

## Increase in Sexual Activity Among Young Colombian And Peruvian Women Exceeds Rise in Contraceptive Use

The proportion of time in which young never-married Colombian and Peruvian women are sexually experienced increased between 1985 and 1999, according to an analysis of Demographic and Health Survey (DHS) data.<sup>1</sup> Women's use of contraceptives—especially condoms—also increased in that time, but so did their conception rates. In both countries, contraceptive protection increased during each year and with each year of a woman's age; it was negatively associated with living in a town or rural setting and with having less than a secondary education.

To examine trends in sex, contraceptive use, conception and pregnancy resolution among young women, researchers used DHS calendar data collected in Colombia and Peru—two countries that had done much during the late 1980s and 1990s to address the sexual health needs of young people. From 1990 to 2000, three surveys were conducted in each country; each asked women aged 15–49 to create a month-by-month calendar documenting their contraceptive use, conceptions and births, and postpartum infecundability (amenorrhea and abstinence) for the five years prior to the interview, creating a study period from 1985 to 1999. In addition, the surveys asked respondents about their demographic characteristics, their age at first intercourse, the date of their first union and the planning status of their recent live births or current pregnancy.

The researchers confined their analysis to data from never-married women aged 15–24 during the calendar period. They classified each month by whether women were sexually inexperienced, sexually active and unprotected by contraception, sexually active and protected by contraception, or sexually active and naturally protected by postpartum infecundability. (Women were considered to be sexually active during every month after their sexual debut.) Conception rates were calculated for all never-married women and for sexually active women. The researchers used logistic and Poisson regression models to examine the effects of selected covariates on contraceptive protection and conception rates, respectively.

The age makeup of participants remained stable throughout the study period: About half (51–55%) of woman-years from both countries were contributed by 15–19-year-olds. The proportion of woman-years contributed by Colombian women with secondary or higher education increased from 63% to 74% between 1985–1989 and 1995–1999, and the proportion representing women living in an urban area increased from 54% to 79%. The educational attainment and locality of women in Peru remained stable: About 25% reported having less than a secondary education, and 70% living in a city.

Over the study period, the proportion of time in which women were sexually active increased: In 1985–1989, about 20% of Colombian and Peruvian woman-years were contributed by sexually experienced women, whereas by 1995–1999, the proportions had increased to 42% in Colombia and to 28% in Peru. Although the proportion of time in which women were sexually active and unprotected by contraception increased—from 13% to 19% in Colombia and from 13% to 17% in Peru, the proportions protected by contraception also increased—from 3% to 18% in Colombia and from 4% to 8% in Peru. Increased contraceptive protection in both countries was largely attributable to condom use, which increased by 20 percentage points in Colombia and 14 percentage points in Peru.

The conception rate among all single women increased over the study period, from 3.7 to 6.2 per 100 woman-years in Colombia and from 3.9 to 4.9 per 100 woman-years in Peru. However, the rates among sexually active women decreased from 22.7 to 16.7 in Colombia and from 23.3 to 20.2 in Peru. In Colombia, the proportion of pregnancies ending in abortion or miscarriage nearly doubled, from 7% in 1985–1990 to 13% in 1995–1999; the proportion in Peru stayed relatively stable at 8–10%. Of premarital pregnancies that resulted in live births, the proportion that were delivered after the woman married or began cohabiting decreased over the study period from 40% to 31% in Colombia and from 49%

to 39% in Peru. However, the proportion delivered before a union was formed increased in Peru—from 43% to 51%. Examination of the proportion of premarital pregnancies ending in live birth that were wanted showed decreases in both countries during the study period—from 69% to 36% in Colombia and from 51% to 38% in Peru.

In multiple regression analysis, the odds of being protected by contraception increased during each calendar year in both Colombia and Peru (odds ratios, 1.1 each). Women aged 20–24 were significantly more likely than 15–19-year-olds to have practiced contraception (1.6 for Colombia; 1.4 for Peru); living in a town or rural area and having less than a secondary education were associated with reduced odds in both countries of being protected by contraception (0.5–0.7).

Using Poisson regression, the researchers found that conception rates among all women in Colombia and Peru increased in each calendar year (incidence rate ratios, 1.06 and 1.02, respectively); however, calendar year had no statistically significant effect on the rates for sexually active women. Among all women, having less than a secondary education and being 20–24 were significantly associated with increased rates of conception (1.6–2.1); living in a town or rural area rather than a city was significantly associated with increased conception rates in Peru (1.3) but not in Colombia. Among sexually active women, living in a town or rural area was significantly associated with increased conception rates in both Colombia (1.4) and Peru (1.2), and having less than a secondary education was associated with an increased rate in Colombia (1.5). In both countries, women aged 20–24 had reduced conception rates when compared with 15–19-year-olds (0.8 each).

The researchers comment that the overall trends for the two countries were “strikingly similar” and that programmatic strategies implemented in one may be effective in the other. Given that the increase in sexual exposure is outpacing the increase in contraceptive use, the researchers suggest that “programs and

policies should continue to reinforce efforts to provide appropriate information and services to young single women.” Also, they recommend that condom promotion continue, as condom use increased substantially in both countries over the study period; however, they note that a strategy that goes “beyond the focus on using contraceptives” is needed to “address the ever-increasing number of abortions and unwanted children who are born out of wedlock.”  
—J. Rosenberg

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## Improving Maternal Health Care Could Reduce Early Infant Mortality in Nepal

In rural Nepal, factors affecting the risk of death in early infancy vary with an infant’s age, according to a study conducted among women and their infants in one district.<sup>1</sup> For infants in the first week of life, those whose mothers had had better nutritional status during pregnancy were more likely to survive, whereas those whose mothers had had a previous miscarriage were less likely to do so. Among infants in the first week and the second through fourth weeks of life, the risk of death was reduced by maternal tetanus vaccination during pregnancy and increased by severe maternal illness in the last trimester. Any parental education and assistance during delivery were associated with a reduced risk of death at age 4–24 weeks; maternal vaginal bleeding in the last trimester and the previous death of a sibling were associated with an elevated risk. In all age-groups up to 24 weeks, infants’ odds of dying were reduced if they had been born at an older gestational age or if their mother had had at least one previous live birth, but were sharply elevated if their mother had died.

To identify risk factors for early infant mortality that might be amenable to intervention, researchers analyzed data from women of child-bearing age from the Sarlahi district of Nepal who were participants in a trial of nutritional supplements and who gave birth to a live singleton infant between 1994 and 1997. During interviews conducted in the second and third trimesters of pregnancies and at three and six months after delivery, the women were asked

about demographic and socioeconomic factors, prior pregnancy history, exposures and illnesses during their pregnancy, and characteristics of their labor and delivery. Multivariate analyses were used to assess the association of these factors with an infant’s odds of dying 0–7 days, 8–28 days and 4–24 weeks after birth.

Analyses were based on 14,323 women and their infants. Twenty percent of the women were aged 19 or younger, and the birth was a first live birth for 22%. Fourteen percent of mothers and 45% of fathers had had some formal education. For the large majority of couples (about 80%), farming was the main occupation. During pregnancy, 28% of women smoked, about 9% drank alcohol and a similar proportion had night blindness (a sign of vitamin A deficiency). Nine percent had a severe illness during the last trimester of pregnancy, most commonly fevers (half of the illnesses) and diarrhea or dysentery (one-fifth). Nearly all women gave birth at home with the help of family members or traditional birth attendants; only 3% and 2% gave birth in a hospital or under the care of a doctor, respectively.

Among infants who were alive at the beginning of each age period, the death rates at 0–7 days, 8–28 days and 4–24 weeks after birth were 29, 17 and 22 per 1,000 infants, respectively. The cumulative death rate was 66 per 1,000 infants.

At all three ages, compared with infants who had been born at a gestational age of 28–31 weeks, those who had been born at 36–39 or 40–42 weeks had reduced odds of dying (adjusted odds ratios, 0.2–0.5), with the greatest reduction during the first week of life. In addition, a gestational age of 32–35 weeks was protective for infants in the first week of life (0.4), while one of 43 weeks or older was protective during both the first week and weeks 4–24 (0.2 and 0.4, respectively). Similarly, compared with infants whose mothers had not previously had a live birth, infants whose mothers had had at least one were consistently less likely to die (0.2–0.8); the reduction in odds was again greatest in the first week of life. In contrast, during all three age periods, infants whose mothers had died had sharply elevated odds of dying thereafter, and those odds increased dramatically with infant age (6.4, 11.7 and 51.7, respectively).

In the first week of life, infants’ likelihood of dying was elevated if their mother had experienced a miscarriage in a previous pregnancy (adjusted odds ratio, 2.0) but was reduced if the mother’s nutritional status during

pregnancy, as assessed by the circumference of her upper arm (0.9 with each centimeter increase), had been better. Infants’ odds of death were elevated in both the 0–7-day and 8–28-day periods if their mother had experienced a severe illness in the last trimester of pregnancy (2.7 and 1.9, respectively), whereas their risk was reduced during these periods if their mother had received a tetanus vaccination during pregnancy (0.7 for each).

Infants were less likely to die 4–24 weeks after birth if their mother or father had had some education (adjusted odds ratios, 0.3 and 0.6, respectively) and if their mother had been assisted during delivery (0.5); the type of assistant (relative, friend, traditional or trained birth attendant, or doctor) did not matter. However, infants’ odds of dying during this period nearly doubled if their mother had previously had a child who died (1.9) and more than tripled if she had experienced vaginal bleeding during the last trimester of pregnancy (3.4). Compared with their female counterparts, male infants had higher odds of dying in the first week of life (1.4) but lower odds of dying in weeks 4–24 (0.7).

The researchers note that maternal and newborn care has been improving in the study district because of programs providing iron folate supplements, tetanus vaccines, deworming and safe birthing kits. To further reduce the rate of early infant death, they recommend that interventions focus on increasing women’s access to basic prenatal and obstetric care, identifying and treating serious third-trimester illnesses and ensuring that women have sufficient calories and protein in their diet.  
—S. London

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## In India, Son Preference Declines with Ideal Family Size, but Remains Strong

In northern India, women’s desired fertility is positively associated with their level of son preference, according to analyses based on data from two successive rounds of a nationally representative survey.<sup>1</sup> The smaller the reported ideal family size, the lower the likelihood of wanting more sons than daughters and the lower the proportion of sons in the reported

ideal family. However, the sex ratio of wanted infants in northern India increased from 130 to 139 males per 100 females between surveys, while the wanted total fertility rate decreased from 3.2 to 2.4 births per woman, suggesting that during this fertility decline, the practice of female feticide increased and outweighed the effect of declining son preference.

Previous research showed that fertility decline in India is accompanied by an increase in the ratio of male to female children aged six and younger, and suggested that persistent son preference increases the rate of female feticide or infanticide at low parities, despite a reduction in the number of unwanted daughters at high parities. To further investigate the association between fertility and sex bias in India, researchers examined data from ever-married women who participated in the 1992–1993 and 1998–1999 National Family Health Surveys.

In all but one Indian state, ideal family size and son preference declined in tandem between the two surveys: The ideal number of children declined from 2.9 to 2.7, while the overall proportion of women wanting more sons than daughters decreased from 42% to 33%, and the average proportion of sons in the ideal family from 54% to 51%.

The researchers focused their analyses on northern India, where the overall level of son preference was particularly high: In 1998–1999, some 47% of women reported wanting more sons than daughters, whereas only 2% preferred daughters, and the proportion of sons in the ideal family was 56%. Although son preference was greater among women who desired odd numbers of children than among those who desired even numbers, it generally decreased with a decreasing ideal family size. For example, 75% of women who wanted five or more children reported preferring sons over daughters, compared with 67% of those wanting 3–4 children and 12% of those wanting 1–2. In addition, the proportion of sons in the ideal family decreased from 55–63% for an ideal family size of 3–4 to 49–50% for an ideal family size of 1–2. The actual proportion of sons among living children, however, generally increased with decreasing family size—from 49% at parities of more than five to 58% at a parity of two and 55% at a parity of one. According to the investigators, this finding indicates that in reality, smaller families are made up of more sons than daughters, and that women's reported ideal family compositions do not simply reflect a rationalization of previous births.

Multivariate regressions that controlled for variables related to reporting bias confirmed that for both surveys, ideal family size was positively associated with both the likelihood of wanting more sons than daughters and the ideal proportion of sons. Other factors that were positively associated with at least one of these outcome measures in at least one of the surveys were an odd-numbered ideal family size, Sikh religion, unpaid employment and the numbers of living and dead sons. Factors that were negatively associated with son preference were women's age, urban residence, regular exposure to the media, Muslim and Christian religion, membership in a scheduled tribe or caste, educational level, standard of living, paid employment and the number of living daughters. Hence, the analysts comment, in northern India, “the preference for sons declines with the forces of modernization and a decrease in the desired family size.”

The investigators point out, however, that their results seemingly contradict previous findings showing a rising ratio of male to female children. To resolve this paradox, they examined the sex ratio at birth of wanted children and the sex composition of unwanted births. Between the two surveys, the sex ratio at birth increased slightly from 105 to 110 males per 100 females; the sex ratio of wanted children increased from 130 to 139, or from 125 to 130 after correction for rationalization bias. These findings, the analysts note, are “consistent with the reported practice of female feticide in some parts of northern India.” Furthermore, comparisons between preferred and actual sexes of children born in the year before the second survey revealed that approximately 60% of unwanted births were those of daughters. Between the two surveys, the estimated total fertility rate for all wanted births decreased from 3.2 to 2.4.

The researchers conclude that “at any point in time, the number of unwanted daughters is more than the number of unwanted sons,” despite the tendency for son preference to diminish as desired family size falls. They attribute the increase in the sex ratio during a period of fertility decline in northern India to “the increasing availability of prenatal sex-selection technologies,” rather than to an intensification of sex bias per se, as previously assumed. In the authors' view, prenatal sex selection allows women to realize their “repressed demand for sons” and outweighs the influence of declining son preference. They call for the continued prohibition of the use

of new sex-detection techniques in India, because “if parents were to be denied access to such technologies, a decline in fertility...should make the population less masculine.”—*T. Lane*

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## Low Birth Weight Is Linked To Timing of Prenatal Care And Other Maternal Factors

Certain maternal behavioral factors—including receiving prenatal care, low pregnancy-related weight gain and smoking during pregnancy—are significantly associated with low birth weight, according to a 2001 survey of women who gave birth in public hospitals in western Mexico.<sup>1</sup> Social, demographic and economic factors—including age, union status, locality size and working during pregnancy—have an indirect effect on low birth weight through their associations with prenatal care.

To identify factors associated with low birth weight, researchers recruited for a 2001 survey women giving birth at one of eight Ministry of Health public hospitals in two western Mexican states. All women who had delivered a low-birth-weight infant (defined as weighing less than 2,500g) were eligible for the survey; researchers randomly selected a sample of mothers of normal-weight infants to participate. Trained female interviewers asked participants while in the hospital's recovery ward about their social and demographic characteristics and certain behavioral factors (i.e., smoking during pregnancy, prenatal care and pregnancy-related weight gain), and whether they had experienced health problems or hospitalization during pregnancy. Logistic regression analysis was used to determine which factors were associated with low birth weight and with prenatal care.

The sample consisted of 565 women: 257 who had delivered a low-birth-weight infant and 308 whose infant was born at a normal weight. Seventy-two percent of respondents were aged 20–34; 21% were younger and 7% were older. The index birth was the first for about one-third of respondents; approximately two-thirds were in a formal union and a similar proportion had had six or more years of education. Fifty-two percent of women lived in a locality with fewer than 100,000 people, and 80% did not work at any point during pregnancy. Between 4% and

17% lacked indoor plumbing or electricity, or lived in houses with dirt floors.

The vast majority of mothers (92%) reported that they had not smoked during pregnancy. Sixty-five percent had gained seven kilograms or more during pregnancy; 17% had gained less and 18% did not know how much weight they had gained. Almost two-thirds (63%) of respondents had received prenatal care during the first trimester of their pregnancy, whereas 25% had received care after the first trimester and 12% had received no prenatal care. Eighty percent of women reported having had health problems during their pregnancy, although only 6% of women required hospitalization.

In a multivariate regression analysis examining which social and demographic factors were associated with low birth weight, only one factor was found to be significant: Women having their first birth were more likely than women of low parity (defined as those aged 18 or older delivering their second child and those aged 25 or older having their third) to have had a low-birth-weight infant (odds ratio, 1.7). When behavioral factors were included in the regression, women who had gained less than seven kilograms during pregnancy and women who did not know how much weight they had gained were more likely than those who had gained seven or more kilograms to have had a low-birth-weight infant (2.3 and 2.0, respectively). In addition, women who smoked were more likely than those who had not (2.1) to have had a low-birth-weight infant; the association with first births remained significant (2.0). In a final model that included measures of maternal health, women who had had problems during pregnancy and those who had been hospitalized had elevated odds of having a low-birth-weight infant (2.1 and 4.2, respectively). Women who began prenatal care after the first trimester were half as likely as those who received no prenatal care to have had a low-birth-weight infant. Being 35 or older and smoking during pregnancy became marginally significant ( $p < .10$ ), whereas all other associations remained significant.

In another logistic regression, researchers examined which social, demographic and behavioral factors were associated with prenatal care. Women aged 35 or older were more likely than those aged 20–34 (9.5), women for whom the index birth was their first were more likely than those of low parity (3.0) and women who worked during pregnancy were more likely than those who had not (2.5) to have re-

ceived prenatal care. Women who were younger than 20 were less likely than those aged 20–34 (0.4), women who were not in a union were less likely than those in a formal union (0.3) and women who lived in a locality with 100,000 people or more were less likely than those in a locality with fewer than 100,000 (0.3) to have received prenatal care. In a second model that included a measure for maternal health, women who had had health problems during pregnancy had significantly higher odds of having had prenatal care than did those who had not had such problems. The associations between low birth weight and first births became nonsignificant, and working during pregnancy became marginally significant ( $p < .10$ ).

In explanation of their finding that only one of the social, demographic and economic factors studied was significantly associated with low birth weight, the authors comment that

## In Brazil, Women Who Lack Knowledge About Fertility Control Are Those Most Likely to Become Sterilized

Brazilian women who have had three or more live births are significantly more likely than those of lower parity to be sterilized and are significantly less likely to know of four or more contraceptive methods, according to a cross-sectional survey of women aged 30–49 in Sao Paulo state.<sup>1</sup> They also began childbearing earlier and have a lower monthly income than women with fewer children. Taken together, the researchers suggest, these findings suggest that Brazil's high sterilization rate may reflect, in part, high fertility in a group of women who initiate childbearing early in life and lack the knowledge to plan and control their fertility.

To identify factors that contribute to high use of sterilization among Brazilian women—50% of those aged 35 and older in 1996 had been sterilized—researchers obtained information on social and demographic characteristics and reproductive history from a random sample of women aged 30–49 in Campinas, Sao Paulo state, in 1996. For the analysis, 236 women who had been sterilized for at least five years were matched to 236 nonsterilized women of similar age (within two years) who lived in the same census tract.

Bivariate analyses found significant differences between sterilized and nonsterilized women in marital status, duration of marriage (or cohabitation), and age at cohabitation. A

their sample consisted of “a relatively socioeconomically disadvantaged segment of the population.” They add that “the strength of individual-level socioeconomic effects...may be more pronounced with a nationally representative survey sample.” Social and demographic factors, however, were significantly associated with prenatal care, which was one of the behavioral factors associated with low birth weight. The authors suggest that programs that work to reduce the rate of low-birth-weight infants should address “improving maternal lifestyle choices by increasing access, utilization and quality of care,” while addressing the “intractable socioeconomic disparities that continue to indirectly contribute to the incidence of low birth weight.”—*J. Rosenberg*

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greater proportion of sterilized woman than of nonsterilized women were married (76% vs. 59%) and had lived with a partner or spouse for 20 years or more (42% vs. 28%). Thirty-four percent of sterilized women had begun cohabiting at age 19 or younger, compared with 18% of nonsterilized women. Sterilized women also had a significantly greater number of pregnancies and live births than nonsterilized women. Seventy-six percent of sterilized women had had three or more pregnancies, and 69% had had at least three live births, compared with 33% and 24%, respectively, of nonsterilized women. Women who had been sterilized were more likely than those who had not to have had their first birth at age 19 or younger (36% vs. 21%). There was no significant difference between the two groups of women in the number of abortions they had, or their age at delivery of their youngest child (mean, 28 years in each group).

Because of the strong association between sterilization and high parity, the researchers performed a logistic regression analysis to determine predictors of having had three or more births. This analysis excluded 114 women for whom data were missing for one or more values. The odds of high parity were elevated for sterilized women (odds ratio, 7.0) and decreased for women familiar with four or more

contraceptive methods (0.4). The older a woman was at the time of her first birth, the lower her odds were of having had three or more live births (0.8). However, the odds rose with the woman's age at interview (1.1). Women with a per capita monthly income greater than US\$300 were significantly less likely to have had three or more live births than were those with a lower income (0.5).

While Brazil's high sterilization rate is thought to play a role in the country's rapidly declining fertility rate, the researchers say their findings suggest that the decline is due in part to nonsterilized women controlling their fertility and having fewer children than sterilized women. According to the researchers, adequate counseling on sexual and reproductive health should begin in early adolescence, when women are making life and reproductive choices. They conclude that "in order to reduce the number of young women who choose surgical sterilization over equally effective, but reversible methods, it is necessary to act early in life."—*T. Tamkins*

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## Stigma Against People Infected with HIV Poses A Major Barrier to Testing

Stigmatizing attitudes toward people with HIV/AIDS may play an important role in determining whether South African women and men get tested for HIV. According to data from 469 participants in a study on HIV testing behaviors,<sup>1</sup> attitudes toward HIV testing are also linked to people's decisions to get tested and, once tested, to obtain their results.

To investigate the ways in which attitudes toward HIV testing and toward infected people are related to testing patterns, the researchers conducted surveys at 12 public locations in a primarily black township in Cape Town. Participants completed self-administered questionnaires that collected data on their demographic characteristics, HIV testing history and risk behaviors, and assessed their knowledge of HIV/AIDS prevention and treatment. The questionnaires also asked respondents whether they agreed or disagreed with a number of statements about how getting tested af-

fects people's lives and about common negative attitudes toward people with HIV/AIDS.

Of the 276 women and 224 men surveyed, 98% were black, 67% were married, 52% had finished high school and 61% were unemployed; their median age range was 21-25 years. Forty-four percent of all respondents had been tested for HIV, 53% had never been tested and 3% refused to supply this information. Of those who had had an HIV test, 33% had been tested once, 29% twice and 19% three times; 53% reported that their most recent test had been negative, 9% positive and 38% did not know. Participants who refused to indicate whether they had been tested were excluded from the final sample, as were those who had tested positive. Analyses were based on data from the remaining 469 respondents, of whom 25% had tested negative, 18% did not know their results and 57% had never been tested.

HIV risk factors were generally high across testing groups: Overall, more than 40% had had two or more partners in the last three months, 17% had never used a condom, more than 10% had received food or money in exchange for sex, 34% had been diagnosed with a sexually transmitted infection (STI) and 13% had had a genital ulcer. Compared with those who had never been tested for HIV, a significantly lower proportion of respondents who had been tested reported that they had never used a condom (5-7% vs. 26%). However, all participants displayed high levels of knowledge about the prevention and treatment of HIV/AIDS (mean score, 83%), and scores did not differ significantly according to testing history.

Multiple logistic regressions that controlled for age, gender, education and survey venue indicated that participants who had been tested for HIV were significantly more likely than those who had never been tested to have a history of STI diagnosis (odds ratio, 1.7). They were also significantly less likely than those not tested to report that they had injected drugs or had never used a condom. In addition, participants who had been tested and obtained their results were significantly less likely than those who had been tested but did not know the outcome to report that they had either given or received compensation for sex (0.4 and 0.2, respectively).

The analyses also revealed significant associations between respondents' attitudes toward HIV testing and their testing status. Those who been tested for HIV were significantly more likely than those who had not been tested to agree with two statements asserting that

HIV testing has a positive impact on people's lives (odds ratios, 2.2 and 2.9). Among respondents who had gotten an HIV test, those who had obtained their results had lower odds than those who had not of agreeing with three statements expressing negative views of testing (0.3-0.4). In addition, respondents who had had an HIV test were significantly less likely than those who had not been tested to endorse stigmatizing attitudes toward people with HIV/AIDS (0.3), and significantly more likely to support equal status for them (1.9). Knowing the results of one's test was not linked to the odds of holding stigmatizing attitudes.

The researchers acknowledge that their study is limited by being based on cross-sectional data from a nonrepresentative sample. They point out that although attitudes toward HIV testing may affect testing behaviors, most people who have not had an HIV test are aware of the benefits of testing. Therefore, they say, the social stigma attached to HIV/AIDS may be a more powerful deterrent to testing than attitudes toward testing itself. The researchers suggest that prevention and education programs seeking to improve testing patterns should continue to focus on reducing social stigma against people with HIV/AIDS. They conclude that "only through these efforts will AIDS stigma in South Africa be reduced and the goals of voluntary counseling and testing be realized."—*R. MacLean*

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