Unmet Need for Family Planning in Uttar Pradesh

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Unmet Need for Family Planning in Uttar Pradesh

Abstract. *Uttar Pradesh, in north-central India, is the country's most populous state, representing 16 percent of the national population. Between 1981 and 1991 its population grew by 25 percent to 139 million, largely as a result of high fertility—the highest of any Indian state.*

According to India's 1992–93 National Family Health Survey in Uttar Pradesh, 30 percent of currently married women of reproductive age have an unmet need for contraception, either for spacing births or for limiting them. This unmet need accounts for 60 percent of the total (met plus unmet) need for contraception.

In Uttar Pradesh, as elsewhere in India, use of contraception for spacing births is uncommon. Only 10 percent of met need (current use) is due to met need for spacing. Considerable need for spacing exists, but 89 percent of that need is unmet. It is therefore not surprising that 55 percent of all unmet need for contraception in the state is due to unmet need for spacing. These findings support the widespread perception that demand for temporary methods exceeds supply, and that a greatly increased effort is needed to meet the demand for temporary methods.

Despite the family welfare programme's emphasis on sterilization, 43 percent of the need to limit births is also unmet. Of course, sterilization is not the only way to reduce unmet need for limiting. Because some women may prefer to use temporary methods such as the pill or condom to limit family size, intensified promotion of temporary methods may reduce unmet need for limiting as well as unmet need for spacing.

Unmet need varies according to women's socioeconomic characteristics. The percentage of total need that is unmet is especially high among rural women, illiterate women, women whose husbands are illiterate, Muslim women, scheduled-tribe women, and women not exposed to media messages on family planning. The percentage of need for spacing that is unmet is especially high among rural women, illiterate women, women whose husbands are illiterate, and scheduled-tribe women.

Substantial proportions of women with unmet need in Uttar Pradesh say that they do not intend to use family planning at any time in the future. This suggests that the task of converting unmet need into actual use of family planning will not be easy.

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Although 41 percent of currently married Indian women in the 13–49 age group are using some contraceptive method, the rate of contraceptive use varies widely among the states—from 13 percent in Nagaland to 63 percent in Kerala. The rate in Uttar Pradesh is 20 percent, which is next to lowest among the states. These estimates are from the 1992–93 National Family Health Survey (NFHS), which asked a representative sample of nearly 90,000 women throughout India questions about fertility, family planning, and maternal and child health.

Uttar Pradesh, in north-central India, is the country's most populous state. According to the latest census, its population in 1991 was 139 million, amounting to 16 percent of India's total population. The state's population grew by 25 percent between 1981 and 1991, largely as a result of its high fertility, which is the highest of any Indian state. The state is densely populated, with 473 persons per square kilometre compared with 273 for India as a whole.

By other demographic and economic measures as well, Uttar Pradesh faces major challenges. A common measure of fertility is the total fertility rate (TFR), defined as the number of children that a woman would bear throughout her reproductive life at current age-specific fertility rates. The NFHS found the TFR in Uttar Pradesh to be 4.8 children per woman, more than 40 percent higher than the national rate of 3.4. The infant mortality rate in Uttar Pradesh is also high, at 100 infant deaths per 1,000 births; among the Indian states, only Orissa has higher infant mortality. Not surprisingly, the level of socioeconomic development in Uttar Pradesh is comparatively low. For example, 76 percent of ever-married women interviewed in the NFHS in Uttar Pradesh are illiterate, a rate exceeded only in Rajasthan and Bihar. However, the population of Uttar Pradesh is not much poorer than the Indian average. According to the Government of India (MOHFW, DOFW 1992), the proportion of the population below the poverty line in 1987–88 was 35 percent in Uttar Pradesh, compared with 30 percent for the whole country.

Uttar Pradesh faces major economic and demographic challenges: widespread poverty, a total fertility rate of 4.8 children per woman, high infant mortality and female illiteracy, and low contraceptive use.

The low rate of contraceptive use and the high level of fertility in Uttar Pradesh are of considerable concern to the Indian Government, which has launched an Innovations in Family Planning Services project intended to increase contraceptive use in the state. In this context, the present assessment of unmet need for contraception provides useful baseline information for formulating and evaluating strategies to improve family planning programme performance in the state.

Drawing upon data from the NFHS, this report provides estimates of met need and unmet need for contraception both for the state as a whole and for groups of women defined by their demographic and socioeconomic characteristics. The estimates of met need and unmet need are each subdivided further into a need for contraception to space births and a need for contraception to limit births (referred to henceforth as need for spacing and need for limiting). The report devotes considerable attention to measures of met and unmet need for spacing because temporary methods, such as the pill, intrauterine device (IUD), and condom, have been much less available than sterilization. Also examined are the reasons that women with unmet need give for not using contraception.

The definition and measurement of unmet need have evolved considerably during the past two decades. In 1981 Westoff and Pebley identified 11 measures of unmet need based on various combinations of women's breast-feeding status, fecundity, and whether a modern or traditional method was used. These early measures took into account the need for limiting but not the need for spacing. The need for spacing was not considered because Westoff and Pebley's data were from the World Fertility Surveys, which did not collect the information necessary to assess unmet need for spacing.

Using data from the multinational Contraceptive Prevalence Surveys, which contained additional questions related to unmet need for spacing, Nortman (1982) introduced measures of unmet need for spacing to supplement the measures of unmet need for limiting. Nortman excluded pregnant women and amenorrhoeic women from consideration, however, because they were, temporarily at least, not in need of family planning. Subsequently the Demographic and Health Surveys (DHS) included additional questions that allowed for the inclusion of pregnant and amenorrhoeic women among those for whom unmet and met need for spacing and limiting could be measured (Westoff 1988; Westoff and Ochoa 1991; Westoff and Bankole 1995a and 1995b).

The definitions of unmet need used in this report are identical to those used in the current (second) round of the DHS (see Figure 1). Currently married women, including pregnant and amenorrhoeic

women, can be divided into those having met need, unmet need, and no need for family planning. Those with met or unmet need can be further categorized into those who want to limit their family size—that is, to prevent all future births—and those who want to space births by delaying the next birth. All other currently married women, including non-sterilized women who are infecund, are defined as having no need for family planning.

Of course, ascertaining from survey questions whether a woman is infecund is no easy matter. Therefore, our classification of women (actually couples) as infecund is only roughly accurate. Non-pregnant, non-amenorrhoeic, non-sterilized women are classified as infecund if any of the following four conditions is met: (1) the time elapsed since the woman's last menstrual period is greater than six months; (2) the woman says that she is menopausal or that she never menstruated; (3) the woman has been married only once, started living with her husband more than five years ago, and has no children; or (4) the time elapsed since the last child was born is greater than 60 months, the woman is not pregnant, and she has never used contraception.

Sterilization is the only method designed to limit births. Temporary methods, such as the pill, IUD, or condom, may be used for spacing; but some women use them to stop childbearing—i.e., for limiting. Thus the percentage of women who are using a temporary method is generally larger than the percentage who are using a temporary method to space the next birth (met need for spacing), and the percentage of women who are using a family planning method to limit births (which represents the met need for limiting) is generally larger than the percentage of women who are sterilized or whose husbands are sterilized.

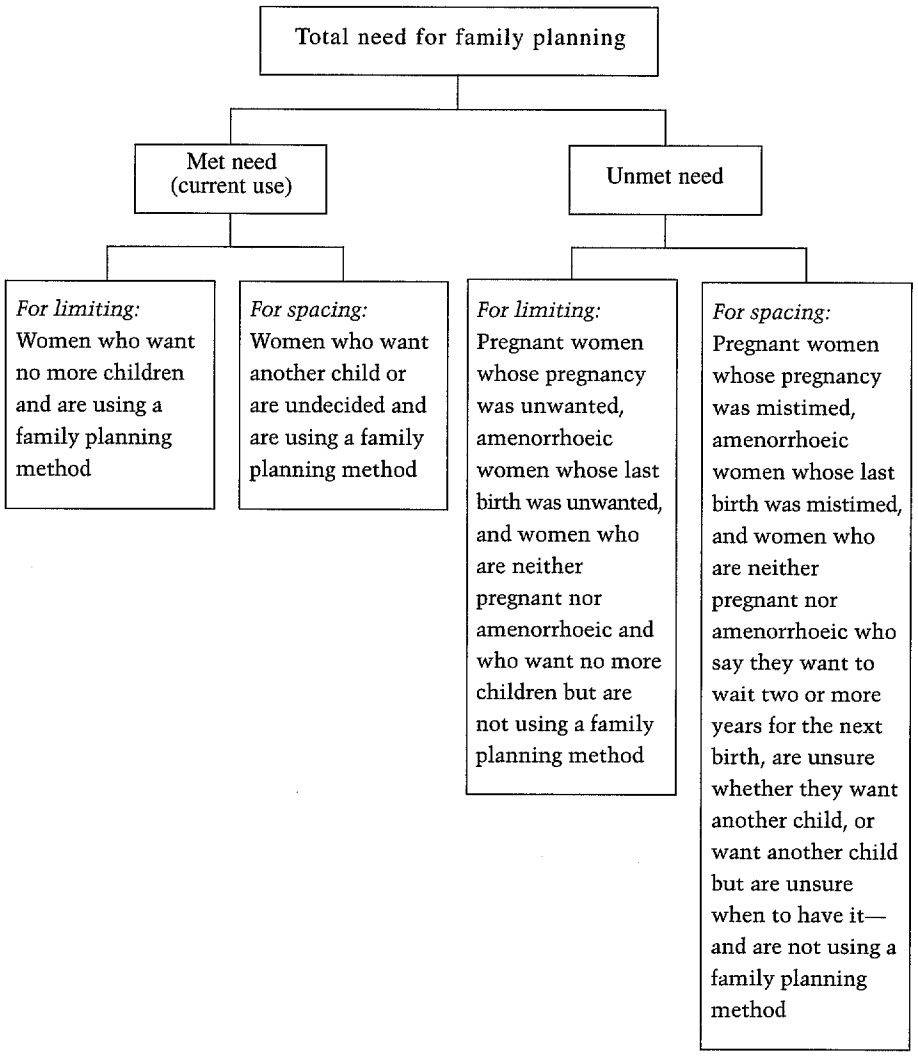

Figure 1. Classification of the need for family planning: Uttar Pradesh

Data and methods

The NFHS collected data for Uttar Pradesh in late 1992 and early 1993 from a probability sample of 11,438 ever-married women of reproductive age. We focus here on the subset of currently married women because those are the women to whom the concept of unmet need applies. The sample must be weighted because some subgroups of the population were over-sampled. The weighted sample on which our analysis is based contains 11,014 currently married women age 13–49. The sample design is described in detail in the basic survey report for Uttar Pradesh (PRC of Lucknow University and IIPS 1994).

Our analytical approach is first to tabulate the percentage distribution of currently married women in the various need categories (unmet need for spacing, unmet need for limiting, met need for spacing, met need for limiting, and no need) for the state as a whole and by demographic and socioeconomic characteristics. The set of characteristics includes age, number of

living children, number of living sons, child loss, family type, urban-rural residence, respondent's education, husband's education, religion, caste/tribe, and exposure to family planning messages in the mass media. Additional variables for the rural sample include whether the village has an all-weather road and the distance of the village from a family planning facility. The reasons for this choice of predictor variables will be discussed in the course of the analysis.

Derived quantities that are also tabulated by demographic and socioeconomic characteristics are the percentage of currently married women who are in need (i.e., representing total need, equal to met need plus unmet need), the percentage of total need that is unmet, the percentage of total need that is due to need for spacing, the percentage of met need that is due to met need for spacing, the percentage of unmet need that is due to unmet need for spacing, the percentage of need for spacing that is unmet, and the percentage of need for limiting that is unmet.

We also assess the effect of each demographic and socioeconomic characteristic on need, while controlling for the other characteristics by holding them constant. This is accomplished by means of multinomial logit (m-logit) regression. In the m-logit regressions, the dependent variable is the set of probabilities (expressed in the tables as a percentage distribution) that a woman will belong to each of five need categories—unmet need for spacing, unmet need for limiting, met need for spacing, met need for limiting, and no need, with no need as the reference category. The demographic and socioeconomic characteristics, or predictor variables, are all categorical and are represented by dummy variables, as discussed below. The m-logit regressions are based on women age 15–49 and exclude the few sampled women in the 13–14 age group.

In the interest of readability, the basic m-logit regressions are not shown. Instead, we use multiple classification analysis to transform the regression results into simple cross-tabulations, in which the predicted percentage distribution of women across the various need categories is tabulated for each category of a given demographic or socioeconomic predictor variable, with the other predictor variables (the control variables) held constant. More precisely, predicted values of the percentages in each need category are calculated from a set of m-logit regression equations in which the predictor variable of interest is set successively to a range of values, each corresponding to a category of the predictor variable, with the other predictor variables set to their mean values in the sample of women for which the regression is run. The set of control variables, being the residual set of predictor variables, varies according to which predictor variable is considered to be the main predictor variable.

In the m-logit regression analysis, women are grouped according to the number of living children they have, and a separate m-logit regression model is estimated for each group of women so defined. Separate regressions are necessary because the effect of a background characteristic—for example, education—on need is highly variable, depending on the number of living children that a woman has. For instance, among women with no living children, met need (current use), which is close to zero, hardly varies by education, whereas among women with three living children, met need increases sharply as education increases. If a single model were used for all women, with the number of living children included among the predictor variables, it would be necessary to include a large number of interaction terms in order to allow the effect of education to vary according to the number of living children. This would have to be done not only for education but also for the other predictor variables. Although such a model is possible, it would be excessively cumbersome. It is simpler to run a separate model for each subgroup of women defined by their number of living children.

Results

The discussion of results begins with a description of how women in the sample are distributed on each of the characteristics (predictor variables) considered. This is followed by an analysis of unmet and met need for family planning.

Characteristics of currently married women

Table 1 shows percentage distributions of currently married women on each of the predictor variables. For each predictor variable, separate distributions are shown for urban, rural, and total groups. Each of the distributions adds to 100 percent.

Because the need for family planning generally increases with a woman's age and number of living children, these two variables are included in the set of predictor variables. Table 1 shows that the sub-sample of 11,014 currently married women is concentrated in the prime reproductive ages, with 41 percent of the women at ages 20–29. The sample is fairly evenly divided by number of living children, with a slight peak at two and three living children.

Son preference is strong in Uttar Pradesh, as elsewhere in India, and the number of living sons is known to have strong effects on couples' motivation to use family planning (see, for example,

Arnold 1992; PRC of Lucknow University and IIPS 1994; Choudhury 1979; Gadalla, McGarthy, and Campbell 1985). Sons are considered important for family labour, supporting parents in their old age, continuing the family line, and, in the case of Hindus, performing certain religious rites upon the death of the parents. In our sample, almost three-quarters of the women have at least one living son, and 45 percent have two or more living sons. There is little difference in these percentages between urban and rural areas.

Child loss (the number of children who have died) affects the need for family planning because many couples are motivated to replace dead children by having more births. Child loss also reduces the need for family planning to space births. Thirty-eight percent of our sample women have lost at least one child, and this percentage is considerably higher in rural than in urban areas—not only because mortality is higher in rural areas but also because fertility is higher there as well.

Family type (nuclear or non-nuclear) is also relevant. Nuclear families are those in which the couple live alone or with their unmarried children.[1] All other family types (consisting mainly of extended families) are grouped as non-nuclear. Women in nuclear families lack relatives in the home to help with child-care, and they tend to have more privacy in which to use family planning than do women in extended families. Thus family type may affect fertility decisions and the need for family planning. About three-tenths of our sample women are from nuclear families.

[1]Family type was ascertained from information on the respondent's relationship to the head of household, which was obtained for each member of the household in the household questionnaire.

Table 1. Percentage distribution of currently married women on each predictor variable: Uttar Pradesh

Variable	Urban	Rural	Total
Age			
13–14	0	0	0
15–19	5	13	11
20–24	19	22	22
25–29	21	19	19
30–34	20	15	16
35–39	16	13	14
40–44	11	10	10
45–49	8	9	9
Number of living children			
0	11	15	14
1	16	15	16
2	20	17	17
3	19	18	18
4	14	14	14
5	9	10	10
6+	11	11	11
Number of living sons			
0	25	28	27
1	31	27	28
2+	43	45	45
Child loss			
0 dead	75	59	62
1+ dead	25	41	38
Family type			
Nuclear	40	26	29
Non-nuclear	60	74	71
Residence			
Urban	100	0	20
Rural	0	100	80
Respondent's education			
Illiterate	47	82	75
Literate, < middle school complete	12	9	10
Middle school complete	10	5	6
High school and above	30	4	9
Husband's education			
Illiterate	21	38	35
Literate, < middle school complete	16	18	17
Middle school complete	12	15	15
High school and above	51	29	33
Religion			
Hindu	66	88	83
Muslim	31	12	16
Other	3	1	1
Caste/tribe			
Scheduled caste	9	19	17
Scheduled tribe	0	1	1
Other	91	80	82

Table 1. *(continued)*

Variable	Urban	Rural	Total
Media exposure to family planning			
Yes	65	25	33
No	35	75	67
Village has all-weather road			
Yes	na	39	na
No	na	61	na
Distance of village from a primary health centre, sub-centre, or hospital			
< 3 km	na	59	na
≥ 3 km	na	41	na
Number of women[a]	2,197	8,817	11,014

Note: Percentages may not sum exactly to 100 because of rounding. A zero entry means that the percentage is less than 0.5.

na—not applicable.

a. Base numbers of women are slightly smaller in some panels of the table because of missing values on the variable in question. The number of women with missing values on a particular variable never exceeds 21 (husband's education), except for the presence of an all-weather road and the distance from a family planning source; in those two cases, slightly more than 300 women have missing values because the questions come from the village questionnaire, which was not completed for 11 villages.

Urban-rural residence and education are basic socioeconomic variables with well-documented effects on fertility and contraceptive use. Eighty percent of our sample women reside in rural areas. By education, 75 percent are illiterate and only 9 percent have at least a high school education. In urban areas, however, 47 percent are illiterate and 30 percent have at least a high school education. The husbands of the women have considerably more education than the women themselves.

Religion is included in our analysis because the various religious groups in India are known to differ by fertility level and use of family planning. Eighty-three percent of our sample women are Hindu, and almost all the rest are Muslim. The small residual group of other religions includes Sikhs, Jains, Buddhists, and Christians. In Uttar Pradesh, Muslims are more concentrated in urban areas than are Hindus.

The need for family planning is also known to vary by caste and tribe. Seventeen percent of the women are from scheduled castes and 1 percent are from scheduled tribes. (Scheduled castes and tribes are groups that the Indian Government identifies as socially and economically backward and in need of special protection from social injustice and exploitation.) Most women (82 percent) belong to other groups. Proportionately more women from scheduled castes and scheduled tribes reside in rural areas than in urban areas, whereas proportionately more women from other groups reside in urban areas.

Exposure to family planning messages in the mass media has a direct bearing on the need for family planning. A woman is considered exposed if she heard a family planning message on radio or saw one on television during the month prior to the interview. Otherwise she is considered unexposed. Sixty-five percent of urban women have been exposed to messages on family planning in the mass media, whereas only 25 percent of rural women have been so exposed.

In rural areas, village-level information was also collected for 260 villages. (It was not possible to collect village-level information for 11 of the 271 villages that were sampled, but individual questionnaires were completed for women in those villages.) Whether a village is connected to the outside world by an all-weather road is a general indicator of development that may have some effect on the need for family planning. In our sample, 39 percent of women live in villages connected by an all-weather road. Distance of the village from a family planning source (primary health centre, sub-centre, or hospital) also may influence the need for family planning. Ninety-one percent of villages in the sample are 6 kilometres or less from a family planning source (this percentage is not shown in the table), and 59 percent of rural women live in villages that are less than 3 kilometres from a family planning source. Our distance variable is dichotomized at 3 kilometres in order to yield a good split of cases.

Need for family planning

As shown in the first row of Table 2, 50 percent of currently married women in Uttar Pradesh have a need, either met or unmet, for family planning. This is the same as total need for family planning, as defined in Figure 1. Thirty percent of currently married women have an unmet need for family planning. Among those having a need, 60 percent have an unmet need.[2]

[2] The values in the last column are calculated by dividing the number (rather than the percentage) of women with unmet need by the number (rather than the percentage) of women in need.

Table 2. Need for family planning among currently married women: Uttar Pradesh

Background characteristic	% of currently married women in specified need category				No. of women	% in need (met plus unmet)	% of total need that is unmet
	Unmet need	Met need	No need	Total			
Uttar Pradesh	30	20	50	100	11,014	50	60
Age[a]							
15–19	39	3	59	100	1,215	41	94
20–24	36	7	56	100	2,397	44	83
25–29	35	17	48	100	2,094	52	67
30–34	32	28	41	100	1,728	60	54
35–39	28	35	38	100	1,492	63	45
40–44	19	33	49	100	1,099	51	37
45–49	7	26	67	100	971	33	22
Number of living children							
0	25	2	73	100	1,542	27	93
1	33	8	60	100	1,717	41	81
2	34	19	48	100	1,892	52	64
3	27	28	45	100	1,948	55	49
4	26	33	41	100	1,569	59	44
5	33	28	39	100	1,111	61	54
6+	35	24	41	100	1,237	59	60
Number of living sons							
0	29	5	66	100	3,000	34	85
1	33	16	51	100	3,069	49	67
2+	29	31	40	100	4,946	60	48
Child loss							
0 dead	32	20	49	100	6,827	51	62
1+ dead	28	20	52	100	4,188	48	58
Family type							
Nuclear	29	25	46	100	3,150	54	54
Non-nuclear	31	18	52	100	7,864	48	63
Residence							
Urban	27	32	42	100	2,197	59	45
Rural	31	17	52	100	8,817	48	65
Respondent's education							
Illiterate	30	16	54	100	8,305	46	66
Literate, < middle school complete	30	28	41	100	1,097	59	52
Middle school complete	29	30	41	100	626	59	50
High school and above	30	40	30	100	987	70	42
Husband's education							
Illiterate	31	13	57	100	3,822	43	71
Literate, < middle school complete	31	18	52	100	1,895	48	63
Middle school complete	29	19	52	100	1,607	48	60
High school and above	30	29	42	100	3,669	59	51
Religion							
Hindu	30	21	49	100	9,182	51	59
Muslim	31	11	59	100	1,707	42	75
Other	26	40	34	100	125	66	40

Table 2. *(Continued)*

Background characteristic	% of currently married women in specified need category				No. of women	% in need (met plus unmet)	% of total need that is unmet
	Unmet need	Met need	No need	Total			
Caste/tribe							
Scheduled caste	33	15	52	100	1,865	48	68
Scheduled tribe	35	12	53	100	133	47	75
Other	30	21	50	100	9,017	50	59
Media exposure to family planning							
Yes	30	29	41	100	3,645	59	51
No	30	15	55	100	7,365	46	66
Village has all-weather road (rural only)							
Yes	30	21	49	100	3,338	51	60
No	31	14	55	100	5,160	46	68
Distance of village from a primary health centre, sub–centre, or hospital (rural only)							
< 3 km	32	18	50	100	4,976	50	64
≥ 3 km	29	15	56	100	3,456	44	66

Note: Percentages may not sum exactly to totals or subtotals because of rounding. Distributions by religion and caste/tribe sometimes differ slightly from the distributions given in the final report for Uttar Pradesh, which assigned to visitors in the household the same religion and caste/tribe as reported by the household head. In the present report, religion and caste/tribe are assigned to visitors on the basis of the visitors' own statements about the religion and caste/tribe of the head of the household in which they usually reside.

a. The age group 13–14 contains only 17 currently married women and is not shown separately.

Also shown in Table 2 are demographic and socioeconomic differentials in the percentages of women needing family planning. We consider age differentials first. The percentage in need (met plus unmet) increases with age up to 35–39, where it reaches 63 percent, and then tapers off. Met need (current use) rises more steeply with age, also peaking at 35–39, where it reaches 35 percent. Unmet need, on the other hand, is highest at ages 15–19 (39 percent), declining slowly until ages 35–39 and thereafter more rapidly. The tapering off of unmet need after age 40 is probably due mainly to women's perceptions that they are no longer capable of having children.

The pattern by number of living children is somewhat similar but not identical to the pattern by age. Total need increases rapidly from zero to two children and then more slowly up to four children, where it reaches 59 percent. It remains close to this level for five and six or more living children. Met need increases to 33 percent for women with four living children and then tapers off. Unmet need ranges irregularly from 25 to 35 percent and shows no particular pattern by number of living children.

The pattern for the remaining variables in the table is fairly consistent in that, for those variables, unmet need is in the neighborhood of 30 percent, varying little across categories of any given predictor variable. Variation in met need accounts almost entirely for the variation in total need. The predictor variables with the largest differentials in met need are number of living sons, urban-rural residence, and respondent's education, religion, and media exposure. Differentials are small or non-existent for child loss, family type, husband's education (except for husbands with at least a high school education), caste/tribe, presence of an all-weather road, and distance from a family planning source. In the case of those predictor variables showing large differentials, the differentials are all in the expected direction. Women with more living sons have higher met need than do those with fewer living sons. Urban women have higher met need than rural women. Women with more education have higher met need than women with less education. Women of 'other' religions have higher met need than Hindu women, who in turn have higher met need than Muslim women. Women exposed to media messages about family planning have higher met need than women who have not had such exposure.

Met and unmet need for spacing and limiting

Table 3 subdivides unmet need and met need each into components due to need for spacing and need for limiting. Several derived measures are also given. For Uttar Pradesh as a whole, almost all met need consists of met need for limiting. Only 10 percent of current contraceptors are using contraception for spacing purposes. However, there is considerable unmet need for spacing; in fact, unmet need for spacing (17 percent) exceeds unmet need for limiting (13 percent), so that 55 percent of all unmet need is due to unmet need for spacing.[3] The proportion of need for spacing that is unmet is very high, at 89 percent. The proportion of need for limiting that is unmet is considerably lower but still high, at 43 percent. These figures indicate that the family welfare programme is doing a much better job (but by no means a perfect job) at meeting the need for limiting than at meeting the need for spacing. This finding is not surprising, given the programme's well-known emphasis on sterilization.

In Table 2 we saw that unmet need did not vary much by demographic and socioeconomic characteristics; but in Table 3 a different picture emerges for differentials by age, number of living children, number of living sons, and child loss when unmet need is disaggregated into unmet need for spacing and unmet need for limiting. Unmet need for spacing decreases steeply with age, whereas unmet need for limiting increases steeply with age up to age 40. The two sets of differentials in unmet need for spacing and limiting largely offset each other, so that their sum results in much less variation in overall unmet need. A similar pattern is observed for differentials by number of living children, number of living sons, and child loss.

The remaining predictor variables in Table 3 are not correlated (or at least not highly correlated) with age and do not show the offsetting pattern shown by the age-correlated variables. Neither unmet need for spacing nor unmet need for limiting shows much variation on these variables. The spacing measures in the right part of the table, because they are derived from the more basic quantities in the left part, do not show much variability either. There are a few exceptions, however. Respondents with at least a high school education have a noticeably lower percentage of need for spacing that is unmet than do other educational groups (71 percent compared with 85–94 percent). This percentage is also substantially lower for urban respondents (75 percent) than for rural respondents (93 percent), and it is substantially lower for women of 'other' religions (74 percent) than for Hindu and Muslim women (90 percent).

The percentage of need for limiting that is unmet shows greater variation with respect to the predictor variables than does the percentage of need for spacing that is unmet. As an illustration, Figure 2 shows the percentage of need for spacing that is unmet and the percentage of need for limiting that is unmet by education.

Determinants of need for family planning

As mentioned earlier, our analysis of the determinants of need for family planning

Griffith Feeney

The need for family planning in Uttar Pradesh is related to the gender of children already born: because of a strong preference for sons, most women with few sons want to continue childbearing.

[3] Among four Asian countries where Demographic and Health Surveys (DHS) have been conducted, the surveys have found that unmet need for spacing exceeds unmet need for limiting in Bangladesh, Pakistan, and Indonesia. In the Philippines unmet need for limiting is slightly greater than unmet need for spacing. (See Westoff and Bankole 1995b, table 4.2.)

Table 3. Need for spacing and limiting among currently married women: Uttar Pradesh

Background characteristic	% of currently married women in specified need category				% of total need that is due to need for spacing	% of met need that is due to met need for spacing	% of unmet need that is due to unmet need for spacing	% of need for spacing that is unmet	% of need for limiting that is unmet
	Unmet need for spacing	Unmet need for limiting	Met need for spacing	Met need for limiting					
Uttar Pradesh	17	13	2	18	37	10	55	89	43
Age[a]									
15–19	36	3	2	1	91	75	92	95	82
20–24	32	5	4	4	81	52	87	89	56
25–29	19	16	3	14	43	19	55	85	53
30–34	9	23	1	27	18	4	29	89	46
35–39	4	24	1	34	7	2	13	85	42
40–44	1	18	0	32	3	1	6	84	36
45–49	1	6	0	26	3	0	12	100	19
Number of living children									
0	23	2	2	0	92	91	92	93	92
1	31	2	5	2	89	69	94	85	46
2	25	8	3	16	54	16	75	89	35
3	13	13	1	27	27	5	50	91	33
4	7	19	0	32	13	1	28	95	37
5	5	28	1	27	10	2	16	90	51
6+	4	32	0	24	7	1	10	93	57
Number of living sons									
0	27	2	3	2	88	64	92	89	57
1	23	10	3	13	52	19	69	88	44
2+	7	22	1	31	12	2	24	92	42
Child loss									
0	21	11	3	17	45	14	65	88	40
1+ dead	10	17	1	19	24	4	38	93	47
Family type									
Nuclear	11	18	2	23	23	7	37	87	44
Non-nuclear	19	12	2	16	44	12	62	90	43
Residence									
Urban	13	14	4	28	29	13	47	75	34
Rural	18	13	1	15	40	9	57	93	46
Respondent's education									
Illiterate	16	14	1	14	38	7	53	94	50
Literate, < middle school complete	17	13	3	25	34	10	57	85	34
Middle school complete	19	10	3	27	38	10	66	87	27
High school and above	19	11	8	33	38	19	64	71	25

Husband's education									
Illiterate	15	15	1	12	38	7	51	95	57
Literate, < middle school complete	15	16	2	16	34	8	49	91	49
Middle school complete	18	11	2	18	40	9	61	91	39
High school and above	18	12	4	25	37	12	61	84	32
Religion									
Hindu	17	13	2	19	37	9	57	90	40
Muslim	15	16	2	9	40	15	48	90	64
Other	17	10	6	34	34	15	63	74	22
Caste/tribe									
Scheduled caste	18	14	2	14	42	10	56	93	51
Scheduled tribe	21	14	0	12	46	1	61	100	54
Other	16	13	2	19	37	10	55	89	41
Media exposure to family planning									
Yes	18	12	4	25	36	12	60	84	32
No	16	14	1	14	38	8	53	93	50
Village has all-weather road (rural only)									
Yes	17	14	2	19	36	8	56	91	42
No	18	13	1	13	42	9	57	93	51
Distance of village from a primary health centre, sub-centre, or hospital (rural only)									
< 3 km	19	13	2	17	40	8	58	93	45
≥ 3 km	16	13	1	14	38	8	54	93	49

Note: Results by religion and caste/tribe are slightly inconsistent with results by religion and caste/tribe in the final report for Uttar Pradesh, which assigned to visitors in the household the same religion and caste/tribe as that reported by the household head. In the present report, religion and caste/tribe were assigned to visitors on the basis of visitors' own statements about the religion and caste/tribe of the head of the household in which they usually reside. A zero entry means that the percentage is less than 0.5.

a. The age group 13–14 contains only 17 currently married women and is not shown separately.

uses multinomial logit regression models, so that we can assess the effects of one variable on need while controlling for the other variables. M-logit models are run separately for each number of living children to allow for the possibility that the effect of a predictor variable on need varies substantially according to the number of living children that a woman already has. By means of multiple classification analysis, the m-logit regression results are transformed into a simple cross-tabular format. In this format, we can tabulate need (i.e., the percentage of women in each need category) by the predictor variable of interest, while controlling for the other predictor variables in the model by setting them to their mean values in the group of women (with a particular number of living children) for which the m-logit regression is run. (For methodological details about how multiple classification analysis is used in conjunction with m-logit regression, see Retherford and Choe 1993.)

The results of this analysis are shown in Tables 4–14. Only the four basic need categories of unmet need for spacing, unmet need for limiting, met need for spacing, and met need for limiting are shown in these tables. Our models include both demographic and socioeconomic predictor variables. We consider the effects of the demographic variables first.

Table 4 tabulates need, as well as some of the derived measures discussed earlier, by number of living sons. Each of the six panels of the table, corresponding to a particular number of living children, is based on a separate m-logit regression, as described in the footnote to the table. An asterisk after an entry indicates that the underlying m-logit regression coefficient differs significantly from zero at the 5 percent level.

Among women with one living child, hardly anyone uses contraception for ei-

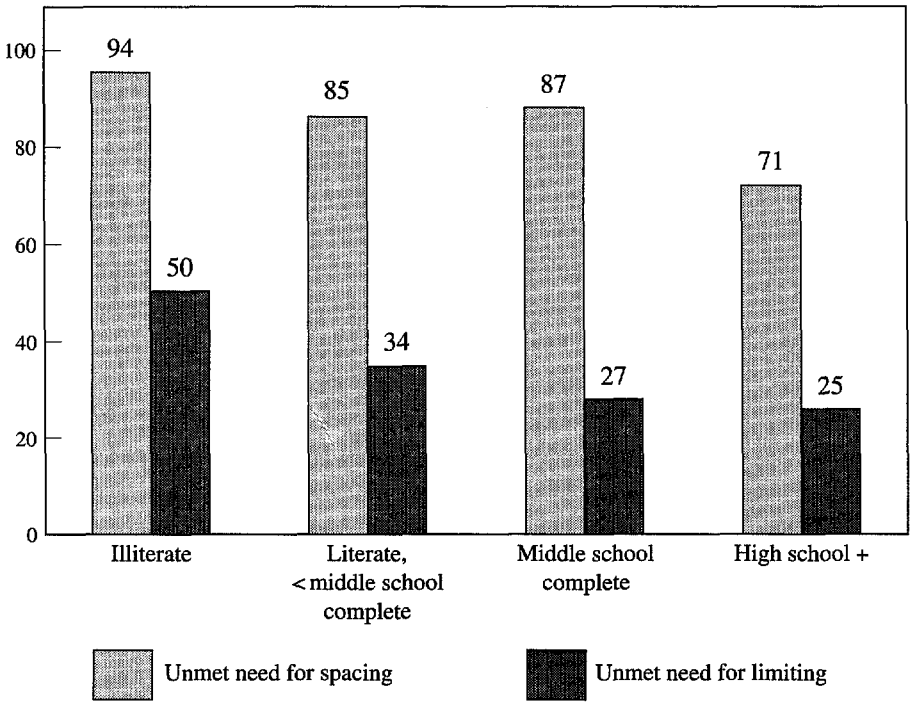

Figure 2. Percentage of the need for spacing and limiting that is unmet, by wife's education: Uttar Pradesh

ther spacing or limiting. However, approximately one-third of these women have an unmet need for spacing. This fraction does not differ significantly by number of living sons, indicating that virtually all the women would like to have more children, regardless of whether the first child is a son or a daughter.

The picture is quite different for women with two living children. Met need for limiting ranges from 3 percent for women with no living son to 21 percent for women with two living sons. However, met need for spacing remains close to zero, regardless of the number of living sons. Unmet need for spacing declines from 36 percent for women with no living sons to 19 percent for women with two living sons, as women shift over to limiting. Unmet need for limiting increases slightly with family size, from 2 percent for women with no living sons to 8 percent for women with two living sons.

The pattern is similar for women with three living children, except that the differentials by number of living sons tend to be more pronounced. For women with four, five, or six or more children, differentials in met and unmet need for limiting come to predominate over met and unmet need for spacing. Met need for spacing is always at or near zero; and unmet need for spacing, while still substantial for women with no living sons, declines in magnitude as women approach the end of their reproductive years.

Table 5 tabulates need by child loss. Among women with no living child, 23 percent have an unmet need for spacing if no child has died, compared with 12 percent if one or more children have died. This difference is not statistically significant, however. Unmet need for limiting and met need for either spacing or limiting are negligible.

Among women with one living child, 36 percent have an unmet need for spacing if no child has died, compared with 19 percent if one or more children have died; and this time the difference is statistically significant. Child loss evidently reduces the need for spacing, undoubtedly in part because child loss itself results in longer birth intervals, and perhaps also because couples wish to replace dead children as soon as possible. Percentages in the other need categories are very small.

A similar pattern is seen for women with two or three living children. Child loss reduces unmet need for spacing but has virtually no effect on unmet need for limiting or on met need for spacing or limiting. Among women with four, five, or six or more children, child loss results in modest reductions in met need for limiting but has no effects on met need for spacing or on unmet need for either spacing or limiting, perhaps because the desire to replace children who have died is largely absent for women with large numbers of surviving children.

Table 6 tabulates need by family type. Among women with no living children, the percentage with unmet need for spacing is significantly lower for women in nuclear families. The reasons for this are not clear. The percentage of women in other need categories is negligible. A rather similar pattern is shown for women with one, two, or three living children, except that the differentials in unmet need for spacing are smaller and no longer significant. At these numbers of surviving children, met need for limiting is significantly higher for women in nuclear families, although the difference between nuclear and non-nuclear is rather small and never exceeds seven percentage points. At higher numbers of surviving children, both met and unmet need for spacing approach zero. Unmet need for limiting tends to be higher for women from nuclear families,

whereas met need for limiting tends to be about the same for women from nuclear and non-nuclear families.

Next we turn to the effects of socio-economic variables. Table 7 tabulates need by urban-rural residence. Among women with no living children, unmet need for spacing is somewhat larger for rural women than for urban women; but the difference is statistically significant only for women with four living children. Unmet need for limiting is significantly greater for urban than for rural women with three living children, but at other numbers of surviving children the differences by residence are small and not significant. Met need for spacing is uniformly low. Met need for limiting is higher for urban than for rural women with fewer than six living children; the opposite is true for women with six or more children, but the magnitude of the reversed differential is small and not significant. Both the percentage of need for spacing that is unmet and the percentage of need for limiting that is unmet tend to be slightly higher among rural women.

Table 8 tabulates need by the respondent's (i.e., wife's) education. For women with no living children, unmet need for spacing varies little by education, except for women with at least a high school education, who have substantially greater unmet need for spacing than do women with less education (34 percent compared with 20–24 percent). The percentages in the other need categories are all close to zero. The pattern is similar for women with one living child, except that the percentages tend to be larger. Among women with two living children, women who have completed middle school have substantially higher unmet need for spacing than do women in other education groups; and women with at least a high school education now have the lowest unmet need for spacing of any education group. Their met need for limiting, however, is much higher than that of the other education groups, indicating that a substantial proportion of women with at least a high school education already wish to limit their family size after having two children and are no longer interested in spacing. The pattern for women with three living children is rather similar to that for women with two living children. Women with four children have a low unmet need for spacing, regardless of their education. Among these women, those with at least a high school education have an especially high met need for limiting. Met need for limiting varies less regularly with education for women with five or more living children.

Table 9 tabulates need by husband's

Table 4. Adjusted percentages having met or unmet need for spacing or limiting, by number of living sons: Uttar Pradesh

Number of living children and number of living sons	% of currently married women with specified need			
	Unmet need for spacing	Unmet need for limiting	Met need for spacing	Met need for limiting
One living child				
0 living son†	33	1	2	1
1 living son	30	2	3	2*
Two living children				
0 living son†	36	2	4	3
1 living son	28	8*	3	11*
2 living sons	19*	8*	2	21*
Three living children				
0 living son†	27	2	4	5
1 living son	18	13*	1	15*
2+ living sons	8*	17*	0	34*
Four living children				
0 living son†	16	11	1	3
1 living son	13	18	0	18*
2+ living sons	5	21*	0*	36*
Five living children				
0 living son†	9	13	0	4
1 living son	4	33	0	16*
2+ living sons	2*	31*	0	28*
Six or more living children				
0 living son†	15	5	0	26
1 living son	3*	29	0	16
2+ living sons	2*	31	0	24

Note: Results are based on six multinomial logit regression models, one for each of six categories of number of living children. Percentages are predicted from the multinomial logit models, with control variables set at their mean values as calculated for women with the specified number of living children. The control variables are child loss, family type, residence, respondent's education, husband's education, religion, caste/tribe, and media exposure to family planning messages. An asterisk (*) after a numerical entry indicates that the corresponding coefficient in the underlying m–logit regression differs significantly from 0 at the 5% level. Zero entries indicate a percentage less than 0.5%. In the underlying m–logit regressions, 'no need' is the reference category for the dependent variable. A dagger (†) indicates the reference category of the predictor variable.

Table 5. Adjusted percentages having met or unmet need for spacing or limiting, by child loss: Uttar Pradesh

Number of living children and child loss	% of currently married women with specified need			
	Unmet need for spacing	Unmet need for limiting	Met need for spacing	Met need for limiting
No living child				
0 dead†	23	1	1	0
1+ dead	12	1	0	0
One living child				
0 dead†	36	1	3	1
1+ dead	19*	2	1*	3*
Two living children				
0 dead†	30	7	3	10
1+ dead	22*	5*	2*	12
Three living children				
0 dead†	14	13	1	23
1+ dead	10*	15	1	23
Four living children				
0 dead†	7	21	0	32
1+ dead	6	20	0	28
Five living children				
0 dead†	2	30	0	29
1+ dead	2	31	0	23
Six or more living children				
0 dead†	3	31	0	27
1+ dead	2*	29	0	21*

Note: See note to Table 4. Control variables in Table 5 are number of living sons, family type, residence, respondent's education, husband's education, religion, caste/tribe, and media exposure to family planning messages.

Table 6. Adjusted percentages having met or unmet need for spacing or limiting, by family type: Uttar Pradesh

Number of living children and family type	% of currently married women with specified need			
	Unmet need for spacing	Unmet need for limiting	Met need for spacing	Met need for limiting
No living children				
Nuclear	8*	0	0	0
Other†	24	2	0	0
One living child				
Nuclear	26	3	2	4*
Other†	33	1	3	1
Two living children				
Nuclear	22	8	3	16*
Other†	29	6	3	9
Three living children				
Nuclear	10	12	1	28*
Other†	13	15	1	21
Four living children				
Nuclear	6	23*	0	31
Other†	6	19	0	29
Five living children				
Nuclear	3	33	0	23
Other†	2	29	0	27
Six or more living children				
Nuclear	3*	35*	0	24
Other†	2	27	0	23

Note: See note to Table 4. Control variables in Table 6 are number of living sons, child loss, residence, respondent's education, husband's education, religion, caste/tribe, and media exposure to family planning messages.

education. With other variables controlled, the percentages in the various need categories vary little by husband's education, although met need for limiting has a tendency to increase with husband's education.

With other variables controlled, there are few systematic differences by religion in unmet need for spacing, unmet need for limiting, or met need for spacing (Table 10). However, among women with three or more living children, met need for limiting has a clear tendency to be lower among Muslim women than among Hindus and women of 'other' religions, indicating some independent effects of being Muslim. It is also noteworthy that met need for limiting among women of 'other' religions no longer differs much from that of Hindu women, except for women with five or six or more children; at these family-size levels the numbers of women of 'other' religions are small and differences between Hindus and women of 'other' religions are not statistically significant. Inasmuch as women of 'other' religions tend to be more urbanized and educated than Hindu or Muslim women, it seems likely that such variables as urban-rural residence and wife's education explain the comparatively large met need for limiting among women of 'other' religions observed in Tables 2 and 3, where other variables are not controlled.

Table 11 shows adjusted percentages in the various need categories classified by caste/tribe. The differentials by caste/tribe show no regular pattern and almost without exception are not statistically significant. This pattern is consistent with the findings shown in Tables 2 and 3, which lack controls.

Table 12 tabulates need by exposure to media messages on family planning. On the one hand, differentials by media ex-

Table 7. Adjusted percentages having met or unmet need for spacing or limiting, by urban-rural residence: Uttar Pradesh

Number of living children and residence	% of currently married women with specified need			
	Unmet need for spacing	Unmet need for limiting	Met need for spacing	Met need for limiting
No living children				
Urban	18	0	0	0
Rural†	22	1	0	0
One living child				
Urban	26	1	5*	2
Rural†	33	1	2	1
Two living children				
Urban	21	8	2	15
Rural†	29	6	3	10
Three living children				
Urban	9	21*	1	32*
Rural†	13	12	1	21
Four living children				
Urban	2*	16	0	40*
Rural†	8	21	0	27
Five living children				
Urban	1	24	0	32
Rural†	2	33	0	24
Six or more living children				
Urban	2	30	0	21
Rural†	2	30	0	24

Note: See note to Table 4. Control variables in Table 7 are number of living sons, child loss, family type, respondent's education, husband's education, religion, caste/tribe, and media exposure to family planning messages.

posure in unmet need for spacing, unmet need for limiting, and met need for spacing are inconsequential. On the other hand, women with two or more living children who have been exposed to media messages on family planning have consistently greater met need for limiting than do other women, even after other variables are controlled.

Tables 13 and 14 use information from the village questionnaire and therefore pertain only to the rural sample, as discussed earlier. Table 13 shows adjusted percentages in the various need categories by whether or not the village is connected

Table 8. Adjusted percentages having met or unmet need for spacing or limiting, by respondent's education: Uttar Pradesh

Number of living children and respondent's education	% of currently married womenwith specified need			
	Unmet need for spacing	Unmet need for limiting	Met need for spacing	Met need for limiting
No living children				
Illiterate†	20	1	0	0
Literate, < mid. sch. complete	24	2	0*	0
Middle school complete	21	3*	0	0
High school and above	34*	2	1*	0
One living child				
Illiterate†	30	1	2	1
Literate, < mid. sch. complete	31	1	4*	1
Middle school complete	28	1	4	1
High school and above	38*	3	7*	3*
Two living children				
Illiterate†	26	5	2	8
Literate, < mid. sch. complete	25	12*	4	13*
Middle school complete	34*	5	4*	18*
High school and above	23*	12*	5*	31*
Three living children				
Illiterate†	14	13	1	21
Literate, < mid. sch. complete	17*	15	1	28*
Middle school complete	14	21*	1	23
High school and above	3*	14	1	40*
Four living children				
Illiterate†	7	20	0	27
Literate, < mid. sch. complete	4	23	0	39*
Middle school complete	6	19	0	44*
High school and above	3	16	0	54*
Five living children				
Illiterate†	4	31	0	22
Literate, < mid. sch. complete	0	26	0*	49*
Middle school complete	0	11*	0	37
High school and above	4	33	0	41*
Six or more living children				
Illiterate†	3	30	0	23
Literate, < mid. sch. complete	1	32	0	25
Middle school complete	7	32	0	26
High school and above	0	34	0	31

Note: See note to Table 4. Control variables in Table 8 are number of living sons, child loss, family type, residence, husband's education, religion, caste/tribe, and media exposure to family planning messages. In the case of met need for women with no living children, the comparison between 'illiterate' and 'less than middle complete' seems to indicate that zero differs significantly from zero; in this case the two percentages are both less than 0.5 percent, and the underlying coefficient for 'less than middle complete' differs significantly from zero. This seeming anomaly also occurs occasionally in other tables.

Table 9. Adjusted percentages having met or unmet need for spacing or limiting, by husband's education: Uttar Pradesh

Number of living children and husband's education	% of currently married women with specified need			
	Unmet need for spacing	Unmet need for limiting	Met need for spacing	Met need for limiting
No living children				
Illiterate†	23	1	0	0
Literate, < mid. sch. complete	20	2	0	0
Middle school complete	20	1	0	0
High school and above	22	1	0	0
One living child				
Illiterate†	32	1	2	1
Literate, < mid. sch. complete	35	1	3	2
Middle school complete	27	3*	3	1
High school and above	32	2	3	2
Two living children				
Illiterate†	27	7	3	9
Literate, < mid. sch. complete	27	6	4	11
Middle school complete	31	6	2	12
High school and above	26	6	3	12
Three living children				
Illiterate†	13	17	1	18
Literate, < mid. sch. complete	12	14	0	21
Middle school complete	13	7*	1	23
High school and above	11	14	2*	32*
Four living children				
Illiterate†	7	17	0	26
Literate, < mid. sch. complete	6	21	0	26
Middle school complete	5	24*	0	30
High school and above	6	22*	0	37*
Five living children				
Illiterate†	2	28	0	21
Literate, < mid. sch. complete	2	35*	0*	24
Middle school complete	2	30	0	31*
High school and above	2	32*	0	31*
Six or more living children				
Illiterate†	2	32	0	17
Literate, < mid. sch. complete	2	31	0	27*
Middle school complete	2	27	0	33*
High school and above	2	26	0	33*

Note: See note to Table 4. Control variables in Table 9 are number of living sons, child loss, family type, residence, respondent's education, religion, caste/tribe, and media exposure to family planning messages.

Table 10. Adjusted percentages having met or unmet need for spacing or limiting, by religion: Uttar Pradesh

Number of living children and religion	% of currently married women with specified need			
	Unmet need for spacing	Unmet need for limiting	Met need for spacing	Met need for limiting
No living children				
Hindu†	23	1	0	0
Muslim	17	2	0	0
Other	21	5	0	0
One living child				
Hindu†	32	2	2	1
Muslim	32	1	3	2
Other	15	4	8	3
Two living children				
Hindu†	27	6	3	12
Muslim	30	7	2	5*
Other	42	5	3	5
Three living children				
Hindu†	11	15	1	27
Muslim	15	9*	1	8*
Other	29*	7	1	30
Four living children				
Hindu†	7	19	0	34
Muslim	3*	30	0	10*
Other	1	20	0	46
Five living children				
Hindu†	2	30	0	29
Muslim	3	32	0	12*
Other	6	24	0	57
Six or more living children				
Hindu†	2	32	0	25
Muslim	2	34	0	16*
Other	0	0	0	34

Note: See note to Table 4. Control variables in Table 10 are number of living sons, child loss, family type, residence, respondent's education, husband's education, caste/tribe, and media exposure to family planning messages.

Table 11. Adjusted percentages having met or unmet need for spacing or limiting, by caste/tribe: Uttar Pradesh

Number of living children and caste/tribe	% of currently married women with specified need			
	Unmet need for spacing	Unmet need for limiting	Met need for spacing	Met need for limiting
No living children				
Scheduled caste	19	2	0	0
Scheduled tribe	24	0	0	0
Other†	22	1	0	0
One living child				
Scheduled caste	33	3	4	1
Scheduled tribe	41	0	0	0
Other†	31	1	3	2
Two living children				
Scheduled caste	30	7	2	8
Scheduled tribe	59*	0	0	8
Other†	26	7	3	12
Three living children				
Scheduled caste	15	14	2	19
Scheduled tribe	14	9	0	22
Other†	12	14	1	24
Four living children				
Scheduled caste	6	27*	0	29
Scheduled tribe	3	18	0	26
Other†	6	19	0	30
Five living children				
Scheduled caste	4*	34*	0	30*
Scheduled tribe	0	50	0	9
Other†	2	29	0	25
Six or more living children				
Scheduled caste	4*	32	0	22
Scheduled tribe	0	39	0	21
Other†	2	29	0	24

Note: See note to Table 4. Control variables in Table 11 are number of living sons, child loss, family type, residence, respondent's education, husband's education, religion, and media exposure to family planning messages.

Table 12. Adjusted percentages having met or unmet need for spacing or limiting, by media exposure to family planning messages: Uttar Pradesh

Number of living children and media exposure to family planning messages	% of currently married women with specified need			
	Unmet need for spacing	Unmet need for limiting	Met need for spacing	Met need for limiting
No living child				
Exposed	26	1	0	0
Not exposed†	19	1	0	0
One living child				
Exposed	33	2	4*	1
Not exposed†	31	1	2	2
Two living children				
Exposed	25	10*	2	14*
Not exposed†	28	5	3	9
Three living children				
Exposed	13	13	1	30*
Not exposed	12	14	1	20
Four living children				
Exposed	6	22	0	34*
Not exposed†	6	20	0	28
Five living children				
Exposed	2	28	0	38*
Not exposed†	2	31	0	22
Six or more living children				
Exposed	2	24	0	31*
Not exposed†	2	32	0	21

Note: See note to Table 4. Control variables in Table 12 are number of living sons, child loss, family type, residence, respondent's education, husband's education, religion, and caste/tribe.

to the outside world by an all-weather road. The presence or absence of an all-weather road has a negligible effect on unmet need for spacing, unmet need for limiting, and met need for spacing. Met need for limiting is significantly greater for women residing in villages that have an all-weather road in the case of those with three or four living children but not for those with other numbers of living children.

Table 14 tabulates need by distance to a family planning source (less than 3 kilometres or 3 or more kilometres from a primary health centre, sub-centre, or hospital). Unmet need for spacing tends to be slightly greater among women who live closer to a source, but otherwise the differentials by distance to a source tend to be small and inconsistent in direction. The unimportance of distance to a source undoubtedly reflects in part the fact that 91 percent of villages are within 6 kilometres of a source, as mentioned earlier. Distance from a source is evidently not a problem for the vast majority of women in Uttar Pradesh. Studies of met need (current use) in other countries have also usually found a weak link between use of contraception and distance to a source (Anderson and Cleland 1984; Ochoa and Tsui 1991;

Table 13. Adjusted percentages having met or unmet need for spacing or limiting, by whether or not the woman's village is connected by an all-weather road: rural Uttar Pradesh

Number of living children and presence of an all-weather road[a]	% of currently married women with specified need			
	Unmet need for spacing	Unmet need for limiting	Met need for spacing	Met need for limiting
No living child				
All-weather road	20	1	0	0
No all-weather road†	22	2	0	0
One living child				
All-weather road	32	0	0	0
No all-weather road†	32	0	0	0
Two living children				
All-weather road	26	5	2	10
No all-weather road†	30	4	2	7
Three living children				
All-weather road	14	12	0	22*
No all-weather road†	15	14	0	14
Four living children				
All-weather road	6	21	0	34*
No all-weather road†	7	21	0	23
Five living children				
All-weather road	1	38	0	24
No all-weather road†	2	36	0	23
Six or more living children				
All-weather road	1	32	0	26
No all-weather road†	1	33	0	21

Note: See note to Table 4. Control variables in Table 13 are number of living sons, child loss, family type, residence, respondent's education, husband's education, religion, caste/tribe, media exposure to family planning messages, and distance to a major family planning source (primary health centre, sub-centre, or hospital).

a. The village questionnaire was not completed for 11 villages; women from those villages are therefore omitted from calculations relating to presence of an all-weather road.

Table 14. Adjusted percentages having met or unmet need for spacing or limiting, by distance to a major family planning source: rural Uttar Pradesh

Number of living children and distance to source[a]	% of currently married women with specified need			
	Unmet need for spacing	Unmet need for limiting	Met need for spacing	Met need for limiting
No living child				
< 3 km	25*	1	0	0
≥ 3 km†	17	2	0	0
One living child				
< 3 km	33	0	0*	0
≥ 3 km†	30	0	0	0
Two living children				
< 3 km	31*	4	2	8
≥ 3 km†	25	5	2	7
Three living children				
< 3 km	15	12	0	20*
≥ 3 km	14	15	0	13
Four living children				
< 3 km	7	21	0	28
≥ 3 km†	6	20	0	25
Five living children				
< 3 km	3*	39	0	22
≥ 3 km†	1	34	0	26
Six or more living children				
< 3 km	1	36	0	22
≥ 3 km†				

Note: See note to Table 4. Control variables in Table 14 are number of living sons, child loss, family type, residence, respondent's education, husband's education, religion, caste/tribe, media exposure to family planning messages, and whether the village is connected by an all-weather road.

a. The village questionnaire was not completed for 11 villages; women from those villages are therefore omitted from calculations relating to distance from a major family planning source (primary health centre, sub-centre, or hospital).

Bongaarts 1995).

In sum, most of the effects of residence, education, religion, and caste/tribe on contraceptive use change little when a multivariate analysis of need is undertaken to assess the effect of each predictor variable while statistically controlling for the effects of the other predictor variables. However, the effect of husband's education is reduced when other variables are controlled, and caste/tribe differentials mostly disappear.

Intention of women with unmet need to use family planning in the future

The NFHS asked currently married noncontracepting women whether they intended to use a method to delay or avoid pregnancy at any time in the future. Those who answered 'no' to this question were asked to give the principal reason why they did not intend to use a method. Their responses to both questions provide an indication of how likely it is that women with unmet need will actually use family planning in the future. Here we consider the subset of women with unmet need and, within that subset, both women with unmet need for spacing and women with unmet need for limiting. Tables 15 and 16, which are simple cross-tabulations without controls, present the results of this analysis.

Table 15 shows the percentage distri-

bution of currently married women with unmet need for spacing by whether or not they intend to use contraception at any time in the future and, for those who do not intend to use contraception, by the main reason why not. The percentage distribution is tabulated by the predictor variables considered earlier. For the state as a whole, only 26 percent of women with unmet need for spacing intend to use family planning at any time in the future. Seventy-four percent say that they do not intend to use contraception in the future. A subset of 62 percent say they do not intend to use family planning primarily because they want more children. Only 13 percent of the respondents do not intend to use family planning for other reasons. From these responses it appears that neither fear of sterilization, supply-related difficulties, opposition to family planning, lack of knowledge about family planning, religious considerations, nor health reasons pose significant barriers to use. Nevertheless, the fact remains that a large majority of women say they do not intend to use contraception in the future.

The picture is similar when we tabulate the percentage distribution of the women with unmet need for spacing by the predictor variables. The distribution of intentions and of principal reasons does not vary systematically by age. However, the percentage intending to use family planning in the future tends to increase as the number of living children rises—except among those with six or more children, for whom the estimated percentage is unreliable because of the small number of cases on which it is based. The percentage giving a desire for more children as their main reason for not using family planning in the future decreases substantially as the number of sons increases. Women exposed to media messages about family planning are somewhat more likely to intend to practise family planning in the future than are women who have not had such exposure. Apart from these effects, the percentage distribution varies little by the predictor variables included in Table 15.

Few women object to family planning on religious, health, or other grounds. Nevertheless, 74 percent say they do not intend to use contraception in the future.

Table 16 shows the percentage distribution of currently married women with unmet need for limiting by whether or not they intend to use contraception at any time in the future and, for those who do not intend to use contraception, by main reason why not. Results are tabulated by the same predictor variables considered in Table 15. Among women with unmet need for limiting, 46 percent say they intend to use family planning in the future but not now. This percentage is almost twice as large as the comparable figure among women with unmet need for spacing (Table 15). In Table 16, 54 percent of the women indicate that they do not intend to use family planning in the future. Eleven percent of those saying they do not intend to use contraception in the future give as their main reason a desire for more children. This reason is inconsistent with the negative response these women gave to an earlier question about wanting more children that resulted in their being classified as having unmet need for limiting. The inconsistency suggests that some women may have misinterpreted the question about intention to use family planning in the future.[4] Similar inconsistencies have been noted in the DHS (Bongaarts 1995; Bongaarts and Bruce 1995).

Forty percent of currently married women with unmet need for limiting do not intend to use family planning in the future and give as their main reason either fear of sterilization, supply-related difficulties, opposition to family planning, lack of knowledge, religious opposition, or health problems. These reasons are mentioned more often by older women and by women with larger numbers of surviving children or sons than by younger women or women with smaller numbers of surviving children or sons. Twenty-two percent of currently married women with unmet need for limiting do not intend to use family planning in the future and give as their main reason a problem that might be removed if family planning services were improved—namely fear of sterilization, supply-related difficulties, or lack of knowledge of family planning. The percentage distribution of women differs little by the other predictor variables in Table 16, with a couple of exceptions. Literate women are considerably more likely to intend to use family planning in the future than are illiterate women, and women exposed to media messages on family planning are considerably more likely to become users in the future than are women who have had no exposure.

[4] The NFHS asked two questions that are relevant here: (1) 'Do you intend to use a method to delay or avoid pregnancy at any time in the future?' and (2) 'Do you intend to use a method within the next 12 months?' The fact that many women with unmet need for limiting gave 'want more children' as a reason for not intending to use family planning at any time in the future indicates that they misinterpreted the first question to mean intention to use in the immediate future rather than at any time in the future. In the next NFHS (and in future DHS worldwide), the order of these two questions will be reversed to prevent such misinterpretation.

Table 15. Percentage distribution of currently married women with unmet need for spacing, by principal reason for not intending to use family planning at any time in the future, and by selected predictor variables: Uttar Pradesh

	Reason for not intending to use								Intend to use in future but not now	Total	Number of women
	Wants more children	Fear of sterilization	Supply-related problems	Opposed to family planning	Lack of knowledge	Religious opposition	Health does not permit	Other reason			
Total population	62	1	2	2	4	1	0	3	26	100	1,538
Age											
15–19	72	0	1	0	3	1	0	1	21	100	355
20–24	59	1	1	2	3	1	0	4	30	100	638
25–29	61	1	2	2	4	2	0	3	26	100	334
30–34	52	2	3	6	8	2	1	4	24	100	149
35–39	58	0	7	3	6	5	0	5	16	100	44
40–44	100	0	0	0	0	0	0	0	0	100	9
45–49	40	0	0	21	0	0	0	21	19	100	6
Number of living children											
0	80	0	0	0	2	0	0	0	18	100	283
1	62	1	2	1	4	1	0	3	27	100	430
2	60	1	2	2	3	1	0	5	28	100	414
3	48	2	4	5	6	3	0	4	28	100	226
4	57	0	1	4	4	2	0	2	30	100	102
5	52	3	0	5	5	2	0	0	35	100	46
6+	57	3	3	3	10	0	3	3	17	100	37
Number of living sons											
0	72	0	0	0	2	1	0	0	24	100	653
1	60	1	2	3	5	1	0	3	25	100	602
2+	44	2	3	4	4	2	1	10	31	100	282
Child loss											
0 dead	64	1	1	1	4	1	0	3	26	100	1,162
1+ dead	56	1	5	4	4	2	0	4	24	100	376
Family type											
Nuclear	55	1	5	4	6	2	0	3	24	100	1,243
Non-nuclear	64	1	1	2	3	1	0	3	26	100	295
Residence											
Urban	61	1	1	2	1	1	0	3	31	100	237
Rural	62	1	2	2	4	1	0	3	25	100	1,301
Respondent's education											
Illiterate	64	1	2	3	5	2	0	3	21	100	1,126
Literate, < middle school complete	59	0	1	1	1	1	0	3	36	100	149

Middle school complete	61	1	3	0	0	0	0	1	34	100	102
High school and above	56	0	1	0	1	0	0	1	41	100	162
Husband's education											
Illiterate	62	1	2	3	6	3	1	3	20	100	496
Literate, < middle school complete	63	0	2	3	5	0	0	2	24	100	228
Middle school complete	61	0	3	1	3	0	0	3	29	100	247
High school and above	62	1	1	1	2	1	0	3	29	100	564
Religion											
Hindu	63	1	2	2	4	0	0	3	26	100	1,302
Muslim	56	1	2	1	2	9	0	3	26	100	222
Other	67	9	0	0	0	0	0	7	17	100	15
Caste/tribe											
Scheduled caste	57	1	4	3	6	1	1	5	24	100	289
Scheduled tribe	73	0	5	1	5	0	0	1	15	100	23
Other	63	1	1	2	3	1	0	3	26	100	1,226
Media exposure to family planning											
Yes	62	0	1	0	1	1	0	2	33	100	570
No	62	1	2	3	5	1	0	3	21	100	968
Village has all-weather road (rural only)											
Yes	59	1	2	3	4	2	0	2	27	100	771
No	63	1	2	2	5	1	0	3	24	100	462
Distance of village from a primary health centre, sub-centre, or hospital (rural only)											
<3 km	60	1	2	2	5	2	0	3	27	100	774
≥3 km	63	1	3	2	4	1	1	4	23	100	446

Note: Percentages may not sum exactly to 100 because of rounding.

Table 16. Percentage distribution of currently married women with unmet need for limiting, by principal reason for not intending to use family planning at any time in the future, and by selected predictor variables: Uttar Pradesh

	Reason for not intending to use								Intend to use in future but not now	Total	Number of women
	Wants more children	Fear of sterili-zation	Supply-related problems	Opposed to family planning	Lack of know-ledge	Religious opposition	Health does not permit	Other reason			
Total population	11	7	7	7	8	6	5	4	46	100	1,249
Age											
15–19	80	0	0	0	0	0	7	0	13	100	27
20–24	21	2	4	1	2	6	3	0	62	100	86
25–29	10	6	3	5	6	5	2	2	61	100	282
30–34	5	7	7	7	7	7	5	4	52	100	324
35–39	10	7	9	9	10	7	5	6	37	100	317
40–44	10	9	11	8	14	5	10	6	28	100	168
45–49	27	10	7	13	16	0	7	5	15	100	45
Number of living children											
0	89	0	0	0	0	0	0	5	6	100	25
1	45	0	0	3	0	3	6	4	38	100	30
2	18	4	8	0	4	3	4	7	53	100	132
3	11	6	4	8	8	4	5	2	53	100	224
4	6	7	7	10	6	6	4	4	51	100	236
5	6	10	8	7	10	6	5	4	43	100	265
6+	8	7	7	7	12	9	6	4	40	100	336
Number of living sons											
0	63	0	2	2	8	0	3	6	16	100	57
1	15	6	4	6	5	6	3	4	51	100	260
2+	7	7	8	7	9	6	6	4	46	100	932
Child loss											
0	13	5	6	5	6	5	4	4	52	100	636
1+ dead	10	8	8	9	11	7	6	4	39	100	613
Family type											
Nuclear	8	7	6	7	10	5	5	5	48	100	760
Non-nuclear	14	7	7	7	7	6	5	4	44	100	488
Residence											
Urban	14	4	7	3	5	6	5	9	48	100	264
Rural	11	7	7	8	9	6	5	3	45	100	984
Respondent's education											
Illiterate	11	7	7	8	10	6	5	4	42	100	982
Literate, < middle school complete	8	7	7	4	4	5	5	2	59	100	124
Middle school complete	18	0	6	4	4	0	8	4	57	100	53
High school and above	16	4	3	0	0	4	6	12	56	100	90

Husband's education											
Illiterate	9	7	7	7	13	8	4	4	40	100	492
Literate, < middle school complete	10	7	8	8	8	6	7	3	43	100	239
Middle school complete	12	8	6	9	4	4	7	2	48	100	149
High school and above	16	6	5	4	3	4	4	6	53	100	369
Religion											
Hindu	12	8	7	7	9	0	5	4	48	100	1,007
Muslim	10	3	5	4	6	29	3	5	35	100	230
Other	28	19	0	0	2	12	1	10	30	100	11
Caste/tribe											
Scheduled caste	13	7	8	11	9	1	5	3	43	100	232
Scheduled tribe	0	14	12	13	20	0	0	0	41	100	16
Other	11	7	6	6	8	7	5	4	46	100	1,001
Media exposure to family planning											
Yes	13	4	7	4	4	3	4	5	58	100	381
No	11	8	7	8	10	7	5	4	40	100	864
Village has all-weather road (rural only)											
Yes	8	11	5	7	6	7	7	3	47	100	366
No	12	6	8	8	11	5	3	3	44	100	596
Distance of village from a primary health centre, sub-centre, or hospital (rural only)											
<3 km	9	10	7	8	7	5	6	2	47	100	561
≥3 km	13	5	7	7	12	7	2	4	42	100	394

Conclusion

Thirty percent of currently married women of reproductive age in Uttar Pradesh—approximately 8 million women—have an unmet need for contraception. This unmet need accounts for 60 percent of total need for contraception (met plus unmet).

In the state as a whole, the proportion of met need (i.e., current use) that is due to met need for spacing is 10 percent, whereas the proportion of unmet need that is due to unmet need for spacing is 55 percent. It is evident that current use of family planning for spacing is extremely low. Correspondingly, the proportion of need for spacing that is unmet is high, at 89 percent.

When we examine how need varies by respondents' demographic characteristics, we see that the percentage of total need that is unmet is especially high among younger women, women with few living children, and women with no living sons. By socioeconomic characteristics, the percentage of total need that is unmet is especially high among rural women, illiterate women, women whose husbands are illiterate, Muslim women, scheduled-tribe women, and women not exposed to media messages on family planning. The percentage of total need that is unmet does not vary much by child loss, family type, or (in villages) by the presence of an all-weather road or distance from a family planning source.

Unmet need for spacing varies considerably by age, number of living children, and number of living sons, and somewhat less so by child loss. It varies little by other demographic characteristics or by socioeconomic characteristics, including family type, urban-rural residence, wife's education, husband's education, religion, caste/tribe, media exposure, the presence of an all-weather road, or distance from a family planning source. Because met need for spacing is so low, variation in overall met need is due almost entirely to met need for limiting. On the other hand, the proportion of need for spacing that is unmet does vary by socioeconomic characteristics and is especially high among rural women, illiterate women, women whose husbands are illiterate, Hindu and Muslim women, and scheduled-tribe women.

These conclusions about the effects of predictor variables change little when we undertake a multivariate analysis of need to assess the effect of each predictor variable while statistically controlling for the effects of the other predictor variables. There are a few exceptions, however. The effect of husband's education on need is reduced when other variables are controlled (controlling for wife's education is critical). And the effects of having an 'other' religion, relative to Hindu, are reduced when other variables are controlled (controlling for urban-rural residence and education is critical). Nonetheless, the strong effect of being Muslim persists in reducing met need for limiting family size. Caste and tribe differentials in the need for contraception tend to disappear when other predictor variables are controlled.

Among currently married women with unmet need for spacing, only 26 percent intend to use family planning in the future. Among the 74 percent who do not intend to use contraception in the future, a subset of 62 percent give as their main reason that they want more children. Only 10 percent mention fear of sterilization, supply-related difficulties, opposition to family planning, lack of knowledge about family planning, religious opposition, or health reasons for not intending to become users. Thus, a large majority of women with unmet need for spacing do not seem to be inhibited by the usual barriers to contraceptive use. Nevertheless, only 26 percent of these women intend to use family planning in the future. This suggests that improving the range and quality of family planning services may not be sufficient to increase met need for spacing by more than about 26 percentage points. However, the effect might be larger if greater programme emphasis on temporary methods were to cause the idea of contraception for spacing to gain widespread acceptance.

Among currently married women with unmet need for limiting, 46 percent intend to use family planning in the future. Among the 54 percent who do not intend to use contraception, a subset of 11 percent gives as the main reason a desire for more children. This reason is inconsistent with those women's negative response to an earlier question about wanting more children, which resulted in their being classified as having unmet need for limiting in the first place. The inconsistency suggests that some women may have misinterpreted the question about intention to use contraception in the future. Nevertheless, the finding that 54 percent of women with unmet need for limiting do not intend to use contraception in the future suggests that further improvements in family welfare services can convert only about half of unmet need for limiting into met need for limiting, unless intentions change. (For further discussion of the limitations of the concept of unmet need, with findings from other countries, see Bongaarts 1991, 1992, 1995; Pritchett 1994; and Westoff and Bankole 1995a, 1995b.)

Despite these caveats, the NFHS findings of substantial unmet need clearly indicate that the family welfare programme should expand its efforts to increase the use of both temporary methods and limiting methods of contraception. Inasmuch as some women may prefer to use temporary methods such as the pill, IUD, or condom rather than sterilization to limit

family size, the intensified promotion of temporary methods may reduce unmet need for limiting as well as unmet need for spacing. Moreover, some women who begin use by spacing may shift to limiting at a lower number of living children than they would if they did not space.

References

Anderson, John E., and John G. Cleland. 1984. The World Fertility Survey and Contraceptive Prevalence Surveys: A comparison of substantive results. *Studies in Family Planning* 15:1–13.

Arnold, Fred. 1992. Sex preference and its demographic and health implications. *International Family Planning Perspectives* 18:93–101.

Bongaarts, John. 1991. The KAP-gap and the unmet need for contraception. *Population and Development Review* 17:293–313.

_____. 1992. Do reproductive intentions matter? *International Family Planning Perspectives* 18:102–8.

_____. 1995. The role of family planning programs in contemporary fertility transitions. Working Paper No. 71. New York: The Population Council.

Bongaarts, John, and Judith Bruce. 1995. The causes of unmet need for contraception and the social content of services. *Studies in Family Planning* 26:57–75.

Choudhury, Rafiqul Huda. 1979. Socio-cultural factors affecting practice of contraception in metropolitan urban areas of Bangladesh. *Demography India* 8:127–53.

Gadalla, Saad, James McGarthy, and Oona Campbell. 1985. How the number of living sons influences contraceptive use in Menoufia Governorate, Egypt. *Studies in Family Planning* 16:164–69.

MOHFW, DOFW (Ministry of Health and Family Welfare, Department of Family Welfare). 1992. *Family Welfare Programme in India year book, 1990–91.* New Delhi.

Nortman, Dorothy L. 1982. Measuring the unmet need for contraception to space and limit births. *International Family Planning Perspectives* 8:125–34.

Ochoa, Luis H., and Amy Tsui. 1991. Contraceptive availability in four Latin American countries. In *Proceedings of the Demographic and Health Surveys World Conference,* Vol. 2, pp. 1273–86. Columbia, Maryland: Institute for Resource Development/Macro Systems International.

PRC (Population Research Centre, Lucknow University) and IIPS (International Institute for Population Sciences). 1994. *National Family Health Survey (MCH and Family Planning): Uttar Pradesh, 1992–93.* Bombay: International Institute for Population Sciences.

Pritchett, Lant. 1994. Desired fertility and the impact of population policies. *Population and Development Review* 20:1–55.

Retherford, Robert D., and Minja Kim Choe. 1993. *Statistical models for causal analysis.* New York: John Wiley.

Westoff, Charles F. 1988. The potential demand for family planning: A new measure of unmet need and estimation for five Latin American countries. *International Family Planning Perspectives* 14:45–53.

Westoff, Charles F., and Akinrinola Bankole. 1995a. *The potential demographic significance of unmet need.* Paper presented at the 1995 Annual Meeting of the Population Association of America, Miami.

_____. 1995b. *Unmet need: 1990–1994.* Demographic and Health Surveys, Comparative Studies, No. 16. Calverton, Maryland: Macro International.

Westoff, Charles F., and Luis Hernando Ochoa. 1991. *Unmet need and the demand for family planning.* Demographic and Health Surveys, Comparative Studies, No. 5. Columbia, Maryland: Macro International.

Westoff, Charles F., and Anne R. Pebley. 1981. Alternative measures of unmet need for family planning in developing countries. *International Family Planning Perspectives* 7:126–36.