

What Influences Contraceptive Use Among Young Women In Urban Squatter Settlements of Karachi, Pakistan?

By Fariyal F. Fikree, Amanullah Khan, Muhammad Masood Kadir, Fatima Sajan and Mohammad H. Rahbar

Context: After nearly three decades of government-initiated family planning programs, the increase in contraceptive prevalence in Pakistan has been frustratingly slow—from 5% in 1974–1975 to 24% in 1996–1997. At the same time, a significant proportion of women do not wish to have additional children. To understand this contradiction, research is needed to investigate the social, religious and cultural aspects of Pakistani society that may constrain couples' adoption of modern family planning methods.

Methods: Interviews were conducted in squatter settlements in Karachi, Pakistan, with Muslim women 30 years old or younger, their husbands and their mothers-in-law to explore factors that influence couples' contraceptive use. Univariate and multivariate regression analyses were conducted to examine the associations between contraceptive use and several variables, including social and demographic characteristics; religious beliefs; communication about family planning among the three family members; women's mobility and decision-making capability; acceptance of information about family planning in the mass media; and exposure to family planning messages from health care workers.

Results: Univariate analyses indicate that women who reported using modern contraceptive methods were significantly more likely to be literate (odds ratio, 1.7), to be exposed to an urban environment (1.8) and to have had at least five live births (2.0). According to multivariate analyses, women who were literate, who were of high economic status, whose mother-in-law reported discussing family planning with them and who had received family planning messages from health care workers were 2–3 times as likely to use contraceptives as were other women. In addition, women who said it was appropriate for family planning messages to be delivered through mass media were 50% more likely to use contraceptives.

Conclusions: The long-term goals of improving women's education levels and economic status are important for increasing contraceptive prevalence in Pakistan. At the same time, policymakers should initiate short-term interventions, such as engaging religious leaders in family planning programs, encouraging the outreach efforts of community health care workers and targeting mothers-in-law with family planning messages, as these are likely to be effective in increasing women's contraceptive use.

International Family Planning Perspectives, 2001, 27(3):130–136

Despite being one of the first countries in South Asia to launch a national family planning program, Pakistan is exceptional in the region for its poor performance in improving contraceptive prevalence. After nearly three decades of government-sponsored family planning programs, contraceptive prevalence has increased from 5% in 1974–1975¹ to 24% in 1996–1997.² Paradoxically, a significant proportion of women do not wish to have additional children.³ Thus, in addition to determining whether there is a problem with supplying contraceptives to those who need them, there is a need to identify the social, religious and cultural aspects of Pakistani society that may constrain couples' use of family planning methods.

Pakistan's typical family structure is patriarchal, and women typically live with

their husband's family after they are married. Decision-making involves communication between the spouses and elders of the extended family. Elsewhere, researchers have found low levels of communication between spouses about reproductive matters, and women with low levels of contraceptive use report little spousal communication.⁴ In addition, mothers-in-law can have power over women's lives⁵ and influence the number of children a couple will have.⁶ In India, for example, women's mothers-in-law influence reproductive decision-making.⁷

Opposition to family planning by husbands and mothers-in-law contributes significantly to unmet need,⁸ even among women who are receptive to family size limitation.⁹ Moreover, women in South Asia are taught that their own interests are subordinate to those of the family group.

Consequently, they are likely to sacrifice their own desire to regulate fertility.¹⁰ Thus, women's communication with their husbands and mothers-in-law is important when planning for the family's future. In the context of family planning, women's discussions with their husbands are strongly associated with their attitudes toward contraceptive use.¹¹ In addition, the presence of mothers-in-law in the household is influential in determining family size.¹² However, to the best of our knowledge, the role that mothers-in-law play in Pakistani couples' adoption of modern contraceptive methods has not been previously explored.

Women's autonomy, defined by their decision-making abilities within their household and their mobility outside of their home, is strongly influenced by kinship and marriage relationship, by age, by religion and by division of labor within traditional patriarchal societies. Pakistani women's ability to leave their home has an important bearing on their awareness of the world around them and could influence their adoption of contraceptive methods. *Purdah*, a concept deeply rooted in Muslim theology and tradition, dictates that the sexes be physically segregated outside the household and that women wear a veil in public. As a result, most Pakistani women lack the freedom or autonomy to move about in public and, more often than not, need a chaperone to go anywhere in public, including to a health facility.

More than 90% of Pakistan's population is Muslim, and traditional and religious beliefs largely based on personal interpretations of Islamic law and its tenets are held in high esteem. Though we were unable to identify published material on local clerics' and religious leaders' attitudes and

Fariyal F. Fikree is program associate, Population Council, New York. Amanullah Khan is senior instructor, Muhammad Masood Kadir is assistant professor, Fatima Sajan is research assistant and Mohammad H. Rahbar is professor, all at Aga Khan University, Karachi, Pakistan. The authors received financial support for their research from the Special Programme of Research, Development and Research Training in Human Reproduction, a joint program of the United Nations Development Programme, the United Nations Population Fund, the World Health Organization and the World Bank.

beliefs regarding family planning, we believe that in general Pakistani society regards family planning as contrary to the teachings of Islam. Various schools of Islamic thought have taken positions on family planning and abortion. Pakistan officially condoned family planning and launched its national family planning program in the early 1960s. However, one of the several reasons stated for the dismal performance of the population program is that because of religious beliefs, the common Pakistani man does not view family planning favorably. According to the Pakistan Demographic and Health Survey of 1990–1991, 13% of women and 18% of men report “religion” as their reason for not using contraceptives.¹³

One of the first steps in changing people’s attitudes toward family planning is through improving public awareness of the benefits of small family size.¹⁴ Contact with a family planning field worker or exposure to family planning messages in the media is a significant factor in increasing contraceptive use among Pakistani women who want no additional children.¹⁵

Thus, to investigate what influences Pakistani women’s contraceptive use, it is necessary to examine both social and demographic characteristics and additional factors that may influence Pakistani couples’ contraceptive use, such as women’s mobility, decision-making capabilities, religious beliefs, communication with her husband and mother-in-law about family planning, and exposure to family planning messages from health workers and acceptance of such messages in the mass media. It also is necessary to examine the characteristics and beliefs of mothers-in-law.

In this article, we examine the association between all of these factors and Pakistani women’s contraceptive use. Based on what we know of Pakistani society, we hypothesize that women’s autonomy—defined by whether a woman has a say in household decision-making and the freedom to leave her home unaccompanied—will be associated with women’s use of modern contraceptive methods. We also propose that women’s contraceptive use will be associated with their religious beliefs, their exposure to family planning messages from health care workers, and their acceptance of family planning messages in the media. Finally, because mothers-in-law have a strong voice in family decision-making, we hypothesize that their educational level, religious beliefs and discussions with daughters-in-law will influence couples’ decisions about contraceptive use.

Data and Methodology

Study and Sample Recruitment

During the first half of 1996, we conducted a study in eight urban squatter settlements of Karachi. From 1984 to 1996, the Aga Khan University operated primary health care programs in six of the settlements. These settlements are visited regularly by community health care workers for health promotion and disease prevention activities, including distribution of family planning supplies.¹⁶

To be eligible to participate in the study, women had to be married, Muslim and 30 years old or younger, had to have at least two living children and had to live with a Muslim spouse and mother-in-law. We categorized women into two groups based on whether they currently used or had never used a modern method of contraception. Because Pakistan does not have a family planning surveillance system, we identified women to participate in the study through a rapid assessment survey: Interviewers used a one-page questionnaire, which required approximately 3–5 minutes to complete, to survey households in each of the eight settlements. We recruited female interviewers to conduct the survey. These women had previous experience in conducting demographic surveys and participated in a three-day training program.

Of 2,698 women surveyed, 1,020 met the study criteria and were approached to participate in an in-depth study. After the women were interviewed, their husbands and mothers-in-law were contacted. All three people in the triad (wife, husband and mother-in-law) had to complete questionnaires. We did not obtain complete information from 303 triads because any of the three members refused to be interviewed ($n=29$), did not provide complete information ($n=162$) or were not available to complete questionnaires on at least three different attempts to meet with them ($n=112$). Thus, we obtained complete information from 717 triads; in 404, the woman was currently using a contraceptive, and in 313 she had never used one.

From the women, we collected detailed information on demographics, length of time as an urban resident, spousal communication, mobility, decision-making, religious beliefs, and sources and acceptability of information about family planning. To understand the household dynamics relating to family size and family planning in those households where mothers-in-law either lived with the couple or in close proximity to them, we asked similar questions of the woman, husband and mother-in-law. To investigate the mother-

in-law’s role in regulating fertility in her family, we asked each whether she discussed family planning with her son or daughter-in-law or forbade her daughter-in-law from practicing family planning.

Influencing Factors

We assessed the influence on couples’ contraceptive use of social and demographic factors and woman-related factors, including educational level, parity, mobility, decision-making, discussions with husband and mother-in-law about family size, and exposure to and acceptance of family planning messages. We also assessed a set of factors related to a mother-in-law’s influence on her daughter-in-law’s contraceptive use. Included among these characteristics were her education, discussion with her son and daughter-in-law about family planning, and whether she views Islam as allowing family planning. We investigated similar characteristics for husbands.

• *Household assets.* We measured socioeconomic status based on ownership of 12 household assets, including an iron, sewing machine, refrigerator, washing machine, motorcycle or car. We based the classification of low, average and high socioeconomic status on cutoff values representing approximately two standard deviations below the mean. Thus, women who reported owning up to four items were considered to be of low socioeconomic status, those who reported owning 5–9 items were considered to be of average socioeconomic status and those who reported owning 10 or more items were considered to be of upper socioeconomic status.

• *Women’s mobility.* We assessed women’s mobility based on their responses to six questions about “going out alone,” covering a range of circumstances that would indicate whether their freedom of mobility was compromised. If a woman responded “no” to all six questions, we considered her as having restricted or limited mobility. We considered the woman to be mobile if she responded “yes” to any of the questions.

• *Women’s decision-making.* We included 10 questions about day-to-day decisions involving household activities such as the main meal, major purchases, education of sons and daughters, employment and health. If a woman responded that she had “a say in decision-making,” her response was coded as one; otherwise, we coded it as zero. We classified women who scored 0–2 points as having “poor decision-making capability.” Women with higher scores were classified as having “good decision-making capability.”

• *Communication.* So that we could exam-

Table 1. Among families in which the woman used a modern contraceptive method, percentage of women, their husbands and their mothers-in-law who reported discussions about family size and family planning, Pakistan, 1996 (N=404)

Topic and discussion	%
Family size	
Woman with her husband	83.9
Husband with woman	40.4
Woman with her mother-in-law	61.5
Mother-in-law with woman	40.9
Husband with his mother	8.2
Mother-in-law with her son	22.1
Family planning	
Woman with her husband	93.8
Husband with woman	84.9
Woman with her mother-in-law	52.0
Mother-in-law with woman	35.2
Husband with his mother	4.3
Mother-in-law with her son	10.2

ine women’s communication with their husbands and mothers-in-law, we asked four general questions about communication. These ranged from impersonal contexts, such as the contents of the main meal, to very personal contexts, such as the couples’ sexual relationship, as well as contexts involving power dynamics, such as discussions about money or child care. Other questions were designed to gather information about family planning with women’s husbands and mothers-in-law. In addition, mothers-in-law were asked about their communication with their sons and daughters-in-law about family planning.

- **Religious beliefs.** We asked wives and mothers-in law whether they thought Islam allowed family planning.

- **Exposure to family planning messages.** We asked women whether they had seen or heard messages about family planning in the mass media* or from a health care provider and whether they felt it was appropriate for such messages to be delivered through the media.

- **Urban residence.** To assess women’s exposure to an urban lifestyle, we asked a series of questions about the amount of time they had lived in an urban environment. If women had spent at least 12 years in a city, we classified them as having been exposed to an urban environment.

Statistical Analyses

We conducted univariate and multivariate logistic regression analyses to measure associations between women’s contra-

ceptive use and the variables listed above.¹⁷ To control for potential confounding variables, we included in the multiple logistic regression analysis variables that had a p-value of less than .10 in the univariate analysis. The final overall multivariate regression model includes variables with a p-value of less than or equal to .05.¹⁸ We performed data analyses using SAS Version 6.10 statistical software for personal computers.¹⁹

Results

Characteristics

Nearly one-quarter of the women in the sample were younger than 25, and 68% reported at least four live births. More than half were literate, but only 9% reported earning an income. Their spouses were generally older than they were—4% were younger than 25 and 73% were 30 years or older; 78% were literate, and all but 3% were employed. Though 86% of mothers-in-law were illiterate, the proportion who reported working to earn an income (12%) was slightly greater than for the daughters-in-law. Among the 404 women who used contraceptives, condoms were the most frequently reported method, mentioned by 41% of the women, followed by the IUD (16%), injectables (15%), the pill (12%), tubal ligation (12%) and other methods, including the hormonal implant, male sterilization and the diaphragm (4%).

Table 2. Percentage distribution of women, by selected characteristics, according to whether they use contraceptives, and unadjusted odds ratios and 95% confidence intervals indicating effect of characteristics on women’s likelihood of using a modern contraceptive method

Characteristics	Users	Nonusers	Odds ratio	95% CI
Education				
Illiterate (ref)	41.8	54.6	1.00	na
Literate	58.2	45.4	1.67***	1.23–2.28
Husband’s education				
Illiterate (ref)	17.6	24.3	1.00	na
Literate	82.4	75.7	1.50*	1.03–2.20
Occupation				
Employed	10.6	6.1	1.84*	1.02–3.36
Housewife (ref)	89.4	93.9	1.00	na
Marriage duration (years)				
<10 (ref)	44.3	55.9	1.00	na
≥10	55.7	44.1	1.59**	1.17–2.17
Urban exposure				
Yes	86.1	78.0	1.76**	1.17–2.64
No (ref)	13.9	22.0	1.00	na
Household assets				
≤4 (ref)	12.1	16.0	1.00	na
5–9	69.5	74.1	1.24	0.79–1.94
≥10	18.3	9.9	1.97**	1.22–3.18
Parity				
≤4 (ref)	62.1	76.4	1.00	na
≥5	37.9	23.6	1.97**	1.40–2.77
Living sons				
≤2 (ref)	69.6	81.4	1.00	na
≥3	30.4	18.6	1.92**	1.33–2.79
Living daughters				
≤2 (ref)	72.3	78.6	1.00	na
≥3	27.7	21.4	1.41	0.98–2.02
Mobility				
Yes	34.2	26.5	1.44*	1.03–2.02
No (ref)	65.8	73.5	1.00	na
Decision-making				
Good	79.5	71.6	1.54**	1.07–2.20
Poor (ref)	20.5	28.4	1.00	na
Discussed family size with husband				
Yes	83.9	76.4	1.61**	1.09–2.38
No (ref)	16.1	23.6	1.00	na
Discussed family planning with mother-in-law				
Yes	61.4	51.4	1.50**	1.10–2.05
No (ref)	38.6	48.6	1.00	na
Islam allows family planning				
Yes	32.2	20.1	1.88***	1.31–2.70
No (ref)	67.8	79.9	1.00	na
Received family planning messages from health care provider				
Yes	91.6	74.1	3.80***	2.41–6.00
No (ref)	8.4	25.9	1.00	na
Accepts family planning messages in media				
Yes	78.0	64.2	1.97***	1.40–2.78
No (ref)	22.0	35.8	1.00	na
Total	100.0	100.0	na	na

*p<.05. **p<.01. ***p<.001. Notes: CI=confidence interval. ref=reference group. na=not applicable.

Reports of Communication

Consistency in reports of spousal communication about family size varied considerably among the 717 couples—while

81% of wives reported such communication, only 34% of husbands did. Reports of communication about family size between women and their mothers-in-law

and between husbands and their mothers also varied. While 57% of women said they had discussed the topic with their mother-in-law, only 38% of mothers-in-law said they had discussed the topic with their daughter-in-law. Furthermore, 19% of mothers said they had discussed the topic with their son, but only 7% of sons said they had discussed the topic with their mother.

With one exception, there were similar inconsistencies in the reports of discussions about family size and family planning among families in which the woman used a modern method of contraception. Reports of spousal communication about family planning were quite consistent—94% of wives and 85% of husbands reported such communication (Table 1). However, 84% of women reported communication about family size with their husbands, while only 40% of husbands did so.

Smaller proportions of mothers-in-law than daughters-in-law reported communication with one another about family size and family planning. While 62% of women using a method reported having discussed family size with their mother-in-law, 41% of mothers-in-law reported such discussions with their daughter-in-law. Regarding discussions about family planning, 52% of women said they had talked with their mother-in-law, while only 35% of mothers-in-law said they had discussed the topic with their daughter-in-law.

Even smaller proportions of sons and mothers reported discussing these topics with one another, and their responses also were inconsistent. While 22% and 10% of mothers reported speaking with their sons about family size and family planning, respectively, 8% and 4% of sons, respectively, reported having discussed these topics with their mothers.

Univariate Analyses

Contraceptive use was significantly associated with several socioeconomic and demographic characteristics, such as women's and husbands' educational level, women's occupation, household assets, urban residence and parity (Table 2). Compared with women who did not use contraceptives, women who reported using contraceptives were significantly more likely to be literate (odds ratio, 1.7), to be exposed to an urban environment (odds ratio, 1.8) and to have had at least five live births (odds ratio, 2.0). In addition, they were more likely to have more than two living sons (odds ratio, 1.9).

Women's mobility and decision-making also were significantly associated with contraceptive use. Compared with women who did not use contraceptives, women who used contraceptives were more likely to possess "good decision-making capability" (odds ratio, 1.5). Spousal communication on a wide range of issues, such as contents of the day's main meal, disagreement about money matters or the couple's sexual relationship were not significantly associated with contraceptive use (data not shown). However, women who reported discussing family size with their husband or family planning with their mother-in-law were significantly more likely than women who did not report such discussions to use contraceptives (odds ratios, 1.6 and 1.5, respectively).

Women who used contraceptives were twice as likely as women who did not to report that Islam allows family planning and to say that it is acceptable for family planning messages to be delivered through mass media (odds ratios, 1.9 and 2.0, respectively). Receiving family planning messages from a health care provider was the factor most strongly associated with women's contraceptive use: Compared with women who did not use contraceptives, women who did were nearly four times as likely to report having heard about family planning from a health care provider (odds ratio, 3.8).

The extent to which mothers-in-law communicate with their daughters-in-law and sons about family planning was significantly associated with women's contraceptive use (Table 3). Women who used contraceptives were significantly more likely to have a mother-in-law who said that she spoke with her daughter-in-law and her son about family planning (odds ratios, 3.6 and 2.0, respectively). In addition, women whose mother-in-law said that she did not forbid her daughter-in-law to use contraceptives were more likely to use contraceptives (odds ratio, 1.7). There was not a significant association between the mother-in-law's education and the woman's contraceptive use.

Table 3. Percentage distribution of mothers-in-law, by selected characteristics, according to whether they use contraceptives, and unadjusted odds ratios and 95% confidence intervals indicating effect of characteristics on women's likelihood of using a modern contraceptive method

Characteristics	Users	Nonusers	Odds ratio	95% CI
Education				
Illiterate (ref)	85.9	88.2	1.00	na
Literate	14.1	11.8	1.23	0.77–1.95
Discussed family planning with daughter-in-law				
Yes	35.2	13.1	3.60***	2.40–5.40
No (ref)	64.8	86.9	1.00	na
Believes Islam allows family planning				
Yes	18.3	13.1	1.49*	0.96–2.3
No (ref)	81.7	86.9	1.00	na
Discussed family planning with son				
Yes	10.2	5.4	1.97*	1.06–3.69
No (ref)	89.8	94.6	1.00	na
Forbids daughter-in-law to use contraceptives				
Yes (ref)	17.1	25.9	1.00	na
No	82.9	74.1	1.70**	1.16–2.47
Total	100.0	100.0	na	na

*p<.05. **p<.01. ***p<.001. Notes: CI=confidence interval. ref=reference group. na=not applicable.

Multivariate Analysis

In the multivariate analysis, fewer variables remained significant at a 5% significance level (Table 4, page 134). However, for those that remained significant, there was not much change from the univariate analysis in the effect on contraceptive use. The two exceptions were women's acceptance of family planning messages in the media and a mother-in-law's communication with her daughter-in-law about family planning: For these, the multivariate odds ratios for the association with contraceptive use (odds ratios, 1.5 and 2.9, respectively), were slightly smaller than the univariate odds ratios (2.0 and 3.6). Collinearity exists between women's response that they discussed family size with their mother-in-law and reports from mothers-in-law that they discussed family planning with their daughter-in-law. However, when the two variables were combined in the final logistic regression model, the odds ratios for women's reports that they discussed family size with their mother-in-law became nonsignificant, and only the mother-in-law's report remained statistically significant.

Discussion

In the squatter settlements in which we conducted our research, where it is relatively easy to access modern family planning methods, we learned that after con-

Table 4. Adjusted odds ratios and 95% confidence intervals from multivariate logistic regression analysis indicating effect of selected characteristics on women's likelihood of using a modern contraceptive method

Characteristics	Odds ratio	95% CI
Education		
Illiterate (ref)	1.00	na
Literate	2.02***	1.43–2.85
Household assets		
≤4 (ref)	1.00	na
5–9	1.09	0.67–1.76
≥10	2.35**	1.22–4.52
Parity		
≤4 (ref)	1.00	na
≥5	2.08***	1.39–3.12
Living sons		
≤2 (ref)	1.00	na
≥3	1.64*	1.07–2.52
Accepts family planning messages in media		
Yes	1.48*	1.20–2.15
No (ref)	1.00	na
Received family planning messages from a health care provider		
Yes	3.34***	2.08–5.35
No (ref)	1.00	na
Believes Islam allows family planning		
Yes	1.59*	1.07–2.35
No (ref)	1.00	na
Woman's mother-in-law reported discussing family planning with her		
Yes	2.85***	1.88–4.31
No (ref)	1.00	na

* $p < .05$. ** $p < .01$. *** $p < .001$. Notes: CI=confidence interval. ref=reference group. na=not applicable.

trolling for women's education, accepting family planning messages delivered through mass media, having a mother-in-law who discusses family planning with them and receiving family planning messages from a health care provider strongly influenced women's likelihood of using contraceptives. However, women's level of autonomy—based on their ability to make decisions within the family and to go out of the home unaccompanied—did not significantly influence their contraceptive use.

Perhaps a prospective study design would have been more appropriate for establishing a cause-and-effect relationship between the potential influencing factors and women's contraceptive use. However, considering the time and costs involved, conducting such a study was not feasible. Therefore, we opted for a study that compared women who used contraceptives with women who did not. We identified women through a rapid assessment survey, a standard and powerful comparative method with which to measure associations.

A major limitation of this approach is the potential for recall bias because of the time lag between determining contraceptive use and gathering information on potential associated variables, which could affect women's perceptions. Another limitation is that we are not able to determine direct cause-and-effect relationships. For example, in the univariate analysis, 78% of women who used contraceptives and 64% of those who did not accepted family planning messages in the mass media, while in the multivariate analysis, women who used contraceptives were almost 50% more likely to say that mass media were appropriate vehicles for family planning information dissemination. However, we are unable to determine whether women's beliefs about such messages in the mass media led them to use contraceptives or whether they accept the messages because they use contraceptives. While a cause-and-effect relationship could be identified through alternative study designs, the comparative design that we have used here provides insights into probable causal relationships.

We received complete responses from 70% of the 1,020 triads in our sample. While it could be interpreted as a limitation of our study that we were not able to include information from the other 30% of the triads, it is important to note that among the 1,020 potential triads, only 29 (3%) refused to participate in the survey; the remaining questionnaires were discarded because either they were incomplete (11%) or there was not complete information (16%) from either the wife, the husband or the mother-in-law. The refusal rate was minimal and was much lower than rates observed in developed countries. Therefore, the possibility that the refusal rate biased our results is marginal. In addition, the much larger proportion of the sample not included in the analysis because of incomplete questionnaires or incomplete information was approximately equally distributed among women who used contraceptives and those who did not. Hence, the direction of any effect is similar in both directions. Finally, variations in education and parity between contraceptive users and nonusers may have influenced our results, and thus could limit the findings of our research. Though the direction of an effect, if any, is debatable, we discarded the questionnaires and are not able to determine whether this had an effect.

A strength of our study is the specificity of our selection criteria and our ability to assess the variables that potentially in-

fluence modern contraceptive use among younger women—who more often choose to use a contraceptive method for spacing rather than for limiting pregnancies. This is underscored by the fact that the method mix in our sample varies significantly from that reported in other demographic surveys of Pakistan, in which tubal ligation has been women's most frequently reported contraceptive method. In our sample, only slightly more than 10% of women reported that they had had a tubal ligation; most women who used contraceptives used condoms, and most women used contraceptives for the purpose of spacing births.

Overall, our results agree with previous research on the association of women's contraceptive use with their level of autonomy and their communication with spouses and mothers-in-law about reproductive matters. One exception is our observation that there is not a significant association between contraceptive use and women's discussions with their husbands about family matters, including family size and family planning, which have been found to be important for predicting fertility change.²⁰ The only household communication that remained significant in the multivariate analysis was that of the mother-in-law's reported discussions about family planning with her daughter-in-law. Thus, in the traditional Pakistani patriarchal and patrilocal family structure found in the low-income squatter settlements of Karachi, a woman's mother-in-law appears to have a strong influence on the couple's reproductive decision-making. We recommend, therefore, that campaigns to motivate couples to use modern family planning methods target not only couples, but also other family members, especially mothers-in-law.

Another exception is our conflicting findings related to women's autonomy. While the univariate analysis indicated a significant association between women's contraceptive use and female mobility and decision-making capability, in the multivariate analysis, women's mobility and decision-making capability were not significantly associated with their contraceptive use. This can be explained by the collinearity of decision-making with mobility and of decision-making with education. Our results indicate that education, which frequently is used in research to define women's status, is strongly associated with both decision-making and mobility (results available on request). Thus, the independent influence of mobility and decision-making on contracep-

tive use shown in the results of our univariate analysis was not evident in the results of our multivariate analysis, in which we included a variable for women's education.

Similar proportions of women who used contraceptives and those who did not said that Islam does not allow family planning. Even so, women who use contraceptives presumably have adopted a contraceptive method because of several potentiating factors, including the need to balance their religious beliefs with prevailing living costs and the need to maintain quality of life for themselves and their children in an urban setting. Our observation that, after adjusting for education, women who used contraceptives were more likely than women who did not to say that Islam allows family planning may have a direct bearing on media campaigns to educate the public about family planning. We recommend that policymakers attempt to clarify religious misconceptions about family planning by seeking the active collaboration and support of religious leaders, which has been done in Muslim countries such as Indonesia, Egypt and Iran. In addition, we recommend that researchers conduct qualitative studies to explore the influence of religious beliefs on attitudes about family planning, particularly among local clerics and religious leaders.

Knowledge of family planning methods is widespread in Pakistan²¹ and attributed to the successful mass media campaign.²² To our knowledge, however, whether Pakistani women view it as appropriate to air these messages in such a public way has never been investigated. We found that women who use contraceptives are much more likely to accept family planning messages delivered through mass media than are women who do not use contraceptives. Because women's acceptance of these messages may be a mediating factor in their decisions about contraceptive use, we recommend that researchers initiate qualitative studies to investigate the relationship between women's receiving messages about family planning in the mass media, views about their appropriateness and their decisions about whether to use contraceptives.

High socioeconomic status, as measured by household assets, was significantly associated in univariate analyses with women's contraceptive use, as were other factors commonly believed to affect couples' contraceptive use, such as husbands' and wives' education levels, wives' occupation, the duration of their marriage, area of residence, parity and receipt of fam-

ily planning messages from a health care provider. However, the majority of these factors lost their significance after the multivariate analysis was used to adjust for the effects of other variables. Thus, because improving women's economic and educational status are long-term goals, we recommend a short-term strategy for increasing women's contraceptive use through social marketing activities that include door-to-door visits from community health workers.

Finally, our findings reaffirm the overarching importance of educating women and education's direct and indirect influence not only on contraceptive use but also on women's status. The government of Pakistan has a commitment to universal education, and this article should signal to policymakers the urgency of improving literacy rates, especially among women. While in the long term, women's education level must be increased, in the short term strategies such as engaging religious leaders in the national family planning program and encouraging the outreach activities of community-based health care providers may achieve more immediate improvements in contraceptive prevalence. Furthermore, the information, education and communication outreach campaign of the family planning program should target mothers-in-law in addition to spouses in its efforts to enhance contraceptive use.

References

1. Pakistan Population Planning Council, *Pakistan Fertility Survey 1976, First Report*, Islamabad, Pakistan: Pakistan Population Planning Council, 1976.
2. National Institute of Population Studies, Pakistan, and Centre for Population Studies, London School of Hygiene and Tropical Medicine, *Pakistan Fertility and Family Planning Survey 1996-97, Preliminary Report*, London: London School of Hygiene and Tropical Medicine, 1998.
3. Mahmood N, Motivation and fertility control behavior in Pakistan, *Pakistan Development Review*, 1992, 31(2):119-144.
4. Hill R, Stycos JM and Back WK, *The Family and Population Control: A Puerto Rican Experiment in Social Change*, Chapel Hill, NC, USA: University of North Carolina Press, 1959.
5. Rutenber N and Watkins SC, Conversation and contraception in Nyanza province, Kenya, paper presented at the annual meeting of the Population Association of America, New Orleans, LA, USA, May 9-11, 1996.
6. Moore M, Indian plan thwarted by quest for sons: population grows as farmers insist upon two male heirs, *Washington Post*, Sept. 7, 1994, p. A26; Senanyake P, A step towards raising the status of women, Round table: family planning and maternal health care: a common goal, *World Health Forum*, 1986, 7(4):333-335; and Lolarga E, How many children would you like to have? *IMCH Newsletter*, 1983, 14(166):1.
7. Karra MV, Stark NN and Wolf J, Male involvement in family planning: a case study spanning five generations

of a South Indian family, *Studies in Family Planning*, 1997, 28(1):24-34.

8. Qurub SA, Hope for the future 3: planning for sons, *People and the Planet*, 1995, 4(4):23-24.
9. Mbugua I, Kenya: education is crucial, *People*, 1985, 12(2):18-20.
10. Ubaidur Rob AK, Determinants of fertility in Bangladesh, *Biology and Society*, 1990, 7(1):31-37.
11. Reddy MM, Communication factors and their influence on family planning behavior among non-adopters, *Journal of Family Welfare*, 1993, 29(3):12-20; Mahmood N and Ringheim K, Factors affecting contraceptive use in Pakistan, *Pakistan Development Review*, 1996, 35(1):1-22; and Casterline JB, Sathar ZA and Haque M, Preferences and behaviors: a study of contraceptive intentions in Pakistan, paper presented at the annual meeting of the Population Association of America, New York, March 25-29, 1999.
12. Karra MV, Stark NN and Wolf J, 1997, op. cit. (see reference 7); Moore M, 1994, op. cit. (see reference 6); Senanyake P, 1986, op. cit. (see reference 6); and Lolarga E, 1983, op. cit. (see reference 6).
13. Rukanuddin AR and Sultan M, Family planning attitudes, in: National Institute of Population Studies (NIPS) and Macro International, *Pakistan Demographic and Health Survey 1990/1991*, Islamabad, Pakistan: NIPS; and Calverton, MD, USA: Macro International, 1992; and Hashmi SS, Husband's survey, in: Ibid.
14. Bulatao R, *Effective Family Planning Programmes*, Washington, DC: World Bank, 1993.
15. Mahmood N, The desire for additional children among Pakistan women: the determinants, *Pakistan Development Review*, 1992, 31(1):1-30.
16. Bryant JH et al., A developing country's university oriented toward strengthening health systems: challenges and results, *American Journal of Public Health*, 1993, 83(11):1537-1543.
17. Schlesselman JJ, *Case Control Studies: Design, Conduct and Analysis*, New York: Oxford University Press, 1982.
18. Hosmer DW and Lemeshow S, *Applied Logistic Regression*, New York: John Wiley & Sons, 1989.
19. SAS Institute, Inc., *SAS/STAT User's Guide*, version 6.08, 4th edition, volumes 1-2, Cary, NC, USA: SAS Institute, 1994.
20. Mahmood N and Ringheim K, 1996, op. cit. (see reference 11); Casterline JB, Sathar ZA and Haque M, 1999, op. cit. (see reference 11); and Sathar ZA, Women's schooling and autonomy as factors in fertility change in Pakistan: some empirical evidence, in: Jeffery R and Basu AM, eds., *Girls' Schooling, Women's Autonomy and Fertility Change in South Asia*, New Delhi, India: Sage Publications, in association with The Book Review Literary Trust, 1996.
21. Shah NM and Ali SM, Knowledge and use of family planning, in: NIPS and Macro International, 1992, op. cit. (see reference 13).
22. Mahmood N, 1992, op. cit. (see reference 15).

Resumen

Contexto: *Luego de casi tres décadas de programas de planificación familiar iniciados por el gobierno, el aumento de la prevalencia del uso de anticonceptivos en Pakistán ha sido tremendamente lento—del 5% en 1974-1975, al 24% en 1996-1997. Al mismo tiempo, un porcentaje significativo de mujeres no desean tener*

hijos adicionales. Para poder comprender esta contradicción, se necesita investigar los aspectos sociales, religiosos y culturales de la sociedad de Pakistán, los cuales pueden restringir a las parejas la adopción de los métodos modernos de planificación familiar.

Métodos: Se realizaron entrevistas en asentamientos ubicados en Karachi, Pakistán, con mujeres musulmanas de 30 y menos años de edad y con sus cónyuges y suegras, para explorar los factores que influyen en el uso de métodos anticonceptivos. Se realizaron análisis de regresión con una variable y con variables múltiples, con el fin de examinar la relación entre el uso de anticonceptivos y las diversas variables, entre las cuales se encuentran las características sociales y demográficas; las creencias religiosas; la comunicación de información sobre planificación familiar entre mujer, marido y suegra; la movilidad de la mujer y su capacidad de participar en la toma de decisiones; la aceptación de la información sobre planificación familiar que se recibe a través de los medios de difusión; y el nivel de exposición con respecto a los mensajes sobre planificación familiar por parte del personal encargado de los servicios de salud.

Resultados: Los análisis univariados revelan que las mujeres que indicaron que usaban métodos anticonceptivos modernos eran significativamente más proclives a ser alfabetas (razón de momios, 1,7), haber estado expuestas a un ambiente urbano (1,8) y haber tenido por lo menos cinco nacimientos vivos (2,0). De acuerdo con los análisis multivariados, las mujeres alfabetas, las de elevado nivel económico, las cuya suegra indicó que hablaba con la pareja sobre los temas de planificación familiar y las que habían recibido información por parte de los trabajadores de la salud, eran 2–3 veces más proclives a usar anticonceptivos que otras mujeres. Además, las mujeres que indicaron que era apropiado que se divulga-

ran mensajes sobre los servicios de planificación familiar a través de los medios de comunicación, tenían una probabilidad 50% mayor de practicar la anticoncepción.

Conclusiones: Las metas a largo plazo para mejorar los niveles de educación y la situación económica de la mujer, son importantes para lograr el aumento de la prevalencia del uso de anticonceptivos en Pakistán. Al mismo tiempo, los encargados de formular políticas en la materia deberían iniciar actividades a corto plazo—por ejemplo, lograr que los líderes religiosos participen en los programas de planificación familiar; alentar los esfuerzos de promoción comunitaria; y concentrar esfuerzos para que las suegras reciban los mensajes sobre planificación familiar. Estas medidas probablemente pueden resultar muy eficaces para incrementar el uso de anticonceptivos por parte de las mujeres.

Résumé

Contexte: Après bientôt 30 ans de programmes de planning familial institués par l'Etat, la croissance de la prévalence contraceptive au Pakistan progresse avec une lenteur frustrante, de 5% en 1974–1975 à 24% en 1996–1997. Une proportion importante des femmes n'en désirent pas moins ne plus avoir d'enfants. Pour comprendre ce paradoxe, il importe d'identifier les aspects socioculturels et religieux de la société pakistanaise qui font obstacle à l'adoption des méthodes modernes de planning familial.

Méthodes: Des entrevues ont été menées dans les quartiers squattés de Karachi, au Pakistan, avec des femmes musulmanes de 30 ans et moins, leurs maris et leurs belles-mères, dans le but d'identifier les facteurs d'influence de la pratique contraceptive des couples. Des analyses de régression uni- et multivariées ont permis l'examen des associations entre la pratique contraceptive et diverses variables, dont les

caractéristiques sociodémographiques; les croyances religieuses; la communication relative au planning familial entre l'épouse, le mari et la belle-mère; la mobilité de la femme et sa capacité décisionnelle; l'acceptation des informations présentées sur le planning familial dans les médias; et l'exposition aux messages de planning familial des prestataires de soins de santé.

Résultats: Les analyses univariées révèlent, parmi les femmes ayant déclaré pratiquer les méthodes contraceptives modernes, une probabilité nettement supérieure d'alphabétisme (rapport de probabilité de 1,7), d'exposition à un milieu urbain (1,8) et de parité minimale de cinq naissances vivantes (2,0). Selon les analyses multivariées, les femmes alphabétisées, de niveau économique élevé, dont la belle-mère avait déclaré avoir abordé avec elles la question du planning familial, et exposées aux messages de planning familial de leurs prestataires de soins de santé, étaient deux à trois fois plus susceptibles que les autres de pratiquer la contraception. De plus, les femmes qui s'étaient dites favorables à la diffusion de messages de planning familial dans les médias étaient de 50% plus susceptibles de pratiquer la contraception.

Conclusions: Les objectifs à long terme d'amélioration des niveaux d'éducation et de la condition économique des femmes sont importants à la croissance de la prévalence contraceptive au Pakistan. Parallèlement, les responsables politiques devraient entreprendre des initiatives à court terme, telles que l'engagement de leaders religieux au soutien des programmes de planning familial, l'encouragement des efforts de diffusion par les prestataires de soins de santé communautaires et le ciblage de messages de planning familial à l'intention des belles-mères, ces interventions étant susceptibles d'accroître efficacement la pratique contraceptive des femmes.