

FERTILITY TRENDS IN INDIA: FUTURE POSSIBILITIES USING THE PROXIMATE DETERMINANTS MODEL

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ABSTRACT

In this study, an attempt has been made to estimate the total fecundity rate for Indian women using the proximate Determinant Model developed by Bongaarts and Potter and then to estimate the decline in total fertility rate in the country by the year 2000 A.D. The paper brings out that in future the impact of breastfeeding and induced abortion to reduce fertility will cancel each other. Further, reduction in fertility is dependent on increase in female age at marriage and use of contraception. The rise in age at marriage beyond 21 years may not be approved by the society as reproduction is approved within the wedlock only. Increase in use of contraception is the only way to reduce fertility in the country if the goal to reach NRR of unity is to be achieved by 2000 A.D.

Throughout the world it has become necessary to estimate how fertility may change due to a variety of socio-economic, cultural and environmental factors. However, actual changes in fertility are determined by the changes in behaviour as suggested in the proximate determinants model¹. The present paper uses the model proposed to suggest how India's targets for fertility reduction could be attained.

In the first instance, let us recap the model as has been outlined by its authors. The authors have identified the complete set of intermediate variables in the reproductive model as under:

1. Proportion married among females.
2. Contraceptive use and effectiveness.
3. Prevalence of induced abortion.
4. Duration of post-partum infecundibility.
5. Fecundibility (or frequency of intercourse).
6. Spontaneous abortion (miscarriage).
7. Prevalence of permanent sterility.

It has been demonstrated that nearly all variances in the fertility levels of a population are due to the first four of these variables. Thus, they have expressed the Total Fertility Rate (TFR) in a population as the product of four indices measuring fertility inhibiting effect on the Total Fecundity (TF)². This total fecundity rate is defined as the fertility resulting if a woman, throughout her reproductive period, remained married, did not use contraception or abortion, and did not breastfeed her

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children. The resultant value of TF varies substantially between 13 and 17 with the average being 15.3³.

According to the Bongaarts model then TFR is expressed as follows:

$$TFR = C_m * C_c * C_a * C_i * TF$$

where: C_m is the index of proportion married

C_c is the index of contraception

C_a is the index of induced abortion

C_i is the index of post-partum infecundibility (mainly due to breastfeeding),

TF is the Total Fecundity Rate

Estimates of TF are not available for India — although estimates for TFR do exist. Thus, in this paper an estimate for TF will firstly be derived from the current level of TFR, and then once this has been established it will be used to determine TFR in the future and the corresponding changes in the four proximate determinants.

ESTIMATE OF TOTAL FECUNDITY (TF) FOR INDIA

TF is a function of mostly biological proximate determinants, viz. frequency of intercourse, natural sterility and spontaneous abortion. However, these biological determinants are in part as a result of socio-economic, cultural and environmental factors, particularly in India. Social norms and customs such as a long period of abstinence from sexual intercourse following child birth, long birth intervals following the practice of universal abstinence of sexual intercourse during breastfeeding, the custom to send the wife to her parents house for her first delivery, no sexual intercourse on religious days, mother-in-law would stop child-bearing when daughter-in-law joined the house, etc. Economic constraints such as separation of husband and wife due to either of them working away from home also have a bearing on TF. Hindus are prohibited to have sexual intercourse on between 80 to 100 days a year. The unrestricted Indian fertility is low as compared to Eastern and Western communities. The average age at menarche in rural India was 13.8 years in 1956, while it has been observed that mean menopausal age for Indian women was 42.2 years. However, actual reproductive span will be less than this in India as marriage post-dates menarche and very often sterility pre-dates menopause.

Taking all these factors into consideration, Total Fecundity (TF) has been estimated by setting the values of the four proximate determinants to current levels — the discussion for sources will follow. In other words, the best estimate of TFR has been derived and worked backwards to estimate TF.

ASSUMPTIONS FOR THE FOUR PROXIMATE DETERMINANTS

Breastfeeding: Breastfeeding in India is prolonged and almost universal. All India estimates are not available except some scanty information based on surveys conducted during the 1960's and 1970's. The duration of breastfeeding has been assumed³ at 20 months in 1978 and therefore, based on this, we have assumed that

breastfeeding has declined to 19 months by 1985. There is enough evidence to suggest that continuing modernisation has taken place and the fact that more women are working tends to bring about a slow decline in number of months duration of breastfeeding.

Induced abortion: Like breastfeeding, no reliable estimates of induced abortion are available for the country except for the official statistics of induced abortions carried out under the Medical termination of Pregnancy Act, 1972. Over 500 thousand induced abortions were carried out in 1982-83. Various estimates of illegal induced abortion have been suggested such as 4.2 million for a population of 547 million in 1971. Abortion, unless it is very high, does not tend to affect TFR very much in any case (1 abortion averts 0.4 of TFR on an average). Thus, we have assumed the abortion rate of 0.2 per woman in her lifetime. In other words, one in five Indian women had an induced abortion in her lifetime in 1985.

Age at marriage: Female age at marriage is a very important factor regarding fertility in India as marriage is essential for having babies. The trend in marriage age has been upwards since the 1891-1901 decade. Evidence shows that the age at marriage rose by around one year between the 1961-71 and 1971-81 decades reaching 18.41 years in 1971-81. Thus, it is assumed that it continued to rise to 19 years by 1985.

Effective use of contraception: The nationwide government sponsored Family Planning Programme which started in 1952 has been expanded in 1963 and 1965-66 to increase the acceptance rate of contraception in the country. As with many family planning programmes, India started with the 'clinic' approach before changing the strategies to obtain greater acceptance rates. The official estimates of couples effectively protected are put at 31.02 per cent by March 1985. Much of this 31 per cent are sterilisations (around 80 percent). In practice, however, there may be more than 31 per cent practising some contraceptive method. We have assumed that 32 per cent were effectively protected so as to include those not included in the official statistics. This assumption is made from the All India Family Planning Surveys undertaken in 1970 and 1980 in which it was found that official estimates were lower than the actual users for effective contraception.

Based on the assumptions already discussed for breastfeeding, induced abortion, age at marriage and effective contraceptive use, the TFR's for each of the TF's were produced as given below:

With TF at 13.0 brings about TFR of 4.38

With TF at 13.5 brings about TFR of 4.55

With TF at 14.0 brings about TFR of 4.72

The estimate of 4.55 TFR from a TF of 13.5 was felt to be close enough to the UN estimate of 4.5 TFR (UN, 1986). The calculations of the Bongaarts model were accomplished using a computer programme which is part of the POPTRAN package written at the Cardiff University Population Center. Thus, it has been concluded that since the average estimated TFR for India in 1985 was 4.5, then the TF can be approximated to 13.5 per Indian woman on an average.

ESTIMATED DECLINE IN TOTAL FERTILITY RATE

On the assumptions given already for the year 1985, one can now look forward to the estimate as to what will happen to both the TFR and four other proximate determinants of fertility upto the year 2000. In future, the role of breastfeeding will be not of reduction but of increase in fertility as a result of being reduced. This may come about due to a variety of reasons such as modernisation, industrialisation and urbanisation alongwith greater employment opportunities for women.

Induced abortion is likely to increase slightly due to more awareness of the method of terminating pregnancy and again with increasing modernisation in the society. However, in the Indian context it will be still regarded as a non-method in terms of fertility reduction and probably will not change a great deal over the next few years because of socio-cultural and religious reasons.

Age at marriage will continue to increase slowly but there comes a limit to which changes in culture and social norms will not give in. It is thought that age at marriage may not be extended beyond 21 years for women because of these reasons. Unlike many Western countries, in India total reproductive behaviour takes place within the wedlock and reproduction out of wedlock will probably never be acceptable to Indian society.

Thus, future reduction in fertility is largely dependent on increased use of effective contraception. Hence the stated policy is to reach an acceptance rate for contraception of 60 per cent and thus reducing TFR to replacement level fertility by the year 2000 AD. In other words to achieve a Net Reproduction Rate of one.

Based on the expectations outlined, the assumptions have been made on how the four proximate determinants of fertility are likely to behave and what the resultant TFR's are likely to be. However, the values of breastfeeding, induced abortion and age at marriage were assumed and contraceptive use calculated in order to obtain the expected TFR for each five year period. The same has been described in Table 1.

TABLE 1
ESTIMATE OF CONTRACEPTIVE USE IN ORDER TO ACHIEVE CERTAIN
TFR TARGETS

Assumptions made for:

Year	Breast-feeding	Abortion Rate	Mean Age at Marriage	Expected level of effective use of contraception	Expected TFR
1985	19.0	0.2	19.0	32.0	4.55
1990	19.0	0.2	19.5	37.8	4.00
1995	18.5	0.3	20.0	43.8	3.40
2000	18.0	0.4	20.5	52.1	2.70
2005	17.5	0.4	21.0	57.1	2.30

Source: POPTRAN, 1987.

It is important to note that the assumptions of breastfeeding, induced abortion and age at marriage are governed by present levels and trends. The effective contraceptive use is estimated to reach the required level in order to obtain the required TFR. It was also emphasised that this level of contraceptive use is 100 per cent effective.

Based on the prepared estimates, the levels and trends in TFR indicate that the National Goal of NRR - one is unlikely to be achieved with 52.1 per cent of effective protection rate (which otherwise may be over 60 per cent couple protected with present trend by different methods of contraception being propagated in the country) by 2000 AD.

To reach NRR - one, 57.1 per cent of couples are required to be effectively protected which, perhaps, is unlikely to be achieved under the present situation. The earliest possible date that NRR - one could be attained is only by 2005 A.D. provided the assumptions made in the study hold good.

SUMMARY AND CONCLUSIONS

Levels and trends in fertility are inter-related with socio-economic development and acceptance of contraception. The estimates of fertility are available from Sample Registration System and two National Sample Surveys carried out by the Registrar General of India in 1972 and 1979. The evidence suggests that Total Fertility Rate is declining in India.

The Bongaarts model of Proximate Determinants has been applied to determine the changes and the findings revealed that the envisaged changes in breastfeeding and abortion tend to cancel each other (that is lower breastfeeding increases fertility and more abortion decreases fertility). In this study it is assumed that there is a gradual and not much greater decline in breastfeeding.

Further, increases in age at marriage of females beyond 21 years of age are unlikely because of socio and cultural reasons and therefore the advantage of trying to increase age of marriage any further may probably be fruitless.

The use of contraception will be the main dominant determinant of reduction in fertility. The robust estimate of fertility changes based on the assumptions made indicate that with best efforts only 52.1 per cent of effective couple protection rate could be achieved by 2000 A.D. The national goal of attaining NRR - one could be expected with 57.1 per cent effective couple protection rate by 2005 A.D. only.

The estimate of Proximate Determinants of fertility decline does give a forewarning to the administrators, policy makers and politicians alike to think and realise the gravity of the burden of population growth on the economy of the country. They need to think of some radical measures on the lines as suggested in April 1976 population policy by Dr. Karan Singh, the then Union Minister of Health and Family Welfare, to the late Mrs. Indira Gandhi, the then Prime Minister of India, to restrain the growth of population within manageable limits.

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इस लेख में बाँगक्रेटस तथा पोटर्स द्वारा विकसित "आसन्न निश्चायक मॉडल" (प्रोक्सीमेंट डिटरमीनेन्ट मॉडल) के माध्यम से भारतीय महिलाओं के संदर्भ में कुल सुजननता दर का अनुमान लगाकर तथा उसके पश्चात 2000 ईसवी तक देश में कुल जनन दर में होने वाली कमी संबंधी आंकलन करने का प्रयास किया गया है। लेख में यह निष्कर्ष प्रस्तुत किया गया है कि भविष्य में स्तनपान का प्रभाव तथा जनन दर को कम करने हेतु स्वतः प्रेरित गर्भपात एक दूसरे के प्रभावों को निरस्त कर देंगे। इसके अतिरिक्त जनन दर में कमी लाना, महिलाओं की विवाह-आयु में वृद्धि तथा गर्भनिरोधकों के प्रयोग पर निर्भर करता है। चूंकि समाज द्वारा जनन प्रक्रिया को वैवाहिक बन्धन हो जाने पर ही स्वीकार किया जाता है, इसलिए विवाह की आयु को 21 वर्ष से आगे बढ़ाया जाना समाज को स्वीकार नहीं होगा। इसलिए यदि 2000 ईसवी तक नैट जनन दर को इकाई पर लाने संबंधी लक्ष्य को प्राप्त करना है तो केवल एक ही रास्ता है कि देश में जनन दर कम करने के लिए गर्भनिरोधकों के प्रयोग को बढ़ावा दिया जाए।

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**POTENTIAL GAINS IN LIFE EXPECTANCY OF KUWAITI NATIONAL
THROUGH PARTIAL AND COMPLETE ELIMINATION OF INFECTIOUS
AND PARASITIC DISEASES MORTALITY**

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ABSTRACT

The study attempts to estimate potential gains in life expectancy in 1984 through partial and complete elimination of infectious and parasitic diseases among Kuwaiti nationals. In order to derive these estimates, multiple decrement life table approach was applied. The results revealed that complete elimination of infectious and parasitic diseases mortality would further add 0.45 years to the life expectancy at birth of Kuwaiti males and 0.54 years to that of Kuwaiti females. A partial reduction by 50 per cent would result in gains just one-half of the years gained through complete elimination of these conditions. Partial reduction has also been increased from 10 per cent to 90 per cent, the gains in life expectancy at birth would go up from 0.04 years to 0.41 years and 0.06 years to 0.46 years for Kuwaiti males and females, respectively.

Life expectancies have been used for many years to support public health programmes and to measure health progress. As early as 1760, few papers were published in support of smallpox vaccination as a public health measure. The argument was based on an analysis of prospective increase in complete life through elimination of smallpox as a cause of death. Researchers in 1969 have also demonstrated the use of partial life expectancies towards defining goals for health programmes. Estimates of gains in life expectancies through partial/complete elimination of a particular cause of death can therefore be usefully utilised by health planners in setting the targets.

Among developing countries, Kuwait can now be considered as one of the few countries which is at the threshold of joining the club of the developed countries as far as the health status of the people is concerned. This improved health status is the result of concerted emphasis placed by Kuwait Government on health care in its development plans during the last three decades. The life expectancy at birth for the Kuwaiti population is presently estimated at about 72 years which compares very favourably with the level prevailing in developed countries.

As in the other developed countries, the three killers - neoplasms, cardiovascular diseases and automobile accidents - are now the major causes of

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death in Kuwait. Though there has also been tremendous improvement in the infectious and parasitic mortality in the country, yet its level is still high as compared to the developed world³. Nearly 5 per cent of total deaths in Kuwait, at present, are due to infectious and parasitic diseases whereas in the developed countries, these diseases are currently responsible for only 1 per cent of total deaths.

MATERIALS AND METHOD

Mortality data by age, sex, nationality (Kuwaitis and non-Kuwaitis) and cause of death for three years (1983 to 1985) were obtained from the Vital and Health Statistics Division, Ministry of Public Health, Kuwait. Regarding mid-year 1984 population and its distributions by age, sex and nationality, the estimates which were prepared by the Central Statistical Office, Ministry of Planning, Kuwait, have been used. The average of 3 years deaths during the years 1983-85 together with midyear population distributions for 1984 have been considered to calculate age-specific death rates for 1983-85 and the same method was followed to overcome errors due to random fluctuations in annual deaths.

Using the standard procedure, Life Tables were constructed for the years 1983-85 separately for Kuwaiti males and females which indicate the mortality level in 1983-85.

The basic function to be derived when cause i is eliminated as a cause of death, is $nq_x^{(-i)}$ which is the probability of dying in the age interval x to $x+n$ after cause i has been eliminated as a cause of death. The method used to derive this function was proposed by other authors^{4,5} as an approximate formula for expressing the value of $nx(-i)$ and is based on competing risk theory. Accordingly,

$$nq_x^{(-i)} = 1 - n^p_x (n^D_x - n^{Di}_x) / n^D_x$$

where n^D_x = Observed deaths in the population in the age interval $(x, x+n)$.

n^{Di}_x = Observed deaths in the population due to cause i in the age interval $(x, x+n)$

and $n^p_x = 1 - n^q_x$

After having calculated the values of $nq_x^{(-i)}$, the values of all other life table functions were derived in the same manner as those in the basic life table.

In case of partial elimination of the cause of death, the probabilities of dying are derived from the following equations:

$$nq_x^{(-i)} \left(\frac{\pi}{K} \right) = 1 - n^p_x (n^D_x - \frac{\pi}{K} n^{Di}_x) / n^D_x$$

where K = improvement factor $[0 \leq K \leq 1]$

RESULTS AND DISCUSSION

Potential Gains in Life Expectancy by Complete Elimination of Infectious and Parasitic Diseases Mortality: One way to measure the importance of a cause of death is to examine the gains in life expectancy when the cause of death is completely eliminated. Following the methodology already described, life tables were constructed for Kuwaiti males and Kuwaiti females when infectious and parasitic causes are completely eliminated from the mortality level observed for 1983-85.

The results revealed that potential gains in life expectancy at birth would be 0.45 years for Kuwaiti males and 0.54 years for Kuwaiti females as shown in Table 1. After infancy, at age 1, the gains are only 0.29 years and 0.33 years for Kuwaiti males and females respectively. It is also observed that the gains in life expectancies range between 0.20 years to 0.30 years for both sexes upto age 60 years and beyond 60 years the gains fall even below 0.20 years. Also upto age 60 years, the gains for both sexes would be, more or less, the same.

Potential Gains in Life Expectancy Through Partial Elimination: The potential gains in life expectancy already described were improbable, since the complete elimination of deaths due to infectious and parasitic diseases in Kuwaiti population is unlikely to happen in the foreseeable future. A more realistic approach was adopted to examine the potential gains in life expectancy through partial, rather than the total elimination. The results from the partial elimination by 10 per cent, 20 per cent, 30 per cent, 50 per cent, 70 percent and 90 per cent of the level of mortality prevalent in the years 1983-85 have also been presented in Table 1.

A reduction by 50 per cent of infectious and parasitic diseases mortality level prevailing in 1983-85 would add only 0.22 years in life expectancy at birth to Kuwaiti males and 0.27 years to Kuwaiti females. These gains are just one-half of the years gained through complete elimination of these causes. Further, as partial reduction is increased from 10 per cent to 90 per cent, the gains in life expectancy at birth go up accordingly from 0.04 years to 0.41 years in case of Kuwaiti males and 0.06 years to 0.48 years for Kuwaiti females. At age 55 years, the gains in life expectancy for Kuwaiti population range from 0.02 years to 0.21 years as partial elimination increases from 10 per cent to 90 per cent.

CONCLUSIONS

The paper estimates the potential gains resulting from partial and complete elimination of mortality due to infectious and parasitic diseases. For this, the multiple decrement life table approach has been employed. Even though the complete elimination of a cause of death may not be biomedically feasible, the results point out the optimum gains that could be achieved. The findings based on partial elimination were found to be more realistic for practical decision making in setting health goals, allocation of resources and evaluation of health programmes.

TABLE 1
POTENTIAL GAINS (IN YEARS) IN LIFE EXPECTANCY BY
PARTIAL/COMPLETE ELIMINATION OF INFECTIOUS AND PARASITIC
DISEASES 1983-1985, KUWAITI POPULATION

Age	Life Expectancy 1983-85 (in years)	10%	20%	Partial Elimination by			70%	90%	Complete Elimination
KUWAITI MALES									
0	68.46	0.04	0.09	0.13	0.22		0.31	0.41	0.45
1	69.25	0.03	0.06	0.09	0.14		0.20	0.26	0.29
5	65.4	0.03	0.05	0.08	0.14		0.19	0.25	0.28
15	55.96	0.03	0.06	0.09	0.14		0.19	0.25	0.28
25	46.63	0.03	0.05	0.08	0.13		0.19	0.24	0.27
35	37.24	0.03	0.06	0.08	0.14		0.19	0.24	0.27
45	28.12	0.02	0.06	0.07	0.12		0.17	0.22	0.24
55	19.93	0.02	0.05	0.07	0.11		0.15	0.20	0.22
60	15.98	0.02	0.04	0.06	0.10		0.14	0.19	0.21
65	12.87	0.01	0.03	0.05	0.09		0.12	0.16	0.18
75	7.61	0.01	0.03	0.04	0.06		0.09	0.12	0.13
85	4.54	0.00	0.00	0.00	0.00		0.00	0.00	0.00
KUWAITI FEMALES									
0	73.15	0.06	0.11	0.16	0.27		0.38	0.48	0.54
1	73.84	0.03	0.08	0.10	0.16		0.23	0.30	0.33
5	70.11	0.03	0.06	0.09	0.14		0.20	0.26	0.29
15	60.32	0.03	0.06	0.09	0.15		0.20	0.26	0.28
25	50.3	0.03	0.06	0.09	0.14		0.20	0.25	0.28
35	40.75	0.03	0.05	0.08	0.14		0.19	0.24	0.27
45	31.24	0.03	0.05	0.08	0.13		0.18	0.23	0.26
55	22.38	0.03	0.05	0.07	0.12		0.16	0.21	0.23
60	18.26	0.02	0.04	0.06	0.10		0.14	0.18	0.20
65	14.75	0.02	0.03	0.05	0.08		0.12	0.15	0.17
75	8.88	0.02	0.02	0.04	0.06		0.09	0.11	0.12
85	4.20	0.00	0.00	0.00	0.00		0.00	0.00	0.00

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इस अध्ययन के माध्यम से यह अनुमान लगाने का प्रयास किया गया है कि 1984 में संक्रामक तथा परजीवी रोगों के आंशिक और पूर्ण उन्मूलन के परिणाम स्वरूप कुवैती नागरिकों की औसत आयु में कितनी संभावित वृद्धि हुई थी। इस प्रकार का अनुमान लगाने के लिए "बहुल हास आयु तालिका " (मल्टीपल डिफ्रिमेंट लाइफ टेबल) को प्रयोग में लाया गया था। प्राप्त परिणामों से स्पष्ट होता है कि संक्रामक तथा परजीवी रोगों के पूर्ण रूप से उन्मूलन करके जन्म के समय एक कुवैती पुरुष की औसत आयु में 0.45 वर्ष की तथा कुवैती महिला नागरिक की औसत आयु में 0.54 वर्ष की और वृद्धि होती है। आंशिक रूप जो इन स्थितियों का पूर्ण रूप से उन्मूलन करके प्राप्त हुए थे। आंशिक-हास में दस प्रतिशत से नब्बे प्रतिशत तक वृद्धि भी की गई थी, इससे जन्म के समय कुवैती पुरुषों की औसत आयु में 0.04 वर्ष से बढ़कर 0.41 वर्ष तथा महिलाओं की औसत आयु में 0.06 वर्ष से बढ़कर 0.48 वर्ष की वृद्धि हो जाएगी।

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WAITING TIME FOR THE OUTPATIENTS IN A TEACHING HOSPITAL

B. Vishnu Bhat* and R.K. Puri**

ABSTRACT

The waiting time for the patients attending the JIPMER Paediatrics Outpatient Department was studied. The mean consultation time was 5.2 minutes, while the mean total time spent in the hospital was 167.7 minutes. Health education and immunisation received low priority. An attempt has been made to identify the problems faced by the patients and suggest possible solutions for improvement.

The general hospitals in developing countries are overcrowded not only because of increased morbidity but also underutilisation of available medical manpower. The treatment involved long waiting time especially in teaching institutions. This in turn reduced the effectiveness of medical services and brings down the economic status of the individual and the community.

JIPMER is a teaching hospital with elaborate record system. The services are provided free of charge. On an average, 3,000 patients attend the Outpatient Department (OPD) every day of which one-fourth are children. The present study was undertaken with the following objectives:

- i. to calculate the waiting time for the patients before and after consultation;
- ii. to know the type of illnesses they suffer from and the variation in waiting time in relation to the illness; and
- iii. to find out the means for improving the services.

MATERIALS AND METHOD

The study was conducted for one week in the month of August, 1987. Every fifth child with medical illness entering the Outpatient Department (OPD) of JIPMER Hospital was selected. There were 53 children in the study group. They were closely followed up from the time of entering the OPD till they went out using a pre-planned pretested proforma. The time was recorded at various stages of health care delivery system (Fig. 1). The results were analysed statistically using *chi square* and degree of freedom test.

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SEQUENCE OF PATIENTS MOVEMENT

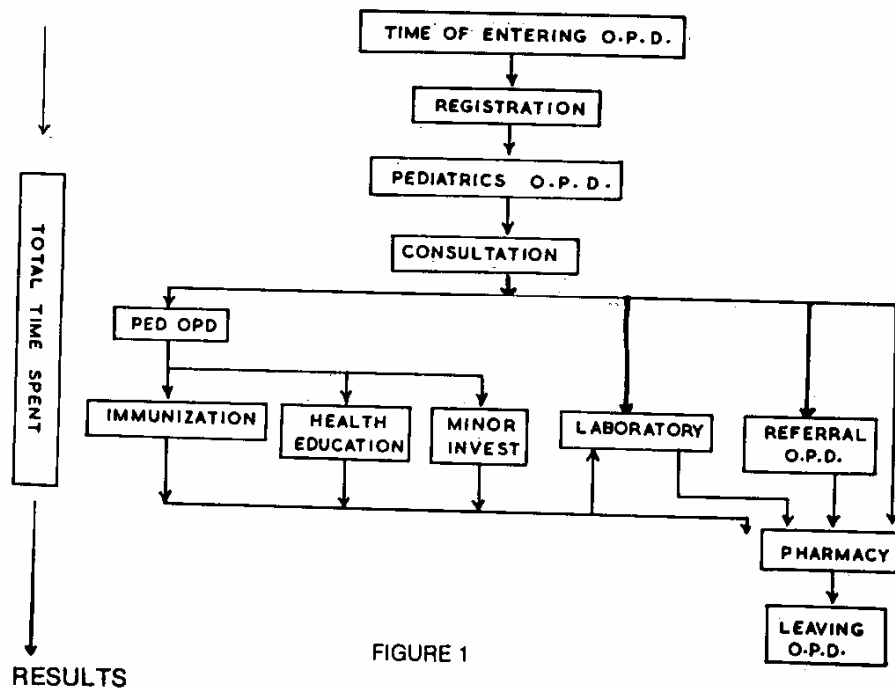


FIGURE 1

RESULTS

The percentage of children who were less than 3 years of age was 77.3 and they belonged to the lower socio-economic groups. Only 11.3 per cent of patients lived within 5 Kms. from the hospital; while 28.3 per cent travelled for more than 40 Kms. for receiving the medical care.

The waiting time from entering the OPD to registration was more than 60 minutes in 43.4 per cent of cases and less than 30 minutes in 26.6 per cent of patients; the average being 66.3 minutes as shown in Table 1.

TABLE 1
TIME INTERVAL BETWEEN ENTERING THE HOSPITAL AND REGISTRATION

Time in Minutes	Number of Patients	Percentage
	5	9.4
21-30	9	17.0
31-40	8	15.1
41-60	8	15.1
61-90	12	22.6
>90	11	20.8

Mean 66.3 minutes; Range 10 - 180 minutes

After registration, mean duration of waiting outside the consultation hall, as given in Table 2, was 47.3 minutes. Even after entering the consultation hall, only 41.5 per cent of children were able to meet the doctor within 10 minutes. In Table 3, the mean waiting time of 20.6 minutes inside the consultation room has been shown.

TABLE 2
TIME INTERVAL BETWEEN REGISTRATION AND ENTERING
PAEDIATRICS OUTPATIENT

Time in Minutes	Number of Patients	Percentage
420	6	11.3
21-40	16	30.2
41-60	6	11.3
61-90	14	26.4
>90	11	20.8

Mean 47.3 minutes; Range 5-136 minutes

TABLE 3
TIME TAKEN FROM ENTERING THE CONSULTATION HALL TO
CONSULTATION

Time in Minutes	Number of Patients	Percentage
45	10	18.9
6-10	12	22.6
11-15	10	18.7
16-20	6	11.3
21-40	8	15.1
>40	7	13.2

Mean 20.6 minutes; 1-93 minutes

1 VS 3 χ^2 44.53 df= 5 p= 0.000 HS

2 VS 3 χ^2 42.39 df= 5 p= 0.000 HS

The actual process of consultation was very short (mean 5.2 minutes). Fifty per cent of this time was also spent in recording the findings and giving prescriptions.

Only three children (5.7 percent) received health education and two babies were given immunization and one needed hospitalization. Two children were referred to other departments. Although investigation slips were given to four

children, only two patients actually gave the specimens since the laboratory was closed by the time the others reached there. All the patients could collect the drugs within 20 minutes.

Only four patients could go back within one hour while 24 (44.3 per cent) had to spend more than three hours. The average time spent in the hospital for one episode of illness was 167.7 minutes as shown in Table 4,

TABLE 4
TOTAL TIME SPENT IN THE HOSPITAL

Time in Hours	Number of Patients	Percentage
<1	4	7.5
1-2	14	26.4
2-3	11	20.8
3-4	15	28.3
>4		17.0

Mean 167.7 minutes; Range 40-315 minutes

DISCUSSION

Healthy children are the greatest resource of any country and their growth and development should be ensured on priority basis. The waiting time should be optimal so that the people could utilise the medical services effectively.

The patients could be guided at the main gate of the JIPMER Hospital and at the OPD entrance so that they could easily enter the right registration counter. The registration time can be reduced by operating separate counters for children and the mothers. The waiting time outside the consultation hall could be properly utilised by the para-medical staff for imparting health education. Short video films on nutrition, immunisation, oral rehydration and personal hygiene could also be shown. The waiting space outside the consultation hall has already been overcrowded and hence unsuitable for any effective health education.

The patients had to wait for a considerable length of time inside the consultation hall because of the following reasons: (i) doctors going for coffee break; (ii) when a doctor goes to attend an emergency case, the waiting patients are not attended to till he returns; and (iii) staff members bring in patients without standing in the queue. It was felt that the coffee break for the doctors should not be more than 15 minutes and should be by rotation. The case records of the waiting patients should be shifted to the next table when a particular doctor has gone out in order to reduce the extra waiting time for these patients. Although arrangements were made for the staff and their dependants to be seen separately, this system was not effective. It could probably be improved if the resident provides consultation only to them along with other problem cases.

The mean consultation time of 5.2 minutes is very short in comparison to other studies. About half of this time is also spent in record work. The duplication of recording work could be reduced to some extent by sending the patient with the case card itself to the pharmacy for collection of drugs rather than issuing separate prescription slips. The cards can be collected from there and then sent to the record section.

Immunisation is the most cost effective health measure any nation could invest in³. Healthy children brought for only immunisation should be separated from the other patients because of two reasons: (i) immunisation could be given by the paramedical staff and thus the waiting time could be reduced, and (ii) in a hospital, there is a high risk of these children contacting some serious illness from other patients. Adequate supply of potent vaccines should be available at all times so that the immunisation coverage would be improved.

The mean total time spent in the hospital (167.7 minutes) is quite comparable with other teaching hospitals in the developing countries⁶. By reducing waiting time per patient, the consultation time could be increased substantially or in doing so more number of patients could attend the OPD. Further, this could be achieved only by regionalising the health care delivery system. The teaching institutions perhaps then could only function as a true referral hospital.

Lkkjk'k

जवाहर लाल स्नातकोत्तर चिकित्सा शिक्षा एवं अनुसंधान संस्थान में बाल चिकित्सा संबंधी बहिरंग रोगी विभाग में आने वाले रोगियों द्वारा की जाने वाली प्रतीक्षा की अवधि के बारे में एक अध्ययन किया गया था। अध्ययन से प्राप्त निष्कर्षों से पता चलता है कि रोगी को चिकित्सकीय परामर्श प्रदान करने में लगने वाले समय की माध्य अवधि 5.2 मिनट थी, जबकि रोगी द्वारा अस्पताल में बिताए गए समय की माध्य अवधि 167.6 मिनट थी। स्वास्थ्य शिक्षा तथा प्रतिरक्षण को कम वरीयता दी जाती थी। इस लेख में रोगियों की समस्याओं का पता लगाने तथा समस्याओं के समाधान हेतु सुझाव देने का प्रयास किया गया है।

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A PSYCHOSOCIAL PROFILE OF INMATES OF ORPHANAGES AT PUNE

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ABSTRACT

A psychosocial study of 306 institutionalised orphans was carried out at Pune. Various aspects like age, sex, religion-wise distribution including their age at entry, social status of parents and type/cause of destitution have been studied. The intelligence quotient (IQ) and early psychological symptoms of the inmates have also been highlighted.

The abandonment of a child is an act of gross violation of human rights. The abandoned child is deprived of a personal and social identity - a big social handicap for his future life. In the absence of timely intervention, abandonment is an immediate threat to the child's survival, protection, care and preparation for life. In turn, this unfortunate individual becomes a burden to society at large.

For years, orphans have been the brunt of cruelty and indifference of adults. Merely making institutions for them is no real solution to the problem. They must have deep human compassion of those who are prepared to give them love and real foundation of individual character and discipline, which can prove to be an incentive for great achievements by the individual towards society at large.

Institutional care has its shortcomings/perhaps not so much the mere absence of maternal and paternal relationship but the ethos of the institution, the demonstration that they are "different" may be the reason for the same.

The Government of India declared a National Policy for Children on August 22, 1974 which lays down a 15-point programme in areas of health, nutrition, education and recreation with five major areas of activity: (a) promotive and preventive aspects of child health; (b) nutrition of infants, pre-school children; (c) maintenance, education and training of orphans and destitute children; (d) day care and other services for children of working mothers; and (e) rehabilitation of handicapped children.

There is a marked paucity of available data on the subject of health and nutritional status of children in orphanages. Even in cases where adequate health and nutritive facilities are available, children frequently exhibit "failure to thrive due to impersonal nature of the care provided. When deprived of parental care the child's development is likely to be retarded physically, intellectually and socially and symptoms of physical and mental illness may appear.

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The present study was undertaken with a view to fill up the gaps in our existing knowledge on the social etiology of destitution as well as to bring out a psychosocial profile of the orphans.

MATERIALS AND METHOD

The study population comprised inmates of the following four orphanages:

- i. Tayabia Orphanage provided a study population of 92 orphans in the age group of 5-18 years.
- ii. St. John's Orphanage provided a study population of 45 orphans in the age group of 0-5 years.
- iii. St. Gabriel's Orphanage provided a study of population of 54 orphans in the age group of 5-10 years.
- iv. S' Michael's Orphanage provided a study population of 115 orphans in the age group of 10-18 years.

Thus, the study population consisted of 306 children.

A liaison was established with the governing bodies, administrators and social workers of these institutions and a plan was also chalked out as per their convenience before the commencement of the study. The data was collected by interviewing the study subjects and by recording on a pretested schedule.

Secondary data was collected from the records maintained at the orphanages in regard to information not readily forthcoming from the individuals, *viz.*, reasons for their entry into the orphanages.

IQ test was carried out for children aged 5-10 years by Draw-a-Man technique. For this, guidance was taken from the Psychiatry Department, Armed Forces Medical College, Pune, while analysing the data. To corroborate the findings the assistance of psychosocial worker was also taken.

RESULTS AND DISCUSSION

Age Distribution: The age-wise break up of children in the various orphanages has been studied and shown in Table 1.

There were 37 children (9.15%) in the age group 0-4 years as compared to Pathak and Saxena's (1980) estimate of 13.09 per cent children in that age group. There were 80 children (26.14%) in the age group 5-9 years and 113 children (36.92%) in the age group 10-14 years. The comparable figures estimated by Pathak and Saxena were 33.57 per cent and 53.34 per cent respectively. However, their study calculations were based on the figures for children in the age group 0-14 years while this study dealt with the age group of 0-18 years.

The break-up in the present study does not necessarily represent the distribution of orphans in the community as all orphans do not get equal opportunity to join the orphanages.

TABLE 1

Age group	St, John		St, Gabriel		St. Michael	Tayabia	Total
	M	F	M	F	F	M	
0-2 Yrs.	15	10					21
2-4 Yrs.	9	7			-		16
4-6 Yrs.	5	3	7	5		4	24
6-8 Yrs.			11	7		18	36
8-10 Yrs.			10	14		17	41
10-12 Yrs.					26	16	42
12-14 Yrs.			-		33	17	50
14-16 Yrs.					36	14	50
16-18 Yrs.					20	6	26
Total	29	20	28	26	115	92	306

Sex-wise Distribution: Sex-wise break-up of children has been examined and shown in Table 2.
shown in Table 2.

TABLE 2

Institution	Male	Female	Total
Tayabia Orphanage	92		92
St. John's Orphanage	25	20	45
St. Gabriel Orphanage	28	26	54
St. Michael's Orphanage	-	115	115
Total	145	161	306

Tayabia orphanage caters only for boys while St. Michael's caters only for girls. There was a total of 145 male orphans (47.39%) and 161 female orphans (52.61%) which formed the study population.

This may not reveal the true sex-wise distribution of orphans in the community at large as most orphans do not get opportunity for admission to various institutions. Further, a small intake was only possible due to the limited capacity of the institutions.

Religion-wise Distribution: Religion-wise distribution of inmates in orphanages were studied and has been shown in Table 3.

TABLE 3

Religion	St. John	St. Gabriel	St. Michael	Tayabia	Total
Hindus	26	32	85	-	143
Christians	18	20	28	-	66
Muslims	1	2	2	92	97
Total	45	54	115	92	306

This religion-wise distribution of orphans does not represent the true picture of orphans in the community. For example, in the present study, Tayabia orphanage was exclusively meant for Muslim inmates while in other orphanages entry of Christian orphans was mostly favoured.

Age at Entry Into Orphanages: The average age of entry in the orphanages has been studied (other than Tayabia orphanage where children below five years were not admitted) which was found to be 4.61 years for boys and 3.81 years for girls. This possibly reflects bur social environment in which girls become destitute much earlier. The findings here found to be in conformity with those of Tandon (1981) who observed that parental loss generally occurred before the age of five years.

Social Status of Parents: As the monthly income of parents of inmates was not mentioned in the records it was extremely difficult to ascertain their social status. Hence, the standard scales for social status could not be applied. An effort was made to assess the social status by means of occupation of the parents as has been shown in Table 4. Even then the occupation of parents could not be found out in respect of 96 children. However, most of the children in the study belonged to the lower social class and were the underprivileged members of the society.

Type of Destitution: An effort was made to classify orphans on the basis of whether their parents were alive or not. Orphans with no parents alive were classified as complete orphans and with only mother alive as paternal orphans. The type of destitution has been shown in Table 5.

The distribution of orphans appears to be at variance with the estimate by Pathak and Saxena (1980). Their estimate was that there were 50.57 per cent paternal orphans, 36 per cent maternal orphans and 5.07 per cent complete orphans. This discrepancy was found because of a tradition in our society that on the death of the head of the family (the father), the mother is incapable of looking

TABLE 4

Social Status	St. John	St. Gabriel	St. Michael	Tayabia	Total
I Professional	-	-	-	-	-
II Semi-Professional	-	-	-	-	-
III Clerical Office workers	2	4	11	3	20
IV Skilled worker	12	14	25	22	73
V Unskilled worker	13	15	34	27	89
VI Unemployed	6	5	10	7	28
VII Not Known	12	16	35	33	96
Total	45	54	115	92	306

TABLE 5

Type of Destitute	St. John		St. Gabriel		St. Michael	Tayabia	Total		Percentage
	M	F	M	F	F	M	M	F	
Complete orphans	11	15	4	8	37	24	39	60	32.35
Maternal orphans	6	2	6	5	18	20	32	25	18.63
Paternal orphans	8	3	18	13	60	48	74	76	49.02
Total	25	20	28	26	115	92	145	161	100.00

after herself and her children. In the present study deserted children without any history were taken as complete orphans and hence were in larger numbers as compared to the findings of Pathak and Saxena's estimates.

A glaring reflection of our socio cultural milieu is the fact that out of 99 complete orphans, 60 were females.

Causes of Destitution: The causes of destitution in respect of orphans have been given in Table 6.

TABLE 6

Causes	St. John	St Gabriel	St. Michael	Tayabia	Total
Complete orphans					
Found on street	16	3	12	16	47
Unmarried mothers	7	5	10	3	25
Immoral danger	-	-	5	-	5
Parent baggers	1	2	3	-	6
Information was not available	1	3	7	5	16
Maternal orphans					
Complication of pregnancy	4	1	6	4	15
Miscellaneous disease	3	3	1	4	11
Unknown cause	1	7	11	12	31
Paternal orphans					
Old age	-	1	9	6	16
Chronic alcoholism	3	2	3	5	13
Miscellaneous disease	5	8	10	6	29
Unknown cause	3	20	38	31	92
Total	44	55	115	92	306

(df = 8; P < 0.05; χ^2 = 5.388)

Relevant information was not forthcoming in respect of 54.58 per cent of cases as is evident from Table 6. This was possibly due to the fact that orphans were generally deserted and hence unable to provide the required information. In view of the above facts the data was not considered adequate for applying the tests of significance for the total study population. However, **Chi Square** test was carried out on the information available (*i.e.* 45.42%) and yet the difference between the information available in the orphanages of the present study was not found to be significant.

While reviewing the literature, although the breakups of paternal, maternal and complete orphans are mentioned, further break-down of causes of death/desertion are not highlighted. As such, these have not been attempted here.

Intelligence Quotient: Distribution of orphans as per their IQ has been given in Table 7.

TABLE 7

IQ		Tayabia	St. Gabriel	Total	Percentage
IDIOT	0-24	-	-	-	-
IMBECILE	25-49	-	-	-	-
MORON	50-69	1	1	2	2.15
BORDER-LINE	70-79		10	19	20.43
LOW-NORMAL	80-89	15	29	44	47.31
NORMAL	90-109	12	12	24	25.81
SUPERIOR	110-119	1	1	2	2.15
VERY SUPERIOR	120-139	1	1	2	2.15
NEAR GENIUS	140	-	-	-	-
TOTAL		30	54	93	100.00

Note: Only children aged 5-10 years were considered for study.

(DF= 2; $\chi^2 = 2.388$; $P > 0.05$)

As mentioned earlier, IQ was worked out by Draw-a-man test for orphans between the ages of 5-10 years. Out of 93 children examined, two children were morons (2.15%), 19 children had borderline, 24 children had normal IQ (25.81%), two children had superior IQ (2.15%), while two children had very superior IQ (2.15%). The difference in IQ between the two orphanages was not found to be significant. Hence, it was inferred that IQ of orphans, given a healthy environment, was adequate.

These findings were at complete variance with Wolkund's observation of IQ 50-70 (morons) in 40.3 per cent children in Indian orphanages.

The most common group in the present study was low normal IQ (IQ 80-89) in which 47.31 per cent of the children were placed. Whether this had any correlation with destitution is at present a matter of conjecture and would require a more detailed study.

Early Psychological Symptoms: Early psychological symptoms as studied and found in the orphanages have been shown in Table 8.

TABLE 8

Sr. No.	Symptoms	Complete orphan	Maternal orphan	Paternal orphan	Total
1.	Demands attention	38	15	5	58
2.	Nail biting	20	10	3	33
3.	Defiance	13	4	5	22
4.	Stammering	2	1	0	3
5.	Excessive temper	11	2	1	14
6.	Vomiting bouts	9	3	1	13
7.	Excessively violent	7	2	3	12
8.	Truancy	2	6	4	12
9.	Excessive nervousness	5	3	2	10
10.	Nightmares	2	1	-	3
11.	Subnormal mental growth	2	1	-	3
12.	Bed-wetting	6	3	1	10
13.	Backwardness in school	4	1	1	6
Total		121	52	26	199

Note: 261 children in age group of 5-18 years were examined.

199 symptoms were found in 111 children.

(df =8; $\chi^2 = 9.734$; $p > 0.05$)

Early psychological manifestations were looked for in the age group 5-18 years and 111 children of the study subjects (42.52%) were found to have these symptoms. Some children had more than one psychological problems.

These symptoms were encountered much more in complete orphans. Sixty four out of 73 complete (87.67%), 31 out of 49 maternal (63.26%) and 16 out of 139 paternal orphans (11.51%) had early psychological manifestation. There was a significant difference in the number of complete and maternal orphans having early psychological symptoms as compared to paternal orphans. The average number of symptoms was 1.89, 1.67 and 1.62 in each affected complete, maternal and paternal

orphans respectively. There was no significant difference in the type of early psychological symptoms between these three groups.

The findings of the study revealed that the loss of the mother in early childhood had telling effects on the individual's psyche. It also brought out that the complete orphan was under severe stress which could affect adversely on his psychological well-being, later in life.

Further, no child was found with stealing habit. "This was possibly due to good institutional guidance. The other findings were similar to the observations made by Wolkund who found that the four most common psychiatric problems among orphans were quarrelsome nature, destructive behaviour, bed-wetting and stealing.

In the present study the more common symptoms were found among complete orphans and maternal orphans. This is in conformity with the findings of Burlingham who had noted a special relationship between early psychological symptoms and maternal loss. Stein had also observed that persistent bed-wetting seemed to be connected with disturbance in child's relation with the mother.

In conclusion, the institutionalised orphans in the study population generally belonged to lower social strata of society, entered the orphanage before the age of five years, suffered from early psychological problems and had lower than the general population. It also indicates that periodical psychological assessment and psychotherapy may be necessary for an orphan before he leaves the institution.

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Lkkjk'k

पुणे के अनाथालयों में रह रहे 306 अनारथों के बारे में एक मनोवैज्ञानिक अध्ययन किया गया था। इस अन्वेषण कार्य के अर्न्तगत आयु, लिंग, धर्म के अनुसार विभाजन, अनाथालय में प्रवेश के समय उनकी आयु, माता पिता का सामाजिक स्तर तथा निराश्रयता का स्वरूप/कारण आदि जैसे विभिन्न पक्षों पर अध्ययन किया गया था। इस लेख में अनाथालय निवासियों की बुद्धि लब्धि (आई क्यू) तथा प्रारम्भिक मनोवैज्ञानिक लक्षणों पर प्रकाश डाला गया है।

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**A STUDY OF REFERRALS FROM A PRIMARY HEALTH CENTRE IN
HARYANA STATE (INDIA)**

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ABSTRACT

A study on patient referrals from a Primary Health Centre in Haryana, was carried out over a two year period. Findings revealed that about 1.97 per cent of the patients attending the health centre were referred to secondary and tertiary care institutions. The . average referrals per day were 1.59. More referrals were made for emergencies as compared to the routine OPD cases and more female patients were referred as compared to male patients. About 31.6 per cent of the total referral were for surgical consultations. Urinary tract and related conditions were the commonest complaints among the referrals. Studies of this nature help in the rational allocation of the scarce resources and also help the patients by minimising the distance to be travelled for seeking specialist care.

In India, the availability of facilities for medical care has improved substantially since the country's Independence but a lot still needs to be done. At present, for availing facilities of specialised medical care, the rural population has essentially to move to other bigger institutions in the referral chain. The referral system if used will ultimately ensure better utilisation of hospitals at all appropriate levels and also prevent overcrowding at the larger hospitals. Various Committees set up by the Union Ministry of Health have recommended strengthening of various aspects of the referral process in the country. The Committees defined the functional and operational levels of the health systems and their responsibilities in referral. Regionalisation of specialist services and development of District Hospitals into full fledged referral hospitals were also recommended. Yet in another Committee, the three-tier system of the national referral complex was recommended.

In order to provide adequate and proper services at referral hospitals, there is a need to know the pattern of morbidity of the patients referred from the Primary Health Centres in the country. This study was carried out to see the pattern of cases referred from a Primary Health Centre in Haryana to these referral institutions.

MATERIALS AND METHOD

The patients referred from Primary Health Centre (PHC), Dayalpur, a part of the rural health centre of the All India Institute of Medical Sciences, New Delhi, were studied for a period of two years (May 1985 to April 1987). This PHC covers a

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population of 51,000 spread over 25 villages. The PHC area had an Infant Mortality Rate of 70.3, a Birth Rate of 34.9, a Crude Death Rate of 7.6 and a Maternal Mortality Rate Of 2.0 (1986).

The PHC is generally manned by 2 to 4 interns, one Junior Resident (as part of training for M.D. in Community Medicine) and one Senior Resident (after completion of M.D. in Community Medicine) who is designated as the Medical Officer Incharge. Facilities for routine urine, stool, blood (Hb, TLC, DLC, ESR, PBS for M.P.) and sputum for acid fast bacillus examinations are available at the PHC. For any additional investigations, the patient is required to be sent to the next level of health care. In-patient facilities were also not provided at the PHC and the patient required a referral to the higher level for the same.

Each referred patient was given a referral slip, to be handed to the attending physician/surgeon at the place where the patient was sent. The slip incorporated identification data, relevant points from the patient's history, findings of clinical examination, the provisional diagnosis, treatment given at the primary contact, and finally the name of the hospital and the specialist to whom the case is referred. All the above mentioned details are also entered in the referral register maintained at the PHC.

The patients were routinely referred to the following hospitals:

1. **Civil Hospital, Ballabgarh:** This hospital is situated at a distance of 10 kilometers from the PHC and has in-patient facilities for 60 patients. Specialists from Surgery, Gynecology, Medicine, Pediatrics, Anesthesia, Ophthalmology, Dentistry and E.N.T. have their OPD's thrice in a week. Facilities for X-rays, ECG, Serum biochemistry, a well equipped Operation Theatre and Labour Rooms are also available at this hospital.

2. **B.K. Hospital (District Hospital), Faridabad:** It is situated at a distance of 20 kilometers. This hospital has in-patient services for 200 patients and specialists from all major specialties. This hospital is the nearest centre for blood transfusion and anti-rabies vaccine.

3. **Safdarjung Hospital and the All India Institute of Medical Sciences.** These two hospitals in New Delhi are situated at 50 kilometers from the PHC. These tertiary care centres have facilities for all super specialties,

The PHC headquarters village is well served by the public transport system and is connected by metalled all weather roads to the above mentioned hospitals.

RESULTS

During the two years study period, a total of 47,982 patients were seen at the primary health centre. The age and sex distribution of the patients and referrals has been given in Table 1. About 46.3 per cent of the patients were children under the age of 12 years. A total of 947 patients (1.97 per cent of the total patients) were referred to other institutions (Table 2). The average referrals per day were 1.59. The average daily attendance of patients at the PHC was 79.7 patients per day. The average emergency cases seen during this period were 1.1 per day.

Of the 47,982 patients, there were 642 patients who were treated as emergency cases, of whom 41 (6.39 per cent), were referred to other institutions as given in Table 3. There were more referrals in the population aged 12 years and above (2.57 per cent) compared to the child population below 12 years (1.29 per cent). Amongst all the male patients, 1.81 per cent were referred as against 2.14 per cent among the females as has been shown in Table 2. If Gynecology and Obstetrics referrals are excluded, then more male patients were referred than female patients.

About 25.9 per cent of the referred cases were of communicable diseases, whereas the out-patient attendance at the PHC for these conditions was almost 50 per cent.

TABLE 1
AGE AND SEX DISTRIBUTION OF CASES AND REFERRALS AT THE PHC

Sex	0-12 years		Above 12 years		Total	
	Cases	Referrals	Cases	Referrals	Cases	Referrals
Males	12,175	163	11,943	275	23,118	438
Females	10,046	123	13,818	386	23,864	509
Total	22,221	286	25,761	661	47,982	947

TABLE 2
PERCENTAGE REFERRALS BY AGE AND SEX

Sex	0-12 years Percentage	Above 12 years Percentage	Total Percentage
Males	1.34	2.30	1.82
Females	1.22	2.79	2.13
Total	1.29	2.57	1.97

TABLE 3
DISTRIBUTION OF OPD AND EMERGENCY REFERRALS AT THE PHC

	Total Patients	Number of referred patients	Percentage of referred patients
OPD	47,340	906	1.91
Emergency	642	41	6.39
Total	47,982	947	1.97

Surgical referrals were the single largest group amongst the referrals and accounted for 31.6 per cent of the total referrals. A further 17.6 per cent of the cases were referred to Gynecologist, 16.6 per cent to the Physician, 12.5 per cent to the Pediatrician and 8.9 per cent to the Ophthalmologist. Amongst the surgery referrals, gastro-intestinal problems, renal problems, abscesses and cellulitis were most common. Most of the referrals to the Physician, were for respiratory problems, of which cases referred for chest X-rays and second opinions for cases of tuberculosis, constituted a large proportion.

TABLE 4
SPECIALITY-WISE BREAK-UP OF THE REFERRED CASES

Speciality	Males		Females		Total
	0-12 yrs.	Above 12 yrs.	0-12 yrs.	Above 12 yrs.	
Pediatrics	58	-	60	-	118
Gynecology	-	-	-	167	167
Surgery	68	118	39	74	299
Ophthalmology	16	35	5	29	85
Medicine	-	80	-	77	157
Others	21	42	19	39	121
Total	163	275	123	386	947

Gynecology referrals were commonly for complications of pregnancy, patients sent for medical termination of pregnancy, abortions and associated problems as shown in Table 5.

About 94.2 per cent of the referred cases were sent to the Civil Hospital at Ballabgarh, which is the nearest secondary care institution (run by the AIIMS) and caters to the largest proportion as evidenced from Table 6.

DISCUSSION

The need for strengthening of referral services has been recommended by various National Committees on Health in India. The Seventh Five Year Plan also stresses on referrals to ensure optimum utilisation of the specialist services. The lowest rung of referral centres must be geared to meet the requirement of most of the referred cases. In the present study, most of the referred cases were Surgical (31.6 per cent). Medicine referrals accounted for 16.6 per cent, Gynecology and Obstetrics for 17.6 per cent, Pediatrics for 12.5 per cent and Ophthalmology for 8.9 per cent of the referred cases. All the above specialists must be provided at the first referral centre, which in India would mean the Community Health Centres, in the Health for All by 2000 model. In the present planning, there is no ophthalmologist at

TABLE 5
DISTRIBUTION OF THE TEN COMMONEST CONDITIONS REFERRED
FROM PHC

Condition	Number of Patients referred	Percentage of total referred patients
1. Urinary tract infections/Renal stone/BPH/ Urinary retention	74	7.81
2. Pulmonary Tuberculosis	59	6.20
3. Complications of pregnancy	55	5.80
4. Gastro-intestinal conditions (acute abdomen/ appendicitis etc.)	53	5.60
5. Cellulitis/Abscess etc.	49	5.17
6. C.N.S. conditions including infections and strokes	36	3.80
7. Acute Respiratory infections	33	3.48
8. Extra Pulmonary Tuberculosis	30	3.17
9. Soft tissue injuries	30	3.17
10. C.V.S. Disorders (RHD/ASD/VSD/ Myocardial infarction/Hypertension)	27	2.85
Total	446	47.1

TABLE 6
DISTRIBUTION OF INSTITUTIONS TO WHICH CASES WERE REFERRED

Institution	Number of cases referred	Percentage
1. Civil Hospital, Ballabgarh	892	94.2
2. B.K. Hospital (District H.Q. Hospital) Faridabad	17	1.8
3. AIIMS and other tertiary care institutions in Delhi	38	4.0
Total	947	100.0

the Community Health Centre. Since a sizeable proportion of cases were referred for ophthalmic consultations, if any eye surgeon were to be included, he will be able to meet the requirements of these cases.

It has been conclusively shown that the cost of providing medical care for the same sickness increases as the patient moves towards the apex institution. The care at more peripheral levels has a rationing effect and distributes cases requiring highly technological care through referral. Hence to make the health infrastructure most cost effective, it is imperative to provide the required specialists at the most appropriate peripheral hospital.

This study has shown that about 50 per cent of the OPD cases were due to communicable diseases, but the proportion of cases of communicable diseases among the referrals was only 25.9 per cent. This means that most of these cases can be managed at the PHC itself. It is suggested that this aspect needs to be strengthened at the PHC, as these disease conditions are responsible for more than two-third of the total morbidity in India.

There is also a pressing need to carry out more studies of a similar nature as this would allocate health personnel to the appropriate levels in the health infrastructure. The pattern of allocation of resources may be flexible, keeping in mind the specific requirements of a particular region, which are bound to vary from place to place.

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हरियाणा राज्य के एक प्राथमिक स्वास्थ्य केन्द्र में रोगियों संबंधी रैफरल सेवाओं के बारे में दो वर्ष तक एक अध्ययन का संचालन किया गया था। जांच परिणामों से पता चलता है कि स्वास्थ्य केन्द्र में आने वाले रोगियों में से लगभग 1.97 प्रतिशत रोगियों को दूसरे तथा तीसरे स्तर के स्वास्थ्य परिचर्या संस्थानों में रैफर किया गया था। इस प्रकार रैफर किए जाने वाले रोगियों की दैनिक औसत 1.59 पाई गई थी। बहिरंग रोगी विभाग में आने वाले सामान्य केसों की तुलना में आपातकालीन सेवाओं संबंधी केसों को अधिक संख्या में रैफर किया गया था। इसी प्रकार पुरुष रोगियों की तुलना में महिला रोगियों के अधिक संख्या में रैफर किया गया था। कुल रैफरल केसों में से लगभग 31.6 प्रतिशत केस शल्यचिकित्सा हेतु परामर्श प्राप्त करने के लिए रैफर किए गए थे। रैफर किए गए केस प्रायः मूत्राशय तथा मूत्रमार्ग से संबंधित विकारों से सम्बद्ध थे। इस प्रकार के अध्ययन दुर्लभ स्रोतों के युक्तिसंगत आवंटन में और विशेषज्ञ उपचार परिचर्या सेवाएं प्राप्त करने के लिए रोगियों द्वारा तय की जाने वाली दूरी को कम करने में सहायता प्रदान करते हैं।

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THE STATUS OF FAMILY WELFARE IN RURAL AREAS OF DISTRICT WARDHA

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N. Narula***** and D. Singh*****

ABSTRACT

Data were collected in house to house survey employing trained social workers from 19 villages selected through random sampling in three development blocks in Wardha. A total of 3,348 couples having female partners of age-group 15-44 were surveyed. An effective couple protection of 51.46 per cent as against all India figure of 34.9 per cent was found. Sterilization was the main-stay of the programme being accepted by 46.12 per cent. Among the acceptors of sterilization, 86.2 per cent had three or more children. Spacing methods were practised only by 5.46 per cent of the couples. A significantly higher number of couples in the lower socio-economic group have accepted family planning suggesting that with the right type of information, a high degree of motivation can be achieved in rural poors. In order to further improve the performance, attention to younger couples and emphasis on spacing methods is indicated.

Research on sources, organisation and accomplishment of health care has become both important and urgent. Such scientific studies focus directly on ways of improving health care. Health care systems research needs to be closely linked to field realities so that the results can be directly and rapidly applied.

An ICMR Project "Evaluation of Existing Patterns of Health Care Systems in Wardha District" was undertaken during the period May 1983 to September 1985. Some of the observations on family welfare programmes in rural areas of district Wardha (MS) are reported in this article.

MATERIALS AND METHOD

Ten per cent of villages from each of the three blocks of Wardha district, *viz:* Anji, Bhidi and Talegaon were selected randomly. All the households in these

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villages were enumerated. Data was collected by house to house visits in a pre-structured schedule by trained social workers. Information on awareness, utilisation and attitude of the people towards various existing health services were elicited. The couples effectively protected are computed by considering the effectively of oral pills and sterilizations as 100 per cent, IUD 95 per cent and condoms 50 per cent.

The household coverage varied between 82-93 per cent. These were 4,505 households in 19 villages. These households had a *total* population of 22,976. The sex ratio was 107 males to 100-females. Among the total households, there were 3,348 couples having female partners of age 15-44 years. These formed the study population.

RESULTS

Table 1 reveals that out of 3,348 study couples 1,544 (46%) had one partner sterilized, 300 (9%) of the couples were using condoms to control their family size, methods like oral pills and IUDs were less commonly used. Nearly 43 per cent of the couples were not using any family planning method.

TABLE 1
AGEWISE DISTRIBUTION OF ELIGIBLE COUPLES USING
DIFFERENT METHODS TO CONTROL FAMILY SIZE

Methods	Age in years				Total
	<30	30-35	35-39	40-44	
Nil	953 (57.10)	176 (29.88)	149 (23.10)	159 (35.73)	1437 (42.92)
Condom	256 (15.34)	26 (4.41)	11 (1.71)	7 (1.57)	300 (8.96)
Oral pills	10 (0.60)	1 (0.17)	-	-	11 (0.33)
IUCD	17 (1.02)	2 (0.34)	-	-	19 (0.57)
Vasectomy	183 (10.96)	160 (27.17)	216 (33.49)	138 (31.01)	697 (20.82)
Tubectomy	239 (14.32)	220 (37.35)	254 (39.38)	134 (30.12)	847 (25.30)
Others	11 (0.66)	4 (0.68)	15 (2.32)	7 (1.57)	37 (1.10)
Total	1669	589	645	445	3348
Couples effectively Protected***	576 (34.51)	369 (67.23)	476 (73.80)	275 (61.80)	1723 (51.46)

***P < 0.001

The total couple protection rate was found to be 51.46 per cent. The highest couple protection rate was 73.80 per cent in age-group 35-39 years followed by 61.80 per cent in age-group 40-44 years. The differences were statistically significant ($p < 0.001$). The prevalence of couples having either of the partners sterilized was highest - 72.87 per cent in age-group 35-39 years followed by 30-35, 40-44 and less than 30 year age-groups with corresponding sterilization prevalences 64.52, 61.13 and 25.28 per cent.

The educational status of the female did not show any significant effect on female sterilization. However, the prevalence of male sterilization decreased consistently from 24.88 per cent to 4.35 per cent as education of female spouse increased from nil to high school and above, respectively. The increase was significant at $p < 0.001$. The couple protection rate was also significantly higher ($p < 0.001$) in education group primary and nil as compared to higher education groups. The use of condoms increased with the increase in education from 5.28 per cent in nil to 26.09 per cent in education group high school and above (Table 2).

TABLE 2
FEMALE EDUCATION-WISE DISTRIBUTION OF ELIGIBLE COUPLES
USING DIFFERENT METHODS TO CONTROL FAMILY SIZE

Family Planning Methods	Female Education					Total
	Nil	Primary	Middle	High school	Above High school	
Nil	779 (42.87)	300 (39.95)	201 (45.17)	146 (46.79)	11 (47.82)	1437 (42.92)
Condom	96 (5.28)	87 (11.58)	64 (14.38)	47 (15.06)	6 (26.09)	300 (8.96)
Oral pills	4 (0.22)	2 (0.27)	4 (0.90)	1 (0.32)	-	11 (0.33)
UCD	5 (0.28)	3 (0.40)	5 (1.12)	6 (1.92)	-	19 (0.57)
Vasectomy	452 (24.88)	151 (20.11)	59 (13.26)	34 (10.90)	1 (04.35)	697 (20.82)
Tubectomy	451 (24.82)	205 (27.29)	109 (24.49)	77 (24.69)	5 (21.74)	847 (25.30)
Others	30 (1.65)	3 (0.40)	3 (0.68)	1 (0.32)	-	37 (1.10)
Total couples	1817 960	751 404	445 209	312 142	23 8	3348 1723
effectively Protected***	(52.83)	(53.79)	(46.97)	(45.51)	(34.78)	(51.46)

*** $P < 0.01$

The couple protection rate did not show any consistent trend with the income. However, male sterilization decreased from 22.81 per cent to 14.67 per cent in income group less than Rs. 100 to income group Rs. 200 and above, respectively. The trend of decrease in prevalence of male sterilization was consistent with increase in income. The use of condoms and oral pills also increased consistently with income (Table 3).

The couple protection rate was 62.18 per cent, significantly higher ($p \leq 0.001$) among couples having family size five and six as compared to other two groups. In families of size four or less, the couple protection rate was 24.72 per cent. The male and female sterilizations followed similar trend. The use of condoms was highest -19.82 per cent in couples living in large *i.e.* in families of size seven or more; where

TABLE 3
INCOME-WISE DISTRIBUTION OF ELIGIBLE COUPLES USING
DIFFERENT-METHODS TO CONTROL FAMILY SIZE

Family Planning Methods	<100	100-200	Income in Rs. 200+	Total
Nil	950 (42.17)	356 (46.78)	131 (39.22)	1437 (42.92)
Condom	170 (7.55)	85 (11.17)	45 (13.47)	300 (8.96)
Oral pills	6 (0.27)	3 (0.40)	2 (0.60)	11 (0.33)
IUCD	12 (0.53)	1 (0.13)	6 (1.80)	19 (0.57)
Vasectomy	514 (22.81)	134 (17.61)	49 (14.67)	697 (20.82)
Tubectomy	568 (25.21)	180 (23.65)	99 (29.64)	847 (25.30)
Others	33 (1.46)	2 (0.26)	2 (0.60)	37 (1.10)
Total	2253	761	334	3348
Couples Effectively protected***	1184 (52.55)	361 (47.44)	178 (53.29)	1723 (51.46)

*** $p < 0.05$

as in other two groups, i.e., in the families of less or equal to four and five-six member, the condoms were used by 3.9 per cent of the couples (Table 4).

The couple protection rate was significantly higher ($p < 0.001$), 58.24 percent in the couples living as nuclear families as compared to joint families (39.03%). The sterilization, i.e., vasectomy and tubectomy, followed the similar trend and they were significantly higher ($p < 0.001$) in couples living as nuclear families. The condoms (20.75%) and oral pills (6.68%) were used by more couples in joint families as compared to nuclear families (2.54% and 0.14%, respectively, Table 5).

DISCUSSION

The overall contraceptive prevalence rate in the present study is of the order of 57.08 per cent. This is a very favourable finding. The couples effectively protected

TABLE 4
FAMILY SIZE-WISE DISTRIBUTION OF ELIGIBLE COUPLES USING
DIFFERENT METHODS TO CONTROL FAMILY SIZE

Family Planning Methods	< 4	Family Size 5 and 6	7+	Total
Nil	594 (73.06)	510 (34.81)	333 (31.12)	1437 (42.92)
Condom	32 (3.94)	56 (3.82)	212 (19.82)	300 (8.96)
Oral pills	1 (0.12)	7 (0.48)	3 (0.28)	11 (0.33)
IUCD	5 (0.62)	10 (0.68)	4 (0.37)	19 (0.57)
Vasectomy	120 (14.76)	405 (27.65)	172 (16.07)	697 (20.82)
Tubectomy	59 (7.26)	461 (31.47)	327 (30.56)	847 (25.30)
Others	2 (0.24)	16 (1.09)	19 (1.78)	37 (1.10)
Total	813	1465	1070	3348
Couples effectively protected**	201 (24.72)	911 (62.18)	611 (57.10)	1723 (51.46)

$p < 0.001$

TABLE 5
TYPE OF FAMILY-WISE DISTRIBUTION OF ELIGIBLE COUPLES
USING DIFFERENT METHODS TO CONTROL FAMILY SIZE

Family Planning Methods	Type of family		Total
	Nuclear	Joint	
Nil	851 (39.27)	586 (49.62)	1437 (42.92)
Condom	55 (2.54)	245 (20.75)	300 (8.96)
Oral pills	3 (0.14)	8 (0.68)	11 (0.33)
IUCD	10 (0.46)	9 (0.76)	19 (0.57)
Vasectomy	577 (26.63)	120 (10.16)	697 (20.82)
Tubectomy	645 (29.76)	202 (17.10)	847 (25.30)
Others	26 (1.20)	11 (0.93)	37 (1.10)
Total	2167	1181	3348
Couples effectively protected**	1262 (58.24)	461 (39.03)	1723 (51.46)

*** p < 0.01

works out to be 51.46 per cent. The All India figure in this regard is 34.9 per cent. The Government of India is now advocating a two child family to bring down the birth rate in the country. It has been stated that 60 per cent couple protection rate in rural India will be equivalent to cutting of almost all third or higher order births leaving two or less surviving children per couple. The target set to be achieved in 'Health for All by 2000 AD' is 60 per cent couple protection by the year 2000 AD. With a little push in the programme, this target will not be difficult to achieve.

Sterilization has been the main stay of the family planning programme in rural areas of Wardha. About 46 per cent of households with currently married woman of age-group 15-45 years have one spouse sterilized. This gives a high couple protection rate and it would appear that a little push in the programme could achieve the desired results but the picture is anomalous.

Among the acceptors of sterilization, 86.2 per cent had three or more children. Of the total protection rate of 51.46 per cent, only 5.46 per cent were using spacing methods. It is thus clear that younger age couples and couples with less than three children are hardly adopting any contraceptive methods. Unless this section of the population is motivated the desired results will be difficult to achieve. Ninth Joint Conference of the Central Council of Health and Central Family Welfare Council in 1983 also observed the same phenomenon and recommended that greater emphasis must be given to the younger age couples for birth spacing methods⁵. The Government of India's target of 60 per cent couple protection rate has to be spread throughout the eligible couples, especially the younger with one child. The demographic situation in the Peoples Republic of China has been the focus of considerable attention in recent years. That country has experienced a rapid decline in its total fertility rate from 5.8 in 1970 to 2.6 in 1981. In China, 50 per cent of all married females in the age-group of 15 to 49 were using intrauterine device in 1982. But in this study, about 17 per cent of young age couples were practicing birth spacing methods. So the important thrust in the programme should be educating the young age couples for effective use of birth spacing methods.

The effect of socio-economic status and education in this study has been reverse of the usual belief. In the present study, the eligible couples in low socioeconomic group and with lesser education have equally contributed to adoption of family planning methods. This shows that with the right type of information, a high degree of motivation can be achieved among the rural folks, even when they are poor and not highly educated. Similar trends have also been reported from Bangladesh (Micheal, 1983). The findings presented have a significant bearing. The acceptance of family planning methods found among the poor rural population may reflect the economic pressures making them realise the need to limit the family size.

Another significant finding in the present study is relationship of type of family and acceptance of family planning; 64.7 per cent of the families were composed of nuclear families in the study population. The acceptance by nuclear families was significantly higher; 60.7 per cent as compared with 50.4 per cent, by the joint families.

CONCLUSION

In order to improve the performance of the family welfare planning programme, greater attention has to be paid to the couples in the younger age-groups. This group can be effectively protected by complete abolition of early and child marriages. The other methods of birth spacing should be pushed in keeping the pace of permanent sterilization rate. The young age couples should be made to realise and implement the birth spacing methods. This alone will lead to the fulfilling of targets projected such as reduction in birth rate.

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इस अध्ययन के लिए वार्धा के तीन विकास खंडों में से यादृच्छिक-प्रतिचयन-पद्धति के आधार पर चुने गए 19 गांवों में प्रशिक्षित सामाजिक कार्यकर्ताओं की सहायता से घर-घर सर्वेक्षण कराकर ऑकड़े एकत्र किये गये थे। कुल मिलाकर 3348 ऐसे दम्पतियों का सर्वेक्षण किया गया था, जिनकी पत्नियां 15-44 वर्ष के आयु वर्ग में थी। अखिलभारतीय स्तर पर 34.9 दम्पती सरक्षण दर के मुकाबले इस क्षेत्र में यह दर 51.46 प्रतिशत पाई गई थी, जो काफी प्रभावकारी थी। कार्यक्रम की सफलता का मुख्य आधार नसबन्दी तरीके को स्वीकारने वालों में 86.2 प्रतिशत लोग तीन या अधिक बच्चों वाले पाए गए थे। केवल 5.46 प्रतिशत दम्पतियों द्वारा ही अन्तराल (स्पेसिंग) विधियां व्यवहार में लाई गई थीं। सामाजिक-आर्थिक रूप से पिछड़े जनसंख्या समूह में दम्पतियों की एक बड़ी संख्या द्वारा परिवार नियोजन को स्वीकार किया गया था, जिससे यह सुझाव मिलता है कि उन्हें उचित प्रकार की सूचनाएं प्रदान करके ग्रामीण क्षेत्रों में गरीब लोगों को इसके प्रति काफी प्रोत्साहित किया जा सकता है। इस लेख से यह सुझाव भी मिलता है कि कार्यक्रम के निष्पादन स्तर में सुधार लाने के लिए युवा दम्पतियों तथा परिवार नियोजन की "अन्तराल विधियों" पर विशेष ध्यान दिया जाना चाहिए।

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