A FERTILITY DIFFERENTIAL IN ELEVEN PUNJAB VILLAGES

ROBERT G. POTTER, JR.
MARY L. NEW
JOHN B. WYON
AND
JOHN E. GORDON

INTRODUCTION

India, a country that is still largely rural, is devoting sizable funds to promote family planning. Accordingly it is of practical interest to learn as much as possible about the extent of family limitation being practiced in her rural areas. Examples of studies already published are those by Chandrasekaran and George,[1] Dandekar,[2] Das Gupta et al.,[3] Driver,[4] and Rele.[5] In this paper, the fertility of a village population of roughly 12,000 from the Punjab is examined for evidence of birth control.

Data come from the India-Harvard-Ludhiana Population Study, also known as the Khanna Study after the town in which the study headquarters were situated. The main objective of this field project was to reduce fertility through an intensive program to encourage the practice of contraception. On the basis of a pilot and an exploratory study, foam tablets were chosen as the most promising agent and in the main study these tablets were actively promoted for a three to five year period ending in December 1959 in seven test villages with a total population of 8,000. In four additional villages serving as controls nothing was said about contraception,

but otherwise field procedures were the same.[6] The population of these villages numbered 4,000. A second objective of the project was to obtain information about a broad range of factors, biological as well as social, influencing fertility and mortality.

Despite the program to promote the practice of contraception, a difference in age-specific fertility failed to emerge between test and control villages. However, in both sets of villages a moderate fertility difference antedating and continuing through the study was found to exist between the two numerically dominant caste groups. The main purpose of this paper is to explore this differential on the basis of unusually comprehensive data.

SAMPLE

Over 95 per cent of all wives in the 11 villages who were 15–44 years old and with a husband present were interviewed. Coverage was almost as high (more than 90 per cent) for wives 45 and over, but was less satisfactory for widowed and separated women. Both prospective and retrospective fertility data were collected from the women of childbearing age, while only retrospective data were obtained from the wives who were past childbearing, widowed, or separated. The prospective information was gathered by means of monthly household visits made over periods varying from three to nearly five years. In the test villages, where contraceptive advice and materials were made available at each visit, the information collected monthly included pregnancy status, menstruation and lactation status, use of contraceptives, and survival of childern. The same information, exclusive of details about the practice of contraception, was secured each month in the control villages. A series of annual censuses of the resident population was conducted during the course of the study, with the last census taken as of July 1, 1959.

Because of the inadequate coverage of widows and separated women it appears advisable to restrict the fertility analysis to currently married women rather than to extend it to ever-married women. To avoid other problems, the population for study is further restricted to wives still living with their first husbands. The

loss of cases occasioned by this second restriction is minor. Among currently married women with fertility histories (95 per cent of all currently married women), only 4 per cent have been married more than once. Altogether there are 2,232 wives still living with their first husbands for whom usable fertility histories exist. Of these, 459 are aged 45 or over and may be regarded as having completed their childbearing.

DATA

People in the study villages have only an approximate[1] idea of their own ages. To help in the determination of ages, a calendar of important events was established for each village. Special pains were taken to estimate as exactly as possible the wife's age at cohabitation and the corresponding calendar year. This first cohabitation of the young couple coincided with a second stage of the marriage ceremony, *Muklawa.* Male fieldworkers determined the husband's age and calendar year at cohabitation while female fieldworkers elicited corresponding information from the wife. In cases of discrepancy, the couples were reinterviewed in order to reconcile responses. Age at cohabitation and the accompanying calendar year then become basic reference points for determining wife's current age and her ages at menarche and at the birth of the first child.

For determining the wife's ages at subsequent births, and especially her age at the last birth, the fieldworker had two courses open to her. She might work forward from the time of cohabitation toward the present, adding the reported length of each successive birth interval. As a check, she compared the apparent age of the youngest surviving child with the age calculated for it from the fertility history. Alternatively, the fieldworker might start with the age and calendar year of birth of the last-born and then work backward in time by reported lengths of birth intervals to the calendar year of cohabitation, which she then checked with the calendar year of cohabitation previously determined from the dual interrogation of husband and wife. Whenever a discrepancy of

three or more years was encountered, the woman's whole personal calendar was reinvestigated.

Data regarding the birth intervals of wives aged 45 and over were less adequate. In these cases most birth intervals were recorded in multiples of half years and in some instances the same length was assigned to all birth intervals. As a result the estimated ages of the older women at the last birth were subject to sizable errors as attested by the fact that an implausibly high proportion of 9 per cent of these estimates were 45 or more years of age.

Birth reporting is presumed almost complete during the prospective period, both because of the frequency of household visits and the availability of supplementary sources of information. These sources included the official record of births collected by the village watchmen and reports from a system of designated volunteer informants in various neighborhoods and other groups of the villages.

Doubtless the retrospective reporting of births was less complete. Nevertheless the underreporting of births probably was not gross. The older women had age-specific birth rates during their twenties which accorded well with those of women aged 30–44. More important, among the women who had completed their childbearing, no tendency was found for the progressively older cohorts to show lower fertility, as would have been expected if older women were forgetting relatively more births.

FERTILITY CHARACTERISTICS

Before investigating the fertility differences between the two main caste groups, it is useful to enumerate the salient fertility characteristics of the village population as a whole. Data relate to wives still married to first husbands, 1,773 of these women being 15–44 years old and 459 being 45 or older.

1. Fertility was high. Wives over 45 averaged 7.5 live births. Moreover, if there had been any decline in age-specific fertility during the last five decades, it was extremely small.

2. Marriage among Khanna Study women was contracted early, but consummation was delayed until a second ceremony that typically, though not always, postdated the menarche. The average age at cohabitation was about 16 years, with no significant increase in this age until the last few years when it may have increased by a year or two.

3. The interval between cohabitation and first birth was relatively long, averaging nearer four than three years.

4. No difference in age-specific fertility was found between test and control villages.

5. The mean age at last birth of the older Khanna Study women was relatively low, unless its estimated value of 37 is seriously in error. From comparisons with other studies a mean age of 37, or even 38, is low enough to suggest that a minority of the older Khanna Study couples were doing something to limit family size.[7] Another indication that some of these older villagers were shortening their period of childbearing is provided by a statistically significant correlation of .22 between ages at first and last births. Among the younger women it was also found (Table 1) that those marrying earlier had lower age-specific birth rates in the latter half of the reproductive period when there would be more incentive to try to limit family size.[8]

The distinctively long interval between cohabitation and first birth merits further comment. Among the 453 wives older than 44 years and bearing at least one child, mean ages at cohabitation and first birth were 16.1 and 19.8 years, respectively. Thus the average period between cohabitation and first birth was 3.7 years, or 43 months. Presumably two factors contributed to this long interval. The first was adolescent infertility associated with the predominantly young age at cohibitation; the second was the custom whereby most brides returned to live with their parents for several months and visited the household of the husband only for short periods of a week or two. An analysis of intervals from cohabitation to first conception of young Khanna Study brides, based on prospective data (Table 2), shows that over two-thirds of these inter-

vals involved separation and were appreciably longer than those intervals for which no return to the parental home was indicated. Rele offers the same explanation for the long intervals between cohabitation and first birth found in a fertility study conducted in certain rural areas of the State of Uttar Pradesh.[9] Long intervals between cohabitation and first birth have typified other areas of India.[10]

TABLE 1. AGE-SPECIFIC BIRTH RATES OF WOMEN STILL MARRIED TO FIRST HUSBAND, BY AGE AT COHABITATION

Wife's Age at Cohabitation	*Births per 1,000 Years of Marital Exposure*					
	15–19	*20–24*	*25–29*	*30–34*	*35–39*	*40–44*
12 and under	317	389	363	304	(179)*	(60)
13	265	340	333	269	187	61
14	236	345	305	286	190	76
15	227	371	348	292	179	97
16	234	381	345	311	200	97
17	226	358	341	308	214	102
18	134	314	350	311	247	115
19 and over	—	314	327	316	228	(144)

* Birth rates are placed in parentheses when based on the experience of 50 to 100 women. All other rates in the table are based on subsamples exceeding 100 women.

TABLE 2. PROPORTION OF WIVES STILL NOT PREGNANT AFTER SPECIFIED DURATIONS OF MARRIAGE, BY SEPARATION STATUS

Months Since Marriage	*Reported Visits to Parental Household*	
	*One or More (n = 160)**	*None (n = 91)**
1	1.00	.89
3	1.00	.64
6	.96	.48
12	.66	(.32)
18	.53	(.27)
24	.41	
30	(.33)†	

* "n" refers to the number of wives exposed to the risk of conception during the first month of marriage. During each succeeding month of marriage, this number of wives was reduced by conception, out-migration, and ending of the study. All these wives first cohabited during the study, 1955–59.

† Parentheses are used to indicate that the number of women has decreased to less than 25.

TABLE 3. SELECTED COMPARISONS RELATING TO THE COMPLETED FERTILITY OF JAT AND CHAMAR WOMEN AGED 45 AND OVER AND STILL MARRIED TO FIRST HUSBAND

Statistic	*Jats (Farmers)*	*Chamars (Leather Workers)*	*Difference*	*Significance of Difference**
Sample size	223	108		
Mean number of live births	6.98	8.23	1.25	*
Mean age at last birth	36.28	38.17	1.89	*
Mean age at first birth	20.33	19.34	.99	*
Mean age at cohabitation	16.51	15.75	.76	*
Childbearing span	15.95	18.83	2.88	NT
Cohabitation to first birth	3.82	3.59	.23	NT
Mean birth interval†	2.67	2.60	.07	NT
Correlation: ages at first and last birth	.23*	.08 NS	.15	NS
Correlation: age at first birth, number of live births	−.27*	−.35*	−.08	NS

* Significant at beyond .01; NT, not tested; NS, not significant at the .05 level.
† The interval from cohabitation to first birth is excluded.

JATS VERSUS CHAMARS

A moderate fertility difference was found between the two main caste groups, namely, the farmer caste (Jats) and the leather workers and farm laborers (Chamars). The higher caste Jats represented about half of the total village population; the lower caste Chamars another quarter of it. The remainder of the population was divided among several castes, none of them numerous enough to allow detailed analysis, and is, therefore, excluded from the comparisons below.

Jat wives aged 45 and over averaged 7.0 live births while their Chamar counterparts averaged 8.2, a statistically significant difference (Table 3). The average birth intervals of the two groups differed negligibly, regardless of whether the interval between cohabitation and first birth was included or not. The main reason for the Jats' lower fertility was their shorter childbearing span. They cohabited nearly a year later, while their last births came a full two years earlier, at a mean age of 36 instead of 38 years.

There are three additional clues suggesting that at least a minority of the older Jats restricted their births whereas relatively fewer Chamars did so. First, the Jat women exhibit a correlation of .23 between their ages at first and last births, but the Chamars manifest a nonsignificant relationship of .08 between these two variables. Second, given similar ages at cohabitation, one would expect the correlation between ages at first birth and number of children ever born to be highest in that group practicing the least family limitation. In conformity with this expectation, the Jats display a correlation of −.27, the Chamars of −.35, though it must be admitted that the samples were not large enough to make this difference statistically decisive. Third, despite a lower mean number of children born, the Jats have a significantly greater variance of completed fertility owing to a greater proportion who restricted their fertility to six or less births (43 per cent among the Jats versus 21 per cent among the Chamars). An analogous result is obtained for age at last birth. The Jats have a lower average but a wider dispersion of ages owing to a higher proportion who ended their childbearing at 35 or younger (38 per cent versus 23 per cent).

There is also an indication that the fertility of Jats was declining

TABLE 4. AGE-SPECIFIC AND TOTAL FERTILITY RATES OF WOMEN STILL MARRIED TO FIRST HUSBAND, BY CASTE AND CURRENT AGE

Caste Group	*Age in 1959*	*Births per 1,000 Years of Marital Exposure*						*Total Fertility Rate**
		15–19	*20–24*	*25–29*	*30–34*	*35–39*	*40–44*	
Chamar:	45 and over	277	370	357	346	259	113	8.2
	30–44	249	374	377	334	201	(138)†	8.0
	ratio of rates:	.90	1.01	1.06	.97	.78	1.22	.98
Jat:	45 and over	217	344	346	294	188	100	7.0
	30–44	223	327	316	274	167	51	6.3
	ratio of rates:	1.03	.95	.91	.93	.89	.51	.90
Chamar:	15 and over	251	372	375	340	232	119	8.0
Jat:	15 and over	216	334	219	283	179	89	6.7
	ratio of rates:	.86	.90	.85	.84	.77	.74	.84

* In the derivation of these rates, specific rates for ages 20–24, 25–29 . . . 40–44 are multiplied by 5; the rate for ages 15–19 is multiplied by the mean interval from cohabitation to 19.5.

† The experience of 58 women underlies this rate. All other rates in the table are based on groups of more than 100 women.

slightly while that of the Chamars remained stationary. In the top and middle sections of Table 4, the marital age-specific birth rates of wives 30–44 years old are compared with those of wives 45 and over. Total fertility rates, used to summarize the comparisons, show virtually no decline for the Chamars but about a 10 per cent decline for Jats.

In the bottom row of Table 4, the marital age-specific birth rates of Jats and Chamars are compared directly. Jat fertility was consistently lower. A 10 per cent difference appears early in the reproductive period and increases with advancing age. Because of a small secular decline in Jat fertility, this progressive difference was more pronounced among wives aged 30–44 than among the wives past the age of childbearing.

FERTILITY CONTROL

From the foregoing findings, it would appear that the wives aged 45 and over practiced rather little birth spacing but ended their childbearing two or three years earlier than would be expected in the absence of birth control. It is evident, too, that the older Jats restricted their births to a greater extent than the Chamars, mainly by ending their childbearing earlier. Chandrasekaran and George obtained a similar pattern of differences among three socio-economic groups in the Bombay area.[11] Indeed, a relative lack of birth spacing combined with a moderately early end of childbearing may prove to be a fairly general pattern in India. Freymann has the following observations to make about the possible factors involved:

> Childbearing usually ceases at an age when there remains a period of presumed fecundity; there is little knowledge about the way in which this is achieved. Questions about use of birth control methods, in the usual surveys, may fail to elicit information about use of coitus interruptus, abstinence, abortion, or other methods.[12]

In the present population, information on the practice of contraception was collected monthly in seven villages. After the first year, with its focus on foam tablets, a concerted effort was made to

have the respondents include coitus interruptus and "abstinence" (infrequent coitus) as methods of contraception, but how closely they adhered to this principle was, of course, difficult to ascertain. The recorded incidence of induced abortion was low—13 out of 1,700 pregnancies—but its actual frequency could have been much higher because a routine investigation of each abortion to classify it as spontaneous or induced was not attempted. During the course of the study the possibility of sterilizing operations was raised by a few village people, though only one husband asked for arrangements to be made. It was, therefore, concluded that interest in male sterilizing operations was minimal. The frequency of hysterectomies at the two nearby hospitals was not specifically investigated, but was presumed to be low.

Interestingly enough, there is no direct indication that contraception figured as more than a secondary factor in the fertility contrast between Jats and Chamars. Information about proportions of wives using contraceptives and length of their use by age and caste is furnished in Table 5. In the seven test villages, about half of the wives of childbearing age reported using contraceptives at some time during the prospective period. The proportion was slightly higher for Chamars aged 20–29, but not significantly higher in ages above 30. Conversely, among users, Jats practiced

TABLE 5. LENGTH OF TIME CONTRACEPTIVES WERE USED, BY AGE AND CASTE

	Wives Aged 20–29		*Wives Aged 30 and Over*	
Length of Use	*Jats* (n = 237)	*Chamars* (n = 137)	*Jats* (n = 271)	*Chamars* (n = 131)
0 (nonuser)	57	42	50	44
4 mos. and less	13	24	11	14
5–12 mos.	16	18	11	18
13–24 mos.	8	12	13	15
25–35 mos.	5	4	12	9
36–47 mos.	1	0	2	0
48 mos. and more	0	0	1	0
Per cent total	100	100	100	100

TABLE 6. RATIO OF STILLBIRTHS AND ABORTIONS TO TOTAL PREGNANCIES, BY AGE OF MOTHER AND CASTE

	Jats		*Chamars*				
Age of Mother	*No. of Women* n	*Fetal Death Ratio* p	*No. of Women* n'	*Fetal Death Ratio* p'	*Difference* $p - p'$	*Standard Error** s	*Critical Ratio* $(p - p')/s$
15–19	48	.1875	59	.1718	.0157	.0781	0.20
20–24	204	.1324	162	.1035	.0289	.0347	0.83
25–29	233	.1159	148	.0801	.0358	.0313	1.14
30–34	146	.1096	94	.0689	.0407	.0374	1.09
35–39	94	.2021	62	.1002	.1019	.0577	1.77
40–44	42	.3095	30	.1667	.1428	.0986	1.45
Total	767	.1447	555	.1153	.0294	.0184†	1.60

* $s = (pq/n + p'q'/n')^{1/2}$
† For total sample, $s = [\Sigma(n/N)^2pq/n + \Sigma(n'/N')^2p'q'/n']^{1/2}$.

contraception slightly longer than Chamars.[13] The period of prospective observation averaged somewhat over 42 months per couple. During this period 30 per cent of the Jat users—15 per cent of all Jats—practiced contraception for two years or longer, while only 16 per cent of the Chamar users, or 9 per cent of all Chamars, did so. These figures relate to wives 30 years and older; among the younger wives, durations of usage were shorter.

If reported use of contraceptives is only a secondary factor in the explanation of the fertility differences between Jats and Chamars, then by what other means did the Jats achieve their somewhat greater reduction of births? A circumstantial case can be made for the idea that induced abortion was important. The difference in rates of fetal wastage does not reach a .05 level of statistical significance only because of the small numbers in those age groups for which the largest differences might be expected (Table 6). Jat women had higher rates of fetal wastage over the entire age range from 20–44 years, and the differential was greatest at ages over 35 when the absolute rates for Jats became quite high. Moreover, it is likely that the wastage rates reported in Table 6 are underestimates of the true ones.

By itself the amount of induced abortions implied by Table 6 is not enough to explain the fertility differences (bottom row of Table 4) observed between Jats and Chamars. For example, the effect of increasing the rate of fetal wastage from .15 to .30 among wives aged 40–44 depends in part on the length of intervals from the end of amenorrhea to the next conception. The maximum possible effect, which is registered when these "menstruating intervals" are very long, would amount to about a 17 per cent reduction in fertility, which is still well below the 25 per cent differential (Table 4) to be explained. Given menstruating intervals of more realistic length—averaging in the range of 10 to 15 months—the theoretical effect of the posited change in fetal wastage decreases to about 10 per cent.[14]

In order to explain the fertility differential between the two caste groups, then, it is necessary to assume that some Jats, besides their higher fetal wastage, were either ceasing to have conceptions at an earlier age or else were managing to space their pregnancies more widely. The latter possibility may be tested by examining menstruating intervals from the end of postpartum amenorrhea to the next conception. Such a comparison, based on a life table methodology described elsewhere,[15] is provided by Table 7. For ages 30 and over, menstruating intervals tend to be longer than those for ages 20–29, a contrast depending in part on the somewhat greater use made of contraceptives in the older age groups. However, in neither set of ages did the two caste groups differ significantly with respect to the time they required to conceive after menstruation had resumed. This negative evidence counts heavily against the idea that Jats failed to report more practice of contraception than did the Chamars. Concealed contraception would be expected to reveal itself in longer menstruating intervals.

To test the second possibility, namely, that Jat wives ceased having pregnancies earlier, mothers of childbearing age have been classified into three groups: 1. those menstruating throughout the period of prospective observation without a conception (the "menstruating nonconceivers"); 2. those adjudged menopausal at the

TABLE 7. PROPORTION OF WIVES STILL NOT PREGNANT AFTER SPECIFIED NUMBERS OF MONTHS SINCE FIRST POSTPARTUM MENSES*

Months since First Menses Postpartum	*Wives Aged 20–29*		*Wives Aged 30 and Over*	
	Jats ($n = 267$)†	*Chamars* ($n = 174$)	*Jats* ($n = 142$)	*Chamars* ($n = 108$)
1	.89	.87	.87	.86
3	.77	.80	.75	.77
6	.66	.66	.65	.67
12	.42	.36	.50	.48
18	.30	(.21)	.38	(.40)
24	(.19)††	(.14)	(.32)	(.37)

* All periods of postpartum amenorrhea start with the birth of an infant surviving one month or longer.
† "n" refers to the number of wives exposed to the risk of conception during the first month after postpartum amenorrhea. During each succeeding month of menstrual exposure, the number of exposed wives is reduced by conception, end of the study, or out-migration.
†† Parentheses are used to indicate that the exposure base has been reduced to less than 25 women.

TABLE 8. PER CENT OF WIVES WITH SPECIFIED FERTILITY HISTORY DURING THE PROSPECTIVE PERIOD, BY AGE AND CASTE

Caste and Fertility History	*Wife's Age*						
	15–19	*20–24*	*25–29*	*30–34*	*35–39*	*40–44*	*Total*
Jats							
Menopausal*	—	—	—	—	5	25	5
Menstruating but infertile†	—	6	12	12	25	32	16
Fertile††	100	94	88	88	70	43	79
Total per cent	100	100	100	100	100	100	100
Total wives	17	142	197	173	142	124	795
Chamars							
Menopausal	—	—	—	1	4	17	3
Menstruating but infertile	—	3	2	3	13	30	8
Fertile	100	97	98	96	83	53	89
Total per cent	100	100	100	100	100	100	100
Total wives	19	116	103	92	70	60	460

* Judged menopausal at start of, or during, the study.
† Reported as menstruating throughout the study period.
†† Either conceived once or more during the study or entered the study in a state of postpartum amenorrhea.

start of, or during, the study; 3. those conceiving during the study or just before it, as indicated by their being in postpartum amenorrhea at the start of the study. From Table 8 it is seen that the proportion of menopausal wives among Jats was barely higher, while the proportion of menstruating nonconceivers was appreciably higher than among the Chamars. The latter disproportion was especially marked for ages 25–39. Of course not all menstruating nonconceivers were infertile. The classification may be somewhat tightened by eliminating the 19 per cent of wives who were observed prospectively for a period of less than 24 months. With this refinement, the disproportion in frequency of menstruating nonconceivers between the two caste groups increases slightly.

Thus among the younger women, as among those past childbearing, there was a tendency for a larger minority of Jat wives to stop having pregnancies relatively early. Unfortunately the mechanisms accounting for this small differential remain rather obscure. Possible factors include contraception, sterilizing effects of induced abortions, sterilizing operations, veneral disease, and unreported induced abortions. No one of these mechanisms appears plausible as a complete explanation of the Jats' earlier end of childbearing. Perhaps several or all of the factors mentioned were involved.

SUMMARY

In a rural population of about 12,000 in the Punjab, India, a moderate fertility differential was found between the two numerically dominant caste groups, namely, the Jat farmers who compose about half of the population and the Chamar leather workers who compose another quarter. Data come from the India-Harvard-Ludhiana Population Study, also known as the Khanna Study.

Jat wives aged 45 years or older averaged about one child less than corresponding Chamar women. Among wives of childbearing age, Jats had lower fertility than the Chamars at all ages. This last differential appears to have depended partly on the Jats' higher

rates of fetal wastage and partly on their earlier stopping of pregnancies. The two caste groups reported essentially the same amount of practice of contraception, and their similar distributions of intervals from end of postpartum amenorrhea to next conception also rule against the idea of appreciably differing contraceptive practice. A practice of induced abortion is tentatively inferred from the Jats' consistently higher rates of fetal wastage. The basis of their earlier infertility remains uncertain. Several factors may be involved, including contraception and the sterilizing effects of crude abortions.

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[7] An approximate calculation based on data furnished by Smith for a small sample of Cocos-Keeling Islanders yields a mean age at last birth nearer 39 than 38 years (Smith, T. E., The Cocos-Keeling Islands: A Demographic Laboratory, *Population Studies,* 14, 113, November, 1960). Corresponding ages, reported by S. Chen (Pattern of Fertility in Taiwan, *The Journal of Social Science: National Taiwan University,* 13, 255, 1963) for a farming and a fishing village in Taiwan are 38.9 and 39.6, respectively. C. Tuan (Reproductive Histories of Chinese Women in Rural Taiwan, *Population Studies,* 12, 50, July, 1958) cites an average age of 38 for ever-married women in another rural sample from Taiwan. Presumably those women whose first marriages remained intact until the menopause had a mean age at last birth higher than 38. From the West, Hyrenius reports that 41 and 42 were modal ages at last confinement in a small Swedish population, while Tietze calculated an average age of 40.9 for a sample of Hutterites. For these data, *see* Hyrenius, H., Fertility and Reproduction in a Swedish Population Group without Family Limitation, *Population Studies,* 12, 123, November, 1958, and Tietze, Christopher, Reproductive Span and Rate of Reproduction among Hutterite Women, *Fertility and Sterility,* 8, 91, January–February, 1957.

[8] Linear regression has been used to study further the relationship between age at cohabitation and the marital birth rates within each five-year age group from 20–24 to 40–44, inclusive. In the youngest age group considered, namely, 20–24, the relationship is significantly negative, which may result from the common practice of newly wed women's returning to the home of their parents for extended periods. During ages 20–24, this factor would affect the fertility rates chiefly of those who had married in their late teens or early twenties. After age groups 20–24 the relationship between wife's age at cohabitation and number of births per 1,000 years of marital exposure becomes progressively more positive. The five regression coefficients are –7.7, 0.9, 5.6, 10.7, and 12.1 for ages 20–24 through 40–44, with the latter coefficient, applying to age group 40–44, significant at beyond the .001 level. These results may be taken as further evidence of a limited practice of birth restriction, in this case among wives aged 30–44.

[9] Rele, J. R., *op. cit.,* p. 272.

[10] Chandrasekaran, C., Physiological Factors Affecting Fertility in India, PROCEEDINGS OF THE 1961 INTERNATIONAL POPULATION CONFERENCE, London, 1963, Vol. II, pp. 91, 92.

[11] Chandrasekaran, C., and George, M. V., *op. cit.,* pp. 75, 76, 79–82.

[12] Freymann, M. V., Population Control in India, *Marriage and Family Living,* 26, 56, 57, February, 1963.

[13] Tested by chi square, the difference in length of usage between Jat and Chamar users is statistically significant at between .20 and .30 for ages 20–29, and between .05 and .10 for ages 30 and over.

[14] These calculations were made in conformity with formulas presented by Sheps, M. C., Pregnancy Wastage as a Factor in the Analysis of Fertility Data, *Demography,* 1, 111–118, 1964.

[15] Potter, R. G., New, Mary L., Wyon, John B., and Gordon, John E., Lactation and Its Effects upon Birth Intervals in Eleven Punjab Villages, India, in Sheps, Mindel C., and Ridley, Jeanne C. (editors), PUBLIC HEALTH AND POPULATION CHANGE: CURRENT RESEARCH ISSUES, Cambridge, Mass., Schenkman Publishing Co., Inc. (in press).

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