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# WORLD FERTILITY SURVEY



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## **The Nepal Fertility Survey, 1976: A Summary of Findings**

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The World Fertility Survey is an international research programme whose purpose is to assess the current state of human fertility throughout the world. This is being done principally through promoting and supporting nationally representative, internationally comparable, and scientifically designed and conducted sample surveys of fertility behaviour in as many countries as possible.

The WFS is being undertaken, with the collaboration of the United Nations, by the International Statistical Institute in cooperation with the International Union for the Scientific Study of Population. Financial support is provided principally by the United Nations Fund for Population Activities and the United States Agency for International Development.

This summary is one of a series containing the salient findings of the Country Reports No. 1 of the countries participating in the WFS programme. A copy of the report itself: *Nepal Fertility Survey, 1976*, is available for reference at all WFS depository libraries, or may be obtained from His Majesty's Government Ministry of Health, Nepal Family Planning and MCH Project, Central Office, Ramshah Path, Kathmandu, Nepal, free of charge.

For information on other Country Reports, WFS publications, or a list of depository libraries, write to the Information Office, International Statistical Institute, 428 Prinses Beatrixlaan, Voorburg, Netherlands.

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THE NEPAL FERTILITY SURVEY:  
A SUMMARY OF FINDINGS

1. THE SETTING

Nepal is a landlocked country, bordered by India and Tibet. The country is characterized by three distinct geographical strips of land running east to west: the Mountains, the Hills, and the Terai.

The Mountain Areas range in altitude from 16,000 ft. (4,880 m.) to 29,028 ft. (8,848 m.) and account for 35 per cent of the total land area but only 10 per cent of the population. The Hill Areas lie mostly between 1,000 ft. (305 m) and 16,000 ft. in altitude and include the Kathmandu Valley, where the capital is sited, and the Pokhara Valley. The Hills comprise 44 per cent of the land area and contain 55 per cent of the population. The Terai Areas are by comparison low in altitude and flat in topography, and include some of the most fertile land in the country. Slightly over one fifth of the land area and 37 per cent of the population are located in the Terai.

It is an overwhelmingly rural country: only 4 per cent of the population lives in areas classified as urban and only 5 per cent of the labour force is engaged in non-agricultural activities. Opportunities for formal education are still restricted to a small minority and, according to the 1971 Census, 25 per cent of the male population aged 6 or more and 5 per cent of the female population are literate.

Nepal is a country of great ethnic diversity with at least 75 major groups and 50 different languages. Though these ethnic groups vary greatly in population size, no single one assumes a numerical dominance. Linguistically, however, there is greater homogeneity as over half of the population claims Nepali as their mother tongue. Officially Nepal is a Hindu Kingdom and this is reflected in the religious composition. About 90 per cent of the population is Hindu with small Buddhist and Muslim minorities.

There is a dearth of reliable national data on demographic processes, the only sources being the decennial censuses and a Demographic Sample Survey conducted in 1974/75, all of which are subject to under-reporting of vital events. The censuses show a steady increase in population from 8.2 million in the early 1950's to 9.4 million in 1961 and 11.6 million in 1971, indicating inter-censal growth rates of 1.8 and 2.7 respectively. These rates of increase are attributed to declining mortality: it is estimated that the crude death rate has fallen from over 30 per thousand population to a little under 20, during the last 25 years. Over this period of time, there is no evidence of any change in the crude birth rate, estimates of which range from 40 to 50 per thousand.

## 2. THE SURVEY

The Nepal Fertility Survey (NFS) was based on a three-stage sample of wards within *panchayats* within districts, representing about 98 per cent of the population of the country. A compact cluster design was employed whereby all households in each selected ward were screened and all ever-married women aged between 15 and 49 years of age resident in these households on the previous night were interviewed in detail. For the small urban segment of the sample, a simpler design was used, based on the household listing of a previous survey. The 96 selected rural wards and 10 urban clusters yielded a total of 5,976 households of which 95 per cent were enumerated successfully. Ninety-eight per cent (5,940 women) of the total of 6,076 women identified as eligible for interview, were successfully interviewed. Thus the overall response rate for the survey is 92.8 per cent.

The questionnaire was similar to the WFS Core Questionnaire and was composed of seven sections including a full birth and pregnancy history, background information concerning the respondent and her husband, contraceptive knowledge, and fertility planning. It was translated into three languages: Nepali, Bhojpuri, and Maithali.

The main field work was carried out from April to June 1976 by 17 teams, mostly composed of 4 interviewers and 2 supervisors each. In the hills and mountains the teams were predominantly male, while those in the Terai were largely female. (Previous survey experience had confirmed the acceptability of male interviewers except in the Terai.)

Coding, punching, and editing were done in Kathmandu but tabulation of data took place in Berkeley, California, and London. The main report was published in August 1977, as scheduled at the time of planning the survey.

## 3. FINDINGS

### 3.1 NUPTIALITY AND EXPOSURE TO CHILD-BEARING

As many Nepalese ethnic groups practice child marriage, a careful distinction was drawn in the questionnaire between the date of the marriage "contract" and the start of cohabitation, the latter event being used to define age at "marriage". Furthermore, if the reported age at cohabitation was less than the reported age at menarche, then the former was increased to correspond to the latter. Thus an attempt was made to define "marriage" in terms of the onset of exposure to risk of child-bearing.

Even with this more rigorous definition, however, it is clear from the results of the household enumeration, when the marital status of all females aged 15 or more was ascertained, that women in Nepal "marry" at a very young age. As the row of figures below shows, a third of girls aged 15 and three fifths of 16 year-olds were married. In the age group 20 to 24, 94 per cent had been married, while for older age groups marriage is almost universal.

	CURRENT AGE					
	15	16	17	18	19	20
Percentage Ever-married	34	61	63	78	81	93

A more detailed examination of trends and differentials in age at marriage is afforded by data from the individual interviews. To overcome the truncation effect inherent in a survey of ever-married women, attention has been confined to women aged 25 or more at the time of the survey who married before the age of 25. The mean age at marriage of these women is exactly 15 years; this figure remains more or less constant across age groups, indicating the absence of any historical change in age at marriage. However, regional and religious differentials are apparent.

Terai women tend to marry slightly earlier than women from the Hills or Mountains. The mean ages are 14.7, 15.3, and 15.5 respectively. Muslim women also marry earlier (14.2) than Hindu women (15.0) while the Buddhist minority exhibits a markedly later pattern of marriage (17.1).

Educational differentials in mean age at marriage are not statistically significant, partly because the educated component of the sample comprises such a small minority. Only 254 (or 5%) of all women in the sample received any formal education, though 1,763 (or 30%) reported that their husbands had gone to school. Educated women have a slightly higher mean age at marriage than uneducated women, but the direction of difference is reversed when husband's education is examined.

#### MARITAL STABILITY

Following marriage, the persistence of exposure to child-bearing depends on many factors including the incidence of marital dissolution and remarriage. In the NFS, questions on remarriage were not included because they were thought to be highly embarrassing to respondents and, in any case, remarriage is very rare in Nepal.

Survey findings confirm that Nepalese marriages are extremely stable; under 2 per cent had been dissolved by divorce and separation though an additional 6 per cent had ended with the death of the husband. Thus 93 per cent of the whole sample were currently married. Naturally the prevalence of widowhood rises with age: from 3 per cent for women aged less than 35, to 12 per cent for the 35 to 44 age group and to 24 per cent for the 45 to 49 year-olds. The effect of marital dissolution on the overall level of completed fertility appears to be slight. For the 40 to 49 age group, the mean number of births for currently married women is only about 5 per cent higher than for all ever-married women of the same age.

In an attempt to gauge the approximate level of infecundity, currently married women were asked whether they thought themselves capable of bearing further children: women reporting themselves infecund represent

10 per cent of the sample but this proportion falls to a very low level among women under 35. More objective confirmation that at least primary infertility is rare stems from the finding that only 3 per cent of currently married women with marriage durations of 10 or more years had experienced no live births. At higher ages, fecundity impairments are more widely perceived; in the age groups 35 to 44 and 45 to 49, 22 per cent and 65 per cent, respectively, of currently married women considered themselves incapable of bearing further children.

The topic of breast-feeding is also relevant to the discussion of exposure because it delays the resumption of ovulation following child-birth and hence the ability to conceive. In the NFS, durations of lactation for the last 2 live births were ascertained, though only data pertaining to the penultimate birth (i.e., in the last closed birth interval) have been tabulated. Furthermore, in an attempt to remove the effect of involuntary cessation of breast-feeding due to child death or conception, women whose children had died in the first 2 years of life and women with short birth intervals of less than 33 months were excluded. Unfortunately, such women account for nearly half of the women with two or more births, and their exclusion thus represents a potentially serious bias.

Despite these and other limitations of the data, it is clear that prolonged lactation is customary in Nepal. Over half (54%) reported that they had breast-fed for more than 2 years and a further 28 per cent stated a duration of exactly 2 years, leaving 18 per cent with duration of less than 2 years. The effect of this pattern of behaviour on birth intervals and on the level of fertility is beyond the scope of this preliminary examination, but it is likely to exert a major influence.

No substantial differentials in breast-feeding were discerned, though prolonged lactation appears to be slightly more common in the Hills than in other regions and less common among educated couples than uneducated. The absence of differences between age groups lends no support to the view that breast-feeding is declining in popularity.

### 3.2 FERTILITY

#### CUMULATIVE AND CURRENT FERTILITY

Data on fertility were gathered in the NFS by means of an integrated birth and pregnancy history. A large number of cohort and period measures can be derived from such a body of data, but in the first report attention has been confined to a few key indicators, namely the timing of first births, the tempo of fertility in the first five years of marriage, cumulative fertility up to the time of interview, fertility in the five years preceding the survey, and current fertility. It is expected that further analysis, in conjunction with evaluation of the quality of data, will lead in due course to a more detailed and comprehensive account of Nepalese fertility than has been attempted so far.

Turning first to the topic of cumulative fertility, the relevant data are displayed in Table 1. The mean number of births reported by all ever-married women aged 45-49, which approximates closely to completed fertility, is 5.7 though an adjusted value of 6.5 births has been estimated since the publication of the main report. The adjustment was based on a comparison of the cumulated fertility rates for the year prior to the survey and reported number of children ever born for different age groups (the P/F ratio method) as described in UN Manual IV *Methods of Estimating Basic Demographic Measures from Incomplete Data*. This represents an omission of about 12 per cent of births by ever-married women aged 45-49. Bearing in mind the prevailing pattern of early marriage and the virtual absence of deliberate family limitation (see below), completed fertility, even after adjustment, is relatively low.

The distribution of women according to completed fertility shows considerable dispersion with just over a third (35%) of women aged 45-49 reporting 4 or fewer births, a similar proportion 5, 6, or 7 births, and 30 per cent reporting 8 or more.

The figures for the youngest age group indicate that the contribution to overall fertility of births before age 20 is small. Three quarters of ever-married women aged 15 to 19 had produced no births and this proportion inflates to 84 per cent if unmarried girls in this age group are taken into account. In the age group 20 to 24, the proportion of ever-married women who are still childless falls to 25 per cent, the modal parity is 1 and the mean number of births 1.4. Between this age group and the 25 to 29 year olds, there is a large increase in the mean number of births: from 1.4 to 2.9. Thereafter the increase in mean parity from one age group to another declines steadily, in accordance with expectations.

TABLE 1

THE PER CENT DISTRIBUTION OF ALL EVER-MARRIED WOMEN  
ACCORDING TO THE NUMBER OF CHILDREN EVER BORN -  
BY CURRENT AGE

CURRENT AGE	NUMBER OF CHILDREN EVER BORN										TOTAL	MEAN No. OF LIVING CHILDREN		NUMBER OF RESPONDENTS
	0	1	2	3	4	5	6	7	8	9+		MEAN	CHILDREN	
15-19	74	20	5	1	-	-	-	-	-	-	100	.3	(.3)	741
20-24	25	32	24	14	4	1	0	-	-	-	100	1.4	(1.1)	1226
25-29	7	13	21	24	19	10	5	1	0	0	100	2.9	(2.3)	1146
30-34	5	6	11	16	19	19	14	7	3	1	100	4.1	(3.1)	855
35-39	3	6	7	11	14	13	18	12	8	8	100	5.1	(3.7)	736
40-44	4	4	7	7	14	13	13	14	9	16	100	5.5	(3.8)	720
45-49	5	4	8	9	10	12	11	12	13	18	100	5.7	(4.0)	516
ALL	18	14	14	13	11	9	8	6	4	5	100	3.3	(2.4)	5940

Because of the need to provide quick estimates of current fertility rates, a hand-count of births in the 12 months preceding the survey was carried out as soon as all questionnaires had been received in Kathmandu. Despite the provisional nature of these estimates and their relatively high sampling error, the data are entirely consistent with the cumulative fertility of the younger age groups\*.

The hand-count indicates a crude birth rate of 44 per thousand population and a total fertility rate of 6.5. The shape of the age-specific rates shows high fertility for the 20 to 24 age group, a peak at ages 25 to 29, a steady decline for the next two quinquennial groups and a sharp fall thereafter.

In a different approach to the measurement of recent fertility levels, the mean number of births in the five years preceding the survey was computed for women who were continuously in the married state for this period of time. The overall mean is 1.3 births and the pattern of results by age group confirms that marital fertility is low before age 20, remains constantly high from ages 20 to 30, and then falls.

#### AGE AT MARRIAGE AND FERTILITY

The relationship between age at marriage and fertility can best be summarized by first describing fertility in early marriage and then discussing cumulative fertility by age at marriage. Survey findings indicate that the tempo of early marital fertility in Nepal is low. Two-fifths of the women experience no birth in the five years following marriage, while for the remainder the mean interval between marriage and first birth is 2.4 years. Both figures decrease sharply as age at marriage increases.

A similar relationship can be seen in Table 2 where the mean number of births in the first five years of marriages is analysed by marriage duration and age at marriage. The minority of women marrying at age 20 or more produce on the average twice as many births in the first five years as women marrying before the age of 15. The most plausible reason for this pattern is that the fertility of women who marry at a young age is depressed in the early years of marriage by the effects of adolescent sterility and sub-fecundity, while those who marry later are free from this constraint. One important implication is that the negative effect of late marriage on reproductive performance is largely offset by the higher initial rate of child-bearing among women marrying at older ages. Another feature of Table 2 is the apparent increase in early marital fertility among recent marriage cohorts compared to earlier cohorts. Whether these data represent a genuine historical trend (reflecting perhaps improving nutritional standards) or a distortion due to misreporting of marriage or birth dates, must remain a matter for conjecture at this preliminary stage of the analysis.

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\* The ratios of number of children ever born and cumulated current fertility (the P/F ratios) for age groups 20-24 and 25-29 are 1.04 and 1.00 respectively.

TABLE 2

MEAN NUMBER OF CHILDREN BORN IN THE FIRST FIVE YEARS  
OF MARRIAGE FOR WOMEN WHO MARRIED AT LEAST FIVE YEARS  
AGO - BY AGE AT MARRIAGE AND YEARS SINCE MARRIAGE

AGE AT MARRIAGE	YEARS SINCE MARRIAGE			ALL	NUMBER OF RESPONDENTS
	5-9	10-19	20+		
<15	0.7	0.6	0.5	0.6	2513
15-19	1.2	1.1	1.0	1.1	1828
20+	1.4	1.3	1.2	1.3	501
ALL	1.0	0.9	0.7	0.9	4842

Analysis of cumulative fertility by age at marriage shows that the higher tempo of early marital fertility among women who marry late does not entirely offset the negative effect of late marriage on birth performance. At each age group the mean number of children ever born varies directly with reported age at marriage, though the strength of the association decreases among the older age groups. Figures for the 30 to 34 and 45 to 49 age groups illustrate the point. One possible reason for the narrowing differential is that women who marry late experience relatively higher fecundity after the age of 30 than women who marry early in life.

CURRENT AGE	AGE AT MARRIAGE		
	<15	15-19	20-24
..... 30-34	4.6	3.9	2.7
..... 45-49	6.0	5.7	5.3

The general conclusion from these data is that differences in age at marriage are associated with modest differences in the number of births experienced over the whole reproductive span, but because late marriage is uncommon the effect on the overall level of completed fertility is very slight. On the other hand, the age pattern of fertility is strongly associated with age at marriage, with the consequence that the interval between generations is lengthened among those who enter marital unions later in life. This in turn depresses to a small extent the rate of natural increase.

## FERTILITY DIFFERENTIALS

The homogeneity of the population of Nepal in terms of occupation, educational status, and religion (and its great heterogeneity in the case of ethnicity) preclude detailed examination of fertility differentials along these conventional lines because of the constraints of sample size. At this stage of the analysis, it must suffice to conclude that there is little consistent evidence of differentiation according to these background characteristics of couples; where differences are observed, they can be explained mainly by differences in age at marriage.

There are indications from the survey that both cumulative and current fertility are higher in the Hills than in the Terai but this divergence is confined to older women and is not statistically significant at the 95 per cent confidence level. However, a similar pattern was discerned in previous sample surveys and it thus seems likely that a genuine though slight difference exists. Because the Mountains' sub-sample was small, no attempt was made to compute current fertility rates for this region, but the cumulative fertility of these women is consistently lower across marriage cohorts than that of Hill or Terai women. In view of the fact that Mountain women tend to marry relatively late in life, and that later marriage is associated with a higher tempo of early marital fertility, the emergence of this difference even among recent marriage cohorts is surprising.

## CHILD SURVIVORSHIP

While the mean number of children ever born for the total sample is 3.3, the mean number of living children is 2.4. These figures imply that over a quarter (27%) of all live births recorded in the NFS had died. It is also worth noting that the number of children still alive at the end of a woman's reproductive year is only 4 children on average, which contrasts strongly with completed fertility of 5.7 births or more. Two further figures illustrate the pervasive effect of infant and child death: over half (52%) of all fertile women had experienced the loss of at least one child and this proportion rises to 69 per cent for women aged 35 or more.

The current level of infant mortality has been estimated by summing all infant deaths over a three-year period preceding the survey and dividing by the total number of live births during the same time-span. The resultant estimate is 152 infant deaths per 1,000 live births. Despite the fact that attention has been confined to the recent past, it is likely that some under-reporting of deaths has occurred and hence the actual rate may be greater, but even this unadjusted figure reveals that the infant mortality rate in Nepal is one of the highest in Asia.

### 3.3 FAMILY SIZE PREFERENCE

#### PREFERENCES FOR NUMBER AND SEX OF CHILDREN

The NFS represents the first attempt in Nepal to collect data on fertility preferences at the national level. For this reason they are of considerable interest, though they must be interpreted with great caution. Two main lines of inquiry were used. First, currently married fecund women (n=4888) were asked whether they wanted any (more) children and, if so, how many and which sex they would prefer for the next child. Second, all women were asked a hypothetical question on desired total family size. "If you could choose exactly the number of children to have in your whole life, how many children would that be?"

Nearly 60 per cent of all currently married women stated 3 or 4 as their desired total number of children, a substantial minority of 25 per cent reported totals of 5 or more but only 14 per cent expressed a desire for 2 or fewer children. Though desired family size rises in step with achieved family size, reflecting no doubt an inevitable tendency to rationalize, it is interesting to note that women with large families of 5 or more living children are prepared to state desired family sizes smaller than actual sizes.

TABLE 3

A SUMMARY OF FERTILITY PREFERENCES

	NUMBER OF LIVING CHILDREN							
	None	1	2	3	4	5	6+	All
% Currently Married Fecund Women Wanting No More Children	1	5	23	39	58	66	94	30
Mean Additional Number of Children Wanted by Currently Married Fecund Women	3.4	2.6	1.7	1.1	0.7	0.4	0.2	1.8
Mean Total Children Desired by Currently Married Women	3.5	3.6	3.6	3.9	4.4	4.8	5.4	4.0

The mean desired family size for all currently married women is 4 children, a figure which corresponds almost exactly with the average number of living children for women reaching the end of their reproductive years. Of course, this remarkable concordance between average achievement and preference at the aggregate level hides considerable disparities at the individual level. Furthermore, it is likely that younger women will achieve more than 4 surviving children by the age of 50 because of recent declines in mortality.

The question on desire for additional children yields results which support, in broad outline, those described above. A little over one third (39 %) of currently married fecund women with 3 children state a readiness to cease child-bearing and this proportion rises to over a half (58 %) for those with 4 children.

There is evidence of a slight difference between educated and non-educated couples in family size attitudes, with the former group expressing lower preferences. It also appears that Terai women have slightly higher preferences than women from other regions.

The sex composition of living children clearly exerts a major influence on the propensity of women to consider family size limitation. For instance, among those couples with three living offspring, the proportion wanting no further children varies in the following way:

No sons	10.
1 son	36.
2 sons	54.
3 sons	42.

This implied preference for sons over daughters is confirmed by answers to the question concerning the desired sex of the next child. A quarter of women expressed no preference but, of the remainder, an overwhelming majority (90 %) said that they would prefer a boy.

### 3.4 KNOWLEDGE AND USE OF CONTRACEPTION

Family planning information and services were first provided in Nepal by the Family Planning Association in collaboration with the Pathfinder Fund. Later, in 1965, services were made available officially by the Government of Nepal, though for the subsequent 3 years facilities were confined to the Kathmandu Valley. In 1968, the family planning programme was expanded nationwide with the establishment of the National Family Planning and Maternal Child Health Board, which was also responsible for the conduct of the MFS.

Despite the efforts of the last 10 years, knowledge of contraceptive methods is still low. Only 22 per cent of the whole sample indicated that they had heard of any method of contraception, the most commonly known methods being male sterilization, female sterilization, and the pill.

Women who had heard of any method were asked whether they knew any sources of family planning advice or supplies. A quarter (representing 6 per cent of all women) answered affirmatively. Knowledge of induced abortion is apparently also low, though under-reporting due to embarrassment may have occurred. Only 5 per cent of the whole sample reported knowledge of this method of birth control.

There is considerable unevenness in the level of awareness of contraception throughout the country. Relatively more women in the Terai report that they have heard of any method (29%) than in the Hills (18%) or the Mountains (11%). This undoubtedly reflects the extreme isolation of many Hill and Mountain communities. Differences between women with some education (65%) and those with none (20%) are even more pronounced.

Only 4 per cent of the total sample reported that they had ever practised any method of contraception, and only 3 per cent of those currently exposed to the risk of pregnancy were using a method at the time of the survey. Use appears to be lowest in the Mountains, but there is no difference in this respect between the Hills and Terai. There is a strong association between education and use; whereas 11 per cent of educated women were practising some method of contraception at the time of the survey, only 2.5 per cent of those with no schooling were doing so.

On the basis of this evidence, it seems most unlikely that contraception has any influence on the overall level of fertility in Nepal.