49; in Nigeria, 39% were aged 20–29 and 57% were aged 30–49. In both countries, more than half of the women had at least a secondary education (56% and 60%, respectively), had worked in the past 12 months (65% and 64%), were married or cohabiting (64% and 80%) and had at least one child (79% and 78%). In Kenya, nine in 10 women were Catholic or

another Christian denomination and most of the remainder were Muslim; in Nigeria, half were Christian and half Muslim. The vast majority (73%) of Kenyan women resided in Nairobi, while Nigerian women were more evenly distributed among the six study cities (12–24%).

Overall, a higher proportion of women in Kenya than in Nigeria reported having heard of emergency contraceptives (58% vs. 31%). Never-married women were more likely than other women to have heard of emergency contraception, both in Kenya (65% vs. 55%) and Nigeria (50% vs. 28%). Moreover, among those who had heard of the method, never-married women were more likely than other women to know that the emergency contraceptive packets in their country contain two pills and that the method can be used up to 120 hours after sex.

Most sexually experienced women in Kenya (80%) and about half in Nigeria (52%) had used a modern method of contraception. In Kenya, ever-married women were more likely than their never-married counterparts to have used contraceptives (83% vs. 69%); in Nigeria, the opposite was true (49% vs. 68%). In both countries, however, emergency contraceptive use was greater among never-married than ever-married women. For example, in Kenya, never-married women were more likely than ever-married women to have used the method in the past year (13% vs. 3%) or ever (21% vs. 9%), to have used the method more than once per month in the past year (2% vs. 1%) and to consider emergency contraceptives their primary method of contraception (1.4% vs. 0.4%). Among recent users, 12% of those in Kenya and 38% of those in Nigeria considered emergency contraceptives their primary method.

Most women in Kenya (72%) and Nigeria (64%) who had used emergency contraceptives in the past year were aged 20–29. Recent and nonrecent users were more likely than never-users to have at least a secondary education (87% and 85%, respectively, vs. 52% in Kenya; 43% and 51% vs. 24% in Nigeria) but less likely to have a child (51% and 65% vs. 81% in Kenya; 52% and 64% vs. 79% in Nigeria). Moreover, in Kenya, recent and nonrecent users were disproportionately likely to have worked in the past 12 months and to be in the highest wealth quintile.

Multivariate analyses indicated that in Kenya, recent users of emergency contraceptives were more likely than never-users to be

aged 20–24 than 40–49 (coefficient, 1.1), to have at least a secondary education than to have not completed primary school (1.5) and to be single (1.3) or separated or formerly married (1.4) than to be married or cohabiting. In addition, women who had recently used emergency contraceptives were less likely than never-users to have a child (–0.5) and more likely to have had multiple sex partners in the past year (0.7). Emergency contraceptive use was not associated with transactional sex or coital frequency.

In Nigeria, compared with nonusers, recent users of emergency contraceptives were more likely to be aged 20–24 or 25–29 than 40–49 (coefficients, 1.0 for each), to have a junior secondary education or more than a secondary education than a primary education (1.1 and 0.8), to be Catholic rather than Muslim (0.6) and to have never married than to be married or cohabiting (1.3). Recent users were more likely than nonrecent users to have never married than to be married or cohabiting (1.1). No associations were apparent between risky sexual behaviors and emergency contraceptive use, though an interaction analysis showed that divorced or separated women who had had multiple partners in the past year were more likely to report recent emergency contraceptive use than were those who had not had multiple partners.

The researchers acknowledge several

limitations: The sexual behavior data were self-reported and therefore subject to social desirability bias; the samples were not nationally representative or even representative of all urban areas in the two countries; the data were cross-sectional; and recent use of emergency contraceptives was relatively rare. Despite these limitations, the researchers note that their findings “[deepen] our understanding of when, how and by whom emergency contraceptives are used in urban Kenya and Nigeria.” They note that the study highlights “the need to adequately target information and services concerning [emergency contraceptives] to unmarried urban women, a demographic group that appears increasingly to view this method as an important element of their contraceptive toolkit.” Moreover, the findings for Nigeria—particularly the relatively high proportion of women reporting that emergency contraceptives were their primary family planning method—speak to “the need for greater understanding of the dynamics of repeated use and the importance of ensuring availability and access to effective, short-term, woman-controlled barrier and hormonal methods.”—*L. Melhado*

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