

In India, Poverty and Lack of Education Are Associated With Men's Physical and Sexual Abuse of Their Wives

Domestic abuse is common in India, but varies widely by region. In a study conducted in five districts of Uttar Pradesh, 18–45% of husbands reported physically abusing their wives.¹ Of those who acknowledged being physically abusive, more than four in 10 reported an episode of violence during the prior year and more than six in 10 admitted repeated abuse. Men who had little education, those who had more than one child and those who were extremely poor were more likely than other men to have physically abused their wives. In separate analyses of these data examining relationships between wife abuse and male reproductive health, the prevalence of abuse was significantly higher among men who had had extramarital or premarital sex, those who had ever had a sexually transmitted disease (STD) and those whose wives had had an unplanned pregnancy than it was among other men.²

Data on spousal abuse were collected in 1995–1996 as part of a survey on male reproductive health that included 6,695 married men aged 15–65 in five districts of Uttar Pradesh, one of the least developed states in India. Men who reported abusing their wives were asked about the type, frequency and extent of the abuse. Those who reported that they had sexually abused their wives were asked whether they had had nonconsensual sex and whether they had physically forced their wives to have sex. They were also asked whether they had ever abused their wives while the women were pregnant, what kinds of behaviors their wives exhibited while being abused, and whether their wives had ever sought medical treatment for injuries resulting from abuse.

The interview also included questions about men's reproductive health and behavior. The men were asked if they had had any symptoms of STDs at three points in their lives (before marriage, at any time after marriage and at the time of the inter-

view). Men were classified as having symptoms of an STD if they reported having any of eight indicators, such as discharge from the penis, genital or anal sores or painful urination. The men were also asked if they had had premarital or extramarital sex, whether they and their wives were practicing contraception at the time of the study, and whether they had ever experienced an unplanned pregnancy.

Finally, the interviewers collected data about social and demographic factors such as age, caste, educational level, the age at which a husband first started living with his wife, the number of children a couple had, household composition, urban-rural residence, the duration of the current marriage, and poverty level. Poverty was measured by the number of modern possessions a family owned; a family owning fewer than two was considered extremely poor.

Overall, 1,990 men (30%) reported physically abusing their wives. The level and type of wife abuse fluctuated across the five districts (Aligarh, Bandha, Gonda, Kanpur Nagar and Nainital). The proportion of men reporting physical abuse ranged from 18% in Nainital to 45% in Bandha. Sexual abuse followed a similar pattern: Men in Nainital were least likely to say they had had nonconsensual sex with their wives (18%), while those in Bandha were most likely to do so (40%). Men were much less likely to say they had physically forced their wives to have sex (4–9% across the districts). In all five districts, men who reported physically abusing their wives were significantly more likely to report nonconsensual sex (odd ratios of 2.1–3.0) and forced sex (2.3–5.8).

Most of the men who said that they had physically abused their wives reported multiple episodes (63–91% across districts), and large proportions said that they had physically abused their wives within the past year (47–74%). Smaller percentages (5–13%) reported abusive behavior while their wives were pregnant. Men were more likely to report shouting or yelling at their wives (33–94%) and slapping or pushing their wives (47–77%)

than punching or kicking them (8–32%) or using a weapon or object against their wives (5–10%).

The men were most likely to say that their wives had responded to the last episode of abuse by crying (49–90% across districts) or by shouting and yelling back (7–42%). Smaller proportions of men said that their wives had run away from home (4–10%) or had physically retaliated (0–6%). No more than 3% reported that their wives had sought medical treatment after being abused.

Bivariate analysis showed that in four of the five districts, men with five years of education or less were significantly more likely to abuse their wives than were men with more education (odds ratios of 2.1–3.3), while extreme poverty was associated with abuse in three districts (1.5–1.8). In two districts, men who had been married for more than five years were more likely than other men to physically abuse their wives (1.5–3.1), as were those who had more than one child (1.5–2.1). Living with one's wife before the age of 20 was associated with abuse in one district (1.8).

In the examination of relationships between domestic violence and reproductive and behavioral health variables, the men were divided into four groups—no abuse, physical abuse only, sexual abuse without physical force (nonconsensual sex) and sexual abuse with physical force.* Significant bivariate associations were found between abuse and reproductive health and behavior variables. For example, men who had had premarital sex were more likely than those who had not to have abused their wives in some way (67% vs. 41%), as were those who had had extramarital sex (78% vs. 44%). Men who reported STD symptoms were also more likely than those who did not to report abuse, whether they were asked about symptoms before marriage (60% vs. 43%), since marriage (62% vs. 43%) or at the time they were interviewed (64% vs. 43%). Abuse was more common among men who did not practice contraception than among those who did (49% vs. 42%), and was reported more fre-

*About 40–50% of the last group also reported physical abuse.

Table 1. Odds ratios from logistic regression analyses predicting the risk of domestic abuse, by reproductive health variable and type of abuse

| Variable | Physical abuse | Nonconsensual sex | Forced sex |
|---------------------------|----------------|-------------------|------------|
| Sex outside marriage | | | |
| Premarital | 2.21* | 3.03* | 3.63* |
| Extramarital | 2.72* | 4.31* | 6.22* |
| STD symptoms | | | |
| Before marriage | 2.03* | 2.32* | 2.19* |
| Since marriage | 2.16* | 2.23* | 3.08* |
| Current | 1.77* | 2.17* | 2.43* |
| Current contraceptive use | 1.08 | 1.21* | 0.91 |
| Unplanned pregnancy | 1.43* | 1.67* | 2.62* |

quently by men who had experienced an unplanned pregnancy than by those who had not (52% vs. 44%). For each variable, the strongest association was with non-consensual sex, followed by physical abuse and then by forced sex. In addition, significant differences in the prevalence of abuse varied significantly by district of residence, rural-urban residence, caste, socioeconomic status, education and age.

Logistic regression analysis generally confirmed the bivariate findings. In four districts, men with five years of education or less were more likely than other men to abuse their wives when the effects of all other variables were accounted for (odds ratios of 1.9–2.8). Extreme poverty and wife abuse were significantly associated in two districts (1.4–1.5). Men in one district had significantly elevated odds of wife abuse if they had lived with their wives at a young age (1.6), had more than one child (1.3) or had been married for more than five years (2.3). Measures of privacy, such as a household size of fewer than five people, the husband's parents not being present in the household and urban residence, were not significantly associated with domestic violence in any district.

The significant associations between wife abuse and the reproductive health and behavior variables persisted when the effects of social and demographic factors were controlled for in a logistic regression analysis. Elevated odds of all types of abuse were associated with premarital sex, extramarital sex, STD symptoms and unplanned pregnancy (Table 1). The associations were weakest for physical abuse alone, intermediate for nonconsensual sex and strongest for forced sex. There was a small but significant positive association between contraceptive use and sexual abuse without physical force.

According to the investigators, the extent of wife abuse reported in this study is consistent with the results of previous

international research. They conclude that “the findings that family stressors, especially low education levels and poverty, are strong risk factors for wife abuse suggest that broad social changes aimed at bettering the Indian population's access to advanced education and employment opportunities could lead to improvements in many aspects of family life, including the prevention or reduction of family violence.”—*L. Gerstein*

cluding the prevention or reduction of family violence.”—*L. Gerstein*

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Severity of Genital Cutting Is Linked to Complications Experienced Later in Life

More than nine in 10 women attending selected rural health clinics in Burkina Faso and urban and rural clinics in Mali have experienced some form of genital cutting. According to observational data collected at the clinics, clitoridectomy was the most common form of genital cutting among the women in Burkina Faso, while excision was the type most frequently observed among those in Mali.¹ Compared with women who had undergone excision, women who had been infibulated were more likely to have gynecologic or obstetric complications later in life, and those who had undergone clitoridectomy were less likely to experience such difficulties.

Women receiving any service that included a pelvic examination at selected health clinics in Mali and Burkina Faso were invited to participate in a study of complications associated with female genital cutting. Of 1,920 women approached in Burkina Faso and 5,337 in Mali, none refused. Clinic staff trained in female anatomy, the identification and classification of genital cutting, and the possible gynecologic and obstetric consequences of such cutting reported the presence and type of genital cutting (based on World Health Organization guidelines) and any related complications observed during pelvic ex-

aminations. The women also provided a birth history and information about their social and demographic characteristics.

The studies in the two countries were conducted separately; thus, the methodology and the samples differed somewhat. The study in Burkina Faso was carried out at 21 rural clinics between April and July 1998; the data from Mali, on the other hand, were collected at four rural and four urban clinics as part of a broader study on female genital cutting conducted between July and September 1998. Clinic staff in Burkina Faso recorded information about signs of genital infection and asked if women had experienced stillbirths, while those in Mali did not. Participants in Burkina Faso were women aged 15–55; as there were no age limits in the Mali study, some data were collected from girls younger than 14, seven of whom were visiting the clinic with immediate complications of genital cutting.

Approximately two-thirds of the women in each sample were between ages 15 and 29 (66% in Burkina Faso, 71% in Mali). All of the women in Burkina Faso and 21% of those in Mali lived in rural areas. The great majority of women in both countries (88–89%) were in a monogamous or polygamous marriage, and more than half were illiterate. About half of the women in each sample were visiting a clinic for prenatal care (57% in Burkina Faso, 49% in Mali); other common reasons for visiting the clinics included delivery, family planning and gynecologic or postnatal care.

Genital cutting was almost universal among the women attending these clinics. Ninety-three percent of those in Burkina Faso and 94% of those in Mali had experienced some type of cutting. In Mali, genital cutting was more common among women in rural areas than among those in urban areas (98% vs. 93%). In Burkina Faso, women aged 35 or older were more likely than those aged 15–24 to have undergone cutting (97% vs. 90%). No difference between age-groups was evident in Mali.

The prevalence of different types of genital cutting varied substantially between the women in the two studies. Clitoridectomy—the partial or total removal of the prepuce or clitoris or both—was the most prevalent type of cutting in Burkina Faso (56%), but had been performed on only 21% of cut women in Mali. In contrast, the proportion of women who had undergone excision—the removal of the clitoris and all or part of the labia minora—was almost twice as great in Mali as in Burkina Faso (74% vs. 39%). Five percent of the women examined in each country had experienced infibulation, a prac-

tice in which the vaginal opening is sewn almost completely closed after partial or total removal of the external genitalia.

When the prevalence of types of cutting among women aged 15–24 was compared with that among women aged 35 or older, no differences were found in Burkina Faso. In Mali, the differences were slight: Women in the older age-group were slightly more likely than the younger women to have experienced excision (80% vs. 75%) and slightly less likely to have undergone clitoridectomy (17% vs. 19%) or infibulation (3% vs. 6%).

Fourteen percent of all cut women in Burkina Faso and 5% of those in Mali had at least one gynecologic complication. Among cut women with at least one such complication in Burkina Faso, the most common complications reported were keloid scars (62%) and vaginal narrowing (20%). In Mali, the most common gynecologic complications observed were hemorrhage (52%) and vaginal narrowing (13%).

In a logistic regression analysis, the likelihood that a woman had symptoms of a gynecologic complication was related to the type of cutting she had experienced. Compared with women who had undergone excision, those who had had a clitoridectomy were 29–39% less likely to experience a complication, while infibulated women were 2.4–2.5 times as likely to do so.

In Burkina Faso, cut women were more than twice as likely as other women to report having experienced obstetric complications in prior deliveries (odds ratio, 2.2) and cut Muslim women were less likely to experience complications of cutting

than were other women (odds ratios of 0.7 for observed gynecologic complications and 0.7 for reported previous obstetric complications). In Mali, urban women were more likely than rural women to have complications (odds ratios of 1.9 for gynecologic complications and 2.7 for obstetric complications).

Information about obstetric complications differed between the studies. In Mali, complications experienced by the 1,468 women who came to a clinic to give birth were noted by staff. Some 24% experienced difficulties, including 12% who had episiotomies, 6% who had perineal tears, 3% who hemorrhaged and 3% who required a cesarean section. In Burkina Faso, where women were asked about problems they had had with past deliveries, 51% reported a complication—34% an episiotomy, 9% obstructed labor, 5% perineal tears, 1% a cesarean section and 2% other difficulties.

Obstetric complications were associated with the presence of any cutting as well as with types of cutting. Women who had never been cut were less likely than cut women to experience an obstetric complication (odds ratios of 0.3 in Burkina Faso and 0.2 in Mali). Among cut women in Burkina Faso, those who had experienced excision or infibulation were more likely to experience an obstetric complication than were women who had had a clitoridectomy (odds ratios of 1.3 and 2.3, respectively). In Mali, women who had undergone excision were more likely than women who had had a clitoridectomy to have such complications (odds ratio, 1.8).

In Burkina Faso, where providers

recorded information about symptoms of possible genital infection, logistic regression analysis showed that cut women were more likely than other women to have vaginal discharge or other symptoms that might signal a genital infection (1.7), but there were no differences in this category according to types of cutting.

The researchers caution that these studies had a number of limitations. It is not known, for example, whether women attending the health clinics were representative of all local women, particularly in rural areas in Mali, where rates of clinic use are low. Data collection on gynecologic complications was limited to women who had experienced genital cutting, which made it impossible to compare cut and uncut women. The training of clinic staff also varied, which the investigators suggest may explain the differences in the prevalence of complications found in rural and urban clinics in Mali. Finally, neither study collected information on other potentially negative consequences of genital cutting, such as effects on a woman's sex life. Nonetheless, the researchers note that "little empirical evidence exists of the relationship between cutting and [gynecologic and obstetric] complications" and conclude that their study provides data on female genital cutting through direct observation that may be of "greater validity than women's self-reports." —*M. Moore*

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Exclusively Breastfed Infants Are Less Likely Than Those Given Supplements to Contract HIV from Their Mother

The risk of HIV infection through breastfeeding appears to be greatest in the first few months after birth, and is lower among infants who are fed breast milk exclusively than among those who receive breast milk with supplements. In a recent South African study, infants who were exclusively breastfed were significantly less likely to become infected in the first three months than were those who also received supplemental foods and liquids, but had a risk similar to that among infants who received only infant formula.¹ A second study, conducted in Malawi, found that the risk of HIV transmission fell from 0.7% per month among infants aged 1–5 months to 0.3% per month among those aged 12–17 months.² Moreover, mothers aged 25 or older and those with four or

more births were less likely to transmit the virus through breastfeeding than were other women.

The South African Study

The data for analysis came from 549 mother-infant pairs who participated in a clinical trial investigating the effect of vitamin A taken during pregnancy on vertical transmission. HIV-infected pregnant women were recruited for the intervention between July 1995 and April 1998 at two prenatal clinics in Durban, South Africa.

After receiving counseling during their prenatal visits, women chose to feed their infant breast milk alone, breast milk supplemented with solids or liquids, or formula alone. The infants born to these women were tested for HIV on their first day of life;

6% of the 549 babies tested positive at that time. They were tested again at one and six weeks and at three months.

The cumulative probability of a positive HIV test by three months of age was assessed among the three infant-feeding subgroups—156 babies who were never breastfed, 103 who were still being breastfed exclusively at three months and 288 who had been given other foods besides breast milk—using Kaplan-Meier life-table methods. (Data on the type of breastfeeding were missing for two babies.)

Of the 549 babies born to HIV-infected mothers, an estimated 19% of those who were never breastfed were HIV positive by three months of age, compared with 21% of ever-breastfed infants, a non-significant difference. However, the esti-

mated proportion infected by that age was significantly lower among babies who were breastfed exclusively than among those who received both breast milk and other foods (15% vs. 24%). When the 32 infants who tested positive on their first day of life were excluded from the analysis, the proportion testing positive at three months was significantly lower among babies who were breastfed exclusively (8%) than among those who received mixed feeding (20%), but did not differ significantly from the proportion among those who were never breastfed (13%).

There were no significant differences in the estimated proportions testing positive at three months according to four maternal background characteristics—maternal education, maternal employment, electricity in the home and source of water. However, the risk of infection was elevated among babies born to women who had a low CD4 count at enrollment (adjusted hazard ratio of 2.1), those who tested positive for syphilis (1.8) and those who delivered before term (2.0). When the effects of maternal immune status, syphilis test results and preterm delivery were accounted for, infants who had been exclusively breastfed for three months were significantly less likely to be infected than were those who had received mixed feeding (0.5).

The researchers caution that their results are limited by their inability to validate self-reported feeding choices and by possible differences in unmeasurable variables that may influence infant feeding choices. Nevertheless, they say, the large differences in the risk of infection by three months between babies who were exclusively breastfed and those who received mixed feedings probably “reflect genuine differences in postnatal transmission due to feeding practices.” According to the researchers, contaminants or allergens in supplemental foods could undermine breast milk’s benefits to the immune system; contaminants might injure membranes lining the gastrointestinal tract, thus facilitating infection with HIV.

The Malawian Study

The study, conducted in a tertiary care hospital in Blantyre, Malawi, between 1994 and 1997, examined the HIV status of 672 infants born to infected women who had made at least two follow-up visits and were still breastfeeding at the time of the second visit. Only babies who were uninfected at the first visit—when they were about six weeks of age—were eligible for the study. After the second follow-up, at three months postpartum, the mother-in-

fant pairs returned at three-month intervals until the infants were two years old or until they were weaned. Subsequent tests for HIV infection were performed at six-month intervals.

By the end of the 24-month follow-up, 7% of the 672 infants had become infected; no infant seroconverted after being weaned. The HIV-infection rates in the first two years of life declined significantly over time, falling from 0.7% per month in months 1–5 to 0.6% per month in months 6–11, and to only 0.3% when the babies were 12–17 months old. The cumulative risk of infection with HIV-1 among babies breastfed for more than one month was 4% after five months of life, 7% after 11 months, 9% after 17 months and 10% after 23 months.

According to the univariate risk-factor analysis, parity was the only one of six maternal factors examined (age, progression to symptomatic disease or death, mode of delivery, parity, infant birthweight and breast problems such as cracked or bleeding nipples) that significantly affected the risk of HIV infection. Women who had already had at least four children had a significantly lower risk of transmitting the virus than did women who had had 1–3 children (risk ratio of 0.39). A stepwise regression analysis found a stronger protective effect against infection for high parity (risk ratio of 0.23), as well as a significantly lower risk of transmission among women aged 25 or older (0.44).

The investigators acknowledge that their study is limited by the lack of data on the women’s immunologic and virologic status, which both influence the rate of transmission. They also note that they could not assess risk before the baby completed one month of life, so their data, by definition, underestimate the overall risk of transmission through breastfeeding.

The researchers suggest that the peak in infection rates within the first few months of breastfeeding might be explained by the concentration of HIV-infected cells in colostrum and early breast milk, and by the newborn’s especially immature immune system. They also hypothesize that the unexpected higher risk of transmission among lower parity women and younger women might reflect these women’s relative inexperience with breastfeeding and their greater likelihood of subclinical mastitis or cracked nipples. As no other obvious groups of women emerged as being at elevated risk of transmission, the researchers suggest that efforts to instruct young and inexperienced mothers about breastfeeding might be useful.

Because of the difficulty in balancing the

risk of HIV transmission with the benefits of breastfeeding, the researchers conclude that “recommendations may be most usefully made at the level of the individual mother,” especially because women in the developing world have such limited access to safe alternatives to breast milk.—*L. Remez*

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High Cesarean Section Rates In Brazil Result in Large Part From Nonclinical Factors

The decision to perform a cesarean section is often strongly influenced by nonmedical factors, according to data from one city in southeastern Brazil. In Ribeirão Preto, in São Paulo State, the rate of cesarean section was 51% in 1994. The most important factors affecting mode of birth were related to health service delivery: The probability of delivery by cesarean section was elevated among women who had given birth between 7:00 A.M. and 7:00 P.M., had made four or more visits for prenatal care or had used the same physician for prenatal care and delivery.¹

To examine risk factors associated with cesarean section, interviewers collected socioeconomic, demographic, reproductive and health service data from women having singleton births in maternity hospitals in Ribeirão Preto, São Paulo State, Brazil, in 1978–1979 and 1994. Information was obtained on 6,750 infants delivered in 1978–1979 and on 2,846 infants born in 1994.

Comparisons of the two samples indicated that women who delivered in 1994 were more likely than their counterparts in 1978–1979 to be employed outside the home, to be unmarried, to have had their first delivery before they were 20 or after they were 30, to be having their first birth or to have had up to two pregnancies, to have only one living child and to have made four or more prenatal visits. Between the two study periods, the rate of cesarean delivery rose from 30% to 51%, while the rate of preterm birth increased from 8% to 14% and the percentage of mothers whose baby weighed less than 3,000 g at birth rose from 28% to 37%. Infants born in 1994 were more likely than those born in 1978–1979

to have been delivered in private hospitals and between Monday and Wednesday.

In a multiple logistic regression analysis, the risk of a cesarean section in 1978–1979 was significantly higher among women who were aged 20 or older (odds ratios of 1.4–3.4 for various age-groups), had previously had a stillbirth (1.8) or had fewer than four living children (2.2–3.3); it was significantly lower among those having their third live birth than among those having their fourth (0.65). The risk of delivery by cesarean section was greater for infants with a birth weight of 3,500 g or more than for those weighing less than 3,000 g (1.4–2.0). Of the socioeconomic and demographic factors tested, four were associated with cesarean delivery—having had four or more years of education (odds ratios of 1.3–1.6), having delivered at a private rather than a public hospital (1.6–2.8), having delivered on any day other than Sunday (1.5) and having made four or more prenatal visits (1.7).

In 1994, the hour of delivery was a significant factor: Compared with infants born between 1:00 A.M. and 6:00 A.M., those born from 7:00 A.M. to 6:00 P.M. or from 7:00 P.M.

to midnight were 3.4–4.7 times as likely to have been delivered by cesarean section. In addition, mothers who used the same physician for prenatal care and delivery were 2.5 times as likely to have had a cesarean section as were those who did not, and mothers who made four or more prenatal visits were 2.1 times as likely to have had a cesarean section as were those who made fewer visits. Women aged 30 or older were 2.7 times as likely to have had a cesarean as were those younger than 20, while women who had had two live births were 69% less likely than those with four or more births to have delivered by cesarean section. Having three living children was positively associated with operative delivery (odds ratios of 2.5–7.8). Cesarean deliveries were 50% more common for infants weighing 3,500–3,999 g at birth than for those weighing less than 3,000 g.

Finally, the investigators attempted to identify factors that played a major role in the increase in the cesarean section rate between the two study periods. They used adjusted population-attributable risks to compare the prevalence of each risk factor among women who had had an ab-

dominal delivery in the two periods, as well as the variation of the odds ratio for each of those factors. Only three variables—having private insurance, being married and delivering in a private hospital—showed increases of 15% or more in population-attributable risk between the two periods.

The investigators speculate, based on the association of cesarean section with number of living children and maternal age, that many women may choose to have a cesarean section because in Brazil the procedure is an indication for tubal ligation. In addition, they say, the correlation of delivery timing with cesarean section suggests that physicians prefer cesarean to vaginal delivery because it allows them “to work a minimum of nonsocial hours.” The investigators conclude that, in Brazil, nonclinical factors play a major role in the decision to perform a cesarean section. —*D. Estrin*

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Women’s Exposure to Mass Media Is Linked to Attitudes Toward Contraception in Pakistan, India and Bangladesh

Exposure to general media programming and to family planning messages through the media has a strong impact on reproductive attitudes and behaviors in Pakistan, India and Bangladesh. According to analyses of national survey data, women in all three countries who regularly watch television and those who have been exposed to explicit family planning messages are more likely than other women to approve of family planning.¹ Having listened to explicit family planning messages on radio or television is associated with contraceptive use in all three countries.

Pakistan

The analysis of media effects for Pakistan is based on data from the National Demographic and Health Survey of 1990–1991 and the Pakistan Contraceptive Prevalence Survey of 1994–1995. The samples for these surveys included 6,611 ever-married women aged 15–49 and 7,922 married women aged 15–49, respectively. The husbands of one-third of the women in the earlier survey were also interviewed.

The proportion of women not exposed to radio, television or print media declined from 59% in 1990–1991 to 43% in 1994–1995. Over the same time period, women’s

exposure to radio (27% vs. 33%) or television alone (30% vs. 46%) increased, while exposure to print media remained stable (14%). During that period, the proportion of women who had never heard a family planning message on either radio or television fell from 79% to 38%.

The more types of media a woman was exposed to, the more likely she was to practice contraception. Forty-five percent of women exposed to all three forms of media were using a method at the time of the survey in 1994–1995, compared with 31% of women exposed to two types of media and 9% of women exposed to no media. Further, women who had heard family planning messages on both television and radio and those who had heard a message on the radio only were more likely to use a method than were women who had not heard such messages (32% and 27% vs. 8%).

Among women not currently practicing contraception, media exposure increased the likelihood that they planned to use a method in the future. For instance, 58% of women exposed to three forms of media in 1994–1995 said that they would practice contraception in the future. Fifty-two percent of women who had heard

family planning messages on both the radio and television reported that they intended to use contraceptives.

According to multivariate analyses that controlled for social and demographic characteristics, women who were regularly exposed to television were 1.4–1.6 times as likely as women without media exposure to know of at least one modern method in 1990–1991. During the same period, women who had heard family planning messages on the radio were 1.5 times as likely as other women to know of a modern method. Women who had been exposed to general television programming were 20% more likely than women who had not to have discussed family planning with their husbands (Table 1).

Media exposure had strong effects on attitudes toward family planning. In both periods, exposure to television, to print media or to family planning messages on radio or television significantly increased the odds that a woman approved of family planning (odds ratios, 1.3–2.2). The strength of this effect increased between the two periods for exposure to print media (from 1.4 to 1.7), to family planning messages on the radio (from 1.3 to 1.6) and to such messages on television (1.7 to 2.2).

The effect of media exposure to family planning messages on usage was significant only in the later period: In 1994–1995, women were 53% more likely to be using a method if they had heard such messages on the radio and 68% more likely to do so if they had been exposed to them on television. Exposure to general television programming had a significant effect in both periods (odds ratios of 1.7–1.8), while exposure to print media such as newspapers and magazines had a significant effect only in the later period (1.3).

When intention to use a method in the future was considered, the effect of general radio programming was significant only in the earlier period (odds ratio of 1.5), while that of general television exposure became significant in the later period (1.4). Print media had a stable, significant effect over both periods (1.4). In contrast, the effect of exposure to family planning messages grew stronger over time and became significant in 1994–1995 for both radio (1.8) and television (1.5).

The effects of general media exposure on whether women expressed their fertility desires in numeric terms were significant only in 1990–1991 for radio (odds ratio of 1.6) and in both years for television (1.5 and 1.2). Exposure to family planning messages on radio and television had a significant effect only in the later period (1.5 and 1.9, respectively).

Spousal discussion of fertility desires was significantly higher among women who had listened to the radio in the earlier period (odds ratio of 1.2) and among those who had been exposed to television or to print media in the later period (1.4 and 1.3, respectively). Women who read newspapers or magazines were significantly more likely to want no more children in both periods (1.5 and 1.4); watching television had a significant positive effect only in the first period (1.3), while exposure to family planning messages on the radio had a significant effect only in the later period (1.2).

In a separate analysis of media effects on illiterate women, listening to the radio had significant positive effects on all reproductive attitudes and behaviors except wanting no more children (odds ratios of 1.3–2.0) in the earlier period, but had such effects in the later period only on approval of family planning and expressing fertility desires in numeric terms (1.2 each). In contrast, general television programming had significant positive effects on the majority of variables in both periods.

Having heard family planning messages on the radio significantly affected only

knowledge of modern methods (1.7) and approval of family planning (1.3) in 1990–1991, but had significant effects on all seven of the attitudes and behaviors measured in 1994–1995. Exposure to such messages on television followed a similar pattern.

The 1990–1991 survey included husbands. Men who listened to the radio were significantly more likely than those who did not to know of a modern method, to approve of family planning, to intend to use a method in the future, to discuss family size with their wife and to want no more children (odds ratios, 1.4–1.7). The odds that men knew of at least one modern method were even more elevated among those who had heard family planning messages on the radio (3.4). In addition, men exposed to print media were more likely than other men to approve of family planning, to have ever used a method, to currently use a method, to have discussed family size with their wife, to want no more children and to provide a numeric response when asked about their desired family size (1.6–2.7).

For couples, the odds of knowing of a modern method were significantly associated with exposure to radio, television or print media (odds ratio, 2.3). In addition, couples in which both the man and the woman had heard family planning messages on radio or television had increased odds of knowing of a modern method (2.9).

India

The data for India are from the 1992–1993 National Family Health Survey, in which 90,000 ever-married women aged 13–49 were interviewed. No husbands were included in the survey.

In 1992–1993, 32% of Indian women reported watching television at least once a week, 44% listened to radio and 43% had heard family planning messages on either radio or television. Exposure to media varied according to state of residence: The

Table 1. Adjusted odds ratios from logistic regression analyses examining the likelihood that women exposed to family planning through the media approve of family planning, currently use a method or have discussed family planning with their husband by country and type of media exposure

| Country and media exposure | Approves of family planning | Currently uses method | Has discussed family planning with husband |
|--------------------------------|-----------------------------|-----------------------|--|
| PAKISTAN | | | |
| 1990–1991 DHS | | | |
| Print | 1.4* | 1.2 | 1.2 |
| General radio programming | 1.2** | 1.1 | 1.1 |
| General TV programming | 1.3** | 1.7** | 1.2* |
| FP messages on radio | 1.3** | 0.9 | 1.0 |
| FP messages on television | 1.7** | 1.2 | 1.2 |
| 1994–1995 DHS | | | |
| Print | 1.7** | 1.3* | u |
| General radio programming | 1.1 | 0.9 | u |
| General TV programming | 1.2 | 1.8** | u |
| FP messages on radio | 1.6** | 1.5** | u |
| FP messages on television | 2.2** | 1.7** | u |
| INDIA | | | |
| 1992–1993 DHS | | | |
| General radio programming | 1.0 | 1.2** | 1.1** |
| General TV programming | 1.2** | 1.4** | 1.2** |
| FP messages on radio | 1.9** | 1.1** | 1.3** |
| FP messages on television | 1.5** | 1.0 | 1.3** |
| BANGLADESH | | | |
| 1993–1994 DHS | | | |
| General radio programming | 1.3 | 1.2* | 1.1 |
| General television programming | 1.3 | 1.1 | 1.0 |
| FP messages on radio | 1.9** | 1.1 | 1.5** |
| FP messages on television | 2.1** | 1.2* | 1.4** |
| 1996–1997 DHS | | | |
| General radio programming | 1.2 | 1.0 | 1.1 |
| General TV programming | 2.0** | 1.1 | 1.0 |
| FP messages on radio | 2.0** | 1.2** | 1.3** |
| FP messages on television | 1.8 | 1.3* | 1.3** |

*p<.05. **p<.01. Note: u=unavailable.

proportion of women exposed to television at least once a week ranged from 13% in Bihar to 83% in Delhi. Current contraceptive use was highest in Kerala (63%) and Delhi (60%), and lowest in Nagaland (13%) and Bihar (23%).

Table 1 indicates that in India overall, women exposed to television and family planning messages on television or radio were more likely than women without media exposure to approve of family planning (odds ratios, 1.2–1.9). Women's odds of discussing family planning with their husbands were elevated among those exposed to general television or radio programming or to family planning messages on either medium (1.1–1.3). Further, exposure to media influenced a woman's contraceptive behavior: Women who watched television, listened to the radio or heard family planning announcements on either medium were more likely than those who did not to have used a method at some time (1.1–1.5). Exposure to general radio programming and to family planning messages on radio or television was associated with intention to use a

method in the future (1.1–1.5). Current method use was associated with exposure to television, to radio or to family planning messages on the radio (1.1–1.4).

Among women living in the 10 states with contraceptive prevalence rates lower than 40%, listening to the radio was not significantly associated with women's contraceptive attitudes or behaviors. However, women who watched television were more likely than those who did not to approve of family planning, to have discussed family planning with their husbands, to have ever used a method, to currently practice contraception and to want no more children (odds ratios of 1.2–1.3). Having heard family planning messages on radio or on television was associated with approving of family planning (1.3–2.0), having discussed family planning with their spouse (1.3–1.4), having ever used a method (1.3), currently using a method (1.2–1.3), intending to use a method in the future (1.3–1.8) and having discussed desired family size (1.4–1.7).

Illiterate women who had been exposed to television or to family planning announcements on television were more likely than those who had not to approve of family planning (1.3–1.5). Exposure to general television programming or to family planning messages on television was also associated with discussing family planning with one's husband (1.2–1.4) and currently using a method (1.2–1.4). Among illiterate women, these variables were also linked to having discussed family size (1.3–1.4), wanting no more children (1.2–1.4) and preferring fewer than three children (1.1–1.4).

Bangladesh

Two Demographic and Health Surveys have been conducted in Bangladesh in the last decade. The 1993–1994 survey included 9,640 ever-married women aged 15–49, while the 1996–1997 sample was made up of 9,127 ever-married women aged 10–49. The husbands of a subsample of the women were interviewed in each survey.

Overall, 49% of married women in Bangladesh were exposed to either radio or television in 1996–1997, and 19% were exposed to both media; 45% heard family planning announcements on either radio or television. Women were more likely to have heard such messages on the radio than to have been exposed to them on television (39% vs. 22%).

Both general programming and family planning messages on television and radio were significantly related to family planning attitudes in Bangladesh in 1993–1994 and 1996–1997. Women who watched television were 30% more likely than those who did not to approve of family planning in the earlier period and twice as likely to do so during the later period. In contrast, the odds of approval associated with having heard a family planning message on television declined from 2.1 to 1.8 and became nonsignificant (Table 1).

Exposure to general television and radio programming had little effect on whether women had discussed family planning with their husband. In both years, however, having heard family planning messages on either medium significantly increased the odds of having had such a discussion (1.3–1.5).

The effects of media exposure on contraceptive behavior were, for the most part, small but significant and stable over time. In both 1993–1994 and 1996–1997, women who had heard a family planning message on television or radio were about 20% more likely than those who had not to have used a contraceptive method at some time. The odds of ever-use associated with exposure to general television programming were significant only in the later survey (1.3), while the odds associated with listening to the radio declined and lost significance (from 1.3 to 1.1).

Media effects on current use were slightly weaker. Exposure to general radio programming had a significant effect only in the earlier period (odds ratio of 1.2), while watching television had no significant effect. Having heard a family plan-

ning message on the radio was significant only in 1996–1997 (1.2), while the odds associated with having seen such messages on television rose from 1.2 to 1.3.

Exposure to media showed a different pattern of effects on contraceptive intentions. The odds associated with intentions to use a method declined between the two periods for general programming on radio (from 1.4 to 1.3), but were significant in both, while the odds associated with watching television were significant only in the early period (1.5). Having heard family planning messages on either medium had no significant effect.

In 1993–1994, women exposed to general programming on television or to family planning messages on radio or television were significantly more likely to have discussed family size with their spouse (odds ratios 1.3–1.6), with radio family planning messages having the greatest impact. Almost all women had had such a discussion in the later period, so the variable was dropped from the analysis. The desire for no more children was not strongly associated with media exposure. Listening to the radio had a significant effect only in 1993–1994 (1.2), while having heard a family planning message on the radio became significant in 1996–1997 (1.3).

Data collected from the husbands of women interviewed in the two surveys indicate that exposure of both spouses to family planning messages on radio and television had significant, positive effects on couples' current contraceptive use and discussion of family planning. When both spouses had heard family planning messages on radio or television, the odds of family planning approval, current use, discussions about family planning and discussions about family size were elevated (1.3–2.9).—*I. Olenick*

Reference

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