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Fertility and Population Problems in India: A Biosocial Study

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Abstract: Important biological and sociological factors which are universally considered to have significant influences on fertility vis-a-vis population increase in India (particularly in *rural* society) at large have been discussed in the paper. Of many bio-social issues of utmost importance we have for the purpose of this study stressed particularly on (i) growth rate (1961-71), (ii) female's average age at marriage, (iii) wife's average age at effective marriage, (iv) proportion of women married in several age groups, (v) age at menarche, and (vi) average number of life-births per couple (irrespective of marriage duration). These factors have been examined with respect to both *rural* and *urban* population of fifteen States only of India. Attempt has been made to emphasise the need for adequate knowledge about the pattern of interconnectedness which persists between the factors in question.

The study has been attempted to examine some important factors which are thought to have significant impact on fertility vis-a-vis population increase in Indian society at large. On the basis of certain quantitative information that was collected during (i) 1971 Census operations and (ii) different rounds of National Sample Survey (NSS) in 1961-70, the relevant biosocial observations in the discourse have been outlined. In developing these observations necessary attention has, of course, been focussed on the large amount of good research that has already been completed in recent years on population problems in general of human society (Bose 1967 ; Carr-Saunders 1022 ; Ciocco 1938 ; Coale & Tye 1961 ; Davis 1967 ; Das Gupta *et al.* 1955 ; Lorimer 1954 ; Pakrasi & Halder 1971 ; Parkes 1963a ; Polgar 1972 ; Sarkar 1951 ; Stott 1962 ; Whelpton & Kiser 1950-64 ; Wolanski 1970). For the purpose of the study the important facts and figures about differential fertility and population increase in different States of India have been considered and in doing so, attempt has been made to point out the essential nexus that continues to prevail between various biological and sociological factors related to marriage, fertility and reproductive outcomes among the Indian couples.

Population of any country is essentially the product of the interactions which cohere perpetually with sex regulations, mating pattern,

conceptions, live-births and deaths. Nevertheless, the questions of fertility and great multiplication of the human species have most strongly stirred the concern of thinking people in general and the population scientists in particular all over the world. When world population is said to be growing at about 2 per cent per year and loss of human lives (mortality load) is under more effective control, the issue of fertility load per family unit does become eventually very critical. This phenomenon is all the more significant for a developing, agrarian country like India.

Population of India is stated to be currently growing at the rate of nearly 1.2 million persons *per month* (Agarwala 1972). About 22 million babies per year are being added to the current population reservoir of the land. On the other hand, about 8 million persons die each year to effect a sizable deduction from the said reservoir. The resultant of such demographic addition and deduction gives rise to a *net* annual increase in country's population by 14 millions (approximate). Again, the rate of population growth in India is currently estimated to be 2.5% per annum and the growth of population during 1961-71 decade has been found to be around 110-120 million in contrast to 78 million observed in the previous decade of 1951-61. As a matter of fact, the rate of population growth in India happens to be ever-increasing since the beginning of the present century. The rates are : 5.75 (1931-41) ; 14.22 (1931-41) ; 21.51 (1951-61); and 24.57 (1961-71). In coming decades when death rate in the country is expected to decline from 14 in 1971 to 10 per 1000 persons by 1981 or so, birth rate alone shall, no doubt, have a big role to shape the future population structure of India.

In the immediate background of the above demographic situation one is required to develop proper *strategies of research* on fertility and/or population problems which are abound in heterogenous frame of many stratified cultures of the land. Of several schools of scientists engaged in examination of such problems the school of human biologists (including physical anthropologists) has already its own line of thinking and empirical enquiries to pinpoint several significant factors affecting differential fertility and mortality in various socio-cultural classes and groups. To the human biologists in general all growth, including that of population, is fundamentally a biological matter. Accordingly, it has been stressed that one must know the biological laws which govern growth. Concurrently, the need for appropriate *biological reasonings* of the problems becomes paramount (Pearl 1930). In pursuance of this fact a scores of pioneering

contributions have already been made available to those who are in one way or other interested in biology of human fertility/population (Crew 1930; United Nations 1954; Stern 1960; Greep 1963; Weiner 1964).

To spell a little more about this biological reasonings one can never miss those outstanding researches on human reproductive physiology of recent origin (Parkes 1963; Garcia 1963; Pincus 1963; Rock 1963). With respect to the *biology of fertility* two most outstanding issues which have received critical consideration are (*i*) reproductive capacity and (*ii*) maternal care. All animal populations (including human) are always exposed to numerous natural checks to experience limited multiplication. Such checks are both exogenous and endogenous in character and the effects of the interactions of these two kinds of check are decisive to eliminate excess population. In human society no family can ever nourish apathetic motives to decide forthwith if the birthload per couple must come down or the deathload must go back up. In this direction the issue of material care happens to play a very significant role.

It has further been pointed out that progressive increase in maternal care, linked up with varying paternal care has attained a peak in only human family. This phenomenon of parental care continues long after 'biological need' for it has ceased. This specific need refers at once to a number of very far-reaching consequences, namely, (*i*) the greater the care taken of each child, the fewer the children that can be efficiently handled, (*ii*) in human population the developing trend towards parental care in excess of biological needs causes a 'corresponding necessity to reduce fertility below biological limits', and (*iii*) progressive increase in maternal care affects correspondingly 'the increased complexity of the reproductive processes' coupled with increased likelihood of breakdown in the very process at some point. Infertility has precipitated thereby not insignificantly in many females of human population at large (Parkes 1963).

It appears, thus, very pertinent to ponder if the simultaneous biosocial needs for curing infertility of the infertiles and limiting fertility of the fertiles are liable to bring in the long run any vital genetic change in the over-all population structure of the country. In tune with the biological reasonings of the experienced scientists concerned one would have to think twice if the human society as a whole is aheading to face progressive decrease in 'survival value of fertility' in nourishing 'a race of sub-fertile people'. A careful appraisal of these biological issues is imperative to help appropriate planning of one important dimension of the said strategies of research.

On the other hand, the school of social scientists (including social anthropologists and sociologists) has from long past excelled in offering appropriate socio-economic as well as social psychological reasonings to tackle the universal but complex problems of human fertility and growth of human families in varying societal settings. The *sociology of fertility* has most competently been discussed in detail to sift out social (including economic) determinants of human fertility and population growth (Hawthorn 1970 ; Agarwala 1964 ; Freedman 1961-62 ; Pakrasi 1966 ; Nag 1972).

To dwell more on the social correlates and determinants of human fertility a number of researchers have so far yielded a huge mass of interesting facts and figures about several population of the world. There is in general greater degree of agreement among the social scientists concerned that sociological, including economic, factors are principally responsible for the much-discussed issue of 'demographic transition' in fertility and mortality over several decades. But to decide authoritatively those *key* sociological factors which might have been (or are most likely to be) responsible for bringing about desired changes in fertility amidst any socio-cultural group the scientists concerned have yet to achieve unanimity in expressing their ideas, working hypotheses, or conclusions. Excellent documentary summary of all important speculation and research on population as given by the United Nations (1953) illustrates very significantly how the leading authorities in the field are still somewhat 'at a loss' to pinpoint the relative import of numerous social factors. In the background of the above situation we proceed to examine fertility and population problems in present India.

A look into the decennial growth rate of population (1961-71) in different States (under study), irrespective of rural-urban dichotomy—of India confirms that the rate is highly fluctuating, the range being between a low of 19.82 (Uttar Pradesh) and a high of 34.37 (Assam). But, when the rates are examined separately for rural and urban population of the States the general all-India features of low and high growth become at once altered very noticeably. With respect to *rural* population only when the lowest rate has been shown for Tamil Nadu, the State of Assam shows the highest rate. Again, with reference to only *urban* population of the land the States of Punjab and Orissa happen to offer the lowest and highest rate respectively. The lowest growth rate in rural population as evinced by a southern State, is only about six points lesser than the all India rural rate (21.78%). But the highest rural rate as shown by an

eastern State, registers a difference by eleven points from that of the all-India rate. Similarly, the lowest urban growth rate as observed for the Punjab, differs from that of the all-India urban rate (37.83%) by about thirteen points. On the other hand, the highest urban rate as noticed in Orissa, happens to exceed the all-India urban rate by about twentysix points (Table 1).

TABLE 1

Population profile of India : 1971

Population Zone/State	Rural/ Urban	Growth rate 1961-71	percent of State population	Sex-ratio (male per 100 females)	Percent Literates in total population		
					male	female	total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I. NORTH :							
1. Jammu and	R	+27.12	81.74	112.67	21.50	4.74	13.62
Kashmir	U	+42.04	18.26	116.82	48.02	28.99	39.24
2. Punjab	R	+19.82	76.20	113.80	34.23	19.78	27.47
	U	+24.92	23.80	116.82	58.51	45.11	52.33
3. Rajasthan	R	+25.61	82.39	108.44	22.58	3.85	13.60
	U	+38.03	17.61	114.27	55.03	29.46	43.10
II. CENTRAL :							
4. Uttar	R	+18.25	86.00	111.89	28.24	6.59	18.02
Pradesh	U	+30.47	14.00	121.80	52.58	33.27	43.87
5. Madhya	R	+25.72	83.74	104.41	27.06	6.00	16.76
Pradesh	U	+46.31	16.26	115.06	60.78	37.08	49.76
III. WESTERN :							
6. Gujarat	R	+25.22	71.87	105.04	38.98	17.07	28.30
	U	+41.20	28.13	111.73	63.99	44.33	54.70
7. Maharashtra	R	+21.98	68.80	101.26	43.26	17.49	30.45
	U	+40.68	31.20	122.01	67.53	46.58	58.10
IV. EASTERN							
8. Bihar	R	+19.13	89.96	102.62	27.56	6.16	17.00
	U	+44.45	10.04	124.08	55.62	31.62	44.85
9. Orissa	R	+22.39	91.73	99.71	36.23	11.94	24.07
	U	+63.52	8.27	118.14	60.02	35.75	48.90
10. West Bengal	R	+27.01	75.41	106.22	35.08	14.63	25.63
	U	+27.95	24.59	132.45	61.88	47.82	55.83
11. Assam	R	+32.88	91.61	109.15	36.02	16.28	26.06
	U	+83.03	8.39	132.63	64.87	50.84	58.84
V. SOUTHERN :							
12. Tamilnadu	R	+16.03	69.72	100.89	44.68	18.87	31.83
(Madras)	U	+38.44	30.28	105.19	67.46	45.55	56.78
13. Kerala	R	+24.15	83.72	97.72	65.47	52.63	58.98
	U	+35.68	16.28	100.17	72.00	60.52	66.27
14. Mysore	R	+20.90	75.69	102.73	35.61	14.37	25.13
	U	+35.09	24.31	109.42	60.79	41.32	51.49
15. Andhra	R	+17.81	80.65	101.64	27.38	10.88	19.20
Pradesh	U	+33.81	19.35	105.13	57.41	35.86	46.91
16. All India	R	+21.78	80.13	105.08	33.77	12.92	23.60
	U	+37.83	19.87	116.43	61.55	41.91	52.48

Source : Census of India (1971) : Paper 1 of 1971-Supplement-Provincial Population Total.

This feature of highly varying growth rates in rural or urban population of India can hardly be explained comprehensively by any single bio-social factors which are very commonly used by the researchers concerned. Adequate understanding of the nature and possible interconnectedness of the factors is highly expected to highlight their individual or collective role in shaping the desired population structure of the country.

It has been stressed that *age at marriage*, and *proportions married* in a population of women is a 'fundamental determinant' of fertility in a society. But the sociological issue of age at marriage has to be clearly qualified for female population of India where child (pre-puberty) marriages still prevail, especially among rural families most conspicuously (Majumder & Dasgupta 1969; Sarkar 1970: Malakor 1972). Hence, age at marriage varies perceptibly between rural and urban population of the country. Moreover, one cannot miss the point that even when gross reproduction rate in two populations becomes the same, the birth rate is strongly expected to be higher in that population in which female age at marriage is lower (Coale and Tye 1961).

For centuries the tradition of pre-puberty (child) marriage has been accorded due sanction and encouragement by the Hindu society at large and its influence on non-Hindus has not been insignificant. Eventually in Hindu society (particularly rural one) societal ceremonies under several identifications like *gauna*, *vida*, *punarbie*, *garbhadhan*, are in vouge to mark the age at menarche of a girl. These ceremonies have essentially a very important biological bearing. They signify at once the fact that a girl has attended physiological developments which ensure her physical fitness to enter into child-bearing phase of her life. Attainment of such sex maturity is all the more significant for those who happen to be the products of pre-puberty child marriages. And hence in the search for possible bio-social determinants of fertility the need for a correct knowledge about as well as accurate statistics on *age at menarche* of the young females of the country becomes absolute (Chattopadhyay & Khullar 1960; Sarkar & Roy 1968). Without a precise appraisal of the average menarcheal age of rural and urban girls respectively it would be, no doubt, difficult to evaluate the resultants of the interactions between (*a*) age at marriage, (*b*) sexual maturity, (*c*) adolescent sterility, and (*d*) first pregnancy. Incidentally, we note that fertility and mortality (infant as well as maternal) are not *simply* biological phenomena but are also sociological phenomena which are related to and influenced by the institutional structure and functions of human society (Crew 1930; Sarkar 1967; Mahalanobis 1971).

Quantitative information on *age at menarche* on all-India level (rural or urban) is unfortunately still lacking. Though many useful studies have already been made on marriage age patterns in India (Malaker 1972; Jain 1969; Agarwala; 1962), yet bioscoial examination of the secular trend of menarcheal age by social class and again, by rural-urban aggregates are not legion to deliberate effectively upon the problems which accrue in the very interactive processes that go between (*i*) age at consumation of marriage, (*i*) first conception, (*iii*) pregnancy cum termination hazards, (*iv*) neo-natal mortality, and (*ie*) feoundity impairments. Age at effective marriage has to be located on more objective basis in precise term of age at menarche in Indian society as a whole. A correct quantitative knowledge of the relative time-interval between age at menarche and age at consumation of marriage is *sine qua non* in the depth study of fertility behaviour of the Indian couples in general.

It has lately been shown in a national survey that in 1961-62 average age at effective marriage of the ever-married females was 15.86 in rural areas and 15.88 in urban areas (National Sample Survey 1970a). On the other hand, the mean marriage age of the rural females was 17.4 against 19.3 of the urban females (Jain 1969). The relevant data are cited in Table 2. With respect to the mean age at menarche it has been shown that the age varied from a low of 12.08 to a high of 14.90 years in Indian girls (Chattapadhyay and Khullar 1969).

On the basis of studies made so far on menarcheal age in Indian girls three important issues may be of some relevance to the bigger issue of reproductive behaviour of evermarried women. (1) Climate plays no significant role to cause much effect on the age at menarche, (2) differential socio-economic standing of the Indian girls does influence the menarcheal age, and (3) the menarcheal age is going down in the country, especially in urban areas.

Being a genetic character *sexual maturity* is manifested varyingly, as noted earlier, in different social scales—girls of higher social classes menstruate earlier than those in lower classes. This significant observation has, of course, been derived from scattered studies on small population samples from certain States. Now it becomes, no doubt, imperative to know if the Indian girls—rural or urban—are experiencing an earlier sex maturity than before. This vital biological information for each State is certainly linked up with other biosocial factors which are considered to be interwoven with the general fertility problems in the country. The

biological issues like pre-menarcheal acceleration, sterility interval, first conception, hazards of termination of first pregnancy and like so are immediately dependent upon the relative level of sexual (reproductive) maturity of the Indian girls in general and the teenaged married females in particular.

With regard to the proportions of married women in different age-group it has been shown on the basis of 1961 Census data for India that in *rural* population only a little more than one-fifth of all the ever-marrieds fell under the age group of 10-14 years, while a little more than half came within 15-19 age-group. The corresponding figures for the ever-married females in *urban* population only were 7% and 46% respectively. The tradition of early marriage of the Indian girls is still continuing, particularly in rural families of the country (Table 2). Of all the States under study the rural families of Rajasthan, Uttar Pradesh, Madhya Pradesh and Bihar mark a distinguished position in presenting a much higher magnitude of ever-married girls aged below 15 (34. 4% to 40.8%) than the all-India rural average (22.3%). In clear contrast to this, the rural families of Kerala, Tamil Nadu (Madras), Assam and Gujarat reported a markedly lower proportion of ever-married girls below 15 years in age (1.55% to 8.9%) than the all-India rural average.

In the background of this specific societal situation one can proceed to examine the *average number of livebirths per couple* (irrespective of marriage duration) in India as a whole as well as in the States under study (Table 3). Though the higher proportion of early marriages of rural females has been observed from the States like Rajasthan, Uttar Pradesh, Madhya Pradesh and Bihar, the average number of livebirths per rural couple has been shown to vary in these States from a low 2.95 (Bihar) to a high 3.61 (U.P.). On the other hand, in the States like Kerala, Tamil Nadu, Assam and Gujarat lower proportion of early marriages of rural females is reported no doubt, but the average number of livebirths per rural couple ranged in these States between a low 3.07 (Tamil Nadu) and a high 3.83 (Kerala). This biosocial feature deserves critical attention in assessing the over-all pattern of population increase in the States concerned. It seems that whatever may be the relative total length of reproductive span enjoyed by a married women of rural India, the biological event of livebirths per couple is not invariably governed by the lone factor of wife's age at marriage.

With respect to the demographic situation in *urban* areas of the States under study it may be pointed out that in all-India level (1961) the

TABLE 2

Marriage age-pattern in rural and urban areas : India, 1961-62.

Population Zone/State		Percent of Females Marrying in age-group*						Female's Marriage Age (yrs*.)		Average Age at Effective Marriage**	
		10-14	15-19	20-24	25+	all	25-29	Median	Mean	Husband	Wive
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
I. NORTH :											
1. Jammou & Kashmir	R	13.7	62.7	20.6	3.0	100.0	1.4	17.0	17.9	21.71	16.84
	U	6.0	45.5	38.5	10.0	100.0	7.4	19.8	19.5	21.80	16.93
2. Punjab	R	10.1	45.6	37.9	6.4	100.0	5.4	19.5	19.2	21.87	16.73
	U	2.7	32.8	49.5	15.0	100.0	0.1	21.5	20.6	21.83	16.56
3. Rajasthan	R	35.3	51.5	11.8	1.4	100.0	1.0	16.4	16.2	20.50	15.71
	U	20.9	55.2	19.0	4.9	100.0	3.4	17.6	17.4	21.01	15.07
II. CENTRAL :											
4. Uttar Pradesh	R	34.4	52.3	11.7	1.6	100.0	0.9	16.5	16.2	19.20	16.04
	U	10.0	49.2	32.6	8.2	100.0	5.9	19.1	18.9	20.80	16.01
5. Madhya Pradesh	R	40.8	49.4	8.4	1.4	100.0	0.8	15.9	15.7	19.61	15.53
	U	14.9	58.1	21.0	6.0	100.0	4.8	18.0	17.9	20.84	15.64
III. WESTERN :											
6. Gujarat	R	8.9	53.5	34.3	3.3	100.0	2.2	18.8	19.0	20.69	16.80
	U	3.2	40.2	44.9	11.7	100.0	9.2	20.7	20.2	22.13	16.67
7. Maharashtra	R	22.8	60.3	15.0	1.9	100.0	1.3	17.3	17.0	22.44	15.38
	U	5.8	44.3	35.0	14.9	100.0	9.9	20.0	19.4	23.10	15.03
IV. EASTERN :											
8. Bihar	R	35.1	50.4	11.8	2.7	100.0	1.4	16.5	16.2	19.96	15.84
	U	18.2	53.7	22.3	5.8	100.0	3.8	18.0	17.8	20.90	15.70
9. Orissa	R	10.7	58.9	25.5	4.9	100.0	3.4	18.3	18.4	22.25	16.09
	U	5.5	61.6	26.1	6.8	100.0	4.4	18.6	18.7	23.23	15.91
10. West Bengal	R	22.6	61.4	12.7	3.3	100.0	2.0	17.2	16.9	23.40	14.48
	U	4.7	39.4	34.7	21.2	100.0	13.3	20.8	19.6	24.05	15.22
11. Assam	R	2.0	53.1	26.6	18.3	100.0	11.3	19.5	19.2	25.00	16.50
	U	1.6	45.1	36.7	15.6	100.0	6.5	20.4	19.6	26.27	17.04
V. SOUTHERN :											
12. Madras (Tamilnadu)	R	2.8	42.1	45.7	9.4	100.0	7.5	20.6	20.2	24.49	16.84
	U	1.5	41.0	42.8	14.7	100.0	11.5	20.9	20.2	24.37	16.19
13. Kerala	R	1.5	29.8	47.2	21.5	100.0	14.5	22.0	20.8	25.26	17.63
	U	1.0	24.5	44.9	29.6	100.0	18.4	22.7	21.0	25.43	17.62
14. Mysore	R	13.4	59.5	23.1	4.0	100.0	2.7	18.1	18.1	24.34	15.06
	U	5.3	47.7	34.2	12.8	100.0	8.4	19.7	19.4	24.48	15.24
15. Andhra Pradesh	R	23.2	59.9	14.9	2.0	100.0	1.4	17.2	17.0	23.31	15.16
	U	9.4	58.5	25.8	6.3	100.0	4.4	18.5	18.5	23.18	15.00
16. all India	R	22.3	52.7	20.5	4.5	100.0	3.0	17.6	17.4	21.68	15.86
	U	6.9	45.5	34.9	12.7	100.0	8.9	19.7	19.3	22.77	15.88

Note : R = Rural areas ; U = Urban Areas

*Source of information = R. K. Jain (1969), P. 672, 682

**Source of information = National Sample Survey (1971)—Report no. 154

proportions of the married women aged 20 years and above happened to be 47.6% in the total urban females. Higher incidence of late marriages above 20 or more years in urban population have already been discussed in details (Jain 1969). Dominance of late marriages of the females is most

TABLE 3

Fertility per couple and growth pattern in India : 1962-62, 1963-64.

Population Zone/State	Rural/ Urban areas	Average no. of livebirth per couple marrying in the period*				Annual Rate : 1963-64 (per 1000 persons)**		
		1961-62	1956-60	1951-55	all	Births	Deaths	Growths
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
I. NORTH :								
1. Jammu & Kashmir	R	0.05	0.69	1.95	2.79	32.51	8.52	23.99
	U	0.09	1.04	2.36	3.38	24.59	5.14	19.45
2. Punjab	R	0.36	1.16	2.81	4.04	35.89	7.99	27.90
	U	0.13	1.50	3.00	4.29	32.33	6.07	26.26
3. Rajasthan	R	0.16	0.66	2.18	3.51	43.68	15.38	28.30
	U	0.40	0.98	2.74	3.72	38.79	11.62	27.17
II. CENTRAL :								
4. Uttar Pradesh	R	0.05	0.88	2.36	3.81	44.50	21.09	23.41
	U	0.10	1.13	2.65	3.79	36.52	13.05	23.47
5. Madhya Pradesh	R	0.13	0.93	2.32	3.27	41.68	15.20	26.48
	U	0.04	0.86	2.92	3.49	36.91	10.31	25.60
III. WESTERN :								
6. Gujarat	R	0.11	1.06	2.66	3.65	34.75	8.45	26.30
	U	0.02	1.21	2.78	3.73	31.78	6.82	24.96
7. Maharashtra	R	0.04	0.07	2.48	3.47	38.86	12.19	26.67
	U	0.07	1.00	2.34	3.30	30.71	6.46	24.25
IV. EASTERN :								
8. Bihar	R	0.05	0.79	2.01	2.95	32.93	10.08	22.85
	U	0.05	0.94	2.21	3.20	28.86	8.38	20.48
9. Orissa	R	0.02	0.98	2.39	3.19	34.32	9.73	24.59
	U	0.05	1.15	2.29	3.20	29.89	5.99	23.70
10. West Bengal	R	0.04	0.83	2.30	3.01	33.59	5.90	27.69
	U	0.02	0.92	2.23	3.24	21.74	3.82	17.92
11. Assam	R	0.10	1.44	2.82	3.41	23.48	5.41	18.07
	U	0.13	1.26	2.47	3.25	23.19	3.45	19.74
V. SOUTHERN :								
12. Madras (Tamilnadu)	R	0.11	1.22	2.45	3.07	32.76	11.38	21.38
	U	0.11	1.12	2.39	3.24	32.94	8.19	24.75
13. Kerala	R	0.19	1.41	2.79	3.83	32.43	9.70	22.43
	U	0.20	1.39	2.56	3.75	28.94	7.79	21.15
14. Mysore	R	0.21	1.04	2.60	3.45	35.59	10.79	24.80
	U	0.14	1.26	2.60	3.78	31.81	7.70	24.11
15. Andhra Pradesh	R	0.15	0.96	2.23	3.00	34.07	10.67	24.40
	U	0.06	1.00	2.45	3.21	31.35	7.86	23.49
16. All India	R	0.09	0.98	2.38	3.33	37.04	12.30	24.65
	U	0.08	1.08	2.54	3.49	31.52	7.80	23.63

Note : *Source* : National Sample Survey (1970)—Report no. 154
** " " " " (1970)—Report no. 175

conspicuous in Kerala (74.5%) and then is the position of the State of Punjab (64.5%). In another two States, namely, Tamil Nadu and Gujarat, married women above 20 years showed 57.5% and 56.6% respectively in urban areas. Such late marriages of the urban girls of these four States are strongly expected to influence fertility of the couples concerned. From

the findings of the National Sample Survey (1961-62) it is observed most interestingly that the average number of livebirths per urban couple (irrespective of marriage duration) was in fact 3.75 in Kerala, 4.29 in the Punjab, 3.24 in Tamil Nadu, and 3.73 in Gujarat.

On the opposite to the above picture, markedly lesser incidences of late marriage among urban females is noticed in some States, like Rajasthan (23.9%), Madhya Pradesh (27.0%), Bihar (28.1%), and Andhra Pradesh (32.1%). In these urban population the average number of livebirths per couple in the families concerned was shown in the NSS findings to be 3.72 in Rajasthan, 3.49 in Madhya Pradesh, 3.20 in Bihar and 3.21 in Andhra Pradesh.

Now it is very clearly understood that in the States of India where among *urban* female population the females marrying late (after 20 or more years) are relatively most dominant the average livebirths per couple varies between a high of 4.29 to a low of 3.24. Contrastingly, in other States where the females marrying late are conspicously deficient the average livebirths per couple happens to vary from a high of 3.72 to a low of 3.21. Such a significant biosocial development in fertility performance of the urban couples vis-a-vis early or late marriage of the wives requires, indeed, further probe in depth to unravel the relative import of the factors involved in the said development.

Contextually, attention is drawn to another vital issue. Out of 15 States in question nine States showed in 1961 that in *both* rural and urban population more than 50% of the married females were below 20 years in age. In another four States of Punjab, Gujarat, West Bengal and Assam more than half of the married females were also below 20 years but this is true for only rural population of each State. In the remaining two States namely, Tamil Nadu and Kerala in *both* rural and urban population the magnitude of the married women below 20 years in age was noticably lower than 50%. Does this varying magnitude of the married females below or above 20 years in age play in fact any discriminating effects on (1) the fertility of the couples and (2) the birth load in rural and urban areas ?

It is noteworthy that in all States, except Maharashtra, Assam and Kerala, the urban couples have been reported to exhibit uniformly higher average number of livebirths per couple (irrespective of marriage duration) than their counterparts living in rural families (National Sample Survey 1970a). This is certainly a most crucial finding to bear upon the conjugal

(sex) behaviour of the urban couples, especially with particular reference to their mode of corporate living in nuclear or joint family (Pakrasi and Malaker 1967).

In a recent study on the marital fertility rates against the prevalent age at marriage in Mysore, Madras and Kerala it has been shown that in Mysore, about 93% of the women in the age group 15-24 are married, in Tamil Nadu (Madras) about 75%, and in Kerala, only about 57%. It is expected therefore marital fertility to be highest in Mysore and lowest in Kerala. Though it is in fact highest in Mysore (only by a small margin), but the fertility rate in Kerala is higher than that in Tamil Nadu (Das 1967). These findings raise a significant question in this effect that if a rise in the age at marriage of the Indian women would cause any appreciable impact on fertility in the existing sociocultural way of life of the Indians. In the very context Hawthorn (1970) holds a definite view to state that age at marriage is of 'slender importance' in influencing Indian marital fertility. In fact, the comments are that it is 'the type of kinship organisation' within which a marriage takes place rather than the age at which it takes place which happens to be 'the determining factor' Here the need for a serious perusal of those significant observations made two decades ago by Lorimer (1954), is reiterated to strengthen future strategies of studies of social and cultural conditions affecting fertility in non-industrial societies.

Lastly, it is stressed that population problems of India can not be tackled efficiently by socio-economic factors only. One has to take into account the biology of the human fertility. A comprehensive *biosocial approach* in the relevant study of the problems has become pressing, especially for the fact that whatever has been said so far on Indian population are mostly unaided by any kind of biological investigations in all-India level. Measurements of differential fertility of different socio-cultural groups and sub-groups of people in India have yet to be concluded. Similarly, population researchers should have accurate and sufficient knowledge about the net reproductive index of each group. Who can vouchsafe the fact that every mother is being replaced by another in Indian families ? What is the sex-wise frequency of involuntary sterility in our population ? What is the magnitude of intersexes in India in society ? What are the kinds of fecundity impairment suffered by the married women in their respective childbearing ages ? These are some of the biological issues which can never be kept in isolation in the field of fertility/population

researches. These issues have, of course, to be appraised within the heterogenous frame of many stratified cultures of India.

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