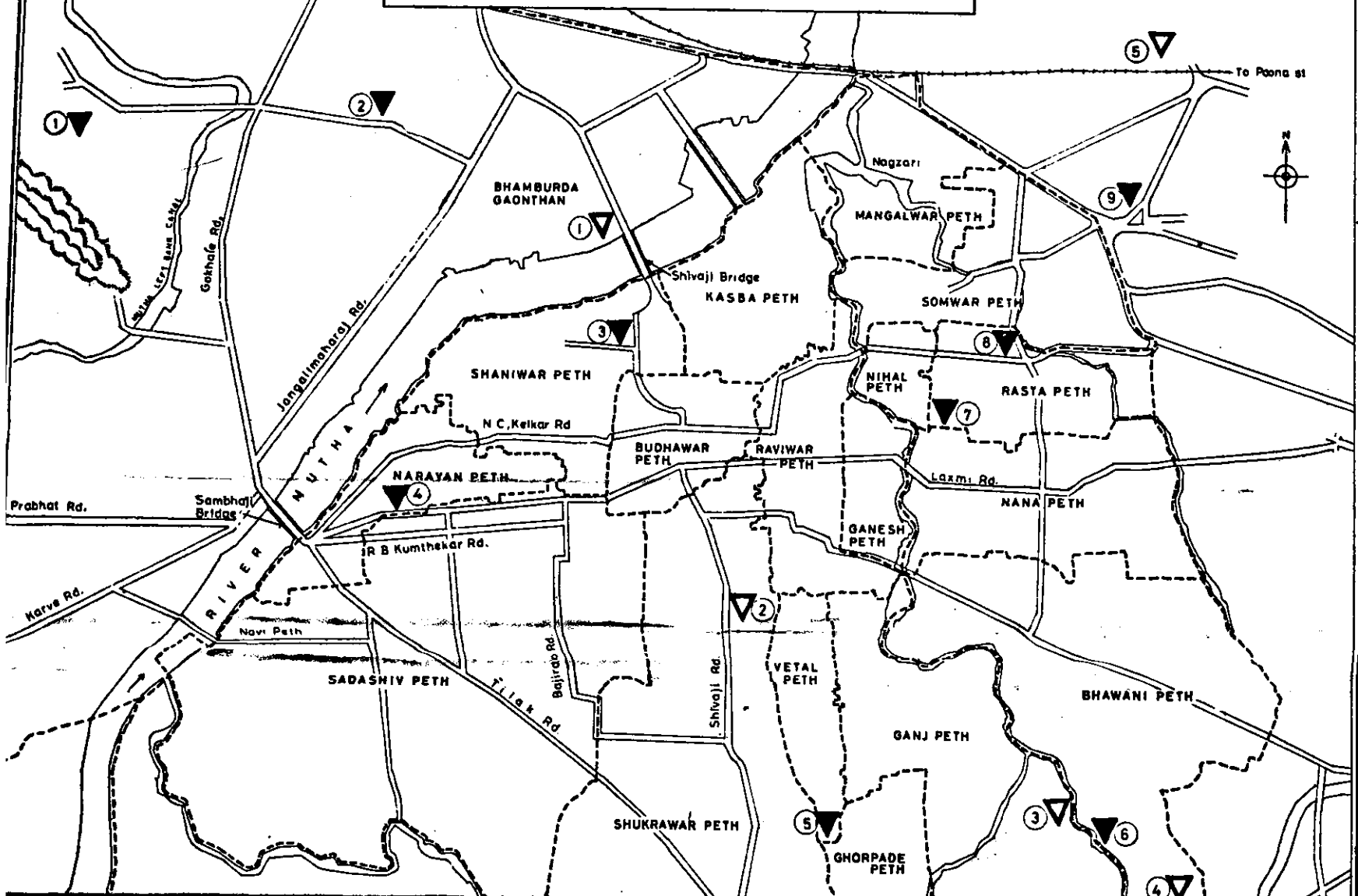


THE FAMILY PLANNING CLINICS IN POONA CITY



Gokhale Institute Studies, No. 58

Prospects of Population Control

Prospects of Population Control

Evaluation of Contraception Activity

(1951-1964)

Kumudini Dandekar
Vaijayanti B̄hate

THE GOKHALE INSTITUTE OF POLITICS AND ECONOMICS
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FOREWORD

THE PRESENT STUDY is concerned with the family planning programme in the city of Poona and its possible impact on birth rate in that city over a period of 13 years from 1951 to 1964. As judged by an earlier study conducted by the Institute in 1951, the city of Poona presented a most favourable ground for the promotion of family planning; 12 per cent of the relevant population already had the knowledge of contraception and 40 per cent reacted positively to the idea when properly explained. Since then, the programme of family planning has made considerable progress in the city. This is evident from the fact that in 1964, the knowledge and acceptance of contraception was almost universal; only 2 per cent confessed ignorance. Moreover, half of the relevant population were actual practitioners of one or the other method; indeed half of them, that is a quarter of the total, were sterilized. Another quarter of the population favoured the same method and would accept it in due course.

Thus the city evidently presents a case of what can be achieved by an intensive programme of family planning. In view of this, its impact on the birth rate is of great interest. The study shows that over the period of 13 years from 1951 to 1964, the birth rate declined by about 20 per cent. In view of the high acceptance of sterilization, it is obvious that a large part of the decline must be attributed to sterilization. This does not mean that the other methods are not important. Their importance lies in the fact that they are adopted by younger couples with high levels of fertility but yet too young for sterilization.

These results emphasize the difficulty of the task that lies ahead

on the population front. According to the current assessment of the situation, it is expected that the rate of population growth will decline from its present level of 2.5 per cent per annum to 1.7 per cent per annum in 1980-81. This requires a 20 to 25 per cent decline in the birth rate depending upon the actual decline in the death rate that may occur during this period. In other words, what has been achieved in 13 years in the city of Poona must be achieved in the coming decade all over the country. Needless to say, this is not easy.

Gokhale Institute of
Politics and Economics,
Poona 4.
31st December 1970.

V. M. Dandekar

PREFACE

THE CENSUS of 1961 brought disappointment as the two five-year plans had made no dint on birth rate in any part of the country. Nor were data available which could be employed to assess the why and how of the unchanging birth rate, not even for a single locality, like that of a city. This led to the present work. It ascertains the situation in Poona city for which the necessary bench-mark data were available for an earlier date when the first five-year plan had just begun. These data had been collected when there was a serious clamour for all kinds of demographic data which were completely absent. That phase had however passed after the first two plan-periods. One could therefore entertain the hope of assessing the picture of a city like Poona with a view to finding the effect of the planned effort on its birth rate.

The present publication is called *Prospects of Population Control* as it deals with such prospects in the city of Poona. The findings are based on data collected for the city during the years 1951 and 1965. The 1961 census did not reveal any influence of contraceptive practice in this city. A resurvey was therefore conducted in the city to assess the reasons for this. Poona city is not necessarily representative of the Indian cities. But being a possible forerunner in the contraceptive programme, it may forewarn if the planned effort in this country is being ineffective. The survey covers the period 1951-64 i.e. broadly about the first three five-year plans. During these years there has been enormous change in the attitudes of people towards the number of children. The birth rate, as the survey indicates, declined a little less than twenty per cent during

1951-64 and this augurs well for the city and similar other localities. It is, no doubt a drop in the ocean of population problems but it holds out hopes and sets an example in the direction of population control in the country too.

The discussion in the earlier chapters of *'Prospects of Population Control'* on clinics, clinic administration and clinic visitors mainly stresses the administration of family planning programme, its limitations and likely implications. It throws up suggestions for improvement of the programme to reach a larger populace and popularizing family-planning activity. A large part of the discussion on methodology of evaluating family-planning activity is meant to aid the uninitiated in the field. All this, projected against the background of the characteristics of the general population of the city, brings out the importance of the family-planning clinics in the total family-planning activity. It suggests the ways the clinical services may be administered to make them more popular. In 1954, I was an advocate of vasectomy. But I have to admit that a qualitative and quantitative measurement of change in the family-planning activity brings out one very important fact, that it is tubectomy, or condom and tubectomy put together, and not vasectomy, that will hasten the control of population growth. Vasectomy, it now turns out, was accepted largely by the educated. Given the facilities, people, by and large, appeared to prefer tubectomy. To hasten the effective control of population, one had therefore to offer facilities for tubectomy and condom. The present efforts in the country are directed towards these. This study generates hopes of possible population control in India when the whole outside world seems to be despondent about such possibilities.

Another useful finding of the publication is the estimation of under-enumeration of births and infant deaths or of infant mortality rates in the city of Poona. In India both these aspects are often discussed only at the level of guesses without the support of factual data. In the present publication support of such data enrich our findings. In calculating various estimates in this report, the presentation of standard errors would have been useful. But in many cases this has not been done.

In all this work I got enormous help from Dr. N. Rath of the Gokhale Institute of Politics and Economics. He read and reread the

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various chapters and made very important suggestions for improvement for which I feel so grateful. However, I alone am responsible for any mistakes in the work either in the analysis, in its interpretation, in its presentation, or in the methodology.

The present study was carried out in the Demography Section of the Institute for which the Institute receives a recurring grant from the Ministry of Health and Family Planning, Government of India. The Population Council, New York, made a grant to meet a part of the expenses of publication. For this, I express my gratitude.

Poona.

August 15, 1970.

Kumudini Dandekar

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CHAPTER I

BACKGROUND

THE GOVERNMENT OF INDIA, realizing the need of population control in the developmental efforts, decided to set up the administrative machinery necessary to promote family planning from the beginning of the first five-year plan. In the beginning, the work regarding family planning was twofold. One part consisted of compilation of information regarding the attitudes of people towards the problem of population control and the methods of contraception in diverse socio-economic groups in several regions of the country. The other part comprised the organizational work to facilitate and promote the family-planning practice in the rural and urban areas of the country. The first part needed investigation through sample surveys, and in the first five-year-plan period, out of the total expenditure of about 16 lakhs of rupees on the family-planning programme, about one-fourth was spent on such investigations. The data presented in Table 1.1 show the budget allocations for various plans, the expenditures on family-planning programmes, and the amounts spent on demographic research. These bring out clearly the change in the emphasis and effort made during the last 15 or more years in the family-planning programme. While expenditure on research increased from four lakhs of rupees in the first five-year plan to about 150

lakhs of rupees in the third plan, its share in the total expenditure on family planning gradually dwindled, as more and more was spent on organization of contraceptive facilities and services. The enquiries in the first plan period consisted of attitude surveys to find out the extent of acceptability of family planning in principle and in action in rural and urban areas. Surveys conducted carefully on a scientific basis yielded hopeful results, and one could see the possibilities of broaching the subject of family planning among the masses. However, the knowledge regarding family planning was rare, and its practice much more so.

Table 1.1 : BUDGET ALLOCATIONS FOR FAMILY PLANNING, EXPENDITURE ON FAMILY-PLANNING PROGRAMME AND THE PROPORTION SPENT ON RESEARCH IN THE VARIOUS FIVE-YEAR-PLAN PERIODS

| | <i>First Five-Year Plan</i> | <i>Second Five-Year Plan</i> | <i>Third Five-Year Plan</i> | <i>Fourth Five-Year Plan</i> |
|---|-----------------------------|------------------------------|-----------------------------|------------------------------|
| Budget allocations (Rs. in lakhs) | 65.00 | 497.00 | 2700.00 | 30000.00‡ |
| Expenditure* on family-planning programme (Rs. in lakhs) | | | | |
| Total | 14.51 | 215.58 | 2485.95 | — |
| Service | 6.68 | 69.27 | Not | available |
| Training | 0.40 | 15.34 | " | " |
| Education | — | — | " | " |
| Research | 3.99 | 22.86 | " | " |
| Central organization | 3.44 | 6.62 | " | " |
| Grants to State Governments | — | 101.49 | " | " |
| Proportion of expenditure on research (per cent) | 27.50 | 10.60 | 6.00** | — |

* Data supplied by the Central Family Planning Institute, New Delhi.

** The figure relates to the proportion of expenditure on research in the first four years of the plan.

‡ *Fourth Five-Year Plan, 1969-74—Draft*, published by the Government of India Planning Commission. The relevant paragraph on page 312 runs as follows : "An outlay of Rs. 300 crores has been allocated for family-planning programmes. Of this, about Rs. 225 crores will be provided for services at rural and urban centres and compensation for sterilization/*I.U.C.D.* The remaining Rs. 75 crores will be spent on training, research, publicity organization, supplies and evaluation".

From the history of contraception all over the world, it is apparent that the people in general took action in the matter of controlling the size of family and the governments either supported them or connived at their action. But in India the government accepted the idea of family planning long before a majority of families accepted it, and started activities to promote family planning through health facilities. Primary health units, maternity and child health centres formed the locale where family-planning clinics could be suitably located. The health facilities themselves being in short supply, promotion of family planning necessitated the promotion of health facilities. Nor was it reasonable to promote contraception without promoting health, because unless assured of smaller mortality among children, motivation to limit their number cannot grow. The number of primary health centres offering family-planning facilities in the three plan periods bring out distinctly the expansion of health and family-planning activities in India. These presented in Table 1.2 indicate the rate of expansion of their number. It still seems inadequate for both health and family-planning services in certain states, if the average population served by each kind of public health institution is taken into account. The inadequacy appears more significant when the distribution of the centres in various states is examined. This is shown in Table 1.3. The population covered per centre presented in the last column of the table clearly discloses the variation among the states. More light will be thrown on the inter-state differences if the number of primary health centres functioning without doctors is taken into account. These are set out in Table 1.4. States of Uttar Pradesh, Rajasthan, Orissa and Bihar probably suffer from shortage of medical personnel.

The family-planning activity from the second five-year plan was fourfold: it included (a) services for the supplies of contraceptives through family-planning clinics, (b) educating masses regarding contraception, (c) research in the medical and biological aspects of reproduction, and (d) promotion of the training programme of family-planning workers as they were in short supply. The training programme and its gradual expansion is evident from Table 1.5 giving data regarding the number of persons trained in the various trades of the medical line. Their numbers trained in family-planning work are not available at present.

Table 1.2 : THE NUMBER OF PRIMARY HEALTH CENTRES, MATERNITY AND CHILD HEALTH CENTRES AND THE FAMILY-PLANNING CENTRES ESTABLISHED IN THE VARIOUS PLAN PERIODS

| Type of health institution | —1950 | First | Second | Third | No Five- | Fourth |
|------------------------------------|-------|--------------------------------|--------------------------------|---------------------------------|----------------------------|---|
| | * | Five-Year Plan period 1951-56* | Five-Year Plan period 1956-61* | Five-Year Plan period 1961-66‡‡ | Year Plan period 1966-69‡‡ | Five-Year Plan period 1969-74‡‡ (targets) |
| Primary health centres | — | 725 | 2075 | 1831 | 209 | 385 |
| Maternity and child health centres | 1651 | 205 | 2644 | 5500** | N.A. | N.A. |
| Family-planning centres : | | | | | | |
| Rural : Main centres | — | 21 | 1358‡ | 2297 | 1164 | 385 |
| Sub-centres | — | — | — | 7081 | 14671 | 10000 |
| Urban | — | 126 | 631‡ | 624 | 475 | — |
| Total | — | 147 | 1989‡ | 10002 | 16310 | 10385 |

* Source : *Third Five-Year Plan* published by the Government of India Planning Commission, p. 653.

‡ Source : Data supplied by the Ministry of Health and Family Planning, Government of India.

‡‡ Source : *Fourth Five-Year Plan 1969-74—Draft*, published by the Government of India Planning Commission, p. 312.

** *Fourth Five-Year Plan — A Draft Outline*, published by the Government of India Planning Commission, p. 362.

The Central Family Planning Board recommended the inclusion of sterilization in the official family-planning programme in 1956. Similar recommendation came from the executive committee of the Indian Medical Council, suggesting sterilization for medical, eugenic and socio-economic reasons. Sterilization was found popular in the states of Madras, Maharashtra, Kerala, and Gujarat. Vasectomy could be promoted in all these states except in Gujarat where tubectomy or salpingectomy seemed more acceptable. Sterilization gained in momentum after its official recognition by the central government in 1959. Thereafter, new techniques were introduced from time to time to facilitate sterilization services. On the recommendation of the Central Family Planning Board, the government offered special facilities regarding sterilization.

The limited hospital facilities in the country were not likely to cope with the growing number of cases of sterilization. To obviate the need for such facilities it was decided to organize sterilization

Table 1.5 : DISTRIBUTION OF PRIMARY HEALTH CENTRES AND FAMILY-PLANNING CENTRES IN VARIOUS STATES

| Name of the State/ Territory | No. of primary health centres* (As on 30-6-67) | | Estimated population for 1966 per centre | No. of family-planning centres* (As on 31-3-66) | | Estimated population for 1966 per family-planning centre | |
|---------------------------------|--|--------------|--|---|-------------|--|--------------|
| | Main centres | Sub-centres | | Rural (including sub-centres) | Urban | Rural | Urban |
| Andhra Pradesh | 392 | 1122 | 21368 | 1539 | 79 | 21020 | 91797 |
| Assam | 78 | 181 | 47914 | 156 | 25 | 79549 | 52040 |
| Bihar | 587 | 2422 | 14555 | 74 | 40 | 632493 | 131475 |
| Gujarat | 244 | 1470 | 10128 | 425 | 68 | 40846 | 92044 |
| Jammu & Kashmir | 57 | 87 | 21880 | 27 | 6 | 116693 | 110833 |
| Kerala | 163 | 1502 | 9697 | 1522 | 29 | 10608 | 103138 |
| Madhya Pradesh | 414 | 1220 | 19036 | 633 | 187 | 49139 | 29513 |
| Madras | 236 | 708 | 28016 | 91 | 28 | 290627 | 364036 |
| Maharashtra | 379 | 2751 | 10129 | 1895 | 145 | 16730 | 91228 |
| Mysore | 262 | 1961 | 9106 | 1060 | 54 | 19098 | 115185 |
| Orissa | 292 | 598 | 20359 | 128 | 54 | 141562 | 27167 |
| Punjab | 209 | 1082 | 15905 | 755 | 49 | 27197 | 63531 |
| Rajasthan | 230 | 854 | 17889 | 232 | 71 | 83586 | 54436 |
| Uttar Pradesh | 651 | 2277 | 24363 | 874 | 117 | 82536 | 88935 |
| West Bengal | 214 | 521 | 40438 | 1190 | 124 | 24976 | 82444 |
| Union Territories: | | | | | | | |
| Delhi | 5 | 34 | 8299 | 12 | 84 | 26972 | 28088 |
| Others | 221 | 170 | 11887 | 60 | 18 | 122839 | 35330 |
| Central Government Institutions | | | | 84 | 203 | | |
| Total (All India) | 4634 | 18960 | 16993 | 10757 | 1381 | 37252 | 68108 |

BACKGROUND

Source : Data supplied by the Ministry of Health and Family Planning, Government of India.

* Another reliable source provides data for a date nine months later. These are set out in Appendix A₁. The difference in the number of centres is particularly large for the states of Bihar, Madras, Orissa and Uttar Pradesh. Such difference in the course of nine months probably speaks for change in policy by accelerating the programme if not for unreliability of the data.

Wide differences of similar kind are observed in the same states in the number of family-planning centres referring to a period a little more than two years later. One can assess the rush with which the programme progressed in these states.

Table 1.4 : A STATEMENT SHOWING NUMBER OF BLOCKS, PRIMARY HEALTH CENTRES, POSITION OF DOCTORS AND OF UNICEF-ASSISTED CENTRES FOR THE QUARTER ENDED 30TH JUNE, 1967 ‡

| Name of the State | No. of blocks | No. of primary health centres | | | No. of sub-centres | |
|--------------------|---------------|-------------------------------|-----------------|--------------------|--------------------|--------------------|
| | | Functioning | Without doctors | Assisted by UNICEF | Functioning | Assisted by UNICEF |
| Andhra Pradesh | 321 | 392* | Nil | 265 | 1122* | 818 |
| Assam | 162 | 78 | 4 | 38 | 181 | 81 |
| Bihar | 587 | 587* | 51* | 69 | 2422 | 158 |
| Gujarat | 250 | 244 | 36 | 194 | 1470 | 462 |
| Haryana | 82 | 89 | 2 | 75 | 465 | 225 |
| Jammu & Kashmir | 69 | 57 | Nil | 26 | 87* | 48 |
| Kerala | 143 | 163 | — | 109 | 1502* | 309 |
| Madhya Pradesh | 452 | 414 | 37 | 244 | 1220* | 615 |
| Madras | 374* | 236 | 9 | 161 | 708 | 500 |
| Maharashtra | 313* | 379* | 18* | 126 | 2751* | 688 |
| Mysore | 268 | 262 | 38 | 88 | 1961 | 237 |
| Nagaland | 17 | — | — | — | — | — |
| Orissa | 314 | 292 | 70 | 113 | 598 | 244 |
| Punjab | 116 | 120 | 16 | 106 | 617 | 318 |
| Rajasthan | 232 | 230 | 100 | 73 | 854 | 201 |
| Uttar Pradesh | 875 | 651 | 304* | 132 | 2277 | 279 |
| West Bengal | 341 | 214 | — | 110 | 521 | 112 |
| Union Territories: | | | | | | |
| Delhi | 5 | 5 | Nil | 7 | 34 | 20 |
| Others | 161 | 222 | 25 | 39 | 170 | 95 |
| Total | 5082 | 4635 | 710 | 1975 | 18960 | 5410 |

‡ Figures supplied by the Ministry of Health and Family Planning, Government of India.

* Information relating to May, 1967.

Table 1.5 : MEDICAL PERSONNEL TRAINED ANEW IN THE THREE PLAN PERIODS

| <i>Manpower</i> | <i>— 1950*</i> | <i>First Five-Year Plan Period*</i> 1951—56 | <i>Second Five- Year Plan Period*</i> 1956—61 | <i>Third Five-Year Plan Period*</i> 1961—66 | <i>No Five-Year Plan‡</i> 1966—69 | <i>Fourth Five- Year Plan Period (target).‡</i> 1969—74 |
|---|----------------|--|--|--|--|--|
| Doctors | 56000 | 9000 | 5000 | 16000 | 16520 | 35410 |
| Nurses | 15000 | 3500 | 8500 | 18000 | 16000 | 27000 |
| Auxiliary nurse- midwives and midwives | 8000 | 4780 | 7120 | 15100 | 12000 | 22000 |
| Health visitors | 521 | 279 | 700 | 2000 | N.A. | N.A. |
| Nurse-dais, dais | 1800 | 4800 | 5100 | 18500 | N.A. | N.A. |

* *Source : Third Five-Year Plan, Government of India, Planning Commission, p. 653.*

‡ *Source : Fourth Five-Year Plan 1969-74 Draft, Government of India, Planning Commission, p. 314.*

camp. A suitable psychological atmosphere was created with the assistance of voluntary organizations and local bodies for arranging sterilization camps. Persons undergoing surgery in the camps were provided with free food, drugs, dressing, etc. An expenditure not exceeding five rupees was allowed per sterilized person with an additional payment of rupees five for his transport as well as that of the person accompanying him. The voluntary organizations and local bodies concerned were reimbursed by the state governments which could recover the money later along with other expenses incurred in government institutions according to the established procedure. This grant was made to government institutions and to local bodies and voluntary organizations rendering free services to the public for performing sterilizations.

The industrial and non-industrial employees of the government undergoing sterilization were granted six days' casual leave. Persons unable to get such leave were compensated for the loss of wages at the rate of two rupees per day for five or six days.

As for medical institutions, a grant of Rs. 2500 per bed was given if the number of tubectomies done in the institutions was three or more per month. This grant was made to 20 per cent of the total number of beds for women in these institutions. The grants could be made by the state government on behalf of the Central Ministry of Health without further reference to that Ministry on certification by the district medical officer or the district family-planning officer.

The programme of motivating and educating people for the contraceptive practices attained importance by the middle of the third five-year plan. The emphasis shifted from the clinical approach to a more vigorous extension education for motivating people to accept the small-family norm. This programme involved expansion of medical, technical and non-technical personnel and their training. Supply of contraceptives, other equipment, and transport facilities proved inadequate especially where demand was more than usual.

In 1965 an attempt to popularize the *Intra Uterine Device* (I.U.D.) was made. The technique of camps was adopted in Maharashtra to do the I.U.D. work in rural areas. But a follow-up was found difficult with the existing size of staff at least for the rural areas, with the result that I.U.D. receded in popularity. The factual data with regard

to this are presented in a later chapter. In the city of Poona the results were not disappointing. But in the State of Maharashtra taken as a whole, the I.U.D. programme failed as a mass-programme promoting birth-control.

A situation of this kind, particularly when Maharashtra was going ahead in family planning with assuring success, led to a review of the whole approach to rural areas. Ultimately it was decided not to rely on the I.U.D. as the main instrument for reducing rural fertility as was hoped earlier.

Simultaneously with the introduction of the I.U.D., a committee was set up in 1964 to review the prevalent laws relating to abortion, which would not allow inducing a voluntary abortion for socio-economic reasons. This committee was set up under the chairmanship of Mr. Shantilal Shah. The committee submitted its report in December 1966.¹ It recommended liberalization of abortion laws so that under certain restricted conditions, abortion could be induced for socio-economic reasons. The final decisions with regard to this are yet to be taken.

Therefore, by the middle of 1967, the family-planning programme in the State of Maharashtra rested mainly on sterilization. In urban areas with the hospital and clinic facilities, surgical facilities or with the drug-stores present in them, there was enough choice of contraceptive methods. That was not the case in rural areas. In such circumstances the rural and the urban areas were likely to practise different methods of contraception. It is worth distinguishing the differences in the pattern of their practice. They can be analyzed to show the extent to which they arose due to genuine preferences and due to availability of necessary facilities in the areas. The numbers of the cases of sterilization conducted in the State of Maharashtra are set out in Table 1.6. They speak for the popularity of sterilization in the State. It is noted later in this report that in the city of Poona also this was the preferred method of contraception. The only difference seems to be in the number of female sterilizations which are numerous in the city. But in the near future at least, the necessary facilities for female sterilization cannot be extended to

The committee has some rough estimates of induced abortions, which give the ratio of live births to induced abortions as five to one. But the factual data in this respect being difficult to get for any region in the country, the estimates are pure guesses.

the remote rural areas. This difference in the rural and urban pattern, though not coming in the way of progress in the state at the moment, may gain in importance in the later years, because it is the highly motivated who come forward even for vasectomy while a lot of others will be found prepared for tubectomy only.

Table 1.6 : NUMBER OF STERILIZATIONS, I.U.D. INSERTIONS AND THE NUMBER OF ADOPTERS OF TRADITIONAL CONTRACEPTIVES* IN THE STATE OF MAHARASHTRA FROM 1957 TO 1967

| <i>Year</i> | <i>Number of sterilizations</i> | | | <i>I.U.D. insertions</i> | <i>No. of adopters of traditional contraceptives</i> |
|-----------------|---------------------------------|---------------|--------------|--------------------------|--|
| | <i>Male</i> | <i>Female</i> | <i>Total</i> | | |
| 1957 | 257 | 606 | 863 | — | — |
| 1958 | 1783 | 2774 | 4557 | — | 8548 |
| 1959 | 3932 | 6911 | 10843 | — | 19538 |
| 1960 | 17361 | 4647 | 22008 | — | 27096 |
| 1961 | | | | | |
| (Jan. to March) | 2107 | 810 | 2917 | — | 29805 |
| 1961—62 | 17691 | 6675 | 24366 | — | |
| 1962—63 | 22934 | 10396 | 33330 | — | 31126 |
| 1963—64 | 37802 | 12264 | 50066 | — | 38474 |
| 1964—65 | 46765 | 13302 | 60067 | — | 48207 |
| 1965—66 | 32585 | 18827 | 51412 | 130210 | 45087 |
| 1966—67 | 43374 | 22240 | 65614 | 141617 | 80529 |
| 1967—68 | 286867 | 45462 | 332329 | 28664 | 88278 |

* Data supplied by the Department of Public Health, Maharashtra State.

The gradual development of the family-planning programme during the three plan periods has led to research in the field ranging from attitude surveys to action-cum-communication research, from the study of techniques of sterilization and its reversibility to the discoveries of chemical and oral contraceptives, from communication through the disembodied voice of the radio or the printed word to offering incentives to promoters of contraceptive activity. These programmes should have to be followed by enquiries to evaluate the efficiency and success of the various media and methods. On the supply side of the promotional effort, manufacture of contraceptives needs attention. While the development in this field has been laudable,

much remains to be done, and dependence on foreign imports is still sizable. At the moment, the drug stores sell varieties of condoms, diaphragms, contraceptive jellies, and oral tablets. Studies of their sales are drawing attention of the present day scientists.

It is with the above background that the study under report is to be viewed. The report attempts at evaluation of the family-planning activity in the city of Poona in terms of its total impact on the birth rate for the city. The census of 1961 could show no pockets of population practising birth control either in the various states or in the cities of India. Data finer than those available at the census were perhaps necessary to bring out the changes in birth rates of these regions. The present report is an assessment of a possible decline in fertility in the city of Poona relevant data for which were available for two points of time 13 years apart, namely, 1951 and 1964. This is to verify whether the impact of family-planning programme has changed the fertility in a highly urban centre like Poona where one usually expects a reduction in birth rate earlier than in the rural areas. As a first step towards this, the work of family-planning clinics in the city is examined in this report. Observations on the family-planning work are further extended by conducting interviews of clinic visitors in their homes. To get an idea regarding the pattern of contraceptive practice in the city as contrasted to that of clinic visitors, a random sample of the citizens of Poona is interviewed. This is expected to enlighten us in the matter of organization of the clinics to popularize them.

Family-planning clinics were perhaps the only administrative agency functioning for the promotion of family planning. Hence chapters II and III are fully devoted to a study of these clinics. Those not interested in the administration of family-planning through clinics may skip chapter II. In this chapter the available data regarding the family-planning clinics in the city are presented. The data available in the clinics and their internal consistency are examined in detail, and the scrutiny of records leads to some suggestions for improvement of the recording system. Adequacy or otherwise of the number of clinics, their location and efficiency of work are also examined in this chapter. The clinic records no doubt provide a suitable frame for sampling of clinic visitors to find out their reactions

to the serviceability of the clinics. In chapter III the clinic data are analyzed. The pattern of prescribed contraceptives and the possible effect of this prescription on the pattern of contraceptive practice is examined here in detail. Chapter IV reports on the interviews with the clinic visitors in their homes. Clinic visitors are classified as regular and irregular visitors and those that have discontinued visiting the clinics. Interviews with the three categories throw immense light on their attitudes to clinics and to contraceptive practice. They reveal the role of the clinics in promoting family-planning. Chapter V is devoted to the observations on the contraceptive practice of a random sample of residents of the city of Poona. This brings out the role of the clinics in the total contraceptive practice in the city. Moreover, in this chapter, the information regarding knowledge and practice of contraception of the citizens of Poona in 1951, available from an earlier enquiry, is compared with that of 1964. The comparison reveals the change that has taken place during 1951-1964 in the attitudes of the citizens of Poona towards contraception. Change in fertility levels constituting the core of the present problem is assessed in chapter VI. It is estimated that there is a decline of about 20 per cent in the level of fertility during 1951-1964. Chapter VII is devoted to the scrutiny of infant-mortality trends during 1948 to 1966 in the city of Poona. This is done with the specific purpose of examining the compatibility of the decline in fertility found in the earlier chapter with the estimated decline in infant mortality discussed here. But the registration of births and deaths being grossly defective, the procedure had to be changed. After critical inspection of the registration data, plausible estimates of birth rate, infant-mortality rate, and the level of under-registration of vital statistics for the city had to be obtained with the help of fertility decline observed in the earlier chapter. In chapter VIII are described the findings of a follow-up of 656 I.U.D. cases in the city. They are compared with similar findings in the non-city areas of the surrounding district of Poona as well as elsewhere. The analysis of the cases in the city displays results which are not much different from those experienced in the rest of the world at least for durations up to 12 or 18 months. But panic arose in rural areas due to unexpected bleeding experienced by women. It was given vent in news-

papers too. The interest in I.U.D. declined day by day, because the people were urged to trust the device much more than it deserved. This undeserved trust itself led to its undeserved refusal. The device was not suited to mass programmes in the rural areas and a reversal met with there had its repercussions on the practice of I.U.D. in the city. Chapter IX presents a summary of all the earlier chapters.

APPENDIX A₁

Table A_{1.1} : DISTRIBUTION OF PRIMARY HEALTH CENTRES AND FAMILY-PLANNING CENTRES IN VARIOUS STATES*

| Name of the State/ Union Territory | No. of primary health centres (as on 31-3-1968) | | Estimated population per centre for 1968-69 | No. of family-planning centres (as on 10-6-1968) | | Estimated population for 1968-69 per family- planning centre | |
|---------------------------------------|--|--------------|--|---|-------------|--|--------------|
| | Main centres | Sub-centres | | Rural (in- cluding sub- centres) | Urban | Rural | Urban |
| Andhra Pradesh | 409 | 1122 | 22525 | 2676 | 181 | 12887 | 40249 |
| Assam | 81 | 277 | 38307 | 368 | 28 | 37266 | 40821 |
| Bihar | 587 | 3523 | 12349 | 2348 | 87 | 21616 | 53701 |
| Gujarat | 244 | 1480 | 10921 | 1727 | 74 | 10902 | 88324 |
| Haryana | 89 | 472 | 14125 | 582 | 66 | 13615 | 30000 |
| Jammu & Kashmir | 57 | 110 | 19725 | 137 | 5 | 24044 | 131800 |
| Kerala | 163 | 1584 | 9924 | 1898 | 35 | 9135 | 88171 |
| Madhya Pradesh | 415 | 1220 | 20480 | 1648 | 190 | 20318 | 29384 |
| Madras | 272 | 1392 | 16893 | 918 | 61 | 30621 | 167770 |
| Maharashtra | 382 | 2776 | 10905 | 3266 | 182 | 10545 | 74396 |
| Mysore | 263 | 1964 | 9819 | 2237 | 57 | 9776 | 110298 |
| Nagaland | 6 | — | 70833 | — | — | — | — |
| Orissa | 306 | 747 | 18500 | 980 | 52 | 19879 | 25269 |
| Punjab | 123 | 638 | 14198 | 767 | 100 | 14087 | 32380 |
| Rajasthan | 231 | 502 | 28607 | 831 | 72 | 25233 | 56639 |
| Uttar Pradesh | 875 | 2902 | 20165 | 3500 | 207 | 21761 | 54451 |
| West Bengal | 218 | 538 | 42857 | 1470 | 148 | 22041 | 70851 |
| Delhi | 5 | 15 | 21900 | 58 | 54 | 7552 | 64000 |
| Others | 220 | 277 | 13946 | 384 | 36 | 18049 | 22028 |
| Central Govt. Instt. | — | — | — | — | 191 | — | — |
| Total (All India) | 4946 | 21539 | 16305 | 25795 | 1826 | 16742 | 52503 |

* Data supplied by the Central Family Planning Institute, New Delhi.

CHAPTER II

FAMILY-PLANNING CLINICS IN POONA CITY

IN THIS CHAPTER it is intended to describe the set up of the family-planning clinics in the city of Poona and the nature of information available with them. After reviewing the recording system of the clinics, all the available data with them are analyzed to know the categories of clinic visitors, and their contraceptive practice. Most of the clientele of the clinics not being self-motivated, the role played by the clinics in motivating them and the success achieved are assessed here.

There were nine family-planning clinics in the city when this study was undertaken in 1964. The dates of establishment of the clinics, the types of agencies organizing the clinics, area of operation of each clinic and the population included in this area as per the 1961 census are presented in Table 2.1. The clinics were established sometime during the period from 1951 to 1960. Thus the level of maturity attained by the clinics indicated by their age differed. Five out of the nine clinics were organized by the Poona Municipal Corporation, two by the Government and the remaining two by voluntary organizations. Of the five clinics run by the Corporation, three were attached to maternity hospitals and two to dispensaries. All the clinics organized by voluntary agencies and by the state govern-

Table 2.1 : GENERAL INFORMATION REGARDING THE FAMILY-PLANNING CLINICS IN THE CITY OF POONA

| <i>Clinic No.</i> | <i>Name of the family-planning clinic</i> | <i>Date of establishment</i> | <i>Organizing agency</i> | <i>Area allotted to the clinic</i> | <i>Population covered as per 1961 census</i> | <i>No. of sub-centres of the family-planning clinics</i> |
|-------------------|---|------------------------------|-----------------------------|---|--|--|
| 1 | Shaniwar | Nov. 1957 | Poona Municipal Corporation | Shaniwar, Budhwar, Kasba | 88126 | — |
| 2 | Police Welfare Centre | Dec. 1960 | Voluntary organization | Erandavana, Shivajinagar | 69121 | — |
| 3 | K. E. M. Hospital | 1951 | Poona Municipal Corporation | Rasta, Mangalwar, parts of Somwar and Nagesh, Ganesh, | 51728 | — |
| 4 | Regional Training Centre | Oct. 1959 | Government | Nana, Rawiwar, part of Nagesh | 75121 | 1 |
| 5 | S. S. Mandir | Mar. 1960 | Voluntary organization | Sadashiv, Narayan | 65835 | 2 |
| 6 | Sonawane Hospital | Nov. 1957 | Poona Municipal Corporation | Bhawani, Ganj, Ghorpade | 62989 | — |
| 7 | Wadarwadi | Oct. 1963 | Poona Municipal Corporation | Wadarwadi*, Chatusringi, Bopodi | ** | 3 |
| 8 | Guruwar | May 1963 | Poona Municipal Corporation | Guruwar, Shukrawar | 68841 | — |
| 9 | B. J. M. College | Nov. 1957 | Government | Tadiwala Road, Sassoon quarters, part of Somwar | ** | 1 |

* Wadarwadi includes a large portion such as Janawadi, Bahiratwadi, Health Camp, Gunjalwadi, Panch Pandavwadi, Vaiduwadi, Jawaharnagar and Wadar municipal colony. Most of it is a recent growth of the city.

** Not available separately for the respective regions from the census. The population is partly covered by other wards as shown in the census of 1961.

ment were also situated in the premises of the maternity hospitals. Of the clinics run by the Government one was attached to the Regional Family Planning Training Centre and the other to the B.J. Medical College, Poona.

The locale of the family-planning clinics near maternity homes or dispensaries provided a convenient source of clients for the clinic, especially when motivation to visit clinics for contraceptive facilities *per se* was not strong enough. Obviously those visiting the dispensaries could not be representative of the general female population in the city needing family-planning advice. They were women seeking medical help for themselves or for other members of the family or perhaps they needed pre-natal care. Since they happened to be in the premises of the clinics, the social worker of the family-planning centre could persuade them to visit the clinic then and there. Similarly, women admitted into the maternity ward were requested to visit the clinic two or three months after delivery, if the number of children they had did not exceed three. If the number of children was larger, tubectomy was advocated to them. Thus the dispensaries and hospitals in the background of the clinics were utilized to draw female clientele to the family-planning clinics, if they did not plan to get sterilized. Rarely did women come to the clinic on their own, for family-planning advice. This was presumably because of their ignorance regarding the available family-planning facilities and also because of the low level of motivation to do anything in the matter. Since the visit of the clients to the premises in which the clinics were located was not motivated by the desire to get family-planning advice, they were not likely to visit the clinics later even if contacted by the clinic worker unless the contact created the necessary motivation. It was worth while tapping the source of dispensaries and hospitals for getting the clientele in the clinics only because of the great convenience in contacting women there. This source of getting the clientele, however, did not provide enough workload right in the clinics for the clinical staff. Hence the workers attempted health-visiting in the neighbourhood of the clinics to contact women in their homes and to persuade them to visit the clinic. As an initial step information was collected regarding the socio-economic characteristics of the women and the number of children they had.

Before 1964, there was no strict allocation of the area and popu-

lation of the city to the different clinics for promotional work. However, the clinics were generally expected to cover certain areas. The data regarding the clinics collected by us covered the period 1961-63 and hence the allocation in 1964 was not found to be strictly relevant for the period covered. The extent of health-visiting of the kind mentioned above, being optional, varied from clinic to clinic, and often spoke mainly of the interest and efficiency of the health visitor. The performance of the various clinics with regard to this is described in the later sections. One may, however, note that the total population of the city was 5,97,562 in the 1961 census. The areas allocated to the nine clinics covered a little less than 500,000 population. This resulted in the absence of clinic-facilities for about 16 per cent of the population mainly in the remote fringes of the city. The estimated populations included within the radius of a quarter and half mile from the clinics have been shown in Table 2.2.

Table 2.2 : ESTIMATED POPULATION INCLUDED WITHIN A RADIUS OF ONE-FOURTH OR ONE-HALF MILE FROM THE VARIOUS CLINICS

| Clinic No. | Name of the family-planning clinic | Population included within a radius of | |
|------------|------------------------------------|--|----------------|
| | | One-fourth mile | One-half mile* |
| 1 | Shaniwar | 34833 | 109834 |
| 2 | Police Welfare Centre | 4761 | 15367 |
| 3 | K.E.M. Hospital | 30015 | 99742 |
| 4 | Regional Training Centre | 31144 | 142827 |
| 5 | S. S. Mandir | 21678 | 49880 |
| 6 | Sonawane Hospital | 12783 | 36931 |
| 7 | Wadarwadi | 4761 | 16994 |
| 8 | Guruwar | 35297 | 84720 |
| 9 | B. J. M. College | 5465 | 28112 |
| Total | | 180737 | * |

* The population figures given in this column overlap each other. Hence the total of this column will be more than the population having a clinic within half a mile. This population was estimated to be 84 per cent of the total for the city.

All the clinics but one were open for the whole of the week except Sunday. Only one clinic run by a voluntary organization was open twice a week. The staff of each clinic usually included a full-time

doctor, a health visitor and/or a social worker. Attendance of either the doctor, the health visitor or the social worker was necessary during the working hours of the clinic. The clients of the clinic could get contraceptives as well as advice on contraception during the working hours. In clinics with no full-time doctor, the social worker could not do much home-visiting as she had to be present in the clinic all the time. But usually that was not the case. In home-visiting the task of the social worker consisted of contacting new cases and of following the cases visited earlier. In the clinic, she was to maintain the record of the clinic work. These records were the main source of information for assessing the work load of the clinic.

The records maintained in most of the clinics included (a) the register of daily attendance, (b) the casecards of the contraceptors, (c) the register of the issue of contraceptives, (d) the register of follow-up visits, and (e) the register of surveyed cases. Besides, there were monthly reports of the clinics to be sent to the government; they were based on the various registers maintained at the clinics. All these records are described below to give an idea of the nature of information available from them.

(a) *The register of daily attendance* : As mentioned earlier, out of nine clinics in the city seven were located in the premises of maternity hospitals and two in those of dispensaries. The social worker could get hold of women easily in the dispensaries and maternity hospitals for disseminating information regarding family-planning practice. In the register of daily attendance, names and other relevant details of women contacted by the social worker were noted. From this register one got an idea of the number that was being educated by the social worker in the matter of family planning. The register included the date of contact, the client's address, age, family income per month, number of children born and living, purpose of her visit to the premises and the advice given to her in terms of prescribed contraceptives. Some clinics seemed to swell the number of their clients with group meetings arranged in the premises with the result that their active contraceptors seemed smaller in number compared to the number contacted. Thus in the attendance registers of the nine clinics information regarding a total of 48536 women-contacts was entered as availing of information on family

planning during 1961-63. Home visits and group meetings outside the premises were not entered in this register. But if these were included the total contacts with women were 95476 during 1961-63. This total included multiple contacts, i.e. more than one contact with the same individual. Out of these contacts about 28 per cent were in 1961, while 31 and 41 per cent were respectively in 1962 and 1963. Of the total contacts about 38 per cent were in the homes of women, 49 per cent in the premises of the clinics and the remaining elsewhere.

(b) *Casercards of the contraceptors* : If contacted women were ready to accept contraceptive appliances, casercards were prepared for them while supplying contraceptives. Those who favoured sterilization or who did not accept contraceptives did not have a casercard. Thus 9022 women or couples who were advised sterilization during 1961-63 had no casercards in the clinics. The casercards contained information about the age of the women, their age at marriage, educational level, occupation and income along with the corresponding information regarding their husbands. Other demographic details like the age at first pregnancy, the number of male and female children born and living, number of still-births and abortions if any, date of last delivery, age of the youngest child, etc. were also noted. In addition to this, the women's knowledge and practice of contraception before visiting the clinic were recorded in these cards. The response and reactions of the women and their husbands to the prescribed contraceptives were to be ascertained thereafter for all the follow-up visits whether at the clinic or in the homes of the women. The date of last menstrual period, the quantity of the contraceptive supplied, the extent of the contraceptive consumed, regularity in the practice of contraception and the date of next appointment for the client to visit the clinic were expected to be noted in the casercard for every follow-up visit. If there was a change in the contraceptive, the reason for the change, and if there was a discontinuity in the practice of contraception, the reason for it, were noted in the casercard. In short, the casercards for women were so designed that they seemed a comprehensive document of their socio-economic status and reproductive history as well as the history of their adoption of various contraceptives. There were in all 5917 casercards available to us. The *pro forma* of the casercard is given in Appendix

A₂. The numbers of casecards from the various clinics are shown in Table 2.3. Appliance and non-appliance users compared to the total contacts of the clinics given in the last column show that the initial acceptors of contraceptives were about seven per cent of the total contacted. Clinic 9 showed the least success, and clinics 6 and 1 the best, in getting acceptors of contraceptive appliances. Clinic 6 showed the largest percentage of acceptors, but the absolute number of contacted persons was smaller here than in clinic 1.

(c) *Register of the issue of contraceptives* : This register was maintained especially for a check on the quantity of contraceptives supplied to their acceptors. The register included the name of the acceptor, serial number of her casecard, prescribed method of contraception, date of supply, quantity of the contraceptive supplied and the signature or the thumb impression of the recipient. Being subject to audit, this register was usually maintained carefully. The supply of various kinds of contraceptives from the register was reported in the monthly progress report of the clinics. During 1961-63 contraceptives worth 46,300 rupees were issued through the nine clinics. The cost of contraceptives came to eight rupees per contraceptive of appliance methods. Making allowance for a very small percentage who brought appliances from chemists, the cost was still below 10 rupees per head during the three years 1961-63.¹ It was stipulated that those having an income below 300 rupees per month could get contraceptives free of charge, those having an income between 300 and 500 rupees at half the rate, and those having above 500 rupees at full rate.² Out of the total contraceptives issued, 97 per cent were given free, only two per cent were issued at half rate and one per cent at full rate. The cost of contraceptives was generally lower in the clinic than in the drug store, as the clinics bought them in bulk and sold them at cost price.

(d) *Register of follow-up visits* : After the first dissemination of information regarding family planning, the dates of later contacts with the women were noted in this register. The contacts could be either in the clinics or in the homes of the women. The total number of women contacted in the follow-up programme in each month

¹ It is worth noting that these clinic visitors used appliances with about 77 per cent effectivity. It reduced the fertility of the contraceptors and non-contraceptors together by 37 per cent. (See chapter IV.)

² Recently appliances are given free to all income-classes.

Table 2.3 : NUMBER OF CASECARDS AVAILABLE FROM CLINICS, THE TOTAL NUMBER OF CONTACTS, CASES ADVISED STERILIZATION AND THE PERCENTAGE ACCEPTING CONTRACEPTIVE METHOD AMONG THE CONTACTED CASES AS REPORTED IN THE MONTHLY REPORTS OF THE CLINICS

| <i>Clinic No.</i> | <i>Name of the family-planning clinic</i> | <i>No. of casecards i. e. initial acceptors of contraceptive methods</i> | <i>Total contacts* as reported in the monthly report of the clinic</i> | <i>Contacted cases advised sterilization</i> | <i>Appliance and non-appliance users as percentage of the contacted excluding those advised sterilization</i> |
|-------------------|---|--|--|--|---|
| 1 | Shaniwar | 1039 | 11383 | 1537 | 10.6 |
| 2 | Police Welfare Centre | 802 | 16068 | 316 | 5.1 |
| 3 | K. E. M. Hospital | 645 | 11382 | 2789 | 7.5 |
| 4 | Regional Training Centre | 990 | 11999 | 82 | 8.3 |
| 5 | S. S. Mandir | 547 | 6418 | 277 | 8.9 |
| 6 | Sonawane Hospital | 648 | 5803 | 2317 | 18.6 |
| 7 | Wadarwadi | 97 | 1163 | 175 | 9.8 |
| 8 | Guruwar | 273 | 3261 | 233 | 9.0 |
| 9 | B. J. M. College | 876 | 27999 | 1296 | 3.3 |
| Total | | 5917 | 95476 | 9022 | 6.8 |

* These included two or more contacts with the same person, i.e. multiple contacts.

could be known from this register. The numbers contacted in the homes and in the clinics could be obtained separately in the monthly reports of the clinics. Of the total contacts during 1961-63, about 38 per cent were in the homes of women. An idea regarding the extent of follow-up of cases can be had from the multiple contacts with women. For the 5917 clinic visitors under study, in all 20978 contacts with the clinic were recorded, giving 3.5 contacts per visitor, or 2.5 repeated visits per visitor. Out of 20978 contacts 2694, i.e. 13 per cent, were just single contacts. The relevant data are set out in Table 2.4.

Table 2.4 : CLINIC VISITORS CLASSIFIED BY THE NUMBER OF VISITS THEY PAID TO THE CLINIC

| <i>Number of visits</i> | <i>Number of clinic visitors</i> | <i>Total number of visits paid</i> |
|-------------------------|----------------------------------|------------------------------------|
| 1 | 2694 | 2694 |
| 2 | 854 | 1708 |
| 3 | 523 | 1569 |
| 4 | 401 | 1604 |
| 5—9 | 938 | 6146 |
| 10 or more | 507 | 7257 |
| Total | 5917 | 20978 |

(e) *Register of surveyed cases* : To get clients for the clinic its field worker was also expected to go round the allocated area of the clinic and educate women in family planning. In doing this she was to visit households systematically and collect socio-economic-demographic information regarding them to facilitate identification of cases that urgently needed education regarding family planning. The present register was to include such information. Systematic work of this kind, though important, was never done for all the women in the area expected to be covered by the clinic. There were a few *ad hoc* entries in this register and they were of little utility.

Register of sterilization cases : Clinics that conducted sterilizations occasionally maintained a register of them. But cases advised sterilization were not noted in this register. There being no follow-up of such cases, one did not know whether the knowledge regarding

sterilization was utilized. The number of cases advised sterilization by the various clinics during 1961, 1962 and 1963 is set out in Table 2.5. Clinics 3 and 6 advised sterilization to a large extent; their emphasis was much more on tubectomy than on vasectomy. This was bound to be so with the setting of maternity hospital nearby. On the other hand, clinic 1 which was one of the few with no maternity hospital in the vicinity, seemed to lay equal emphasis on vasectomy and tubectomy. This clinic with its efficiency of staff and the motivated neighbourhood could motivate even males to get sterilized.

On the basis of the various records described above, progress report had to be prepared by the clinic every month. Information regarding the number of persons contacted, number of new entrants to the clinic, number of persons given family-planning advice, contraceptives prescribed, number of active contraceptors, etc., was entered in the monthly reports. The cost of contraceptives issued to persons of various income-groups was also noted separately in this report. Further the number of cases advised sterilization was recorded. This was available from the daily attendance register. The report, however, did not give the number of sterilizations actually performed, since they were not necessarily performed in the clinics. The monthly progress report gave figures for work performance of the clinic since its opening as well as that in the preceding month. Though the design of the report apparently seemed proper for giving an idea of the work performance of the clinic, the entries to be made under various items of the monthly report were not always properly understood by the staff responsible for the maintenance of the records. Well-framed instructions for filling in the information in the monthly reports were circulated among the workers but experience revealed the need for more education of the staff in this matter.

An attempt was made to check the entries in the monthly progress reports with the corresponding ones from the data available from the registers in the clinic. Unfortunately, some perceptible discrepancies were found among the figures from the various records. Tables 2.6 to 2.8 illustrate some of the discrepancies. The figures in the daily attendance register from the clinics compared with the entries of clinic attendance from monthly reports did not agree; it is shown in Table 2.6. In Table 2.7 the number of casecards open-

Table 2.5 : NUMBER OF CASES ADVISED STERILIZATION IN DIFFERENT CALENDAR YEARS

| Clinic No. | Name of the family-planning clinic | 1961 | | 1962 | | 1963 | | Total for the three years | | |
|------------|------------------------------------|------|--------|------|--------|-------|--------|---------------------------|--------|-------|
| | | Male | Female | Male | Female | Male | Female | Male | Female | Total |
| 1 | Shaniwar | 361 | 225 | 320 | 275 | 100 | 256 | 781 | 756 | 1537 |
| 2 | Police Welfare Centre | 56 | 49 | 64 | 36 | 64 | 47 | 184 | 132 | 316 |
| 3 | K. E. M. Hospital | 127 | 1174 | 40 | 489 | 111 | 848 | 278 | 2511 | 2789 |
| 4 | Regional Training Centre | 11 | 22 | 12 | 37 | N. A. | N. A. | 23 | 59 | 82 |
| 5 | S. S. Mandir | — | 74 | — | 99 | — | 104 | — | 277 | 277 |
| 6 | Sonawane Hospital | 243 | 142 | 213 | 471 | 206 | 1042 | 662 | 1655 | 2317 |
| 7 | Wadarwadi | — | — | — | — | 90 | 85 | 90 | 85 | 175 |
| 8 | Guruwar | — | — | — | — | 145 | 88 | 145 | 88 | 233 |
| 9 | B. J. M. College | 93 | 358 | 88 | 318 | 69 | 370 | 250 | 1046 | 1296 |
| Total | | 891 | 2044 | 737 | 1725 | 785 | 2840 | 2413 | 6609 | 9022 |

Source : Monthly progress reports of the clinics

Table 2.6 : NUMBER OF CASES AVAILABLE FROM THE (a) DAILY ATTENDANCE REGISTER MAINTAINED BY THE NINE CLINICS AND (b) THE CLINIC ATTENDANCE (BRACKETED FIGURES) AS AVAILABLE FROM THE MONTHLY PROGRESS REPORTS OF THE CLINICS DURING CALENDAR YEARS 1961 TO 1963

| Clinic No. | Name of the family-planning clinic | Calendar Year | | | Remarks | |
|------------|------------------------------------|---------------|-------------------------|---------|---------|--|
| | | 1961 | 1962 | 1963 | | |
| 1 | Shaniwar | a | 1137 | 2233 | 1892 | |
| | | b | (2435) | (2231) | (1862) | |
| 2 | Police Welfare Centre | a | 1101 | 1669 | 1776 | |
| | | b | (2046) | (3371) | (4286) | |
| 3 | K. E. M. Hospital | a | 3422 | 3464 | 3137 | |
| | | b | (3373) | (3464) | (3137) | |
| 4 | Regional Training Centre | a |Not available..... | | | |
| | | b | (999) | (1397) | (1746) | |
| 5 | S. S. Mandir | a |Not available | | | The register was not maintained before 8-7-63. |
| | | b | (706) | (959) | (1514) | |
| 6 | Sonawane Hospital | a | 1944 | 1481 | 3066 | |
| | | b | (2038) | (2488) | (3214) | |
| 7 | Wadarwadi | a | No question of register | | 625 | The clinic was established in October 1963. |
| | | b | -do- | | (712) | |
| 8 | Guruwar | a | -do- | | 1351 | The clinic was established in May 1963. |
| | | b | -do- | | (1186) | |
| 9 | B. J. M. College | a | 220* | 580* | 1699 | * These two were reported to be 'inadequate' by the clinic itself. |
| | | b | (2251) | (1419) | (1702) | |
| Total | | a | 7824 | 9427 | 14193 | |
| | | b | (13848) | (15329) | (19359) | |

ed during 1961-63 and those reported in monthly reports are compared. The figures in the monthly reports seem larger. A part of this could be explained as due to considering the cases as different if they shifted from one method to the other in the monthly reports or due to tendency to over-reporting. In Table 2.8 the closed cases from other clinical records and those from the monthly reports are shown in columns four and five. The closed cases from monthly reports were not available directly and were estimated from columns

one, two and three as shown in column four. Similarly column six in Table 2.8 was compared with the addition of columns one and two. The definitions³ for treating a case as 'active' or alternatively as 'closed' were not known properly to the clinic workers and hence the findings from the monthly reports and the registers resulted in discrepancies.

Table 2.7 : NUMBER OF CASES GIVEN FAMILY-PLANNING ADVICE DURING 1961-63 AS AVAILABLE FROM (1) THE NUMBER OF CASECARDS OPENED DURING 1961-63 IN THE NINE CLINICS AND FROM (2) THE MONTHLY PROGRESS REPORTS OF THE CLINICS

(Discrepancies in 1 and 2 to be noted)

| Clinic No. | Name of the family-planning clinic | 1961 | | 1962 | | 1963 | | Total | |
|------------|------------------------------------|------|------|------|------|------|------|-------|------|
| | | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| 1 | Shaniwar | 239 | 251 | 304 | 307 | 350 | 352 | 893 | 910 |
| 2 | Police Welfare Centre | 168 | 200 | 356 | 409 | 330 | 395 | 854 | 1004 |
| 3 | K.E.M. Hospital | 157 | 214 | 178 | 250 | 194 | 244 | 529 | 708 |
| 4 | Regional Training Centre | 168 | 176 | 291 | 298 | 359 | 363 | 818 | 837 |
| 5 | S. S. Mandir | 185 | 192 | 146 | 164 | 153 | 245 | 484 | 601 |
| 6 | Sonawane Hospital | 211 | 214 | 165 | 173 | 138 | 140 | 514 | 527 |
| 7 | Wadarwadi | — | — | — | — | 97 | 99 | 97 | 99 |
| 8 | Guruwar | — | — | — | — | 273 | 273 | 273 | 273 |
| 9 | B. J. M. College | 212 | 236 | 283 | 275 | 332 | 329 | 827 | 840 |
| Total | | 1340 | 1483 | 1723 | 1876 | 2226 | 2440 | 5289 | 5799 |

Besides the records described above, some of the clinics maintained a register of dropped cases and a register of cases refusing sterilization. But such clinics were rare.

As can be easily seen from the above discussion, the recording system was quite elaborate and was not streamlined to its detail. Only the casecard seemed to be well-designed to provide all the relevant information regarding the contraceptors. But very often they were found incomplete. The main difficulty with the casecards reported by the staff was that the cards could not be readily traced for the clinic visitors or the interviewed women at the time of subsequent visits. With a little supervision of work and some instruction

³ Even with proper definitions, the number of active cases could be available only with complete follow-up of individual clinic visitors. This was not the case in the present situation.

Table 2.8 : ESTIMATED NUMBER OF CLOSED CASES AS OBTAINED FROM THE MONTHLY PROGRESS REPORTS COMPARED WITH THE NUMBER OF CLOSED CASES AVAILABLE FROM THE NINE CLINICS

(Columns 4 and 5 as well as columns 6 and 1 + 2 are to be compared)

| Clinic No. | Name of the family-planning clinic | From the monthly progress report | | | | No. of 'closed' cases during 1961-63 as available from the clinics | Total No. of casecards available from the clinics (to be compared with col. 1 + 2) |
|--------------|------------------------------------|--|-----------------------------------|---|--|--|--|
| | | Total No. of active cases on 1st Jan. 1961 | Cases given advice during 1961-63 | Total No. of active cases on 31st Dec. 1963 | Estimated No. of cases closed during 1961-63 | | |
| | | 1 | 2 | 3 | 4 = 1+2-3 | 5 | 6 |
| 1 | Shaniwar | 2731* | 910 | 1635 | 2006 | 54 | 1039 |
| 2 | Police Welfare Centre | 3 | 1004 | 695 | 312 | 249 | 802 |
| 3 | K.E.M. Hospital | 625 | 708 | 1152 | 181 | 159 | 645 |
| 4 | Regional Training Centre | 588 | 837 | 995 | 430 | 282 | 990 |
| 5 | S. S. Mandir | 241 | 601 | 524 | 318 | 226 | 547 |
| 6 | Sonawane Hospital | 1432* | 527 | 1027 | 932 | 48 | 648 |
| 7 | Wadarwadi | — | 99 | 99 | 0 | 21 | 97 |
| 8 | Guruwar | — | 273 | 267 | 6 | 23 | 273 |
| 9 | B. J. M. College | 288 | 840 | 1128 | 0 | 409 | 876 |
| TOTAL | | 5908 | 5799 | 7522 | 4185 | 1471 | 5917 |

* These figures in the monthly progress reports did not seem proper as they were found larger than the total number of cases given advice in the clinics.

in indexing the casecards all this could have been avoided. Indeed, these casecards, properly maintained and indexed, would have obviated the need for all the other records. To get over the difficulty of indexing the casecards, some clinics used such devices as giving a token number to the contraceptive. But this did not work, because it could not be a substitute for indexing and the women visitors often forgot to bring their tokens. Because of the difficulty of identification, the issue register as well as the follow-up register was maintained without any reference to the casecards. In our attempt to get the casecards completed and brought up to date for all the clinics, the entries in the casecards had to be obtained from the various registers. It appeared necessary to devise a recording system free from duplication of entries. All the confusion in recording probably arose because the purpose behind the maintenance of casecards was not known. The whole recording system of the family-planning clinics was oriented towards writing monthly reports mentioned earlier, and the data or columns in the casecards did not easily yield the information needed for the reports. The clinical staff simplified matters by maintaining a separate register for each of the items required in the monthly report. This multiplied the number of registers at the clinics. This aspect of recording needs particular emphasis because it has been resolved recently that maintenance of casecards is not essential for the family-planning programme and that it hampers the routine work. But the minimum that was recorded by the clinics if put in a systematic form could be used for analysis by any agency trying to evaluate the work of the clinics.

As a matter of fact, the difficulty was not with the clinic workers who were found enthusiastic about improving their records. As soon as our scrutiny of casecards started, they started asking us for guidance. This obviously demonstrates that a little supervision could improve matters. With a small load of work in the clinics at the beginning, the personnel of the clinic could be trained and made record-conscious.

The objective of the present study of clinics was to analyze the work of the clinics in terms of promotion of family planning done by them. As a first step, the analysis of casecards was undertaken. For the period 1961-63 covered by our survey, 5917 casecards were

obtained after taking into account all the information in the nine clinics in the city of Poona. In Table 2.9 the number of casecards obtained from various clinics is shown in the first row of the table.

The extent of incompleteness in the casecards with regard to various entries was noted by us to judge the efficiency of the clinics in recording. The lack of information was considerable in respect of most of the items in the cards. Even in the case of important entries regarding the knowledge and practice of contraception the information was scrappy, but there was no way of ascertaining its extent. However, in spite of their inadequacies the casecards provided a workable frame of sampling for clinic visitors especially because the ages of the women and the number of children born to them were available in most of the casecards. Similarly, information on prescribed methods of contraception was also available for all. Moreover, as judged from the later interviews with the clinic visitors, most of the information presented in the casecards appeared reliable.

The number of clinic visitors could be identified with the number of casecards, there being just one casecard for each clinic visitor. The number of clinic visitors enrolled in a clinic depended on a number of factors like the years passed since the establishment of the clinic, the institution to which the clinic was attached, the locality in which the clinic was situated and the efficiency of the staff of the clinics. The effects of the first two factors were obvious. As for the third factor, the locality of the clinic influenced the number of clinic visitors in two ways. With a high density of population nearby, the number of clients to the clinic could be larger and *vice versa*. Similarly with a population more amenable to contraceptive practice, the number of clients to the clinic could be numerous. Generally, closer the clinic, better it was for the visitors. But there was also another possibility that people preferred clinics that were away from their neighbourhood to avoid neighbours from knowing about their interest in contraception. However, an inspection of the clinic visitors revealed that people did not avoid clinics closer to their neighbourhood. Moreover, when the clinical facilities were obtained from 'other than' convenient clinics, it was more for reasons of convenience of home delivery of contraceptives or their being closer to place of work.

A fair idea about the distribution and spread of the clinics over

Table 2.9 : NUMBER OF CASECARDS IN EACH CLINIC AND THE PERCENTAGES OF BLANK ENTRIES WITH REGARD TO THE DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS OF CLINIC VISITORS

| <i>Clinic No.</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
|----------------------------------|---|------------------------------|--------------------------|---------------------------------|---------------------|--------------------------|-------------------|----------------|-----------------------|--------------|
| <i>Family-planning clinic</i> | <i>Shaniwar</i> | <i>Police Welfare Centre</i> | <i>K. E. M. Hospital</i> | <i>Regional Training Centre</i> | <i>S. S. Mandir</i> | <i>Sonawane Hospital</i> | <i>Wadar-wadi</i> | <i>Guruwar</i> | <i>B.J.M. College</i> | <i>Total</i> |
| <i>Total number of casecards</i> | 1039 | 802 | 645 | 990 | 547 | 648 | 97 | 273 | 876 | 5917 |
| <i>Characteristics</i> | <i>Percentage of blank entries with regard to items given in column 1</i> | | | | | | | | | |
| Age of woman | 0.5 | 24.2 | 1.6 | 0.1 | 0.2 | 0.5 | 24.7 | 1.1 | 0.2 | 4.1 |
| Age at marriage of woman | 9.2 | 47.1 | 10.8 | 0.3 | 0.5 | 15.0 | 46.4 | 2.2 | 2.4 | 12.2 |
| Age of husband | 9.0 | 37.2 | 10.7 | 0.2 | 4.0 | 15.0 | 45.4 | 1.5 | 0.2 | 10.7 |
| Education of wife | 11.2 | 70.4 | 17.8 | 12.2 | 3.1 | 15.6 | 48.4 | 10.2 | 11.4 | 20.4 |
| Education of husband | 11.0 | 54.5 | 17.5 | 3.5 | 6.2 | 15.6 | 48.4 | 8.8 | 8.0 | 16.5 |
| Occupation of wife | 9.3 | 50.2 | 10.2 | 0.5 | 0.5 | 4.2 | 41.2 | 2.2 | 3.2 | 11.4 |
| Occupation of husband | 22.0 | 65.3 | 70.4 | 52.6 | 39.1 | 91.5 | 71.1 | 73.6 | 52.5 | 65.3 |
| Monthly income | 1.2 | 43.5 | 2.5 | 0.4 | 1.1 | 0.8 | 4.1 | 0.4 | 1.0 | 6.9 |
| Age at first pregnancy | 17.3 | 53.2 | 78.8 | 2.3 | 4.0 | 77.9 | 51.5 | 4.8 | 9.5 | 30.6 |
| Age of the youngest living child | 11.8 | 50.1 | 37.0 | 1.0 | 9.1 | 11.3 | 48.4 | 3.3 | 6.7 | 17.1 |
| No. of children born | 8.6 | 48.9 | 45.3 | 2.8 | 4.9 | 10.0 | 41.2 | 2.2 | 4.0 | 16.5 |
| No. of children living | 4.7 | 18.1 | 2.0 | 2.3 | 4.0 | 2.8 | 25.8 | 2.2 | 3.3 | 5.6 |
| No. of sons living | 10.9 | 19.7 | 2.2 | 2.3 | 4.2 | 4.9 | 27.8 | 2.2 | 3.5 | 7.2 |

the various parts of the city can be had by looking at the map of Poona showing among other things the location of the clinics. Most of the clinics were situated in the densely populated part of the city, and it was estimated that about 30 per cent of the population had a family-planning clinic within a distance of a quarter mile and 84 per cent had at least one clinic within half a mile. This only shows that, in general, if a woman wished to take advantage of clinic facilities, they were within her easy reach. Moreover, the clinics had seven sub-centres four of which were in the remoter areas of the city. They offered facilities to women living in the thinly populated areas.

A clinic covered a population of about 50 to 80 thousand (see Table 2.1). Among this population there are expected to be about 8500 to 13600 married women of child-bearing age. By adjusting this number for sterile and sub-fertile women, it can be said that the potential clientele of the clinics was between 6000 and 10000 women. In spite of this large potential there seemed no rush to the clinics during the period under consideration. Moreover, advice for sterilization could dispose of a large number of clients once for all. In short, the number of clinics did not appear inadequate for the city, at least for the present level of interest in contraception. But, for sheer advertisement of clinic facilities, more clinics in the form of depots of contraceptive stocks would have been of great utility. Moreover 'sterilization houses' could also be run along with the clinics.

Thus as seen above, the number of clinics in the city was not inadequate; but the recording system in the clinics was gravely defective. However, the completed casecards provided a frame of sampling to get a sample of clinic visitors with their addresses. A lot could be learnt about the current contraceptive practice of clinic visitors by interviewing them in their homes. The information collected in the interviews is described in a later chapter.

APPENDIX A₂
GOKHALE INSTITUTE OF POLITICS AND ECONOMICS, POONA 4*
FAMILY-PLANNING CASECARD

Centre _____

Casecard No. _____

Date opened _____

Referred by _____

Date closed _____

A. (1) Name of (a) Wife _____ (b) Husband _____

(2) Address _____

| | (3) Present Age | (4) Age at Marriage (yrs.) | (5) Age at Consum- mation (yrs.) | (6) Education | (7) Occupation | (8) Approximate Annual Earnings (Rs.) |
|---------|-----------------------|----------------------------------|--|------------------|-------------------|---|
| Wife | | | | | | |
| Husband | | | | | | |

(9) Type of House _____ (10) No. of members _____ (11) No. of couples _____

(12) Age of wife at 1st Pregnancy _____ yrs. (13) Age of the youngest Child _____ yrs. _____ mths.

(14) No. of Children born _____ (15) No. of Children living (a) Male _____ (b) Female _____ (c) Total _____

(16) No. of (a) Still-births _____ (b) Induced abortions _____ (c) Spontaneous abortions _____

(17) Date of last delivery _____ or Abortion _____

(18) Shortest interpregnancy period _____ (19) Longest interpregnancy period _____

(20) Woman lactating Yes/No (21) (a) Menstruated since last pregnancy Yes/No (b) Date of L. M. P. _____

(22) Special Notes : _____

* The Casecard was copied from that of the clinics. It was not designed by the Gokhale Institute, Poona 4.

Casecard contd.

D. METHODS USED

| (41) Method | (42) Date given | (43) Response | (44) F.U. | (45) Date Stopped | (46) Interval of Use (months) | (47) Reason of Stopping |
|----------------|--------------------|------------------|--------------|----------------------|-------------------------------------|----------------------------|
| | | H. | W. | | | |
| | | | | | | |

N. B. : (28) C, H. : Clinic/House. (30) & (31) F. U. : Favourable/Unfavourable.

(32) N.R.I.D. : Never/Regular/Irregular/Discontinued. (33) G. B. : Good/Bad.

(37) Risk Taken : Give number of intercourses without using the method since last visit.

Casecard contd.

E. (48) General Health (a) Wife _____ (b) Husband _____

(49) Menses (a) Age at onset _____ yrs. _____ mths. (b) Regularity & duration _____ Days
Days

(50) Pelvic Examination : (a) Vulva _____ (b) Perineum _____

(c) Vagina : Cystocele _____ Rectocele _____ Discharge _____

(d) Cervix : Position _____ Erosion _____

(e) Uterus : Size _____ Position _____

(51) Examined by _____

(52) Any Operation _____

F. (53) Contraceptive Prescribed _____ Date _____

(54) First Check Up Visit : Date _____ Remarks _____

G. (55) Case Record (Social Worker's Or Health Visitor's) _____

(56) Visiting Doctor _____ Signature _____

Designation _____

CHAPTER III

CLINIC VISITORS

IN THIS CHAPTER it is proposed to examine the demographic and socio-economic characteristics of the clinic visitors. The prescription of the contraceptive appliances¹ and their acceptability were at least partly dependent on these characteristics. Hence, starting initially with a discussion on these, the chapter analyzes the information on prescribed contraceptives and the reactions of the clinic visitors to them as judged from the information on casecards only.

Demographic characteristics of visitors

Of the demographic characteristics of the clinic visitors, the age and number of children seemed to be relevant for the present analysis of attitudes towards contraceptive practice. The data revealed the level of motivation of the visitors to limit the size of family, since the use of clinic facilities early in the reproductive life possibly indicated a higher level of motivation.

Ages of the clinic visitors are shown in Table 3.1 for the individual clinics as well as the total. About 90 per cent of the clinic visitors belonged to the age group 18 to 32 years. For individual clinics the

¹ Clinic visitors having a casecard in the clinic were only those who initially accepted an appliance contraceptive.

Table 3.1 : PERCENTAGE DISTRIBUTION OF THE CLINIC VISITORS ACCORDING TO THEIR AGE AT OPENING THE CASECARD

| <i>Clinic No.</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
|-------------------------|---|------------------------------|--------------------------|-----------------------|---------------------|--------------------------|------------------|----------------|----------------------------------|--------------|
| | <i>Name of the family-planning clinic</i> | | | | | | | | | |
| <i>Age group</i> | <i>Shaniwar</i> | <i>Police Welfare Centre</i> | <i>K. E. M. Hospital</i> | <i>R. Trg. Centre</i> | <i>S. S. Mandir</i> | <i>Sonawane Hospital</i> | <i>Wadarwadi</i> | <i>Guruwar</i> | <i>B. J. M. College Hospital</i> | <i>Total</i> |
| 13—17 | 0.2 | — | 0.9 | 0.9 | 0.6 | 1.1 | — | 1.1 | 1.3 | 0.7 |
| 18—22 | 27.3 | 16.4 | 32.8 | 22.6 | 21.3 | 29.0 | 21.9 | 26.3 | 26.4 | 25.3 |
| 23—27 | 45.3 | 35.2 | 41.1 | 38.0 | 35.7 | 39.5 | 41.1 | 31.5 | 38.8 | 39.2 |
| 28—32 | 21.3 | 33.6 | 17.5 | 27.3 | 28.9 | 23.6 | 21.9 | 28.1 | 22.2 | 24.7 |
| 33—37 | 4.6 | 11.3 | 6.0 | 7.6 | 9.5 | 5.7 | 9.6 | 10.0 | 8.8 | 7.5 |
| 38—42 | 1.4 | 2.8 | 1.6 | 3.1 | 3.5 | 0.9 | 1.4 | 1.9 | 2.4 | 2.2 |
| 43—47 | — | 0.7 | 0.1 | 0.5 | 0.5 | 0.2 | 4.1 | 1.1 | 0.1 | 0.4 |
| Total 100 = | 1034 | 608 | 635 | 989 | 546 | 645 | 73 | 270 | 874 | 5674 |
| Age not reported | 5 | 194 | 10 | 1 | 1 | 3 | 24 | 3 | 2 | 243 |
| Total | 1039 | 802 | 645 | 990 | 547 | 648 | 97 | 273 | 876 | 5917 |

percentage in this group varied only between 85 and 95. Older women could better resort to sterilization, if at all, because sterilization was very much in the climate of the city and probably the troubles involved in experimenting with appliances at that age were not always worth their utility. The age group 18 to 32 years was perhaps the right age group to practise appliances, especially in the initial stages of contraception programme.

The number of clinic visitors, however, seemed to be small compared to the total number of married women in the city. The relevant data in Table 3.2 show the number of clinic visitors as percentage of married women in the city in the various age groups. Even in the fertile age group 18 to 32 years, which needed contraceptive appliances the most, clinic visitors formed only eight per cent² of the married women. This percentage will not seem to be so trivial if we take into account the fact that married women in the city include sterile and sub-fertile women besides of course the pregnant and those in the period of amenorrhoea following the delivery. Further, persons other than clinic visitors were likely to resort to sterilization, and in such cases clinic visiting was unnecessary. Eight per cent women practising contraception in the most fertile ages and in the period other than amenorrhoea could result in significant impact on birth rate as they were likely to contribute a proportionately much larger number of births in the absence of contraception. Estimated fertility-rates of such women give more than 320 births per 1000 of them as compared to 201 births to average married women³ of all child-bearing ages put together.

Other demographic characteristics of the clinic visitors, such as their age at marriage, duration of marriage, number of children born and living, and the number of sons, are set out in Table 3.3 in a summary form, just to bring out the differences, if any, among the

² This percentage looks small for two reasons. One is that people often resorted to sterilization and hence they did not bother to come to the clinics. Secondly, even though they were motivated to adopt sterilization by the clinics themselves, the relevant data were not maintained by the clinics. If the number of 9022 couples who were advised sterilization during 1961-63 is taken into account, the percentage contacted by the clinics would be higher than 18 per cent of the married women, since sterilization was presumably advocated to women aged 23 to 42 years. This does not seem to be a negligible number, at least in the initial stages of family-planning programme, when women have low motivation towards restricting the number of their children.

³ Refer to Tables 6.7 and 4.14 of Chapters VI and IV respectively. The former table gives the fertility rate for average married women. For clinic visitors who mostly belonged to the age group 18 to 32 years, Table 4.14 yields a fertility rate higher than 320.

Table 3.2 : CLINIC VISITORS AS PERCENTAGE OF MARRIED WOMEN IN DIFFERENT AGE GROUPS IN THE CITY OF POONA AS PER 1961 CENSUS

| <i>Age group</i> | <i>No. of clinic visitors</i> | <i>No. of married women in Poona (1961 census)</i> | <i>Clinic visitors as percentage of married women in Poona (1961 census)</i> |
|------------------|-------------------------------|--|--|
| (1) | (2) | (3) | (4) = $\frac{(2)}{(3)} \times 100$ |
| 13—17 | 41 | 6978 | 0.6 |
| 18—22 | 1434 | 17224 | 8.3 |
| 23—27 | 2223 | 22339 | 10.0 |
| 28—32 | 1401 | 21444 | 6.5 |
| 33—37 | 429 | 16489 | 2.6 |
| 38—42 | 125 | 11780 | 1.1 |
| 43—47 | 21 | 7984 | 0.3 |
| All ages | 5674* | 104238 | 5.4 |

* There were 243 among 5917 clinic visitors who did not report the age.

various clinics.⁴ The living children and their sex composition being important considerations in limiting the number of children, the percentages of women with none, one or two children, are also set out in Table 3.3. Broadly, the clinics did not differ much in any respect of the clinic visitors except those from clinics one and three which revealed a slightly higher level of motivation of the visitors by their visit to the clinic early in the reproductive stage. Generally the median age of women visiting the clinic was a little less than 25 years. They had about three children and had their first pregnancy at about age 18. In a population taking to contraception anew, one rarely expected women to take interest in contraception when they had no child or only one child. But interestingly enough 19 per cent of the clinic visitors had one child or none and 16 per cent had no son. The percentage of women without any daughter showing interest

⁴ Though the data from the clinics as found in Chapter II were scrappy, the absence or presence of entries with regard to various points of information did not seem to be related to any of the socio-economic factors, and hence, the available data could be regarded as broadly representative of the clinic visitors as a whole.

in contraception was large (24 per cent) for all the clinics. It seemed that women having male issues could be better motivated to contraceptive practice than those with female issues. This finding is common in most of the studies conducted in India.

Socio-economic characteristics of clinic visitors

Of the socio-economic characteristics, information on only three characteristics, namely education, occupation and income, was available; data on these could be useful for knowing the social status of the clinic visitors as distinct from that of the general population. These are presented in subsequent paragraphs.

The educational level of the clinic visitors is set out in Table 3.4 for the husbands and wives. The corresponding level observed for married couples in the city of Poona in 1964 is also presented here for comparison. The level of education was not known for more than 16 and 20 per cent of the husbands and wives respectively. The classification of such husbands and wives according to the husbands' occupation indicated that they included the highly educated as well as the illiterate. The available information suggests that clinic visitors had a higher level of education, with 50 per cent of husbands completing their high school education as compared to 28 per cent of their counterparts in the general population. This, however, is not surprising. The more significant finding seems to be that even the illiterate visited the clinics. Thus seven per cent illiterate husbands or 18 per cent illiterate women were contacted by the clinics in Poona. The percentage of those with education below the level of high school also seemed appreciable.

As for the other socio-economic characteristics of the clinic visitors, information on occupation was not of a form worthy of classification by the usual methods. Their reported incomes were found unreliable. The educational level of the visitors (or their husbands) seemed to be the only dependable indicator of their socio-economic status as it was better reported. The idea in presenting the data on education was to distinguish between the clients of various clinics. The capacity of the clinics to popularize contraception among the illiterate could also indicate their efficiency. For this purpose the proportion of illiterate clients had to be related to the proportion of illiterate population surrounding the clinics. This kind of comparison was possible with the data in Table 3.5 at least for the clinics one,

Table 3.3 : DEMOGRAPHIC CHARACTERISTICS OF CLINIC VISITORS AT THE TIME OF ENROLMENT IN THE CLINIC

| Characteristics | Name of the family-planning clinic | | | | | | | | | Total |
|---|------------------------------------|-----------------------|----------------|----------------|--------------|----------------|------------|---------|------------------------|-------|
| | Shantiwar | Police Welfare Centre | K. E. M. Hosp. | R. Trg. Centre | S. S. Mandir | Sonawane Hosp. | Wadar-wadi | Guruwar | B. J. M. College Hosp. | |
| Median age at enrolment (in years) | 24.3 | 26.7 | 24.6 | 25.1 | 25.5 | 24.4 | 24.9 | 25.3 | 24.7 | 24.8 |
| Median age at marriage (in years) | 17.8 | 15.9 | 16.9 | 15.0 | 15.8 | 15.8 | 15.0 | 14.9 | 15.8 | 16.1 |
| Median duration of marriage (in years) | 5.7 | 9.2 | 5.3 | 9.1 | 9.1 | 7.2 | 8.3 | 9.0 | 7.7 | 7.5 |
| Median age at first pregnancy (in years) | 19.7 | 18.0 | 19.2 | 17.3 | 17.9 | 18.1 | 17.3 | 17.4 | 18.2 | 18.3 |
| Average number of children born | 2.4 | 3.6 | 2.5 | 3.7 | 3.6 | 3.0 | 3.9 | 3.7 | 3.4 | 3.2 |
| Average number of children living | 2.2 | 3.2 | 2.4 | 3.3 | 3.2 | 2.7 | 3.4 | 3.2 | 3.0 | 2.8 |
| Percentage of living to total children born | 92 | 89 | 96 | 89 | 89 | 90 | 87 | 86 | 88 | 88 |
| Percentage of women with no child living | 1.4 | 1.2 | 1.7 | 0.4 | 0.8 | 0.2 | 1.4 | 0.7 | 2.2 | 1.2 |
| Percentage of women with one living child | 27.5 | 14.0 | 28.1 | 11.8 | 15.6 | 17.1 | 9.7 | 13.2 | 15.5 | 18.1 |

| | | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|------|------|
| Percentage of women with two or less living children | 67.2 | 38.8 | 60.3 | 36.4 | 41.5 | 47.6 | 34.7 | 38.6 | 42.7 | 47.6 |
| Percentage of women with three or less living children | 88.5 | 64.4 | 82.8 | 61.9 | 64.8 | 76.7 | 61.1 | 62.5 | 68.1 | 72.2 |
| Percentage of women with no male child living | 20.8 | 14.0 | 21.0 | 11.7 | 16.2 | 15.4 | 11.4 | 12.7 | 13.4 | 15.7 |
| Percentage of women with no female child living | 33.8 | 21.7 | 28.3 | 21.4 | 21.9 | 22.7 | 20.0 | 19.5 | 21.3 | 24.4 |
| Total number of clinic visitors | 1039 | 802 | 645 | 990 | 547 | 648 | 97 | 273 | 876 | 5917 |

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Table 3.4 : EDUCATIONAL LEVEL OF CLINIC VISITORS AND THEIR HUSBANDS COMPARED WITH THOSE FOR MARRIED COUPLES IN THE DEMOGRAPHIC SURVEY OF 1964

| <i>Educational level</i> | <i>Percentage distribution</i> | | | |
|--------------------------------|--------------------------------|--------------|--|--------------|
| | <i>Clinic visitors 1961—63</i> | | <i>Married couples in the city in 1964</i> | |
| | <i>Husbands</i> | <i>Wives</i> | <i>Husbands</i> | <i>Wives</i> |
| Illiterate | 7.0 | 18.5 | 16.3 | 44.5 |
| Literate, below S. S. C. | 42.5 | 57.9 | 55.5 | 43.4 |
| S. S. C. and above | 50.5 | 23.6 | 28.2 | 12.1 |
| Total 100 = | 4943 | 4707 | 1328 | 1328 |
| Educational level not reported | 974 | 1210 | 24 | 24 |
| Total | 5917 | 5917 | 1352 | 1352 |

two, three, eight and nine. The remaining clinics included visitors from sub-centres too, which were not in the surrounding area, and hence such comparison could not be valid for them.

As seen from Table 3.5, clinics one, two and three had the best educated clientele as judged by the educational level of the wives. Clinic three had it in spite of the very low percentage of educated women in the surrounding area. This perhaps was not a sign of great efficiency, because the clinic services did not reach adequately the illiterate classes. Probably it was so because of the diaphragm which was prescribed by the centre more frequently than others. As for the illiterate women-clients, clinics five, seven, eight and one seemed to reach them in larger proportion compared to their surroundings. For clinic five it was due to its sub-centre acting in heavily illiterate area besides due to general efficiency of the clinic. Clinic seven also had similar sub-centre. But this clinic had started functioning recently and had only a few cases with which to generalize the results. Clinic one worked efficiently on the whole in reaching the illiterate women. Clinic four was set with a regional training centre for the field workers, and they brought clients from any part of the city. Therefore in this clinic one sees the largest per-

Table 3.5 : COMPARISON OF EDUCATIONAL LEVEL OF (i) VISITORS OF DIFFERENT CLINICS WITH THE CORRESPONDING LEVEL OF (ii) THE MARRIED POPULATION OF SURROUNDING WARDS IN THE SURVEY OF POONA CITY IN 1964

| Clinic No. | Name of the family-planning clinic | | Percentage of husbands with educational level | | | Total | Percentage of wives with educational level | | | Total |
|------------|------------------------------------|------|---|--------------------------|------------------|-------|--|--------------------------|------------------|-------|
| | | | Illiterate | Literate, below S. S. C. | S. S. C. & above | | Illiterate | Literate, below S. S. C. | S. S. C. & above | |
| 1 | Shaniwar | (i) | 3.1 | 31.3 | 65.6 | 100.0 | 8.1 | 53.4 | 38.5 | 100.0 |
| | | (ii) | 7.5 | 54.7 | 37.8 | 100.0 | 26.2 | 59.6 | 14.2 | 100.0 |
| 2 | Police W. Centre | (i) | 0.3 | 39.7 | 60.0 | 100.0 | 2.5 | 59.0 | 38.5 | 100.0 |
| | | (ii) | 14.7 | 39.0 | 46.3 | 100.0 | 36.8 | 40.3 | 22.9 | 100.0 |
| 3 | K. E. M. Hospital | (i) | 2.3 | 37.5 | 60.2 | 100.0 | 12.3 | 56.1 | 31.6 | 100.0 |
| | | (ii) | 21.0 | 62.8 | 16.2 | 100.0 | 53.8 | 43.7 | 2.5 | 100.0 |
| 4 | Reg. Trg. Centre | (i) | 5.7 | 54.8 | 39.5 | 100.0 | 18.8 | 68.1 | 13.1 | 100.0 |
| | | (ii) | 15.6 | 63.6 | 20.8 | 100.0 | 44.5 | 51.1 | 4.4 | 100.0 |
| 5 | S. S. Mandir | (i) | 17.3 | 29.5 | 53.2 | 100.0 | 32.3 | 45.2 | 22.5 | 100.0 |
| | | (ii) | 5.5 | 34.4 | 60.1 | 100.0 | 18.1 | 56.7 | 25.2 | 100.0 |
| 6 | Sonavane Hospital | (i) | 6.2 | 51.7 | 42.1 | 100.0 | 16.1 | 70.4 | 13.5 | 100.0 |
| | | (ii) | 17.3 | 75.6 | 7.1 | 100.0 | 62.2 | 37.8 | — | 100.0 |
| 7 | Wadarwadi | (i) | 14.0 | 50.0 | 36.0 | 100.0 | 42.0 | 54.0 | 4.0 | 100.0 |
| | | (ii) | 14.7 | 39.0 | 46.3 | 100.0 | 36.8 | 40.3 | 22.9 | 100.0 |
| 8 | Guruwar | (i) | 14.5 | 53.8 | 31.7 | 100.0 | 35.5 | 54.8 | 9.7 | 100.0 |
| | | (ii) | 14.5 | 72.8 | 12.7 | 100.0 | 46.3 | 49.1 | 4.6 | 100.0 |
| 9 | B. J. M. College Hosp. | (i) | 10.1 | 43.5 | 46.4 | 100.0 | 25.1 | 53.2 | 21.7 | 100.0 |
| | | (ii) | 23.5 | 58.0 | 18.5 | 100.0 | 58.9 | 36.8 | 4.3 | 100.0 |

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centage of visitors from literate classes with a level of education below high school. This was broadly the level of trainees.

The above information for individual clinics could facilitate their classification according to the level of efficiency in promoting family planning. This is attempted in Appendix A₃ at the end of the chapter.

Prescribed contraceptive methods

The above background of the clinics should be borne in mind while analyzing the information regarding the prescribed contraceptive methods and their initial acceptance. The variation in prescription is shown in Table 3.6 for individual clinics as well as the total. Among the 5917 clinic visitors, diaphragm and jelly was prescribed to 44 per cent and condoms to about 36 per cent. About 11 per cent opted for foam tablets. Clinics one, three and six, established by the Municipal Corporation in 1957 or earlier, prescribed diaphragm and jelly more than others. Their practice needed better education and motivation, which were not always found among the clients of all the clinics. It is also possible that the policy of the clinics changed, and recently they prescribed condoms more often than diaphragms. This change in prescription was perhaps due to difficulties women experienced in using diaphragm; it was specially so for those from illiterate classes. The contraceptive methods prescribed in various calendar years are set out in Table 3.7. One can see from the table that before 1961⁵, 69 per cent clinic visitors were prescribed diaphragm and jelly, while the percentage changed to 59 in 1961, 44 in 1962 and 26 in 1963. The decline in the percentage using diaphragms was higher more recently. On the other hand, users of condom formed only 18 per cent of those enrolled before 1961. This percentage rose to more than 50 of those enrolled in 1963. In Table 3.8 the prescription of contraceptive methods in various clinics is shown for the period before 1961 and after 1961. In the total of 5917 clinic visitors about 12 per cent were enrolled before the close of 1960. In the three clinics established in 1959 or earlier, no other method but diaphragm and jelly was prescribed before 1961. In clinic two, foam tablets seemed more frequently prescribed. Generally, however, condom was

⁵ This analysis is based on casecards that refer to all clinic visitors who either started their practice during 1961-63 or were practising contraception sometime during this period. These latter naturally included past contraceptors who had continued their practice during 1961-63.

Table 3.6 : CONTRACEPTIVE METHODS PRESCRIBED TO CLINIC VISITORS IN DIFFERENT CLINICS

| <i>Contraceptive method prescribed</i> | <i>Percentage of clinic visitors with the prescribed contraceptive methods</i> | | | | | | | | | <i>Total</i> | <i>Percentage</i> |
|--|--|------------------------------|--------------------------|-----------------------|---------------------|--------------------------|-------------------|----------------|----------------------------------|--------------|-------------------|
| | <i>Shaniwar</i> | <i>Police Welfare Centre</i> | <i>K. E. M. Hospital</i> | <i>R. Trg. Centre</i> | <i>S. S. Mandir</i> | <i>Sonawane Hospital</i> | <i>Wadar-wadi</i> | <i>Guruwar</i> | <i>B. J. M. College Hospital</i> | | |
| Diaphragm and jelly | 77.2 | 20.2 | 90.7 | 19.4 | 24.7 | 85.4 | 6.2 | 19.0 | 10.5 | 2580 | 43.6 |
| Jelly alone | 2.5 | 0.4 | 0.2 | 17.1 | 9.1 | 0.8 | 14.4 | 3.7 | 19.8 | 451 | 7.6 |
| Condom | 17.0 | 34.1 | 6.5 | 53.7 | 49.9 | 11.9 | 74.2 | 62.6 | 55.4 | 2102 | 35.6 |
| Foam tablets | 1.4 | 40.0 | 1.7 | 9.1 | 12.6 | 1.4 | 5.2 | 13.2 | 13.3 | 671 | 11.3 |
| Safe period | — | 2.3 | — | — | — | — | — | — | — | 18 | 0.3 |
| Diaphragm and jelly + condom | 1.2 | 2.0 | 0.8 | 0.7 | 3.7 | 0.4 | — | 1.5 | 1.0 | 77 | 1.3 |
| Contraceptive not specified | 0.7 | 1.0 | 0.1 | — | — | 0.1 | — | — | — | 18 | 0.3 |
| Total 100 = | 1039 | 802 | 645 | 990 | 547 | 648 | 97 | 273 | 876 | 5917 | 100.0 |

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Table 3.7 : PERCENTAGE DISTRIBUTION OF CLINIC VISITORS ACCORDING TO YEAR OF ENROLMENT AND THE CONTRACEPTIVE METHODS PRESCRIBED

| <i>Contraceptive method prescribed</i> | <i>Per cent prescribed the specific contraceptive method in various calendar years</i> | | | | <i>Total</i> | |
|--|--|-------------|-------------|-------------|---------------|-------------------|
| | <i>Up to 1960*</i> | <i>1961</i> | <i>1962</i> | <i>1963</i> | <i>Number</i> | <i>Percentage</i> |
| Diaphragm and jelly | 68.9 | 59.1 | 44.2 | 25.9 | 2580 | 43.6 |
| Jelly alone | 5.4 | 10.0 | 7.9 | 6.7 | 451 | 7.6 |
| Condom | 18.4 | 19.8 | 28.1 | 55.9 | 2102 | 35.6 |
| Foam tablets | 5.4 | 8.8 | 17.5 | 10.0 | 671 | 11.3 |
| Safe period | — | 0.5 | 0.6 | 0.1 | 18 | 0.3 |
| Diaphragm and jelly + condom | 1.9 | 1.3 | 1.1 | 1.3 | 77 | 1.3 |
| Contraceptive not specified | — | 0.5 | 0.6 | 0.1 | 18 | 0.3 |
| Total 100 = | 686 | 1332 | 1696 | 2206 | 5917 | 100.0 |

*This gives the number of clinic visitors who enrolled before 1961, and were active for at least some period of 1961 to 1963.

the highly prescribed contraceptive more recently and was next only to diaphragm. Theoretically the clinic visitors were supposed to get in the clinics a method of their choice. This is called the 'Cafeteria' method of supply service. But this could not always be administered due to limitations of contraceptive supplies. In the two clinics run by the government, namely clinics four and nine, the prescription of the various methods seemed to be more common. This was probably because both these clinics were used for training field workers in the field of family planning.

The clinics prescribed contraceptives after considering their suitability in the case of each individual. Still the prescription did not always agree with the individual taste. This could lead to a lower rate of adoption of the prescribed methods. In Table 3.9 the clinic visitors are divided into three categories: (a) regular contraceptors (b) sterilized and (c) irregular contraceptors as judged from the casecards. These constitute respectively 28 per cent, 2 per cent and 70 per cent of the total clinic visitors. All the sterilized had shifted to sterilization from prescribed contraceptives shown in column one. The regularity and irregularity of others depended on the interaction between the level of motivation and the tolerability of the prescribed contraceptive, besides of course the need of clinic visits for supplies. From the percentage of the regular users of various methods it appears that those using condom and diaphragm both at a time formed the largest proportion (62 per cent), because none but the highly motivated could select such a method and hence they were regular. Moreover frequent clinic visits were required for free supplies of condoms but this was not so for diaphragms. The respective percentages namely 25 and 39 of the diaphragm and condom users among the regular were due to different levels of convenience in using them and the need for more visits for free condoms. The small percentage of regular users of chemical contraceptives like jelly and foam tablets seemed to be clearly due to uncertain success associated with them. So far as the present analysis is concerned, the irregulars were branded so because no information was available about their contraceptive practice from the casecards. They perhaps lacked the necessary motivation or the apparent irregularity resulted from their contraceptive action independent of the clinic.

Table 3.8 : CLINIC VISITORS IN EACH CLINIC CLASSIFIED ACCORDING TO WHETHER THEY ENROLLED BEFORE OR AFTER 1961 AND THE CONTRACEPTIVE METHODS PRESCRIBED TO THEM

| <i>Clinic No.</i> | <i>Name of the family-planning clinic</i> | <i>Diaphragm and jelly</i> | <i>Jelly alone</i> | <i>Condom</i> | <i>Foam tablets</i> | <i>Safe period</i> | <i>D. and J. + condom</i> | <i>Contra-ceptive method not specified</i> | <i>Total</i> |
|-------------------|---|----------------------------|--------------------|---------------|---------------------|--------------------|---------------------------|--|--------------|
| 1 | Shaniwar | | | | | | | | |
| | Before 1961 | 146 | — | — | — | — | 3 | — | 149 |
| | From 1961 | 657 | 26 | 176 | 14 | — | 10 | 7 | 890 |
| 2 | Police W. Centre | | | | | | | | |
| | Before 1961 | 1 | — | — | 1 | — | — | — | 2 |
| | From 1961 | 161 | 3 | 274 | 320 | 18 | 16 | 8 | 800 |
| 3 | K. E. M. Hospital | | | | | | | | |
| | Before 1961 | 114 | — | — | 1 | — | 1 | — | 116 |
| | From 1961 | 471 | 1 | 42 | 10 | — | 4 | 1 | 529 |
| 4 | R. Trg. Centre | | | | | | | | |
| | Before 1961 | 43 | 25 | 87 | 14 | — | 3 | — | 172 |
| | From 1961 | 149 | 144 | 445 | 76 | — | 4 | — | 818 |
| 5 | S. S. Mandir | | | | | | | | |
| | Before 1961 | 18 | 9 | 23 | 10 | — | 3 | — | 63 |
| | From 1961 | 117 | 41 | 250 | 59 | — | 17 | — | 484 |
| 6 | Sonawane Hospital | | | | | | | | |
| | Before 1961 | 133 | — | — | — | — | 1 | — | 134 |
| | From 1961 | 420 | 5 | 77 | 9 | — | 2 | 1 | 514 |

| | | | | | | | | | |
|---|---------------------------|------|-----|------|-----|----|----|----|------|
| 7 | Wadarwadi | — | — | — | — | — | — | — | — |
| | Before 1961 | — | — | — | — | — | — | — | — |
| | From 1961 | 7 | 14 | 71 | 5 | — | — | — | 97 |
| 8 | Guruwar | — | — | — | — | — | — | — | — |
| | Before 1961 | — | — | — | — | — | — | — | — |
| | From 1961 | 51 | 10 | 172 | 36 | — | 4 | — | 273 |
| 9 | B. J. M. College Hospital | — | — | — | — | — | — | — | — |
| | Before 1961 | 18 | 3 | 16 | 11 | — | 2 | — | 50 |
| | From 1961 | 74 | 170 | 469 | 105 | — | 7 | 1 | 826 |
| | All Clinics | — | — | — | — | — | — | — | — |
| | Before 1961 | 473 | 37 | 126 | 37 | — | 13 | — | 686 |
| | From 1961 | 2107 | 414 | 1976 | 634 | 18 | 64 | 18 | 5231 |

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Table 3.9 : DISTRIBUTION OF CLINIC VISITORS WITH DIFFERENT PRESCRIBED CONTRACEPTIVES ACCORDING TO THE REGULARITY OR OTHERWISE IN THE USE OF THESE CONTRACEPTIVE METHODS

| <i>Contraceptive method prescribed</i> | <i>Regular users</i> | | <i>Sterilized</i> | | <i>Irregular users</i> | | <i>Total</i> | |
|--|----------------------|-------------------|-------------------|-------------------|------------------------|-------------------|--------------|-------------------|
| | <i>No.</i> | <i>Percentage</i> | <i>No.</i> | <i>Percentage</i> | <i>No.</i> | <i>Percentage</i> | <i>No.</i> | <i>Percentage</i> |
| Diaphragm and jelly | 645 | 25.0 | 31 | 1.2 | 1904 | 73.8 | 2580 | 100.0 |
| Jelly alone | 77 | 17.1 | 12 | 2.7 | 362 | 80.2 | 451 | 100.0 |
| Condom | 811 | 38.6 | 47 | 2.2 | 1244 | 59.2 | 2102 | 100.0 |
| Foam tablets | 97 | 14.5 | 27 | 4.0 | 547 | 81.5 | 671 | 100.0 |
| Safe period | 4 | 28.6 | — | — | 14 | 71.4 | 18 | 100.0 |
| D. & J. + condom | 48 | 62.3 | 1 | 1.3 | 28 | 36.4 | 77 | 100.0 |
| Contraceptive not specified | — | — | 1 | 5.6 | 17 | 94.4 | 18 | 100.0 |
| Total | 1682 | 28.4 | 119 | 2.0 | 4116 | 69.6 | 5917 | 100.0 |

The current attitudes of 70 per cent of the clinic visitors numbering 4116 were completely unknown.⁶ An attempt was therefore made to explain their irregularity with whatever information was available from the casecards. These were divided as follows:

39 had irregular practice reported on the casecard.

1247 stopped contact with the clinic workers and were called 'dropped' cases in the clinics.

145 paid only one visit during the preceding six months.

1626 paid only one visit more than six months ago.

1059 paid more than one visit but none during preceding six months.

As observed above, only for 30 per cent of the irregulars (i.e. 1247) there was some information on the casecards giving reasons for their non-attendance at the clinics. Their analysis naturally could not have general application. But it gives an inkling of an idea as to their kind. This analysis is therefore presented in Appendix B₃ at the end of the chapter. Nothing could be said regarding the irregularity of the remaining 70 per cent of the irregulars. Hence an attempt is made in the subsequent paragraphs to look for their distinctive characteristics as compared to the regular contraceptors and the sterilized.

In the following, the regular contraceptors, sterilized and the irregular clinic visitors are examined for their socio-demographic characteristics. In Table 3.10 the number of children to the three categories shows that the sterilized had 3.9 children on an average, while the regular and irregular clinic visitors had about 2.8 children. Thus the regular and irregular visitors did not differ in their number of children, while the sterilized had one more child on an average. In fact, if the non-sterilized failed in the practice of contraceptive appliances they just reached the level of children the sterilized had. In short with a single failure the appliance users had to get sterilized

⁶ It is significant to note this fact because clinic records were out-dated especially in the case of those who perhaps stopped visiting clinics because (a) they did not like the clinical services or because (b) they wanted to shift to some other method including sterilization or because (c) they changed the source of contraceptive supplies from the clinic to others like drug-stores. If the percentage of such cases was large, clinic records, as they were available, were of only limited utility. In the two studies of clinics in Delhi and Bombay similar large percentages were observed to be irregular in their visits to the clinics. It seemed necessary to know their reactions to prescribed methods in order to tend the clinical organization to suit the needs of the majority. This was, however, not attempted in the studies conducted in Delhi and Bombay.

Table 3.10 : DISTRIBUTION OF THREE CATEGORIES OF CONTRACEPTORS ACCORDING TO THE NUMBER OF LIVING CHILDREN THEY HAD

| <i>No. of living children</i> | <i>Regular users</i> | | <i>Sterilized</i> | | <i>Irregular users and others</i> | | <i>Total</i> | |
|--|----------------------|-------------------|-------------------|-------------------|-----------------------------------|-------------------|--------------|-------------------|
| | <i>No.</i> | <i>Percentage</i> | <i>No.</i> | <i>Percentage</i> | <i>No.</i> | <i>Percentage</i> | <i>No.</i> | <i>Percentage</i> |
| 0 | 14 | 0·8 | — | — | 51 | 1·2 | 65 | 1·1 |
| 1 | 272 | 16·2 | 4 | 3·4 | 739 | 18·0 | 1015 | 17·2 |
| 2 | 467 | 27·9 | 13 | 10·9 | 1101 | 26·7 | 1581 | 26·6 |
| 3 | 413 | 24·6 | 34 | 28·5 | 924 | 22·4 | 1371 | 23·1 |
| 4 | 243 | 14·4 | 27 | 22·7 | 522 | 12·7 | 792 | 13·4 |
| 5 | 108 | 6·4 | 19 | 16·0 | 273 | 6·6 | 400 | 6·8 |
| 6 | 61 | 3·6 | 6 | 5·0 | 138 | 3·4 | 205 | 3·5 |
| 7 | 29 | 1·7 | 4 | 3·4 | 56 | 1·4 | 89 | 1·5 |
| 8 or more | 19 | 1·1 | 4 | 3·4 | 46 | 1·1 | 69 | 1·2 |
| Not given | 56 | 3·3 | 8 | 6·7 | 266 | 6·5 | 330 | 5·6 |
| Total | 1682 | 100·0 | 119 | 100·0 | 4116 | 100·0 | 5917 | 100·0 |
| Average No. of living children to reporting cases | 2·9 | | 3·9 | | 2·8 | | 2·8 | |

to have a fertility performance equal to that of the sterilized. The number of sons being an important consideration in the contraceptive action, the relevant data regarding the three categories are set out in Table 3.11. The sterilized had 2.2 sons on an average and others had 1.5. Even if the appliance users get sterilized after the next child, the average number of their sons would be roughly equal to that of the sterilized since half of them may expect a son and the other half a daughter.

The data presented up to now do not reveal any difference in the regular and irregular categories. Was it that they differed in their socio-economic setting? This could be partly assessed from their educational level, the only factor on which data from the casecards could be reasonably utilized. In Table 3.12, the data show that the regulars and irregulars differed very slightly in their educational level⁷. If any distinction was to be made among them, the irregulars comprised a slightly higher percentage of women with low educated husbands⁸.

It is worth analyzing the period of use of contraceptive methods by the three categories of contraceptors. In Table 3.13, the number of women opting for various contraceptive methods, their total number of months of practice and the average months of practice per woman opting for a specific contraceptive method are set out. It is clear that those who were highly motivated were using both diaphragm and condom and the average months of use per couple was maximum among them, namely 17.5 months. Even among the irregulars there were about 36 per cent of the users of diaphragm and condom together and they too had used these for about a year on an average. This, of course, throws light on their motivation to control births, and one starts wondering whether the so-called irregular also practised contraception without any help from the clinics. In the following an attempt is made to guess at their attitudes to contraceptive

⁷ The similarity of socio-demographic set-up among regular and irregular contraceptors in a way forestalled similarity of the level of motivation to practise contraception. Then what made the irregulars different from regulars? Were they practising contraception without coming to the clinic? This could be verified only with interviews with the clinic visitors.

⁸ The sterilized had definitely a lower level of education. This probably meant that the use of appliances, whether regular or irregular, was restricted mostly to the better educated. In short the clinical services catering for appliances were serviceable more to the better educated, and to augment the clinical effort sterilization could also be administered or organized by the clinics. This, according to us, could be effected by follow-up of cases for sterilization too.

Table 3.11 : DISTRIBUTION OF THREE CATEGORIES OF CONTRACEPTORS ACCORDING TO THE NUMBER OF LIVING SONS THEY HAD

| <i>No. o living sons</i> | <i>Regular users</i> | | <i>Sterilized</i> | | <i>Irregular users and others</i> | | <i>Total</i> | |
|--|----------------------|-------------------|-------------------|-------------------|---------------------------------------|-------------------|--------------|-------------------|
| | <i>No.</i> | <i>Percentage</i> | <i>No.</i> | <i>Percentage</i> | <i>No.</i> | <i>Percentage</i> | <i>No.</i> | <i>Percentage</i> |
| 0 | 213 | 12.7 | 3 | 2.5 | 648 | 15.7 | 864 | 14.6 |
| 1 | 669 | 39.7 | 30 | 25.2 | 1589 | 38.7 | 2288 | 38.6 |
| 2 | 457 | 27.2 | 46 | 38.6 | 1003 | 24.4 | 1506 | 25.5 |
| 3 | 181 | 10.8 | 19 | 16.0 | 371 | 9.0 | 571 | 9.7 |
| 4 | 54 | 3.2 | 7 | 5.9 | 117 | 2.8 | 178 | 3.0 |
| 5 | 15 | 0.9 | 2 | 1.7 | 37 | 0.9 | 54 | 0.9 |
| 6 or more | 9 | 0.5 | 4 | 3.4 | 16 | 0.4 | 29 | 0.5 |
| Not given | 84 | 5.0 | 8 | 6.7 | 335 | 8.1 | 427 | 7.2 |
| Total | 1682 | 100.0 | 119 | 100.0 | 4116 | 100.0 | 5917 | 100.0 |
| Average No. of living sons to reporting cases | 1.5 | | 2.2 | | 1.4 | | 1.5 | |

Table 3.12 : DISTRIBUTION OF THREE CATEGORIES OF CONTRACEPTORS AMONG TOTAL CLINIC VISITORS ACCORDING TO THEIR OWN EDUCATIONAL LEVELS AND OF THEIR HUSBANDS

| <i>Contraceptors among clinic visitors</i> | <i>Educational level</i> | | | | | <i>Total</i> |
|--|--------------------------|-------------------------------------|-----------------------|--------------|------------------------------------|--------------|
| | <i>Up to 7th Std.</i> | <i>Above 7th Std. up to S. S. C</i> | <i>Above S. S. C.</i> | <i>Total</i> | <i>Educational level not given</i> | |
| <i>Regular users</i> | | | | | | |
| <i>Clinic visitors</i> | | | | | | |
| Number | 903 | 372 | 107 | 1382 | 300 | 1682 |
| Percentage | 65.4 | 26.9 | 7.7 | 100.0 | | |
| <i>Husbands of clinic visitors</i> | | | | | | |
| Number | 521 | 579 | 344 | 1444 | 238 | 1682 |
| Percentage | 36.1 | 40.1 | 23.8 | 100.0 | | |
| <i>Sterilized</i> | | | | | | |
| <i>Clinic visitors</i> | | | | | | |
| Number | 60 | 13 | 1 | 74 | 45 | 119 |
| Percentage | 81.1 | 17.6 | 1.3 | 100.0 | | |
| <i>Husbands of clinic visitors</i> | | | | | | |
| Number | 33 | 34 | 11 | 78 | 41 | 119 |
| Percentage | 42.3 | 43.6 | 14.1 | 100.0 | | |
| <i>Irregular users & others</i> | | | | | | |
| <i>Clinic visitors</i> | | | | | | |
| Number | 2214 | 820 | 217 | 3251 | 865 | 4116 |
| Percentage | 68.1 | 25.2 | 6.7 | 100.0 | | |
| <i>Husbands of clinic visitors</i> | | | | | | |
| Number | 1426 | 1275 | 720 | 3421 | 695 | 4116 |
| Percentage | 41.7 | 37.3 | 21.0 | 100.0 | | |
| <i>Total</i> | | | | | | |
| <i>Clinic visitors</i> | | | | | | |
| Number | 3177 | 1205 | 325 | 4707 | 1210 | 5917 |
| Percentage | 67.5 | 25.6 | 6.9 | 100.0 | | |
| <i>Husbands of clinic visitors</i> | | | | | | |
| Number | 1980 | 1888 | 1075 | 4943 | 974 | 5917 |
| Percentage | 40.0 | 38.2 | 21.8 | 100.0 | | |

practice on the basis of data regarding duration of this practice recorded on the casecards. The results had to be used only guardedly until a follow-up of clinic visitors confirmed the guesses made here.

Table 3.13 indicates that the sterilized gave trial to the various contraceptives for a period of 5.3 months on an average and the

Table 3.13 : DURATION IN MONTHS OF PRACTICE OF CONTRACEPTION OF THE THREE CATEGORIES OF CONTRACEPTORS ACCORDING TO THE CONTRACEPTIVE METHODS PRESCRIBED

| <i>Contraceptive prescribed</i> | <i>Regular users</i> | | | <i>Sterilized</i> | | | <i>Irregular users and others</i> | | | <i>Total</i> | | |
|---------------------------------|----------------------|----------------|-------------|-------------------|--------------|------------|-----------------------------------|----------------|------------|--------------|----------------|-------------|
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Diaphragm and jelly | 645 | 16376.4 | 25.4 | 31 | 253.5 | 8.2 | 1904 | 15637.5 | 8.2 | 2580 | 32267.4 | 12.5 |
| Jelly alone | 77 | 1177.5 | 15.3 | 12 | 85.1 | 7.1 | 362 | 1853.2 | 5.1 | 451 | 3115.8 | 6.9 |
| Condom | 811 | 11950.0 | 14.7 | 47 | 153.0 | 3.3 | 1244 | 5698.5 | 4.6 | 2102 | 17801.5 | 8.5 |
| Foam tablets | 97 | 1360.5 | 14.0 | 27 | 115.5 | 4.3 | 547 | 1915.1 | 3.5 | 671 | 3391.1 | 5.1 |
| Safe period | 4 | 88.5 | 22.1 | — | — | — | 14 | 180.0 | 12.9 | 18 | 268.5 | 14.9 |
| D. & J. + condom | 48 | 1019.5 | 21.2 | 1 | 18.0 | 18.0 | 28 | 313.0 | 11.2 | 77 | 1350.5 | 17.5 |
| Contraceptive not specified | — | — | — | 1 | — | — | 17 | — | — | 18 | — | — |
| Total | 1682 | 31972.4 | 19.0 | 119 | 625.1 | 5.3 | 4116 | 25597.3 | 6.2 | 5917 | 58194.8 | 10.0 |

1 = Number of women

2 = Total months of practice

3 = Average months of practice

Table 3.14 : INTERVAL IN MONTHS BETWEEN THE OPENING VISIT AND THE LAST VISIT FOR ALL CLINIC VISITORS ACCORDING TO CONTRACEPTIVE METHODS PRESCRIBED

| <i>Contraceptive method prescribed</i> | <i>Interval in months between the opening visit and the last visit</i> | | | | | | | | | | <i>Total</i> |
|--|--|------------|------------|------------|------------|------------|------------|------------|------------|-----------|--------------|
| | 0—3 | 4—6 | 7—9 | 10—12 | 13—24 | 25—36 | 37—48 | 49—60 | 61 & above | Not given | |
| Diaphragm and jelly | 1351 | 154 | 150 | 118 | 291 | 211 | 128 | 90 | 81 | 6 | 2580 |
| Jelly alone | 279 | 31 | 29 | 29 | 49 | 17 | 15 | — | — | 2 | 451 |
| Condom | 1046 | 220 | 205 | 161 | 272 | 106 | 72 | 16 | 1 | 3 | 2102 |
| Foam tablets | 489 | 42 | 32 | 29 | 51 | 13 | 8 | 5 | — | 2 | 671 |
| Safe period | 10 | 1 | 2 | 2 | 1 | 2 | — | — | — | — | 18 |
| D. & J. + condom | 14 | 10 | 9 | 7 | 15 | 9 | 7 | 3 | 2 | 1 | 77 |
| Contraceptive not specified | 18 | — | — | — | — | — | — | — | — | — | 18 |
| Total | 3207 | 458 | 427 | 346 | 679 | 358 | 230 | 114 | 84 | 14 | 5917 |

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irregulars did the same for 6.2 months. These periods are not negligible in discussing their levels of motivation to control births. The regular contraceptors practised contraception for 19 months on an average. The duration of practice by the clinic visitors is set out in Table 3.14 for various contraceptive methods. It is seen that more than half the clinic visitors had tried contraception for less than three months. This was because (a) some never turned up after one visit, or (b) they had enrolled so recently that their duration of practice could not be longer. Here the category (a) was of great significance because it contained 2694 cases out of 3207 who had a duration of less than three months. In actuality 2694 cases with only one visit could have no practice at all. But as seen in Table 3.15, 47 per cent of them were prescribed diaphragm and 29 per cent condoms.

Table 3.15 : PERCENTAGE DISTRIBUTION OF VISITORS WITH ONLY ONE VISIT TO THE CLINIC ACCORDING TO THE CONTRACEPTIVE METHOD PRESCRIBED

| <i>Contraceptive method prescribed</i> | <i>Clinic visitors with only one visit %</i> |
|--|--|
| Diaphragm and jelly | 47 |
| Jelly alone | 9 |
| Condom | 29 |
| Foam tablets | 15 |
| Safe period | — |
| Diaphragm and jelly + condom | — |
| | 100 = 2694 |

The large percentage with prescription of diaphragm needed no visit for one whole year because one diaphragm usually lasts easily for a year. Another point to be noted about diaphragms was that prescription of diaphragm needed pelvic examination. One prepared for such an examination itself showed a slightly better level of motivation towards contraceptive practice than those accepting other methods. On the other hand, perhaps, the pelvic examination itself scared the women so that they never visited the clinic again. Obviously nothing could be said in the matter on the basis of case-cards.

Thus from the above discussion regarding the information on case-cards, there seems no propriety in assessing the contraceptive practice of the clinic visitors on the basis of casecards. The regular contraceptors and irregular ones seemed alike in their socio-demographic set-up and they differed perhaps in their likes and dislikes of the prescribed contraceptive methods, or in their continuing the practice independent of the clinics. This will be verified by the findings in the follow-up of clinic visitors presented in the next chapter.

APPENDIX A₃*Efficiency of the Clinics*

In the absence of casecard-data for a vast majority of clinic visitors, an attempt was made to assess the efficiency of the clinics. The assessment was made on the basis of the estimated number of effectively motivated visitors. This was on the arbitrary assumption that all the following categories were effectively motivated to contraception by the clinics:

(a) Regular contraceptors; (b) sterilized; (c) those prescribed diaphragm and jelly and visiting the clinic at least once during the previous year; (d) those prescribed diaphragm and jelly with no visit in the previous year, but had three or more visits earlier; (e) those prescribed methods other than diaphragm with at least one visit during the previous six months; (f) those in (e) with no visit during the previous six months, but five or more visits earlier; and (g) clinic visitors from outside Poona opting for diaphragm or condoms.

Estimates of the number of motivated clinic visitors on the basis of the above assumptions are set out in Table A₃.1. Fifty-five per cent of the clinic visitors were thus effectively motivated by the clinics. The visitors that were distinctly regular contraceptors formed only 28 per cent of the total clinic visitors. Clinics 1 and 3 ranked high in motivating the people. Next came clinic 8. All others except clinic 9 ranked next as they had 50 per cent of their visitors motivated to contraceptive practice. Clinic 9 was the lowest in its performance.

Table A_{3.1} : ESTIMATES OF CLINIC VISITORS IN DIFFERENT CLINICS EFFECTIVELY MOTIVATED TO CONTRACEPTIVE PRACTICE

| <i>Clinic No.</i> | <i>Total No. of clinic visitors</i> | <i>Estimated No. * of motivated clinic visitors</i> | <i>Percentage motivated to total clinic visitors</i> |
|--------------------|-------------------------------------|---|--|
| 1 | 1039 | 761 | 73.2 |
| 2 | 802 | 390 | 48.6 |
| 3 | 645 | 431 | 66.8 |
| 4 | 990 | 535 | 54.0 |
| 5 | 547 | 282 | 51.6 |
| 6 | 648 | 335 | 51.7 |
| 7 | 97 | 49 | 50.5 |
| 8 | 273 | 159 | 58.2 |
| 9 | 876 | 321 | 36.6 |
| All clinics | 5917 | 3263 | 55.1 |

* The assumptions on which the estimation is based are given in the text.

APPENDIX B₃*Irregular Clinic Visitors*

The clinic visitors with no recorded information regarding current contraceptive practice were branded irregular. They formed 70 per cent of the total visitors. Such an important group could not be neglected in the analysis of total clinic visitors. However, in the present appendix only 30 per cent of such visitors, numbering 1247, are analyzed on the basis of reported reasons on the casecards for their non-attendance in the clinics. This could give an inkling of an idea regarding the category of irregulars, though obviously they could not represent the whole class of irregular visitors.

The reasons for their discontinuing the clinic-visits set out in Table B₃.1 reveal that the largest percentage (43 per cent) comprised pregnant women. Then followed the category of 27 per cent who gave specific instructions to clinic workers not to follow them any more. Only these two groups constituting 70 per cent are examined in the subsequent paragraphs, as a significant group of 19 per cent had reportedly changed addresses and hence were not a problem group.

Table B₃.1 : CLASSIFICATION OF CLINIC VISITORS WHO DISCONTINUED CONTACTS WITH THE CLINICS ACCORDING TO THE REASON FOR DISCONTINUATION

| <i>Reason</i> | <i>No. of women</i> | <i>Percentage</i> |
|---|---------------------|-------------------|
| Pregnancy (unplanned) | 487 | 39·0 |
| Pregnancy planned | 50 | 4·0 |
| Address changed or transferred | 234 | 18·8 |
| Dislike for contraceptives | 65 | 5·2 |
| No belief in the success of the method | 1 | 0·1 |
| Opposition from husband or from elderly persons | 38 | 3·0 |
| Complaints regarding discomfort in practice | 7 | 0·6 |
| No need (because of health or menopause) | 32 | 2·6 |
| Reason not given but clinic worker instructed not to contact them | 333 | 26·7 |
| Total | 1247 | 100·0 |

Among the two groups under discussion the group of 333 women breaking relations with the clinic worker attracted attention. The women obviously preferred to use their knowledge regarding contra-

ception without further help from the clinic. Once the information was secured, their contraceptive practice was nobody's business.

As for the pregnancy of 537 women, could it be justified after getting information regarding contraception from the clinic? This could be verified with the information on their casecards about the number of living children and sons. These are given separately in Tables B_{3.2} and B_{3.3}, for those who had planned their pregnancy and

Table B_{3.2} : NUMBER OF LIVING CHILDREN TO WOMEN WHO DISCONTINUED VISITING THE CLINIC BECAUSE OF PREGNANCY

| <i>No. of living children</i> | <i>Clinic visitors with 'pregnancy' as the reason for discontinuation</i> | <i>Clinic visitors with 'planned pregnancy' as the reason for discontinuation</i> | <i>Total</i> | |
|-------------------------------|---|---|--------------|-------------------|
| | | | <i>No.</i> | <i>Percentage</i> |
| 0 | 8 | 2 | 10 | 1.9 |
| 1 | 74 | 17 | 91 | 17.0 |
| 2 | 142 | 16 | 158 | 29.4 |
| 3 | 99 | 4 | 103 | 19.2 |
| 4 | 46 | 5 | 51 | 9.5 |
| 5 | 44 | — | 44 | 8.2 |
| 6 | 19 | 1 | 20 | 3.7 |
| 7 | 6 | — | 6 | 1.1 |
| 8 | 4 | — | 4 | 0.7 |
| 9 or more | 2 | — | 2 | 0.4 |
| Not given | 43 | 5 | 48 | 8.9 |
| Total | 487 | 50 | 537 | 100.0 |

Table B_{3.3} : NUMBER OF LIVING SONS TO WOMEN WHO DISCONTINUED VISITING THE CLINIC BECAUSE OF PREGNANCY

| <i>No. of living sons</i> | <i>Clinic visitors with 'pregnancy' as the reason for discontinuation</i> | <i>Clinic visitors with 'planned pregnancy' as the reason for discontinuation</i> | <i>Total</i> | |
|---------------------------|---|---|--------------|-------------------|
| | | | <i>No.</i> | <i>Percentage</i> |
| 0 | 75 | 18 | 93 | 17.3 |
| 1 | 182 | 20 | 202 | 37.6 |
| 2 | 115 | 5 | 120 | 22.3 |
| 3 | 44 | 1 | 45 | 8.4 |
| 4 | 15 | — | 15 | 2.8 |
| 5 | 3 | — | 3 | 0.6 |
| 6 | 3 | — | 3 | 0.6 |
| Not given | 50 | 6 | 56 | 10.4 |
| Total | 487 | 50 | 537 | 100.0 |

those who had it accidentally. Nineteen per cent having none or just one child, or 17 per cent having no son could be justified in their pregnancy. But the pregnancy of about a half of the pregnant women who had three or more children appeared improvident. Or could it be that they were inclined to sterilization which was so popular in the city? Or was it possible that the women conceived even when they were using contraceptives? This did not seem unlikely especially because 37 per cent of the pregnant women were using chemical contraceptives like jelly and foam tablets, the effectivity of which is low as noted in a study in Baltimore.¹ In Appendix C, to the next chapter it is shown that the clinic visitors used diaphragm, condom and chemical contraceptive with a success of the order of 80 per cent, 73 per cent and 48 per cent respectively in avoiding births. These results can be compared with the results in the last column

¹ The results regarding the clinical effectiveness of different contraceptive methods have been summarized by Dr. Tietze in his article 'The Clinical Effectiveness of Contraceptive Methods' of the *American Journal of Obstetrics and Gynaecology*, Vol. 78, No. 3, Sept. 1959. He has given in a tabular form the pregnancy rates among users of different methods observed in different studies. The results are not strictly comparable because of lack of uniformity in methodology. The extract of the relevant table in the paper is reproduced below. Results for India are added anew.

| <i>Method, Author(s), reference and year of publication</i> | <i>Locality</i> | <i>No. of couples</i> | <i>Average observa- tion months</i> | <i>Preg- nancy rate</i> | <i>Success in avoid- ing births per cent*</i> |
|---|-----------------|---------------------------|---|-----------------------------|---|
| <i>Cervical Cap</i> | | | | | |
| Tietze and associates (1953) | New York City | 143 | 31 | 8 | 90 |
| <i>Condom</i> | | | | | |
| Tietze and Gamble (1944) | North Carolina | 387 | 20 | 11 | 86 |
| Agarwala (1959) | Delhi (India) | 229 | 7 | 15 | 81** |
| <i>Diaphragm and Jelly</i> | | | | | |
| Dewces & Beebe (1938) | Philadelphia | 662 | 23 | 6 | 92 |
| Van Friesen (1957) | Sweden | 246 | 14 | 8 | 90 |
| Beebe & Overton (1942) | Nashville | 380 | 11 | 9 | 89 |
| Stix (1939) | Cincinnati | 1579 | 21 | 9 | 89 |
| Stix & Notestein (1940) | New York City | 867 | 10 | 9 | 89 |
| Stix (1941) | South Carolina | 709 | 12 | 13 | 84 |
| Tietze & Alleyne (1959) | Barbados | 541 | 11 | 17 | 79 |
| Beebe & Belaval (1942) | Puerto Rico | 188 | 10 | 29 | 64 |

presented in the footnote 1 describing the effectiveness of contraceptives as found in various carefully conducted studies.

Footnote contd.

| <i>Method, Author(s), reference and year of publication</i> | <i>Locality</i> | <i>No. of couples</i> | <i>Average observa- tion months</i> | <i>Pregnan- cy rate</i> | <i>Success in avoid- ing births per cent*</i> |
|---|-----------------|---------------------------|---|-----------------------------|---|
| Agarwala (1959) | Delhi (India) | 1515 | 8 | 10 | 88** |
| Chandrasekaran C. and Kuder K. (1960) | Bombay (India) | 217 | 20 | 26 | 68† |
| <i>Foam Tablets</i> | | | | | |
| Koya (1958) | Japan | 74 | 18 | 13 | 84 |
| Finkelstein (1957) | Baltimore | 120 | 12 | 49 | 39 |
| <i>Jelly (Cream, Oil) Alone</i> | | | | | |
| Finkelstein & associates (1954) | Baltimore | 291 | 15 | 11 | 86 |
| Finkelstein & associates (1952) | Baltimore | 371 | 14 | 19 | 76 |
| Seibels (1944) | South Carolina | 346 | 17 | 31 | 61 |
| Beebe (1942) | West Virginia | 1108 | 10 | 38 | 52 |
| <i>Periodic Continence (safe period)</i> | | | | | |
| Tietze & associates (1951) | Boston | 409 | 18 | 14 | 82 |
| <i>Suppositories</i> | | | | | |
| Madsen and associates (1952) | Denmark | 183 | 14 | 8 | 90 |
| Eastman & Seibels (1949) | Baltimore | 333 | 13 | 27 | 66 |

* Based on pregnancy rate of 80 per 100 years of exposure for non-contraceptor population.

** Based on the pregnancy rate of 66 per 100 years of exposure as found among women who never used the contraceptive before clinic attendance as indicated in the "Study of Delhi Clinics by Dr. S. N. Agarwala.

† Based on the pregnancy rate of 67 per 100 years' exposure as found among women who never used the contraceptive before clinic attendance as indicated in the study of Bombay clinics by C. Chandrasekara and Katherine Kuder.

CHAPTER IV

INTERVIEWED SAMPLE

THE CASECARDS, though not properly filled in as described earlier, provided a tolerable frame for the sampling of clinic visitors. The names and addresses of 5917 clinic visitors during 1961-63 with a close or remote contact with the clinics, were obtained from the casecards. A 20 per cent sample of them was selected for further scrutiny. The purpose behind the conduct of the sample survey was twofold. One was to evaluate the data available from the clinics and to supplement them with additional information not obtainable from the clinic records. The second purpose was to assess the attitudes of the clinic visitors towards the clinics and the practice of contraception. Therefore, in the subsequent paragraphs the possible classification of casecards and methods of selection of the sample are described. The entire sample could not be contacted successfully and hence the representative character of the contacted sample was tested. On ensuring that the contacted sample was fairly typical of the clinic visitors, the findings of the contacted sample are set out in the later part of the chapter.

Initially a method of selection of the sample had to be devised. All the casecards were therefore divided into three broad groups of seemingly regular visitors, irregular visitors and visitors who had

stopped visiting clinics. Persons in the last category were called 'closed' cases¹. Among the regular and irregular visitors two further sub-groups were formed. One consisted of those who belonged to the area assigned to the clinic and the other of those who did not belong to that area. Thus there were five categories into which all the clinic visitors of the period 1961-63 were divided. They included women who had started practice earlier than 1961 but had continued it during the period under survey, and also those who took to family planning only during 1961-63.

Regularity and irregularity of visiting as obtained from the case-cards were not well defined. According to the contraceptive chosen and the frequency of contact with the clinic or the presumed individual needs of the supplies of contraceptives relative to the demand, the casecards were rather arbitrarily grouped into the two categories of regular and irregular visitors. When the interval between the last contact with the clinic and the closure of the period of survey was short, the visitors were classified as regular even if they had only one visit to the clinic. Similarly, the cases regarded as closed did not represent a uniform category of women, since in closing a casecard the rules followed by the clinics were not uniform. This category included women that stopped coming to the clinic because of a variety of reasons like pregnancy, sterilization, dislike of contraception, etc. Very often a number of cases were left unclosed simply because no follow-up had been established with the women by the clinic workers. This perhaps swelled the category of irregular visitors who were indifferent towards the clinic or the family-planning practice. A systematic sample was chosen by arranging the casecards in each of the five groups chronologically and selecting every fifth of them. This was done separately for each of the clinics. Thus even though the recording system differed from one clinic to the other, a 20 per cent sample selected from the various categories was expected to yield a fairly representative sample of the clinics. It also ensured a geographic representation of the clinic visitors, because the clinics were spread over the various wards of the city. In Table 4.1 the total number of clinic visitors divided into the above five categories as well as the corresponding number selected for interview are set out for each of the clinics. In all 1191 women were selected for

¹ Closed cases generally included women who for various reasons were not to be contacted for promotion of family planning by the workers in the clinic.

Table 4.1 : (i) TOTAL NUMBER OF CLINIC VISITORS AND (ii) THE NUMBER SELECTED FOR THE 20 PER CENT SAMPLE SURVEY FROM DIFFERENT CATEGORIES OF CLINIC VISITORS

| Clinic No. | Category of clinic visitors | | | | | | | | | | Total number of clinic visitors | |
|--------------|---|------------|--|------------|---|------------|--|------------|--------------|------------|---------------------------------|-------------|
| | Regular visitors living within the area of the clinic | | Regular visitors living outside the area of the clinic | | Irregular visitors living within the area of the clinic | | Irregular visitors living outside the area of the clinic | | Closed cases | | | |
| | (i) | (ii) | (i) | (ii) | (i) | (ii) | (i) | (ii) | (i) | (ii) | (i) | (ii) |
| 1 | 259 | 53 | 274 | 55 | 144 | 28 | 308 | 59 | 54 | 11 | 1039 | 206 |
| 2 | 154 | 32 | 128 | 26 | 108 | 23 | 163 | 35 | 249 | 50 | 802 | 166 |
| 3 | 94 | 19 | 151 | 29 | 59 | 12 | 182 | 36 | 159 | 33 | 645 | 129 |
| 4 | 120 | 27 | 268 | 56 | 73 | 14 | 247 | 50 | 282 | 52 | 990 | 199 |
| 5 | 113 | 23 | 100 | 21 | 51 | 10 | 57 | 13 | 226 | 45 | 547 | 112 |
| 6 | 48 | 10 | 143 | 28 | 70 | 14 | 339 | 69 | 48 | 9 | 648 | 130 |
| 7 | 36 | 7 | 5 | 1 | 24 | 5 | 11 | 2 | 21 | 4 | 97 | 19 |
| 8 | 81 | 16 | 39 | 8 | 65 | 13 | 65 | 13 | 23 | 5 | 273 | 55 |
| 9 | 34 | 5 | 151 | 30 | 54 | 11 | 228 | 47 | 409 | 82 | 876 | 175 |
| Total | 939 | 192 | 1259 | 254 | 648 | 130 | 1600 | 324 | 1471 | 291 | 5917 | 1191 |

The number selected in the sample deviates a little from being exact 20 per cent of the total casecards. This resulted from the fact that a small number of casecards not available at the beginning was added later.

interview. A questionnaire was framed for canvassing among these women to elicit information regarding their past and present interest in family planning and their attitude towards clinic services. The *pro forma* of the questionnaire is given in the Appendix A₄ to this chapter.

The main interest in the investigation was to know the extent of serviceability of the clinics to suit the needs of the people of Poona city. Were the clinics helpful to women? Did they cater to individual needs and tastes in advising contraceptives? Why did a clinic visitor stop visiting the clinics? What role could the clinics play in promotion of family planning? These and similar questions were to be answered with the help of interviews with women in the sample of clinic visitors.

Of the total 1191 clinic visitors selected for interview, only 598 could be contacted. In Table 4.2 the total number of clinic visitors, the number selected for interview and the number of cases actually contacted are given for the regular and irregular visitors. The last column of the table gives the percentage of cases that could not be contacted for interview. As for the regular visitors, a little more than one-fourth could not be contacted; but for the remaining groups about a half or so could not be interviewed. This was likely to disturb the representative character of the interviewed women. The reasons for 'no contact' given in Table 4.3 show that 35 per cent of cases could not be traced at the given address. Additional 17 per cent had come from outside Poona² and an equal percentage had moved out of it and hence could not be contacted. Nine per cent cases were found to have changed their place of residence in Poona at the time of investigation. In the case of 19 per cent the address was not properly noted on the casecards. Thus in all, for about two-thirds of the non-contacted visitors the failure to contact them was for obvious reasons. But the remaining one-third (i.e. 206 cases in Table 4.3) seemed to be the problem cases because the reasons for their non-contact could not be ascertained. In such cases addresses had been either wrongly reported by the clinic visitor or carelessly recorded by the social worker responsible for maintaining records. There was no way of

² Those coming from outside were in the city only for a short period and hence they could not be contacted. Such persons could always be expected in a city like Poona.

collecting any information for these 206 cases³ and they formed about 17 per cent of the total selected cases. Leaving out the non-contacted, one wondered whether the contacted clinic visitors could represent the population visiting the clinics. Their representative status was therefore ascertained in terms of various socio-economic characteristics. The relevant data are given in Appendix B₁ to this chapter. Therein the contacted cases are compared with 1088 and not the 1191 selected which included 103 outsiders. This had to be done as there was no possibility of contacting the outsiders. The results depict that the contacted women were not easily distinguishable from the clinic visitors in general. As for the individual clinics the contacted cases were about half of the total selected in each except clinic 7 which was on the outskirts of the city. The investigator could not easily contact its scattered clientele. Hence out of 19 selected cases from that clinic only five could be contacted. Generally, however, this did not seriously affect the representative character of the interviewed sample, because this clinic played an insignificant role in the totality of clinics.

Table 4.2 : TOTAL CLINIC VISITORS, SELECTED NUMBER IN THE SAMPLE AND THE CASES THAT COULD BE CONTACTED IN DIFFERENT CATEGORIES OF CLINIC VISITORS

| <i>The category of clinic visitor</i> | <i>Total clinic visitors</i> | <i>Clinic visitors in the selected sample</i> | <i>Clinic visitors in the contacted sample</i> | <i>Percentage of clinic visitors who could not be contacted</i> |
|--|------------------------------|---|--|---|
| Regular visitors living within the area of the clinic | 939 | 192 | 140 | 27.1 |
| Regular visitors living outside the area of the clinic | 1259 | 254 | 131 | 48.4 |
| Irregular visitors living within the area of the clinic | 648 | 130 | 74 | 43.1 |
| Irregular visitors living outside the area of the clinic | 1600 | 324 | 113 | 65.1 |
| Closed cases | 1471 | 291 | 140 | 51.9 |
| Total | 5917 | 1191 | 598 | 49.8 |

³ A closer scrutiny of the level of education or the number of living children of such cases showed that they represented the general population of clinic visitors. There seemed no predominance of the illiterate or gross under-representation of any category of the clinic visitors. They probably included some who did not report their addresses properly either through ignorance or to avoid their identification. One could rarely guess their level of motivation towards contraception.

Table 4.3 : CLINIC VISITORS SELECTED IN THE SAMPLE BUT NOT CONTACTED, CLASSIFIED ACCORDING TO THE REASONS FOR 'NO CONTACT'

| <i>Reason for 'no contact'</i> | <i>No. of clinic visitors</i> | <i>Percentage of clinic visitors</i> |
|--|-------------------------------|--------------------------------------|
| Living outside Poona (even at the time of enrolment in the clinic) | 103 | 17.4 |
| Transfer outside Poona | 104 | 17.5 |
| Change of address (in Poona) | 54 | 9.1 |
| Reported address not adequate and hence the house could not be located | 112 | 18.9 |
| Clinic visitor not found on the given address | 206 | 34.7 |
| Clinic visitor temporarily out of station | 11 | 1.9 |
| Widowhood | 3 | 0.5 |
| Total | 593 | 100.0 |

Having satisfied ourselves with the representative character of the sample, the collected information for 598 women was analyzed and is described in the following paragraphs.

One objective in conducting the sample survey was to compare the data collected from the interviews with those from the casecards. Information available from the casecards often agreed with that obtained from the interviews. It was only with regard to still-births and abortions that the clinic records lacked adequate reporting⁴.

The results based on interviews could thus be broadly taken to represent those for clinic visitors. This had great utility especially in examining cases that had no recent contact with the clinics. If they were presumed to be indifferent to contraception, one was curious to know the reasons for their indifference or their reactions to the clinic services. It was therefore very fortunate to be able to contact such women who formed 59 per cent of the total contacted. In fact this category formed 70 per cent of all the clinic visitors.

⁴ The still-birth and abortion rates as based on the casecards were respectively 4 and 12 per 1000 pregnancies. The total number of pregnancies in the casecards was 16212. The interviews of the sample indicated a still-birth rate of 14 and an abortion rate of 72 per 1000 pregnancies. Interviewed women seemed to be uninhibited in reporting the induced abortions too. The rate of abortions in the interviewed women, though higher than that in the casecards, fell far below the estimated level of abortions in the Report of the Abortion Committee under the Chairmanship of Mr. Shantilal Shah (1966). There, the abortion rate is estimated at 25 abortions per 73 live-births.

The details regarding the attitudes of contacted women could throw a good deal of light on the possible role of clinics, as seen below.

The attitudes of the clinic visitors towards the clinic services and contraception could be traced through a course defined by the following three stages : (a) visit to the clinic, (b) the acceptance of the prescribed contraceptive, and (c) the actual adoption and practice of the contraceptive. Tracing the clinic visitors through these stages was possible with the information obtained from the interviews. The methods of attracting clientele to the clinics seem to be important when discussing their acceptance of contraception. Data in Table 4.4 show the ways in which women were brought to the clinic.

Table 4.4 : SOURCE OF INITIAL INFORMATION REGARDING FAMILY PLANNING AS REPORTED BY INTERVIEWED CLINIC VISITORS

| <i>Source of information</i> | <i>Interviewed women</i> | <i>Percentage</i> |
|--|--------------------------|-------------------|
| Self (published materials, books, etc.) | 66 | 11.0 |
| Friends | 130 | 21.7 |
| Relatives | 35 | 5.9 |
| Family doctor | 23 | 3.8 |
| Social worker of the clinic | | |
| (i) at the respondent's house | 158 | 26.4 |
| (ii) in the maternity hospital to which the clinic is attached | 55 | 9.2 |
| (iii) in the dispensary to which the clinic is attached | | |
| (a) for health trouble of the woman herself | 40 | 6.7 |
| (b) for health trouble of some member of the family | 28 | 4.7 |
| (iv) contacted in group-meetings | 22 | 3.7 |
| (v) seeing the signboard of the clinic | 31 | 5.2 |
| Source not available | 10 | 1.7 |
| Total | 598 | 100.0 |

The number of women visiting the clinics on their own was not very negligible. Eleven per cent had obtained information from printed material before they approached the clinic for more information and perhaps for contraceptive supplies. An additional four per cent gathered information regarding family planning and the clinic from their family physician. The vast bulk, 51 per cent, was, however,

drawn to the clinics through the efforts of the clinic workers. As can be seen from Table 4.4, the 51 per cent visitors attracted by the clinic workers and the five per cent by the signboard of the clinic are the direct result of the clinic and its services. Twenty-eight per cent brought by the friends and relatives could also be partly due to the advertisement perhaps created by the services of the clinic.

This analysis brings out the important role the clinic services play in disseminating information regarding family planning. So long as medical treatment from a private practitioner or family physician is not common, the role of family physician in promoting family planning is bound to be unimportant. The five per cent customers visiting the clinic after seeing the signboard speak for the necessity of having more signboards or of more advertisement of the clinics to promote family planning.

Among the total of 51 per cent women contacted through clinic agencies about a half were contacted by the social worker in the homes of the people. This suggests another approach to the promotion of family planning through domiciliary services. It is worth while examining how far the contacts of the social worker in the homes of people proved effective in this promotion. Of the 158 women thus contacted 26 took to sterilization, 17 were certainly going in for sterilization in future, and 87 were trying contraceptive methods either supplied through the clinic or obtained from other sources; only 28 seemed to be totally indifferent⁵ to the services as they had dropped the practice completely at the time of interview. Now, the very fact that all these women did not actively seek information and help on family planning and waited passively till the contact by clinic workers at their homes obviously indicated their low motivation for family planning. Against this background, the striking thing is that the really indifferent ones turned out to be only 18 per cent of the total contacted by the clinic workers in their homes. Of course, the apparent passivity of this group may at least partly be due to their desire to get sterilized at some stage. This is suggested by the fact that those going in for sterilization were the highest in proportion in this group compared to any other.

⁵ The categorization of women as users, sterilized, dropped, etc. from here onwards is based on the information gathered in interviews in 1965 and not on the recorded information on casecards. The dropped cases thus constitute those who had stopped the practice completely without any alternative at the time of enquiry, though capable of reproduction.

Women with sources of information other than the visit of the social workers to their homes also showed similar performance with regard to use of contraceptives as shown in Table 4.5. The information regarding the current practice of contraception obtained from the interviews was related to the source of information and is revealed in Table 4.5. Out of the 123 women (55+40+28 of the table) contacted by the social worker either in the maternity hospital or in the dispensary located near the clinic, only 18 were indifferent to the practice while a majority of others accepted either sterilization or other method of contraception. From 22 women who obtained the relevant information in group meetings 20 took to contraception. Thus generally out of the total of 598 interviewed women, 413 (i.e. 69 per cent) were regular contraceptors besides the 10 per cent or more women who resorted to sterilization. The drop-outs were only 64 (i.e. about 11 per cent) and the irregulars only about two per cent. Not surprisingly, the percentage of drop-outs among those contacted by the clinic workers in the homes was the highest. But the real point of interest is that even in this case their percentage was as small as 18.

The above findings have important implications. As noted before, the contact with the populace for drawing clientele to the clinics was possible through three kinds of sources. One was the hospital or dispensary in the premises of which the clinic was located. The second was the group meetings and similar gatherings arranged by the social worker, and the third was home visiting. The direct and indirect strength of these sources in popularizing family planning can be ascertained from Table 4.5. The importance of domiciliary services in the promotion of family planning is obvious. One can also see the advantages of tapping the other two sources mentioned above because of their great convenience in handling. Persons coming to the medical institutions like dispensaries and maternity homes do not always have the peace of mind necessary for family-planning advice as found with the women in their homes. In spite of this, medical institutions can perhaps directly or indirectly bring the women round to acceptance of family-planning advice as observed in the table.

As discussed above, the overwhelmingly large proportion of interviewed women seemed actively interested in family planning. But it

Table 4.5 : CLASSIFICATION OF THE INTERVIEWED CLINIC VISITORS ACCORDING TO THE SOURCE OF INFORMATION REGARDING FAMILY PLANNING AND THEIR PRACTICE OF CONTRACEPTION

| <i>Source of information</i> | <i>Practice of contraception</i> | | | | | | | | | | | | <i>Total</i> | |
|--|-------------------------------------|--------------|-------------------|--------------|------------------------------|--------------|------------------|--------------|------------------|--------------|----------------|--------------|--------------|--------------|
| | <i>Non-sterilized contraceptors</i> | | <i>Sterilized</i> | | <i>Willing for operation</i> | | <i>Irregular</i> | | <i>Menopause</i> | | <i>Dropped</i> | | <i>No.</i> | <i>%</i> |
| | <i>No.</i> | <i>%</i> | <i>No.</i> | <i>%</i> | <i>No.</i> | <i>%</i> | <i>No.</i> | <i>%</i> | <i>No.</i> | <i>%</i> | <i>No.</i> | <i>%</i> | | |
| Self (published material, books, etc.) | 53 | 12.8 | 6 | 9.7 | 5 | 12.2 | 1 | 9.1 | 1 | 25.0 | — | — | 66 | 11.0 |
| Friends | 97 | 23.6 | 11 | 17.7 | 8 | 19.5 | 2 | 18.2 | 2 | 50.0 | 10 | 15.6 | 130 | 21.7 |
| Relatives | 28 | 6.8 | 2 | 3.2 | — | — | 1 | 9.1 | — | — | 4 | 6.3 | 35 | 5.9 |
| Family doctor | 20 | 4.8 | — | — | 1 | 2.4 | — | — | — | — | 2 | 3.1 | 23 | 3.8 |
| Social worker of the clinic | | | | | | | | | | | | | | |
| (i) at the respondent's house | 84 | 20.3 | 26 | 42.0 | 17 | 41.6 | 3 | 27.2 | — | — | 28 | 43.8 | 158 | 26.4 |
| (ii) in the maternity hospital to which the clinic is attached | 33 | 8.0 | 6 | 9.7 | 5 | 12.2 | 2 | 18.2 | 1 | 25.0 | 8 | 12.5 | 55 | 9.2 |
| (iii) in the dispensary to which the clinic is attached | | | | | | | | | | | | | | |
| (a) for health trouble of the woman herself | 24 | 5.8 | 6 | 9.7 | 1 | 2.4 | 1 | 9.1 | — | — | 8 | 12.5 | 40 | 6.7 |
| (b) for some health trouble of some member of the family | 20 | 4.8 | 3 | 4.8 | 2 | 4.9 | 1 | 9.1 | — | — | 2 | 3.1 | 28 | 4.7 |
| (iv) contacted in group meeting | 18 | 4.4 | 1 | 1.6 | 1 | 2.4 | — | — | — | — | 2 | 3.1 | 22 | 3.7 |
| (v) signboard of the clinic | 29 | 7.0 | 1 | 1.6 | 1 | 2.4 | — | — | — | — | — | — | 31 | 5.2 |
| Source not available | 7 | 1.7 | — | — | — | — | — | — | — | — | — | — | 7+3* | 1.7 |
| Total | 413 | 100.0 | 62 | 100.0 | 41 | 100.0 | 11 | 100.0 | 4 | 100.0 | 64 | 100.0 | 598 | 100.0 |

* Cases of non-response

INTERVIEWED SAMPLE

is equally interesting to note that 353 of the 598 interviewed women, i.e. nearly 60 per cent of the total, had discontinued visiting the clinics. This proportion was even higher in the case of all those for whom casecards existed in the clinics (see Table 3.9). The questions therefore arise: Why did women still actively interested in contraception stop visiting the clinics? Did they dislike the prescribed method? Or did they want no assistance from the clinics any more? Or had they decided to get sterilized to avoid the bother of appliance methods? The casecards contained no information about the reasons for discontinuance of most clinic visitors. Such an analysis for the 353 women who had discontinued clinic visiting would be highly useful in revealing the reasons therefor. This is presented in the following paragraphs.

The family-planning practice of the 353 women who had discontinued visiting the clinic, as found at the time of interview, is shown in Table 4.6. As would be obvious most of them had continued to practise one form or other of contraception. Sixty per cent of them had resorted to regular use of contraceptive methods and additional 13 per cent had resorted to sterilization. Still another seven per cent were planning to get sterilized. It was only 16 per cent of the 353 women (i.e. about 10 per cent of the total interviewed) who had given up contraception completely.

A comparison of the contraception practice of 353 women with the contraceptives prescribed to them is set out in Table 4.7.

Forty-five per cent of those discontinuing clinic attendance had stuck to the prescribed contraceptive even after a stop to clinic visiting. It may mean that they visited the clinic just to get information on family planning and once it was obtained they did not need the services of the clinic. The remaining 55 per cent changed from the prescribed to some other convenient method or dropped the practice. Five per cent shifted to non-appliance methods including safe period and coitus interruptus. About 12 per cent shifted from the prescribed appliance method to other appliances and 12 per cent shifted from the prescribed appliance method to sterilization. Thus 29 per cent practised methods other than the prescribed ones. The remaining 26 per cent had left the prescribed method and contraceptive practice altogether. But seven per cent of them had planned sterilization. Proportionately larger percentage among these had been prescribed

Table 4.6 : CLASSIFICATION OF THE INTERVIEWED CLINIC VISITORS DISCONTINUING CLINIC VISITS ACCORDING TO THEIR PRACTICE OF CONTRACEPTION AT THE TIME OF SURVEY

| <i>Practice of contraception at the time of survey</i> | <i>Clinic visitors who paid only one visit to the clinic</i> | <i>Clinic visitors who did not visit the clinic for more than six months</i> | <i>Cases closed by the clinic</i> | <i>Total</i> | <i>Percentage distribution of Col. 5</i> |
|--|--|--|-----------------------------------|--------------|--|
| 1 | 2 | 3 | 4 | 5 | 6 |
| Regular contraceptors (excluding sterilized) | 81 | 84 | 48 | 213 | 60.4 |
| Sterilized : | | | | | |
| Vasectomy | 3 | 6 | 5 | 14 | 4.0 |
| Tubectomy | 10 | 9 | 11 | 30 | 8.5 |
| Irregular contraceptors | 3 | 1 | 3 | 7 | 2.0 |
| Willing to get sterilized | 11 | 5 | 10 | 26 | 7.4 |
| Dropped cases | 23 | 4 | 30 | 57 | 16.1 |
| No need (attained menopause) | 1 | 1 | 1 | 3 | 0.8 |
| Not given | 2 | — | 1 | 3 | 0.8 |
| Total | 134 | 110 | 109 | 353 | 100.0 |

Table 4.7 : CLASSIFICATION OF THE INTERVIEWED CLINIC VISITORS DISCONTINUING CLINIC VISITS ACCORDING TO THE CONTRACEPTIVE METHOD PRESCRIBED AT THE CLINIC AND THAT PRACTICSED AT THE TIME OF ENQUIRY

| <i>Contraceptive method practised at the time of enquiry</i> | <i>Contraceptive method prescribed at the clinic</i> | | | | | <i>Total</i> |
|--|--|---------------|--------------------|---------------------|--------------------|--------------|
| | <i>Diaphragm and jelly</i> | <i>Condom</i> | <i>Jelly alone</i> | <i>Foam tablets</i> | <i>Safe period</i> | |
| Diaphragm and jelly | 90 | 5 | 2 | 1 | — | 98 |
| Condom | 23 | 56 | 2 | 5 | — | 86 |
| Jelly alone | — | 1 | 9 | 2 | — | 12 |
| Foam tablets | 1 | — | 1 | 4 | — | 6 |
| Safe period | 6 | 4 | — | 3 | 1 | 14 |
| Coitus interruptus | 2 | 2 | — | — | — | 4 |
| Vasectomy | 7 | 5 | 1 | 1 | — | 14 |
| Tubectomy | 12 | 9 | 3 | 6 | — | 30 |
| Planned sterilization | 10 | 3 | 1 | 12 | — | 26 |
| No need, menopause | — | 3 | — | — | — | 3 |
| No family-planning practice | 18 | 21 | 4 | 14 | — | 57 |
| Not given | 1 | 1 | 1 | — | — | 3 |
| Total | 170 | 110 | 24 | 48 | 1 | 353 |

chemical contraceptives. The chemical contraceptives seemed to be occasionally thrust on the non-motivated contraceptors.⁶ Diaphragms could not perhaps be easily thrust, and hence larger percentage of genuine drop-outs was observed among those prescribed contraceptives other than diaphragm.

A detailed examination of the various family-planning methods practised by all the women interviewed would be of interest. It was noticed earlier that, of these, 80 per cent had been practising contraception including sterilization. Beside the 10 per cent sterilized, seven per cent were genuinely planning sterilization, making a total of 17 per cent opting for this method. It is worth while noting that of these nearly two-thirds were inclined to tubectomy, 37 per cent having already done so and 31 per cent planning to do so. The remaining one-third included 23 per cent who had actually resorted to vasectomy and two per cent who had planned a vasectomy in their case. About seven per cent cases had not yet decided who was to be operated upon. Obviously sterilization and especially tubectomy attracted contraceptors to an important extent.

Of the 413 practising appliance and non-appliance methods (see Table 4.8), 217 (i.e. 53 per cent) had practised contraception without any break due to pregnancy. One hundred and fifteen (i.e. 28 per cent) had a break due to pregnancy perhaps accidentally, while additional 53 cases had taken a purposeful break in the contraceptive practice to resort to it again after a delivery. It is worth while noting the number of children and sons to women who had a break in contraception due to pregnancy and to other categories motivated to contraceptive action. This might help to find out whether the break in contraceptive practice had any psychological explanation. The relevant data are presented in Table 4.9. Among the sterilized, almost all had three or more children among whom there were at least two sons in 90 per cent cases. Of those willing to get sterilized about two-thirds had two or more sons. The women in two groups of regular contraceptors (excluding the sterilized) with and without break due to pregnancy had two or more sons in 48 and 43 per cent cases respectively. Generally two sons seemed an absolute necessity and once having them, contraceptive practice was zealously adhered

⁶ This refers to certain methods adopted of course occasionally by the clinic workers at the end of group meeting when appliances especially like foam tablets were distributed among women attending the meeting.

Table 4.8 : DISTRIBUTION OF INTERVIEWED CLINIC VISITORS ACCORDING TO THEIR PRACTICE OF CONTRACEPTION AT THE TIME OF ENQUIRY

| <i>Practice of contraception</i> | <i>Clinic number</i> | | | | | | | | | <i>Total</i> | <i>Percent- age</i> |
|---|----------------------|----|----|-----|----|----|---|----|----|--------------|-------------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| Regular contraceptors | 80 | 47 | 46 | 88 | 44 | 43 | 2 | 24 | 39 | 413 | 69.1 |
| (i) Without break due to pregnancy | 40 | 24 | 26 | 46 | 30 | 19 | 2 | 17 | 13 | 217 | 36.3 |
| (ii) With some break due to pregnancies | 21 | 13 | 14 | 27 | 9 | 15 | — | 4 | 12 | 115 | 19.2 |
| (iii) Using against the wishes of husband | — | 1 | — | 2 | — | — | — | — | — | 3 | 0.5 |
| (iv) Use of contraceptive and safe period | 3 | — | 2 | — | 1 | — | — | — | 2 | 8 | 1.3 |
| (v) Use of non-appliance method only (Safe period or coitus interruptus) | 4 | 6 | 1 | 1 | — | 3 | — | — | 2 | 17 | 2.9 |
| (vi) Temporarily stopped, will use again | 12 | 3 | 3 | 12 | 4 | 6 | — | 3 | 10 | 53 | 8.9 |
| Sterilized cases | 6 | 18 | 6 | 12 | 7 | 4 | — | 2 | 7 | 62 | 10.4 |
| (i) Vasectomy | 3 | 10 | — | 6 | 2 | 3 | — | — | — | 24 | 4.0 |
| (ii) Tubectomy | 3 | 8 | 6 | 6 | 5 | 1 | — | 2 | 7 | 38 | 6.4 |
| Irregular contraceptors | 2 | 2 | 2 | 2 | — | 1 | — | — | 2 | 11 | 1.8 |
| Willing to get operated | 10 | 14 | 1 | 3 | 3 | 3 | 2 | 2 | 3 | 41 | 6.8 |
| No need (wife attained menopause) | — | — | — | 2 | — | — | — | — | 1 | 4 | 0.7 |
| Dropped cases | 6 | 16 | 4 | 10 | 3 | 5 | 1 | 5 | 14 | 64 | 10.7 |
| No information | — | — | — | — | — | 1 | — | — | 2 | 3 | 0.5 |
| Total | 104 | 98 | 59 | 117 | 57 | 57 | 5 | 33 | 68 | 598 | 100.0 |

INTERVIEWED SAMPLE

Table 4.9 : DISTRIBUTION OF CONTRACEPTORS AND NON-CONTRACEPTORS AMONG THE INTERVIEWED ON THE BASIS OF LIVING CHILDREN AND THE NUMBER OF LIVING SONS TO THEM AT THE TIME OF ENQUIRY

| <i>Interviewed clinic visitors</i> | <i>No. of living children</i> | | | | <i>Total</i> | <i>No. of living sons</i> | | | | <i>Total</i> |
|---|-------------------------------|-----------|------------|------------------|--------------|---------------------------|------------|------------|------------------|--------------|
| | <i>0</i> | <i>1</i> | <i>2</i> | <i>3 or more</i> | | <i>0</i> | <i>1</i> | <i>2</i> | <i>3 or more</i> | |
| Regular contraceptors (excluding sterilized) with some break in practice due to pregnancy | — | 23 | 66 | 79 | 168 | 29 | 58 | 56 | 25 | 168 |
| Regular contraceptors (excluding sterilized) with no break in practice | 1 | 39 | 57 | 120 | 217 | 39 | 85 | 49 | 44 | 217 |
| Other regular contraceptors (excluding sterilized) | — | 7 | 5 | 16 | 28 | 4 | 18 | 4 | 2 | 28 |
| Sterilized | — | — | 3 | 59 | 62 | — | 6 | 26 | 30 | 62 |
| Willing to get sterilized | — | 1 | 7 | 33 | 41 | 1 | 14 | 13 | 13 | 41 |
| Irregular contraceptors | — | 2 | 3 | 6 | 11 | 3 | 3 | 3 | 2 | 11 |
| No need as wife attained menopause | — | — | — | 4 | 4 | — | 1 | 1 | 2 | 4 |
| Dropped the practice of contraceptives | — | 9 | 12 | 43 | 64 | 3 | 23 | 25 | 13 | 64 |
| Not given | — | — | — | 3 | 3 | — | — | — | 3 | 3 |
| Total | 1 | 81 | 153 | 363 | 598 | 79 | 208 | 177 | 134 | 598 |

to. This provides an evidence for concentrating promotional efforts in the initial days on such amenable categories as having two or more sons.

As for individual clinics and the differences in them, the information in Table 4.8 demonstrates their efficiency as well as their emphasis on a specific method of birth control. Clinics 2 and 9 have markedly high percentages of dropped cases. Clinic 2 was found to have a comparatively larger percentage of sterilized or willing to get sterilized. This is the clinic that spread its net over any unspecified area to get larger numbers in its fold. Its work seemed to be more on the lines of what are known as 'depot-holders'⁷. As for promotion of appliance methods this clinic comparatively failed. It seemed to work with little efficiency so far as the administration of a programme in a given area was concerned. By just adopting the 'depot-holder' technique, the clinic seemed to be successful in collecting cases of sterilization among acquaintances. Clinic 9 was also found to be inefficient in promoting family planning. It was attached to one of the biggest hospitals of the city, namely, Sassoon Hospital. This offered perhaps a better setting to draw clients to the clinic. But as was found from the interviews with the clinic workers, the performance of the clinic often depended on the personalities in charge of the family-planning work. In clinic 9 the person in charge of the clinic reportedly evaded her field work, but there was no check or supervision in this matter. This pointed to a great need for some routine and mechanical techniques of promoting family planning or conducting field work in the clinic so that the important role of personalities could be reduced in its performance.

A close examination of the socio-economic status of the interviewed women (598) by their contraceptive practice was attempted with a view to noting their preferences for various contraceptives. The data were analyzed by caste, occupation, education of the contraceptors and their husbands. The usual finding of appliance methods being more popular with the better educated, or with persons from higher castes and higher status occupations seemed common in the present study. The details are not given here because of the possible repetitious presentation needed for demonstrating the facts. Only

⁷ Depot-holders are supposed to keep a stock of contraceptives and supply them to any of their acquaintances for use. Or they may act, as promoters of sterilization among their acquaintances.

relevant data regarding the number of children born and living, and of sons to the sterilized as distinct from others are shown in Table 4.10 for comparison. The demographic characteristics of those practising contraception observed in the table seemed to agree with the results amply illustrated elsewhere.

Table 4.10 : AVERAGE NUMBER OF CHILDREN BORN AND CHILDREN LIVING, AND THE AVERAGE NUMBER OF SONS LIVING TO THE VARIOUS CATEGORIES* OF CONTRACEPTORS

| <i>Category of contraceptors</i> | <i>No. of couples</i> | <i>Average No. of children born</i> | <i>Average No. of children living</i> | <i>Average No. of sons living</i> |
|---|---------------------------|---|---|---|
| Regular contraceptors (excluding sterilized) | 413 | 3.2 | 2.8 | 1.5 |
| Sterilized | 62 | 5.3 | 4.6 | 2.7 |
| Willing to get sterilized | 41 | 4.6 | 3.7 | 1.9 |
| Dropped the use of contraceptives | 64 | 3.9 | 3.4 | 1.8 |
| Total | 580* | 3.6 | 3.1 | 1.7 |

* In this table only four categories which are to be compared among themselves are included. The remaining 18 cases out of the total 598 interviewed visitors include 11 cases of irregular contraceptors, four cases of menopause and three cases of non-response.

Interviewed women shifted from one contraceptive method to another or to sterilization if they found the contraceptive method inconvenient. Details regarding the shifts of contraceptors from one contraceptive to another are presented in Table 4.11. Of 598 interviewed clinic visitors, 282 used diaphragm and jelly at least some time, 38 only jelly, 292 condoms, 105 foam tablets and 31 non-appliance methods some time of their contraceptive life. Sixty-six women out of 282 who had used diaphragm and jelly shifted away from it later. On the other hand, out of 292 couples who had used condom some time, only 36 (i.e. 12 per cent) shifted away from its use. Worst were the foam tablets; their users shifted away in about 46 per cent cases.

Prescribed contraceptives and the contraceptives practised by 598 interviewed women are set out in Table 4.12. The popularity or unpopularity of prescribed contraceptives is brought out vividly by the table. Out of 254 women who were prescribed diaphragm and jelly,

Table 4.11 : INTERVIEWED CLINIC VISITORS CLASSIFIED BY CONTRACEPTIVE METHOD EVER USED IN THE OBSERVED PERIOD AND THE CHANGE IN THE CONTRACEPTIVES USED*

| <i>Contraceptive method</i> | <i>No. of women who used this method some-time</i> | <i>No. of women who used only this method</i> | <i>No. of women who shifted to this method</i> | <i>No. of women who shifted from this to other method or to sterilization</i> | <i>No. of women who used this method some-time between two other methods or a method and sterilization</i> |
|-----------------------------|--|---|--|---|--|
| Diaphragm and jelly | 282 | 191 | 18 | 66 | 7 |
| Jelly alone | 38 | 18 | 6 | 10 | 4 |
| Condom | 292 | 191 | 59 | 36 | 6 |
| Foam tablets | 105 | 52 | 1 | 48 | 4 |
| Non-appliance methods | 31 | 12 | 17 | 2 | — |

*Totals of the columns will not be equal to 598 or any identifiable number, because a woman is included here in one or more than one class according to the number of contraceptives used by her.

Table 4.12 : INTERVIEWED CLINIC VISITORS ACCORDING TO THE CONTRACEPTIVE METHOD PRESCRIBED TO THEM AND THE METHOD PRACTISED BY THEM AT THE TIME OF INTERVIEW

| <i>Method practised</i> | <i>Method prescribed</i> | | | <i>Total interviewed clinic visitors</i> |
|-----------------------------|----------------------------|---------------|---|--|
| | <i>Diaphragm and jelly</i> | <i>Condom</i> | <i>Jelly and foam tablets (chemical contraceptives)</i> | |
| Diaphragm and jelly | 161 | 9 | 4 | 174 |
| Jelly, foam tablets | 1 | 2 | 30 | 33 |
| Condom | 28 | 156 | 14 | 198 |
| Mental control | 9 | 6 | 3+1* | 19 |
| Vasectomy | 7 | 11 | 6 | 24 |
| Tubectomy | 15 | 12 | 11 | 38 |
| Planned sterilization | 12 | 13 | 16 | 41 |
| No family-planning practice | 21 | 28 | 22 | 71 |
| Total | 254 | 237 | 106 | 598 |

* One case was prescribed mental control.

only 161 (i.e. 63 per cent) adhered to diaphragm and jelly, while 28 shifted to condom, 34 to sterilization, nine to mental control and 21 to non-contraception. It is this last group of 21 which is likely to spread dislike against the contraceptive without positive attitudes towards any other method. Out of 237 who were prescribed condom, 156 (i.e. 66 per cent) continued to use condom even later. This meant that the drop-out rate among the acceptors of condom and diaphragm and jelly was about 35 per cent. But the unpopularity of diaphragm and jelly or foam tablets provided a significant number (i.e. 28+14) of transfers to condom. However, ultimately, both the appliance methods, namely, condom and diaphragm, had more than one-third partly dissatisfied clients and the shift to sterilization was quite considerable. This speaks for the healthy and experimental attitude of the users towards various contraceptive methods. In fact a sizable proportion tried comparatively difficult methods like diaphragm and jelly and condom initially, and failing to be satisfied with them shifted to other contraceptives. About nine per cent of the total

interviewed women specifically expressed their satisfaction with the appliance methods they were practising, and they emphasized this fact. Among 598 interviewed clinic visitors, 279 reportedly had some complaint as regards the contraceptive they tried. That is why they shifted from the prescribed contraceptive. Such findings obviously indicate the need of other more acceptable contraceptives. But with high motivation towards small family, people did put up with inconvenient methods in the area presently under observation.

There were hardly any serious complaints regarding the clinics and their working among the interviewed. It was mostly the wives that were bringing contraceptives from the clinics. The percentage of husbands visiting the clinic for supplies was about 10. In nine per cent cases the contraceptives were brought from the chemist and that was mostly by husbands. The distance from the clinic also did not present much difficulty. Forty-eight per cent were within a distance of one-fourth mile, and an additional 15 per cent were within a distance of one-fourth to one-half mile as reported in the interviews. The proximity of the clinic no doubt had its impact in attracting the clientele to the clinic. Even for the other interviewed clinic visitors, the distance of the clinic or the source of contraceptive supplies did not matter because it was nearer the place of work; the distance formed no problem. The new idea of starting the depots agrees with the above finding as they provide a large number of convenient supply centres. New methods of advertisements of such supply centres with signs of red triangle, etc. no doubt have considerable advantage.

In the above paragraphs contraceptive practice among the clinic visitors is described in detail. One more piece of information gathered in the interviews was regarding contraceptive practice in the period of post-partum amenorrhoea.⁸ Forty-five interviewed women

⁸ As is well known, the reproductive capacity is not the same in between two successive births. After conception, besides the months of pregnancy, there is a period of amenorrhoea when women do not menstruate following the delivery of a child. This is a period when probability of conception is small. In fact a large percentage of women do not menstruate even for 10 to 15 months after the delivery. One could have the temptation of not using contraceptives during this less fertile period. The risk one runs in not resorting to contraception here would be determined by the proportion of total conceptions that occur before the onset of menstruation. No data are usually available on this point. The estimate obtained yields only 14 conceptions occurring before menstruation per one thousand of them. This may be an understatement. But it raises problems of avoidance of contraceptive practice in this period.

(i.e. more than seven per cent of the interviewed) practised contraception in amenorrhoea for a total of 301 months altogether, even when the probability of conception was low.

Motivation of the interviewed towards contraceptive action is described at length in the foregoing paragraphs. The interviewed had, however, been exposed to contraceptive information only for a short period, and it was worth while measuring the effect of their contraceptive practice on the fertility rate. The main objective was to see whether genuine intentions to control births were also backed by positive vigorous action. If an appreciable dent was made on the fertility of the contraceptors, one could safely conclude that the promotional efforts had successful returns especially when the initial level of motivation to contraception was presumably nil.

The following analysis is restricted to the contraceptive practice of clinic visitors after their contact with the clinic.⁹ The total of 598 interviewed women were informed about contraception from the clinic for 19140 months (i.e. 1595 years) of which 12310 months (i.e. about 1026 years) were spent in contraceptive practice¹⁰ (excluding the months passed in pregnancy and post-partum amenorrhoea). In other words the clinic visitors had, each of them, known about contraception for about 2.7 years out of which, they practised contraception for about 1.7 years. These calculations are based on all

⁹ As regards their pre-clinic experience in contraception, it was found that 48 out of 598 interviewed women (i.e. eight per cent) practised some method before consulting the clinic. Out of these 22 used diaphragm, 19 condom, three foam tablets and four the safe period method. They practised these methods satisfactorily as judged from the pregnancies they experienced during their contraceptive practice.

¹⁰ The total period of 19140 months could be split into three parts, namely (a) months of practice under different methods, (b) months of 'no practice' either because of planning of pregnancy or otherwise, and (c) months passed in pregnancy and post-partum amenorrhoea.

The contribution of each part is as follows :

| <i>Contraceptive practice</i> | <i>No. of months</i> | <i>No. of pregnancies</i> | |
|---|----------------------|---------------------------|------------------|
| | | <i>Births</i> | <i>Abortions</i> |
| (a) Positive practice of contraceptives | 12310 | 81 | 6 |
| (b) Absence of practice before- | | | |
| (i) planned pregnancy | 133 | 56 | — |
| (ii) unintentional pregnancy | 1670 | 168 | 13 |
| (c) Months passed in pregnancies and amenorrhoea in (a) & (b) | 5027 | — | — |
| | 19140 | 305 | 19 |

cases of clinic visitors including those who got sterilized¹¹ as well as those who did not practise contraception. After excluding the cases of the sterilized, the average practice of contraception was 1.6 years per woman. If we consider the contraceptive practice under various methods, its distribution was as given in Table 4.13. Out of the total practice 56 per cent was under diaphragm, and 27 per cent under condoms. The rest of the practice was trivial. Percentage under sterilization is fairly low, because among the clinic visitors sterilized cases were bound to be recent. They got sterilized only after trying other methods. Their practice of other methods is included in the practice of the respective contraceptives.

Table 4.13 : PERCENTAGE DISTRIBUTION OF THE MONTHS OF PRACTICE OF DIFFERENT METHODS OF CONTRACEPTION

| <i>Method of contraception</i> | <i>Months of practice</i> | | <i>Total</i> | <i>Percentage of months under contraception</i> |
|------------------------------------|-----------------------------|--|--------------|---|
| | <i>In amenor- rhoea</i> | <i>Excluding the period of amenor- rhoea</i> | | |
| Diaphragm and jelly | 62 | 6861 | 6923 | 56.2 |
| Condom | 166 | 3178 | 3344 | 27.2 |
| Chemical contraceptives | 63 | 928 | 991 | 8.1 |
| Mental control | — | 334 | 334 | 2.7 |
| Sterilization | 293 | 425 | 718 | 5.8 |
| Total | 584 | 11726 | 12310 | 100.0 |

An attempt was made to measure the effectiveness with which the contraceptive appliances were used by the clinic visitors. This could be done by comparing the number of births the visitors had with the number of births they were expected to have. If the clinic visitors were women with average level of fertility suited to their age, the number of expected births to them would be equal to that occurring to women of the corresponding ages in populations unaffected by contraceptive practice. This number therefore could be calculated by applying the age specific fertility rates of women in the city of Poona

¹¹ In the case of sterilized couples the months from the date of sterilization to the time of interview were taken to be effective in preventing pregnancies. This was necessary to estimate the number of births prevented due to sterilization.

in 1951¹² when the practice of contraception was rare, to the present clinic visitors. But these rates had to be modified a little, because clinic visitors were often not the average women who would include sterile and sub-fertile women¹³. Hence fertility rates appropriate to them could be the age specific fertility rates of married women in Poona in 1951 after leaving out the sterile and sub-fertile women. In Table 4.14 these are shown in the third column. In column four of the table, the numbers of years of practice of contraceptives by the totality of clinic visitors in the specific age groups are given. These multiplied by the relevant fertility rates give the number of expected births. In Table 4.14, 484 expected births to the interviewed clinic

Table 4.14 : ESTIMATION OF THE NUMBER OF BIRTHS PREVENTED* BY THE INTERVIEWED CLINIC VISITORS ON THE ASSUMPTIONS DESCRIBED IN THE TEXT

| <i>Age group</i> | <i>Unadjusted marital fertility rates per 1000 women</i> | <i>Adjusted** fertility rates per 1000 clinic visitors</i> | <i>Years passed after clinic contact</i> | <i>Expected births to clinic visitors</i> | <i>Observed births to clinic visitors</i> |
|------------------|--|--|--|---|---|
| 13—17 | 117 | 133 | 5.83 | 0.78 | 2 |
| 18—22 | 265 | 301 | 231.08 | 69.56 | 52 |
| 23—27 | 312 | 355 | 636.92 | 226.11 | 133 |
| 28—32 | 269 | 306 | 438.59 | 134.21 | 77 |
| 33—37 | 191 | 217 | 207.00 | 44.92 | 34 |
| 38—42 | 102 | 116 | 67.33 | 7.81 | 7 |
| 43—52 | 34 | 39 | 8.25 | 0.32 | — |
| Total | 201 | 228 | 1595.00 | 483.71 | 305 |

* Number of births prevented by clinic visitors = 484—305=179

$$\text{Percentage of births prevented} = \frac{179}{484} \times 100 = 37$$

** Clinic visitors do not probably include sterile and sub-fertile women in a population. Women are arbitrarily called sub-fertile when they have no potential to produce more than two children for various possible medical and biological reasons. Since, in general, there are five per cent sterile and seven per cent sub-fertile women among the married in the Indian society, the birth rates for clinic visitors are calculated after excluding these 12 per cent women in each age group. Thus birth rates as given in column two are related to 880 women instead of 1000 and the rates in column three are obtained. An over-all adjustment of 12 per cent may be unwarranted at the outset especially in the first one or two age groups. But the estimates for sterile and sub-fertile not being available for individual age groups, such over-all adjustment may be allowed.

¹² These rates were available from the demographic survey conducted in the city in 1951.

¹³ See foot-note to Table 4.14.

visitors and 305 observed births to them are shown for comparison. The total number of observed births was thus 63 per cent of the expected births. This leads to the conclusion that the extension of information on contraception prevented 37 per cent of the births to women who visited family-planning clinics in Poona during 1961-63. This finding is not discouraging considering the total administration and organization of the family-planning programme advocated through the clinics.

In assessing the effectiveness of contraception with different contraceptive methods it was necessary to compare the observed number of births with those that could have occurred without the practice of a specific contraceptive. The calculations regarding the expected births during months of practice of specific contraceptives are described in Appendix C₄. In Table 4.15 the number of months of contraceptive practice, the number of births expected and observed to those practising the methods are set out. The number of observed births are only 20 and 27 per cent respectively of the expected number of births to those practising diaphragm and condom. In the case of chemical contraceptives and mental control (including coitus

Table 4.15 : MONTHS OF CONTRACEPTIVE PRACTICE, NUMBER OF EXPECTED BIRTHS AND THE NUMBER OF OBSERVED ACCIDENTAL BIRTHS FOR USERS OF DIFFERENT CONTRACEPTIVE METHODS

| <i>Method of contraception</i> | <i>Months of practice</i> | <i>Months of pregnancy and amenorrhoea in the case of accidental pregnancies during practice</i> | <i>Expected No. of births in the period covering months in columns 2 and 3</i> | <i>Observed accidental pregnancies</i> |
|--------------------------------|---------------------------|--|--|--|
| Diaphragm and jelly | 6923 | 684 | 191 | 38 |
| Condom | 3344 | 486 | 99 | 27 |
| Chemical contraceptives | 991 | 288 | 31 | 16 |
| Mental control | 334 | — | 8 | — |
| Sterilization | 718 | — | 16 | — |
| Total | 12310 | 1458 | 345 | 81 |

interruptus) the observed births are respectively 52 per cent and zero per cent¹⁴ of the expected births. The percentages of the observed births indicate the failure with which the contraceptives were practised. In other words, the effectiveness with which the various contraceptive methods were practised was as follows:

| <i>Contraceptive method</i> | <i>Months of practice</i> | <i>Effectiveness with which practised</i> |
|-----------------------------|---------------------------|---|
| Diaphragm | 6923 | 80 per cent |
| Condom | 3344 | 73 per cent |
| Chemical contraceptives | 991 | 48 per cent |
| Mental control | 334 | 100 per cent |
| Sterilization | 718 | 100 per cent |
| Total | 12310 | 77 per cent |

The figures presented above show that the diaphragms and condoms were used effectively by a majority of those practising them. They also formed a large majority of those resorting to appliances. Even for all contraceptives put together, the effectiveness was as high as 77 per cent. Then why was it that the impact of contraceptive information to the clinic visitors reduced the number of births to them only by 37 per cent as mentioned earlier? This was because, firstly, the contraceptive practice was adopted only for about two-thirds of the time the visitors were informed of the contraceptives. Secondly, even those practising contraception with an effectiveness of the high order stated earlier, planned some pregnancies so that the impact of their practice reduced only 37 per cent births instead of 77 per cent which is the average effectiveness of all contraceptives. In the period not covered by the contraceptive practice children were produced at a rate much higher than the average rate as these were women highly susceptible to conception outside the period of amenorrhoea. The idea of their fertility potentials can be had from the data presented in (b) of the table in foot-note 10 of the present chapter.

The information collected through the interviews of the clinic

¹⁴ It is quite possible that the cent per cent effectiveness was due to the fact that the practice was reported only when it was found to be successful. In chapter V, (Table 5.18) it is observed that the citizens of Poona city practised mental control with 58 per cent effectiveness in controlling the births.

visitors described above no doubt throws a great deal of light on the impact of the clinical services on those that are contacted by them, and a brief summary of the findings presented below may be useful.

The sample of clinic visitors selected for interview suffered from non-contacts. In spite of this, its representative character was not much disturbed. The interviewed sample depicted enthusiastic interest in family planning and this could be generally true of clinic visitors. Clinic attendance was, however, not universal among the residents of Poona. It was only eight per cent married women of ages 18 to 32 years in Poona city who visited the clinics. But once they visited them a large majority continued to have active interest in the subject. This was so in spite of the fact that only 11 per cent had sought advice from the clinic on their own. A large majority, i.e. 51 per cent, were motivated by the staff of the clinics directly and an additional 28 per cent were influenced by them indirectly to contraceptive action. Even those that had stopped visiting the clinic after initial acceptance of prescribed contraceptives were acting effectively in the matter of family planning. That is why the fertility rate of all the clinic visitors, contraceptors and non-contraceptors considered together, was reduced by 37 per cent. The various contraceptive methods were practised by the active visitors with 77 per cent effectivity.

APPENDIX A₄*Questionnaire for Interviewed Clinic Visitors*

Name of the interviewed

Address

Caste

Name of the clinic

Name of the investigator

Date of investigation

Casecard number
of the clinic
visitor

Name of the head of the household

Members in the family

1 2 3 4 5 6 7 8

Name

Age and sex

Relation to the head

Information regarding the couple visiting the clinic

| Present age | Age at marriage | Educational level | Occupation | Income (monthly/yearly) | Total number of living children |
|-------------|-----------------|-------------------|------------|-------------------------|---------------------------------|
|-------------|-----------------|-------------------|------------|-------------------------|---------------------------------|

Wife

Husband

Total number of children: Living/Dead

Ages of the living sons.

Number of sons : Living/Dead

Ages of the living daughters.

Number of daughters : Living/Dead

No. of abortions

No. of still-births

Number of deliveries without onset of menstruation
after previous delivery

Their order

Date of last delivery

Whether this was a full-term delivery

Period of amenorrhoea (with reference to last
delivery)

Physical complaints, if any, regarding menstruation

Period of lactation (with reference to last delivery)

Information regarding family planning

Whether informed about methods of family planning
(specify the methods)

Belief in their utility

Years passed since obtaining the information

Who got the information earlier, husband or wife?

Source of information—

- (a) Published material
- (b) Relatives
- (c) Friends
- (d) Medical advice (specify)
- (e) Social worker
- (f) Others (specify)

Information regarding the methods of family
planning and limitation

Information about sterilization of the male or the
female

Any practice of contraception

If so, was it under expert advice, or without it?

History of contraceptive practice

| <i>Method practised</i> | <i>Order of pregnancy before practice started</i> | <i>Period of practice</i> | <i>Was this practice regular</i> | <i>Reasons for discontinuing the practice</i> | <i>Source of getting contraceptives</i> | <i>Price paid for contraceptives</i> |
|-----------------------------|---|---------------------------|----------------------------------|---|---|--------------------------------------|
| Before expert advice | | | | | | |
| After expert advice | | | | | | |

Who brought the contraceptives?

From where?

Any occasion when no contraceptive was available

If so, when, why and for how many days?

Any alternative arrangement made during this period

Any complaints regarding the channels of supply, specify

Source of contraceptive supplies

- (a) Clinic (name of the clinic)
- (b) Others, specify

Whether this clinic is the nearest

Distance of the clinic from the residence

Is there any other clinic or source of supply nearer than the present one?

If so, reason for not using the facilities that are nearer

Contraceptive method currently practised

If the practice is irregular, reasons for irregularity

- (a) It is a botheration
- (b) No co-operation between husband and wife
- (c) Objection of the elders
- (d) Loss of belief in the method
- (e) Desire for more children
(Give the number desired)
- (f) Desire for more sons
(Give the number desired)
- (g) Pregnancy of wife
- (h) Husband/wife not in good health or out of station
- (i) Husband/wife got sterilized
- (j) Others, specify

If the wife is pregnant at present, was this pregnancy accidental or purposely planned?

If contraceptive practice is stopped, is it temporarily or permanently?

If discontinuance is temporary, whether the practice will be resumed

Attitude of the husband and wife towards sterilization

Whether elder persons are against the family-planning practice

If so, state the relations taking objection

APPENDIX B₄*Representative character of the interviewed clinic visitors*

Even though a sample of 1191 clinic visitors was selected for interview, it was possible to contact only 598 of them. The reasons for not being able to contact the remaining clinic visitors are already described in the chapter. To test the representative character of the interviewed sample as from the selected sample of clinic visitors, it was necessary to compare the two groups¹ by their socio-demographic characteristics. Thus in Tables B₄.1 to B₄.7 their ages, educational level, number of children and the contraceptives prescribed to them are set out for comparison. These bring out clearly the similarity of the two groups.

Table B₄.1 : PERCENTAGE DISTRIBUTION OF CASES CONTACTED AND OF CASES SELECTED IN VARIOUS CLINICS

| <i>Clinic No.</i> | <i>Cases contacted</i> | <i>Cases selected</i> |
|-------------------|------------------------|-----------------------|
| 1 | 17.4 | 16.6 |
| 2 | 16.4 | 14.6 |
| 3 | 9.9 | 9.7 |
| 4 | 19.6 | 18.0 |
| 5 | 9.7 | 10.1 |
| 6 | 9.5 | 10.8 |
| 7 | 0.8 | 1.7 |
| 8 | 5.5 | 4.9 |
| 9 | 11.2 | 13.6 |
| Total | 100.0 = 598 | 100.0 = 1088 |

¹ The 598 contacted cases are compared with 1088 and not the 1191 selected cases which included 103 outsiders. This had to be done as there was no possibility of contacting these under any circumstances.

Table B_{4.2} : PERCENTAGE DISTRIBUTION OF CASES CONTACTED AND OF CASES SELECTED ACCORDING TO AGES OF THE WOMEN

| <i>Age group (in years)</i> | <i>Cases contacted</i> | <i>Cases selected</i> |
|---------------------------------|------------------------|-----------------------|
| 13—17 | 0·7 | 0·9 |
| 18—22 | 22·9 | 23·9 |
| 23—27 | 34·4 | 35·4 |
| 28—32 | 27·1 | 25·4 |
| 33—37 | 8·0 | 7·4 |
| 38—42 | 2·7 | 1·9 |
| 43—47 | — | 0·3 |
| 48—52 | — | — |
| Not given | 4·2 | 4·8 |
| Total | 100·0=598 | 100·0=1088 |

Table B_{4.3} : PERCENTAGE DISTRIBUTION OF CASES CONTACTED AND OF CASES SELECTED ACCORDING TO EDUCATIONAL LEVEL OF THE WOMEN

| <i>Educational level of the women</i> | <i>Cases contacted</i> | <i>Cases selected</i> |
|---|------------------------|-----------------------|
| Illiterate | 12·2 | 12·8 |
| Literate up to 4th standard | 17·7 | 16·2 |
| 5th to 7th standard | 25·6 | 23·1 |
| 8th to below S.S.C. | 5·5 | 6·1 |
| S. S. C. passed | 11·5 | 13·3 |
| Above S. S. C. | 5·9 | 5·4 |
| Not given | 21·6 | 23·1 |
| Total | 100·0=598 | 100·0=1088 |

Table B_{4.4} : PERCENTAGE DISTRIBUTION OF CASES CONTACTED AND OF CASES SELECTED ACCORDING TO EDUCATIONAL LEVEL OF THE HUSBAND

| <i>Educational level of the husband</i> | <i>Cases contacted</i> | <i>Cases selected</i> |
|---|------------------------|-----------------------|
| Illiterate | 4.8 | 5.5 |
| Literate up to 4th standard | 12.2 | 10.7 |
| 5th to 7th standard | 16.9 | 16.5 |
| 8th to below S. S. C. | 8.2 | 6.9 |
| S. S. C. passed | 25.9 | 24.8 |
| Above S. S. C. (but below graduation) | 6.2 | 5.8 |
| Graduate or above | 10.2 | 12.5 |
| Not given | 15.6 | 17.3 |
| Total | 100.0=598 | 100.0=1088 |

Table B_{4.5} : PERCENTAGE DISTRIBUTION OF CASES CONTACTED AND OF CASES SELECTED ACCORDING TO THE NUMBER OF LIVING CHILDREN

| <i>Number of children living</i> | <i>Cases contacted</i> | <i>Cases selected</i> |
|----------------------------------|------------------------|-----------------------|
| 0 | 1.0 | 1.6 |
| 1 | 16.7 | 16.9 |
| 2 | 26.1 | 26.3 |
| 3 | 23.9 | 23.3 |
| 4 | 14.9 | 14.3 |
| 5 | 7.0 | 6.9 |
| 6 | 4.0 | 3.4 |
| 7 | 1.2 | 1.6 |
| 8 | 0.8 | 0.8 |
| 9 or more | 0.5 | 0.5 |
| Not given | 3.9 | 4.4 |
| Total | 100.0=598 | 100.0=1088 |

Table B_{4.6} : PERCENTAGE DISTRIBUTION OF CASES CONTACTED AND OF CASES SELECTED ACCORDING TO THE NUMBER OF LIVING SONS

| <i>Number of living sons</i> | <i>Cases contacted</i> | <i>Cases selected</i> |
|------------------------------|------------------------|-----------------------|
| 0 | 14.7 | 15.3 |
| 1 | 34.5 | 37.1 |
| 2 | 27.4 | 25.8 |
| 3 | 12.7 | 11.1 |
| 4 | 4.4 | 3.3 |
| 5 | 0.5 | 0.8 |
| 6 or more | 0.3 | 0.6 |
| Not given | 5.5 | 6.0 |
| Total | 100.0=598 | 100.0=1088 |

Table B_{4.7} : PERCENTAGE DISTRIBUTION OF CASES CONTACTED AND OF CASES SELECTED ACCORDING TO CONTRACEPTIVE METHOD PRESCRIBED TO THEM

| <i>Contraceptive method prescribed</i> | <i>Cases contacted</i> | <i>Cases selected</i> |
|--|------------------------|-----------------------|
| Diaphragm and jelly | 42.5 | 44.0 |
| Condom | 39.6 | 36.7 |
| Jelly alone | 6.2 | 7.4 |
| Foam tablets | 11.5 | 11.4 |
| Mental control | 0.2 | 0.5 |
| Total | 100.0=598 | 100.0=1088 |

APPENDIX C₄*Estimation of effectiveness with which contraceptive methods were practised by the clinic visitors*

Data regarding histories of contraception were available for the 598 interviewed women. On the basis of these data it was possible to know the age periods of women in which different contraceptives were practised. During the practice there were some accidental births that had taken place because of the failure of the method itself or because of the failure in the use of the method. In order to estimate the number of prevented births due to contraceptive practice it was necessary to compare the expected number of births with the accidental births. The ratio of prevented births to expected births was assumed to yield the effectiveness of specific contraceptives used. The expected number of births during the period of practice of a specific contraceptive method could be calculated by applying the relevant expected birth rates to the period of practice. The relevant birth rates for months of contraceptive practice could not be obtained easily, because a woman practising contraception for a period avoids conceptions the number of which is equal to the number of pregnancies a woman could have without the use of a contraceptive. But, the use of contraceptives apart, women have a period of pregnancy and amenorrhoea which has to be allowed for in applying fertility or birth rates to the period of contraceptive practice. Hence to get the expected number of births during the period of contraceptive practice, the number of months of accidental pregnancies and the following period of amenorrhoea were added to the months of contraceptive practice and such period was considered for each contraceptive method. The appropriate age-specific birth rates for clinic visitors of various ages were applied to such adjusted months of contraceptive practice in various age periods. The expected number of births calculated in this manner are presented in Table C_{4.1} for periods of practice of various contraceptive methods separately. Thus in the age group 18 to 22 years, women practised diaphragm and jelly method for 95.66 years in all. During this period they were expected to give birth to 28.8 babies. Or, generally in the age group 18 to 22 years, women had practised contraception by various methods for a period of 154.32 years. During this period they could produce 46.5 babies. In Table C_{4.2} the expected number of births

Table C_{4.1} : CALCULATION OF THE EXPECTED NUMBER OF BIRTHS DURING THE PRACTICE OF VARIOUS CONTRACEPTIVE METHODS

| Age group (in years) | Expected birth rates for the clinic visitors* | Years ** of practice of contraceptives (adjusted for the period of pregnancy and amenorrhoea in the case of accidental births) | | | | | Expected number of births in the period of contraceptive practice (adjusted for the period of pregnancy and amenorrhoea in the case of accidental births) | | | | | | |
|-------------------------|---|--|--------|---------------------------------|-------------------|--------------------|---|------------------------|--------|---------------------------------|-------------------|--------------------|-------|
| | | Diaphragm and jelly | Condom | Chemical contra- ceptives | Mental control | Sterili- zation | Total No. of years | Diaphragm and jelly | Condom | Chemical contra- ceptives | Mental control | Sterili- zation | Total |
| 13—17 | 133 | 2.58 | 0.50 | 0.75 | 0.33 | — | 4.16 | 0.3 | 0.1 | 0.1 | 0.0 | — | 0.5 |
| 18—22 | 301 | 95.66 | 40.58 | 12.58 | 3.00 | 2.50 | 154.32 | 28.8 | 12.2 | 3.8 | 0.9 | 0.8 | 46.5 |
| 23—27 | 355 | 241.91 | 132.50 | 28.92 | 14.00 | 11.33 | 428.66 | 85.9 | 47.0 | 10.3 | 5.0 | 4.0 | 152.2 |
| 28—32 | 306 | 177.99 | 96.25 | 37.42 | 2.50 | 24.75 | 338.91 | 54.5 | 29.5 | 11.5 | 0.8 | 7.6 | 103.9 |
| 33—37 | 217 | 82.41 | 40.33 | 22.42 | 6.42 | 14.50 | 166.08 | 17.9 | 8.8 | 4.9 | 1.4 | 3.1 | 36.1 |
| 38—42 | 116 | 29.58 | 7.00 | 4.50 | 1.58 | 6.25 | 48.91 | 3.4 | 0.8 | 0.5 | 0.2 | 0.7 | 5.6 |
| 43—52 | 39 | 3.75 | 2.00 | — | — | 0.50 | 6.25 | 0.1 | 0.1 | — | — | 0.0 | 0.2 |
| Total | 228 | 633.88 | 319.16 | 106.59 | 27.83 | 59.83 | 1147.29 | 190.9 | 98.5 | 31.1 | 8.3 | 16.2 | 345.0 |

* Same as given in Table 4.14

** These are set out in two places of decimals, to get accuracy upto one place of decimal in the latter half of the Table.

Table C_{4.2} : ESTIMATION OF EFFECTIVENESS WITH WHICH DIFFERENT CONTRACEPTIVES WERE PRACTISED

| <i>Method of contraception</i> | <i>Expected No. of births during the period of practice</i> | <i>Observed No. of births during the period of practice</i> | <i>Prevented* No. of births during the period of practice</i> | <i>Effective- ness of contracep- tive = Prevented No. of births/ Expected No. of births</i> |
|------------------------------------|---|---|---|---|
| Diaphragm and jelly | 191 | 38 | 153 | 0.80 |
| Condom | 99 | 27 | 72 | 0.73 |
| Chemical contraceptives | 31 | 16 | 15 | 0.48 |
| Mental control | 8 | 0 | 8 | 1.00 |
| Sterilization | 16 | 0 | 16 | 1.00 |
| Total | 345 | 81 | 264 | 0.77 |

* Prevented births = Expected births — Observed births

calculated in Table C_{4.1} are set out along with the observed births for the period covered by the practice of various contraceptives. The ratio of prevented births to expected births is assumed to indicate the success or effectiveness with which the various contraceptives were practised. It is observed that the use of diaphragm and jelly prevented 80 per cent of the expected births, condoms 73 per cent and chemical contraceptives 48 per cent. In the case of mental control and sterilization all the expected births were prevented. As for mental control as mentioned earlier, the success in preventing births seemed to be perfect, probably because its use was reported only when it was found totally successful. The average success of all contraceptives put together was in avoiding 77 per cent of the expected births only for the period of contraception. Contraception, however, was not practised by all the women visitors for all the period during which they had known about contraception.

CHAPTER V

CHANGING FAMILY-PLANNING ACTIVITY IN THE CITY OF POONA

IN THE FOREGOING CHAPTER it was observed that the family-planning clinics could persuade eight per cent married women of ages 18 to 32 years in the city of Poona to accept a contraceptive method. They also advised about additional 12 per cent in the city to get sterilized. By itself that was no mean achievement. It is, however, unlikely that it was the total impact of the clinics as well as the general efforts in the direction of family planning in the city. It is quite possible that those activities had basically affected and altered the attitude of the populace of Poona towards family planning. This could be ascertained by interviewing a representative sample of the households in the city in 1964-65. Fortunately, a similar sample-survey had been conducted by the Gokhale Institute in Poona in 1951. The present survey could therefore help to bring out the change in the attitude to family planning in the city during the period. The object of the present chapter is to describe the extent of the family-planning activity in the city in 1964, to indicate the changes that have taken place since 1951, and also, incidentally, to bring out the role of the family-planning clinics in this total context.

With the above objective in view a survey of one per cent households in the city was conducted in 1964-65. In big cities, the tracing

of households presents a serious problem. Cluster sampling was, therefore, employed for convenience in tracing the households. The list of households, prepared at the 1961 census, was used as the sampling frame¹. There were 116,320 households in the census of 1961. To select one per cent sample, i.e. 1163 households, it was decided to select 98 clusters of 12 households each, from the census list. Ninety-eight random households were therefore selected from various wards in the city; the number from each ward was proportional to the number of households in the ward. They were to form the nuclei of the clusters of households. After selecting the nuclei, 12 households were selected around each nucleus from the census list, accepting six households to the right and six to the left from the selected households. In order to have an adequately scattered sample, in selecting the 12 households, every third from the selected nuclear household in the list was chosen. Thus 98 clusters consisting of 1176 households formed the selected sample. The representative character of the sample is tested in Appendix A₅.

In contacting the households, usual difficulties were overcome by the accepted routine methods². A questionnaire was canvassed among 1176 contacted households; it is reproduced in Appendix B₅ at the end of the chapter. Questions regarding family composition and socio-economic characteristics of the individual members of the households were included in the first part of the questionnaire. In the latter part were included questions on demographic information such as the number of living and dead children, and duration of marriage of every couple in the household. Information regarding their attitudes to contraception and sterilization and their contraception histories was also collected through this questionnaire.

¹ One per cent sample from the census of 1961 was a little outdated for use in 1964. The number of households must have increased during 1961-1964. Still one per cent households from the census list were selected in the absence of something better.

² Thus the households at the addresses listed in the census were interviewed even if a new household was residing at the address. After two or three visits if a household could not be contacted, a neighbouring household was substituted on the assumption (of course with reservations) that the substituted household belonged to similar socio-economic status and thus could not affect the representative character of the sample. Out of 1176 households to be contacted from the original list 294 had to be replaced. Of these 12.5 per cent households were transferred outside Poona or in Poona to some unknown address during 1961-64; 6.0 per cent seemed to have a wrong address in the census; 2.5 per cent could not be contacted within two or three visits; and 4.0 per cent were not contacted for miscellaneous understandable reasons. Thus the substitutes formed 25 per cent of the total selected households. The extent of substitution in a way gave an estimate of the movement of households during
(continued on next page)

Out of 1176 households selected for interview, 11 refused to give any information and four addresses could not be traced nor could be replaced. Hence 1161 households were interviewed. Ninety-five of these included no couples. The remaining 1066 households included 1336 couples in all. Out of these, 1165 couples included wives who belonged to the age group of 13 to 47 years. Seventy-eight of these did not respond to questions on family planning not because they were against contraception but because 33 had wives less than 18 years of age and had none or only one child and 16 others had no child. Eleven others apparently practised contraception to control the number of children but did not wish to give information on that. The remaining 18 did not respond for similar reasons except for four who straightaway refused to respond. Hence the following pages include information either on 1336 total couples included in the sample or 1087 couples of child-bearing age that responded to questions on family planning.

In presenting the attitudes of the residents of Poona towards family planning, the relevant data for the residents in 1951 are also presented whenever possible. This facilitates the assessment of change in the attitudes that had occurred during 1951-64. The two samples interviewed in 1951 and in 1964 were compared so far as their socio-demographic set-up was concerned. This was felt necessary as a background to any observed changes in the attitudes in Poona city. The relevant information is presented in Appendix C₅ at the end of the chapter. The two samples seemed to be fairly comparable³, though the 1964 sample was a little older. The older age of the sample, however, did not make the comparison invalid, as shown in Appendix C₅.

Among 1336 couples interviewed in 1964, only about two per cent were not at all informed about contraception. About half the couples were informed about all contraceptives and additional 41 per cent

1961-64. About five per cent of the total selected households had left the city during 1961-64, and about eight per cent had shifted their residence in Poona during that period. This latter percentage was partly aggravated because of flood havocs in the city in 1961 July, which wiped out some weak structures of buildings on the banks of the river flowing through the city.

³ The sampling unit and the method of sampling differed in the two surveys of 1951 and 1964. In publication No. 27 of the Gokhale Institute which contains the findings of the demographic enquiry in 1951, one finds a sample of 850 males which included other than married too. Hence for comparison only 778 married males interviewed in 1951 are taken up. More details on this aspect are presented in Appendix C₅.

knew only about sterilization. Others knew about some specific contraceptive. In short almost all of them were informed about contraception in 1964. In 1951 only about 12 per cent or so admitted of having been informed about contraception. This brings out the vast difference that had occurred in the level of knowledge or its admittance on the part of the interviewed during 1951-64. At the same time it is to be noted that even in 1951, about 40 per cent couples were favourable to contraception. It showed that though they were not informed about contraception they were mentally preparing to accept contraception in 1951. It was amply borne out by their attitudes during the following years as described in the present chapter.

In the Table 5.1 the two samples of couples interviewed in 1951 and 1964 are shown according to their attitudes towards contraception. Their percentage distributions according to attitudes, however, do not bring out adequately the differences in their attitudes at two points of time, because the very classes such as 'favourable', 'opposed', or 'not concerned' had different meanings at the two points of time. These are discussed in detail in the following paragraphs for individual categories of attitudes mentioned in Table 5.1.

Table 5.1 : PERCENTAGE DISTRIBUTION OF COUPLES ACCORDING TO THEIR ATTITUDES TOWARDS CONTRACEPTION IN THE CITY OF POONA IN 1951 AND 1964

| <i>Attitudes to contraception</i> | 1951 | | 1964 | |
|---------------------------------------|---------------------------|--------------------|---------------------------|--------------------|
| | <i>No. of couples</i> | <i>Percentage</i> | <i>No. of couples</i> | <i>Percentage</i> |
| Favourable | 312 | 40.1 | 717 | 53.7 |
| Opposed | 87 | 11.2 | 43 | 3.2 |
| Not concerned | 367 | 47.2 | 567* | 42.4 |
| No response | 12 | 1.5 | 9 | 0.7 |
| Total | 778 | 100.0 | 1336 | 100.0 |
| Informed about contraception | | 12 per cent | | 98 per cent |

*1964 sample comprised a larger percentage of old couples than in 1951. The distributions would look different if these were left out.

There were about 40 and 54 per cent couples in 1951 and in 1964

respectively that were favourable to contraception. They are described in Table 5.2. Of those that were favourable, less than 25 per cent were actually resorting to contraception in 1951, while about 47 per

Table 5.2 : PERCENTAGE DISTRIBUTION OF THE CASES FAVOURABLE TO CONTRACEPTION IN 1951 AND IN 1964 ACCORDING TO THEIR ACTION IN THIS DIRECTION AND THE AVERAGE NUMBER OF CHILDREN TO THEM

| <i>Action with regard to contraception</i> | 1951 | | 1964 | |
|---|-------------------|--------------------------------|-------------------|--------------------------------|
| | <i>Percentage</i> | <i>Average No. of children</i> | <i>Percentage</i> | <i>Average No. of children</i> |
| Adopted some method of contraception | 24.4 | 3.6 | 46.9 | 3.6 |
| Diaphragm and jelly | (1.3) | 3.2 | (4.6) | 3.0 |
| Condom | (7.4) | 3.0 | (11.6) | 2.9 |
| Chemical contraceptives | — | — | (1.3) | 3.3 |
| Mental control | (12.2) | 3.6 | (5.7) | 3.1 |
| Vasectomy | (1.9) | 4.4 | (5.0) | 4.1 |
| Tubectomy | (1.6) | 4.7 | (18.7) | 4.4 |
| Practised some method before, but no need now | — | — | 3.2 | 3.3 |
| Willing to practise some method immediately | 42.0 | 3.4 | 4.3 | 3.2 |
| Willing to practise some method in future | 33.6 | 3.6 | 22.0 | 0.9 |
| Willing to get sterilized in future | — | — | 23.6 | 3.3* |
| Total | 100.0 | 3.5 | 100.0 | 2.8 |
| | =312 | | =717 | |

* Their average reported number of desired children was 3.6, while the actual sterilized had 4.3 children on an average.

cent were doing so in 1964. In 1951 only three per cent and in 1964 24 per cent of the favourable were sterilized. Those that were going to take action in future formed 76 per cent in 1951 and most of them did not know about contraception so that they could not specify the method they were going to follow. In 1964, 50 per cent of the favourable were still to take contraceptive action, but all of them were well informed about it, and about half of them had decided to get sterilized. In 1951 a larger proportion of couples took help of mental control than in 1964. There were about three per cent of the favour-

able who had used contraceptives and had grown out of them by 1964. There was none like this in 1951. The most important difference in 1951 and in 1964 among the favourable was in the category expressing desire to use contraception in future. In 1964 they had less than one child (in fact 0.9 child) on an average, while in 1951 this category had 3.6 children on an average.

Those opposed to contraception are described in Table 5.3. Their percentage in 1964 was negligible. One obviously sees that opposition was often based on considerations of God's will in 1951, while in 1964 individual dislike was the main reason for opposition. In 1964 the opposition was of course backed by knowledge regarding contraceptives. It was not so in 1951.

Table 5.3 : COUPLES OPPOSED TO CONTRACEPTION IN 1951 AND 1964 WITH REASONS FOR OPPOSITION

| <i>Reason for opposition</i> | <i>Number of couples in</i> | |
|--|-----------------------------|-----------|
| | 1951 | 1964 |
| Immoral | 9 | — |
| Against the will of God | 59 | 1 |
| Opposed to appliances or sterilization | 10 | 6 |
| Dislike | — | 26 |
| Reason unspecified | 9 | 10 |
| Total | 87 | 43 |

It was interesting to compare the category of 'not concerned' in 1951 and that in 1964. Reasons for no concern were many and are shown in Table 5.4.

Couples reporting themselves to be too young or too old to be concerned about contraception or those having naturally well-spaced children seemed to be understandable cases in both the surveys. The earlier finding with regard to 1951 sample that 'the couples were getting prepared for contraception though not informed about it' is corroborated by the data in the present table, because those that reported 'no concern' were not 'problem' cases with excessive number of children even in 1951. The category 'no concern' in 1964 sample was overloaded with old people as is indicated by their percentage of 40 as compared to only 22 of 1951.

Table 5.4 : PERCENTAGE DISTRIBUTION OF COUPLES IN 1951 AND IN 1964 ACCORDING TO REASONS FOR 'NO CONCERN' ABOUT CONTRACEPTION, THEIR AVERAGE AGES AND THE AVERAGE NUMBER OF CHILDREN TO THEM

| <i>Reasons for no concern</i> | 1951 | | | 1964 | | |
|--|-----------------------------|--------------------------------|--------------------------------|-----------------------------|--------------------------------|--------------------------------|
| | <i>Per cent couples</i> | <i>Average age of husbands</i> | <i>Average No. of children</i> | <i>Per cent couples</i> | <i>Average age of husbands</i> | <i>Average No. of Children</i> |
| Too young | 4.4 | 24.7 | 1.1 | 5.8 | 23.5 | 0.2 |
| Too old or wife attained menopause | 22.3 | 51.1 | 4.0 | 40.3 | 58.6 | 4.5 |
| No child living | 22.3 | 29.4 | — | 9.3 | 37.5 | — |
| Last child not living | — | — | — | 1.8 | 43.5 | * |
| No child during last five years | 11.2 | * | 3.0 | 17.8 | 49.6 | 2.7 |
| Children naturally well-spaced | 2.7 | 39.8 | 2.1 | 0.7 | 37.5 | 2.0 |
| Wanted more children | 13.1 | 33.4 | 1.4 | 3.5 | 36.4 | 1.5 |
| Wanted more sons | 10.9 | 37.4 | 0.3 | 1.9 | 41.4 | 2.6 |
| Not concerned about the number of children | 2.2 | 32.5 | 3.4 | — | — | — |
| Reason unspecified | 10.9 | * | * | 18.9 | 35.0 | 3.0 |
| Total | 100.0 =367 | | | 100.0 =567 | | |

*In these places the relevant data were not available.

A few other details regarding 1951 and 1964 samples are set out here to bring out the change in the attitudes of residents of Poona during 1951-64. When asked about the desired number of children to couples, in 1964, 64 per cent reported the desired number independently of the existing number of children, and 36 per cent reported their actual number of children as desired. In 1951 the corresponding percentages were 61 and 39, which were not much different from those in 1964. The reported number of desired children is obviously smaller in 1964 than in 1951 as shown in Table 5.5.

Among the contraceptors, however, the number of their existing children did not differ appreciably at the two points of time. In 1951 the 27 appliance users had 3.0 living children, while in 1964 the 125

Table 5.5 : DESIRED NUMBER OF CHILDREN TO COUPLES IN 1951 AND 1964

| | 1951 | | 1964 | |
|---------------------------------|-------------------------------------|---------------|-------------------------------------|---------------|
| | <i>Couples reporting actual No.</i> | <i>Others</i> | <i>Couples reporting actual No.</i> | <i>Others</i> |
| Average No. of desired children | 5.3 | 4.1 | 3.6 | 3.4 |

appliance users had 2.9 living children. The 11 sterilized in 1951 had 4.5 children, while 170 of them in 1964 had 4.3 children. This difference, though small, was significant especially when one recollected that in 1951 comparatively highly motivated persons from higher social groups were adopting contraceptive action. The action had comparatively better spread to all social groups by 1964.

Obviously, during the 13-year period intervening 1951-64, there was considerable change in the attitudes of people, towards contraception. The sample selected for 1964 survey, though loaded with the old with 'no concern' about family planning, seemed to be very much prone to contraceptive practice. The promotional efforts at family planning through clinics, group-meetings, exhibitions, newspapers, or radio no doubt had affected the attitudes of people. The situation in 1964 in this regard is described in detail in the following with the data collected in the 1964 enquiry. In 1964 a question was asked to the interviewed sample about their source of information on contraception. Answers to this question are set out in Table 5.6. The biggest source of information on family planning was 'friends and relatives'. This shows that word of mouth was still the major source of information. Radio and the other mass media were very insignificant sources in 1964, as less than three per cent residents of Poona reported these sources of information. This was bound to happen in a poor illiterate populace that could not afford radio-sets or could not buy published material or read it. Books formed another important source of information. Clinics and their premises together constituted the source of information only in 11 per cent cases. But the source 'friends and relatives' could include some who were affected by the clinics or the radio. The reported source of 'friends and relatives', however, indicated that family planning had a kind of group accep-

Table.5.6 : PERCENTAGE DISTRIBUTION OF COUPLES ACCORDING TO THEIR SOURCE OF INFORMATION ON FAMILY PLANNING

| <i>Source</i> | <i>Percentage of couples</i> |
|---|------------------------------|
| Books | 24.8 |
| Radio, posters and printed word | 2.8 |
| Friends and relatives | 58.2 |
| Medical expert | 3.3 |
| Family-planning clinics | 2.6 |
| Extra-clinical agencies | 0.3 |
| Hospitals or dispensaries in which clinics were set | 8.0 |
| Total | 100.0 |

tance so that people could discuss it more freely among themselves in 1964 than they perhaps did in 1951. This no doubt was the effect of mass media like radio, newspapers, etc., or of the propaganda through clinics. The mass media had definitely evicted the taboo on discussing the subject of family planning and the credit of large proportion of people getting information from 'friends and relatives' probably goes to mass media⁴. The effectiveness of clinical services seemed to be remarkable among the contraceptors with appliances and the sterilized in 1964. In the sample interviewed in 1964, 170 were sterilized and 166 were other contraceptors. Among the sterilized 170, there were 103 that were sterilized due to the influence of clinics and their premises. Among 166 other contraceptors, about 73 per cent knew about the clinics. Out of such 121, 21 were practising mental control, and they needed no source of supply. Among the hundred remaining, 62 per cent used clinic or depot facilities for contraceptive supply. The total 126 appliance users i.e. 166-40 (practising mental control) appeared equally divided between chemists and clinic-depots for contraceptive supply. The relevant data are set out in Tables 5.7 and 5.8.

The knowledge about the clinical facilities was rarer than could be imagined from the data presented above for the contraceptors. Of the total interviewed couples of child-bearing age, only 38 per cent were reportedly aware of the clinical facilities. It showed that clinical facilities found effective among the contraceptive population were not

⁴ It is the impression of the author that the people very often criticized the radio programmes vehemently because they were so frequent (especially after 1967) and such free criticism itself advertised the family-planning possibilities.

**Table 5.7 : CASES OF STERILIZATION IN THE CITY OF POONA IN 1964
ACCORDING TO THE SOURCE OF SURGICAL FACILITIES**

| <i>Source of facilities</i> | <i>Vasectomy</i> | <i>Tubectomy</i> | <i>Total</i> |
|---------------------------------|------------------|------------------|--------------|
| Private practitioner | 8 | 39 | 47 |
| Clinic | 15 | 1 | 16 |
| Hospital premises of the clinic | 4 | 83 | 87 |
| Other hospitals | — | 4 | 4 |
| Unspecified source | 9 | 7 | 16 |
| Total | 36 | 134 | 170 |

**Table 5.8 : SOURCE OF SUPPLIES FOR THE APPLIANCE USERS AND
CASES OF MENTAL CONTROL IN THE CITY OF POONA IN
1964**

| <i>Contraceptive method used</i> | <i>Source</i> | | | | <i>Total</i> |
|--------------------------------------|--|----------------|--------------|---------------------------|--------------|
| | <i>Clinic</i> | <i>Chemist</i> | <i>Depot</i> | <i>Mental control</i> | |
| | <i>Those knowing about the clinics</i> | | | | |
| Diaphragm and jelly | 18 | 7 | 2 | — | 27 |
| Condom | 23 | 28 | 12 | — | 63 |
| Others | 7 | 3 | — | 21 | 31 |
| Total | 48 | 38 | 14 | 21 | 121 |
| | <i>Those not knowing about the clinics</i> | | | | |
| Diaphragm and jelly | — | 6 | — | — | 6 |
| Condom | — | 20 | — | — | 20 |
| Others | — | — | — | 19 | 19 |
| Total | — | 26 | — | 19 | 45 |

reaching a vast majority of the general populace. The recent move to use symbols of red triangles along with additional clinics would definitely promote family planning. There is thus immense scope for work through family-planning clinics. Moreover, sterilization, specially tubectomy, was adopted by a large majority of contraceptors and hence clinics with tubectomy facilities could have desirable impact on birth rate. From this point of view, to ascertain the choice of majority, it was worth examining the social status of the couples that adopted various methods of contraception. Therefore the caste and

educational composition of the couples in the various contraception categories are set out in Tables 5.9 to 5.13.

In Table 5.9 the percentage distribution of the couples according to caste indicates that the use of diaphragm and jelly was common only among the highest castes, if castes are grouped as in the 1931 census. So was the case with mental control too. Mental control included mainly coitus interruptus and safe-period method. In Chapter IV it was found that some couples used it with cent per cent effectiveness (see page 92). It was possible that the highly motivated could use it with success. In fact, the western world often used this method in the past with success when the more modern methods of contraception were not discovered. Among the appliance methods condom seemed a method acceptable to all castes, though here too, the higher castes showed relatively keener interest. Vasectomy was also similarly common in the comparatively higher castes. The finding in the last chapter of low percentage effectiveness of chemical contraceptives could be partly due to its acceptance by the comparatively lower social groups. It was only tubectomy and condom which seemed to be fairly acceptable to all social groups. The total interest in contraception, of various castes, is available in a summary form in Table 5.10 where percentage distribution of residents of Poona by caste, based on one per cent sample of 1964, is presented along with the caste distribution of total cases favourable to contraception in 1964.

In Table 5.10 the percentage distributions of (i) contraceptors and of (ii) all couples according to caste groups exhibit the expected finding that higher castes had proportionately much greater interest in contraception in 1964 as compared to others. Muslims also showed an interest in contraception to the extent that lower caste Hindus did. If, however, the percentage distribution of the total 717 favourable cases was compared with that of the total married couples in the sample of 1964, the difference in the percentage distributions was small. (See Table 5.10.) Such a finding suggested that all caste groups were getting interested in contraception though they had not taken adequate action in the matter in 1964.

The percentage distributions of contraceptors in various castes, according to contraceptive method used, could reveal their relative interest in the methods. The data set out in Table 5.11 indicate how vasectomy played the least important role next only to chemical

Table 5.9 : PERCENTAGE DISTRIBUTIONS OF CONTRACEPTORS USING SPECIFIC CONTRACEPTIVE METHOD IN 1964 ACCORDING TO CASTE

| <i>Method of contraception</i> | <i>Brahmins</i> | <i>Advanced Hindus</i> | <i>Marathas</i> | <i>Inter-mediate Hindus (Artisans)</i> | <i>Inter-mediate Hindus (Others)</i> | <i>Mahars</i> | <i>Other depressed Hindus</i> | <i>Backward Hindus</i> | <i>Muslims</i> | <i>Christians and others</i> | <i>Total 100=</i> |
|--------------------------------|-----------------|------------------------|-----------------|--|--------------------------------------|---------------|-------------------------------|------------------------|----------------|------------------------------|-------------------|
| Diaphragm and jelly | 69.7 | 9.1 | 12.1 | 6.1 | 3.0 | — | — | — | — | — | 33 |
| Condom | 51.8 | 14.5 | 19.3 | 2.4 | 4.8 | — | 2.4 | — | 4.8 | — | 83 |
| Chemical contraceptives | 11.1 | — | 33.3 | 33.4 | 22.2 | — | — | — | — | — | 9 |
| Mental control | 56.1 | 17.1 | 12.2 | 4.9 | — | — | 2.4 | — | 4.9 | 2.4 | 41 |
| Vasectomy | 58.3 | 8.3 | 13.9 | — | 8.3 | — | — | 5.6 | 5.6 | — | 36 |
| Tubectomy | 32.8 | 20.9 | 17.9 | 3.0 | 9.7 | 1.5 | 3.7 | 0.8 | 8.2 | 1.5 | 134 |
| Total | 46.1 | 15.8 | 17.0 | 3.9 | 6.8 | 0.6 | 2.4 | 0.9 | 5.6 | 0.9 | 336 |

Table 5.10 : PERCENTAGE DISTRIBUTION OF (i) CONTRACEPTORS, (ii) MARRIED COUPLES AND (iii) THOSE FAVOURABLE TO CONTRACEPTION IN POONA CITY IN 1964 ACCORDING TO CASTE

| <i>Caste</i> | <i>Contra- ceptors</i> | <i>Married couples in Poona city</i> | <i>All cases favourable to contra- ception</i> |
|--------------------------------|----------------------------|--|--|
| Brahmins | 46.0 | 25.0 | 31.4 |
| Advanced Hindus | 15.8 | 12.8 | 14.0 |
| Marathas | 17.0 | 23.1 | 23.7 |
| Intermediate Hindus (Artisans) | 3.9 | 7.0 | 6.6 |
| Intermediate Hindus (Others) | 6.8 | 8.0 | 6.8 |
| Mahars | 0.6 | 4.2 | 3.5 |
| Other depressed Hindus | 2.4 | 5.3 | 3.6 |
| Backward Hindus | 0.9 | 3.3 | 1.4 |
| Muslims | 5.7 | 10.8 | 8.6 |
| Christians and others | 0.9 | 0.5 | 0.4 |
| Total 100= | 336 | 1336 | 717 |

contraceptives if major contraceptive castes were taken into account. In fact the role of diaphragm and jelly seemed on par with vasectomy. It was tubectomy that seemed the most acceptable method not only in the lower-status group but also in the higher-status castes. This according to us was an important finding in the present study and suggested guidelines for organizing the family-planning programmes in similar communities in the country. This finding was surprising, especially when the studies conducted by the Gokhale Institute in the mid-fifties in Maharashtra often indicated that vasectomy was acceptable even in rural areas in the State. As one looks back it appears that vasectomy was accepted when motivation to limit the size of family was high and when there was no other way out but to resort to vasectomy. This appears specially important when mass programmes for rural areas are considered. If the likes and dislikes of the rural areas resembled those of the people in the cities they might more willingly opt for tubectomy. Considering the present rural conditions in our areas there is no way out but to offer vasectomy facilities. It may be noted however that they would work but only to a limited extent.

Table 5.11 : PERCENTAGE DISTRIBUTIONS OF VARIOUS CASTES ACCORDING TO METHOD OF CONTRACEPTION USED IN 1964

| <i>Method of contraception</i> | <i>Brahmins</i> | <i>Advanced Hindus</i> | <i>Marathas</i> | <i>Interme- diate Hindus (Artisans)</i> | <i>Interme- diate Hindus (Others)</i> | <i>Depressed and backward Hindus</i> | <i>Muslims</i> | <i>Christians and others</i> | <i>Total</i> |
|------------------------------------|-----------------|----------------------------|-----------------|---|---|--|----------------|----------------------------------|--------------|
| Diaphragm and jelly | 14.8 | 5.7 | 7.0 | 15.4 | 4.4 | — | — | — | 9.8 |
| Condom | 27.8 | 22.6 | 28.0 | 15.4 | 17.4 | 15.4 | 21.1 | — | 24.7 |
| Chemical contraceptives | 0.7 | — | 5.3 | 23.0 | 8.7 | — | — | — | 2.7 |
| Mental control | 14.8 | 13.2 | 8.8 | 15.4 | — | 7.7 | 10.5 | 33.3 | 12.2 |
| Vasectomy | 13.5 | 5.7 | 8.8 | — | 13.0 | 15.4 | 10.5 | — | 10.7 |
| Tubectomy | 28.4 | 52.8 | 42.1 | 30.8 | 56.5 | 61.5 | 57.9 | 66.7 | 39.9 |
| Total 100= | 155 | 53 | 57 | 13 | 23 | 13 | 19 | 3 | 336 |

Some more light could be thrown on the above point by a careful scrutiny of the educational status of the husbands and wives among the contraceptors. In Tables 5.12 and 5.13 the percentage distributions of husbands and wives in various educational levels are given according to the method of contraception they used. Tubectomy and condom had their important role in all educational levels. Tubectomy, however, became comparatively less important and vasectomy more important with the rising level of education. This was apparent from the data in rows in tables 5.12 and 5.13 corresponding to vasectomy and tubectomy. The tables show that the adoption of vasectomy needed a higher level of education on the part of husbands and wives, and was more where women were highly educated. In short, to make contraception popular in the low-educated society, facilities for tubectomy were urgently needed. Moreover, a finding that the clinical facilities for sterilization were more commonly used among the illiterates than among others,⁵ disclosed the importance of clinical services.

Table 5.12 : PERCENTAGE DISTRIBUTION OF CONTRACEPTOR HUSBANDS IN SPECIFIC LEVELS OF EDUCATION, ACCORDING TO METHOD OF CONTRACEPTION THEY REPORTED IN 1964

| <i>Method of contraception</i> | <i>Level of education</i> | | | | <i>Total</i> |
|------------------------------------|---------------------------|-------------------------------|---------------------|-----------------------------|--------------|
| | <i>Illiterate</i> | <i>Up to 7th standard</i> | <i>Below S.S.C.</i> | <i>S.S.C. and above</i> | |
| Diaphragm and jelly | 5.9 | 5.4 | 3.6 | 13.9 | 9.8 |
| Condom | 5.9 | 13.5 | 35.7 | 31.7 | 24.7 |
| Chemical contraceptives | — | 6.3 | — | 1.1 | 2.7 |
| Mental control | 5.9 | 9.9 | 10.7 | 14.4 | 12.2 |
| Vasectomy | 11.8 | 6.3 | 10.7 | 13.3 | 10.7 |
| Tubectomy | 70.5 | 58.6 | 39.3 | 25.6 | 39.9 |
| Total 100 = | 17 | 111 | 28 | 180 | 336 |

So far as sterilization was concerned, 98 per cent couples in 1964 knew about it, and about 87 per cent were not against it. But sterilization, even when resorted to, came late in the reproductive life. The average age of wives among the sterilized 170 couples of the 1964

⁵ The relevant data are not presented here because of their repetitious nature.

Table 5.13 : PERCENTAGE DISTRIBUTION OF CONTRACEPTOR WIVES IN SPECIFIC LEVELS OF EDUCATION, ACCORDING TO METHOD OF CONTRACEPTION REPORTED IN 1964

| <i>Method of contraception</i> | <i>Level of education</i> | | | | <i>Total</i> |
|------------------------------------|---------------------------|-------------------------------|---------------------------|-----------------------------------|--------------|
| | <i>Illite- rate</i> | <i>Up to 7th standard</i> | <i>Below S. S. C.</i> | <i>S. S. C. and above</i> | |
| Diaphragm and jelly | 3.4 | 8.9 | 11.1 | 16.1 | 9.8 |
| Condom | 5.3 | 20.7 | 40.8 | 34.6 | 24.7 |
| Chemical contraceptives | 3.4 | 3.5 | — | 1.2 | 2.7 |
| Mental control | 5.0 | 13.6 | 7.4 | 16.0 | 12.2 |
| Vasectomy | 10.2 | 9.5 | 14.8 | 12.3 | 10.7 |
| Tubectomy | 62.7 | 43.8 | 25.9 | 19.8 | 39.9 |
| Total 100 = | 59 | 169 | 27 | 81 | 336 |

sample was 30.3 and that of the corresponding husbands was 38.0. The average number of their living children was 4.3. On the other hand the 166 non-sterilized contraceptors of 1964 had wives with an average age of 25.9 years and they had 2.7 children on an average. (See Table 5.14.) If they could postpone their possible next child long enough with the contraceptive methods they could end up only with 2.7 children. If they failed in their contraceptive effort, they could decide to get sterilized after this child-birth and still end up with 3.7 children on an average. This indicates that it is preferable to begin early with the appliance methods and finally end up with sterilization if necessary than to depend on sterilization only. From this point of view it was useful to scrutinize the information regarding age of the wives or husbands using various methods of contraception and the average number of children to them. In Table 5.15 wives in each age group are distributed according to the contraceptive methods they used. In the last column of the table is set out the average number of living children to users of various methods. In the age group 18 to 22 years, condom occupied the most important position among the contraceptive methods. Its use decreased with advancing age though even in the age group 23 to 27 years it occupied the most popular position. But from this age group upwards the

Table 5.14 : NON-STERILIZED CONTRACEPTORS BY THE AGE OF THE WIVES AND THE NUMBER OF LIVING CHILDREN TO THEM AT THE START OF THE PRACTICE

| <i>Age of the wives at the start of the practice (in years)</i> | <i>No. of living children when started the practice</i> | | | | | | | | | <i>Not given</i> | <i>Total</i> |
|---|---|-----------|-----------|-----------|-----------|----------|----------|----------|----------|------------------|--------------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | |
| 13—17 | 1 | 3 | — | — | — | — | — | — | — | — | 4 |
| 18—22 | 7 | 16 | 10 | 4 | 1 | — | — | — | — | — | 38 |
| 23—27 | 2 | 14 | 17 | 18 | 13 | — | 1 | — | — | — | 65 |
| 28—32 | — | 1 | 5 | 13 | 13 | 4 | 3 | — | — | — | 39 |
| 33—37 | — | — | — | 3 | 3 | 2 | 3 | — | 1 | — | 12 |
| 38—42 | — | — | — | 1 | — | 3 | — | — | — | — | 4 |
| Not given | — | — | — | — | — | — | — | — | — | 4 | 4 |
| Total | 10 | 34 | 32 | 39 | 30 | 9 | 7 | — | 1 | 4 | 166 |

Table 5.15 : PERCENTAGE DISTRIBUTIONS OF CONTRACEPTOR WIVES IN EACH AGE GROUP, ACCORDING TO THE REPORTED METHODS OF CONTRACEPTION IN 1964

| <i>Method of contraception</i> | <i>Age group</i> | | | | | | | | <i>Total per cent using the method</i> | <i>Average No. of living children</i> |
|------------------------------------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------------|--|---|
| | 13—17 | 18—22 | 23—27 | 28—32 | 33—37 | 38—42 | 43—47 | 48 and above | | |
| Diaphragm and jelly | — | 11·8 | 12·7 | 11·4 | 8·2 | 10·2 | 4·4 | — | 9·8 | 3·0 |
| Condom | — | 58·8 | 39·7 | 29·5 | 13·7 | 15·2 | 13·0 | — | 24·7 | 2·9 |
| Chemical contraceptives | 100·0 | 5·9 | 4·8 | 2·3 | 1·4 | — | 4·4 | — | 2·7 | 3·3 |
| Mental control | — | 11·8 | 11·1 | 13·6 | 13·7 | 11·9 | 13·0 | — | 12·2 | 3·1 |
| Vasectomy | — | 11·7 | 3·1 | 10·2 | 8·2 | 15·2 | 21·7 | 25·0 | 10·7 | 4·1 |
| Tubectomy | — | — | 28·6 | 33·0 | 54·8 | 47·5 | 43·5 | 75·0 | 39·9 | 4·4 |
| Total 100 = | 1 | 17 | 63 | 88 | 73 | 59 | 23 | 12 | 336 | 3·6 |

sterilization, particularly tubectomy, attained significant role. Apparently, vasectomy was slightly more common in the older age groups. The highly motivated did not mind resorting to vasectomy too. But the gradual average trend in 1964 seemed to be to resort to condoms in the younger ages and shift, if necessary, to tubectomy later. Such trend therefore held out hopes of reduction in the birth rate of the city.

It is interesting to guess the effect of the observed contraceptive practice on the birth rate of the city. This is done in the following chapter. Here, however, an estimate is made of the effectiveness with which the contraception was practised by the sample of couples in the city resorting to appliance or non-appliance methods. They were only 166 in number. They had reported the total number of years for which they practised the methods. These years, however, included the years passed in planned or accidental pregnancies. An estimate of effectiveness of the contraceptive practice could be had by comparing the observed pregnancies and the expected ones during the period of contraception. The number of births prevented due to contraception could be estimated thereby. This has been done in the subsequent paragraphs.

In Table 5.16 the duration of practice of various contraceptive methods is set out. In the last two columns of the table the total number of years of practice of each method and the average number of years of practice are also presented. Mental control including the coitus interruptus and the safe-period method were the oldest of the methods practised, as it had an average duration of practice of 7.2 years in 1964. An earlier discussion in this chapter also indicated the larger prevalence of the practice in 1951. The second oldest method was the male sterilization, with an average duration of its use of 5.8 years. Then ranked diaphragm, tubectomy and condom in that order.

The effectiveness with which the specific contraceptives were used could be estimated by calculating the expected births in the period of practice and comparing the observed number of births with them. The expected births were calculated in the manner described in Chapter IV, Table 4.14. In Table 5.17 the total number of years of practice in each age group are presented for each of the contraceptive methods. The expected number of births relevant to specific age

Table 5.16 : PERCENTAGE DISTRIBUTION OF CONTRACEPTORS ACCORDING TO DURATION OF CONTRACEPTIVE PRACTICE, THEIR TOTAL YEARS OF PRACTICE AND AVERAGE PERIOD OF PRACTICE FOR VARIOUS METHODS OF CONTRACEPTION

| <i>Method of contraception</i> | <i>Duration of practice in years</i> | | | | | | | <i>Cases not reporting the duration</i> | <i>Total years of practice</i> | <i>Average period of practice in years</i> |
|--------------------------------|--------------------------------------|------|------|------|------|------------|---------------|---|--------------------------------|--|
| | 0 | 1 | 2—4 | 5—7 | 8—10 | 11 or more | <i>Total</i> | | | |
| Diaphragm and jelly | 3.2 | 3.2 | 45.2 | 16.1 | 22.6 | 9.7 | 100.0 =31 | 2 | 172 | 5.55 |
| Condoms | 13.4 | 15.9 | 39.0 | 15.9 | 8.5 | 7.3 | 100.0 =82 | 1 | 315 | 3.84 |
| Chemical contraceptives | 25.0 | 62.5 | — | 12.5 | — | — | 100.0 =8 | 1 | 11 | 1.38 |
| Mental control | — | 6.2 | 15.6 | 34.4 | 31.3 | 12.5 | 100.0 =32 | 9 | 229 | 7.17 |
| Vasectomy* | 11.1 | 16.7 | 27.8 | 13.9 | 2.8 | 27.7 | 100.0 =36 | — | 208 | 5.78 |
| Tubectomy* | 11.9 | 12.7 | 36.6 | 16.4 | 11.2 | 11.2 | 100.0 =134 | — | 679 | 5.07 |

* In the case of sterilization, the duration of practice is taken as the number of years passed between the date of sterilization and the date of interview.

Table 5.17 : (i) YEARS OF PRACTICE OF EACH OF THE CONTRACEPTIVE METHODS AND (ii) THE NUMBER OF EXPECTED BIRTHS (IN VARIOUS AGE GROUPS) AND TOTAL NUMBER OF OBSERVED BIRTHS WHILE PRACTISING VARIOUS METHODS

| Age group | Method of contraception | | | | | | | | | | | | | |
|-------------------------------|-------------------------|-------------|--------------|-------------|-------------------------|------------|----------------|-------------|--------------|-------------|--------------|--------------|---------------|--------------|
| | Diaphragm and jelly | | Condom | | Chemical contraceptives | | Mental control | | Vasectomy | | Tubectomy | | Total | |
| | (i) | (ii) | (i) | (ii) | (i) | (ii) | (i) | (ii) | (i) | (ii) | (i) | (ii) | (i) | (ii) |
| 13—17 | — | — | 1.5 | 0.2 | 1.0 | 0.1 | — | — | — | — | — | — | 2.5 | 0.3 |
| 18—22 | 12.5 | 3.8 | 29.5 | 8.9 | 1.0 | 0.3 | 13.0 | 3.9 | 2.0 | 0.6 | 11.0 | 3.3 | 69.0 | 20.8 |
| 23—27 | 48.0 | 17.0 | 90.5 | 32.1 | 1.0 | 0.4 | 51.0 | 18.1 | 7.0 | 2.5 | 84.0 | 29.8 | 281.5 | 99.9 |
| 28—32 | 50.0 | 15.3 | 95.0 | 29.1 | 1.0 | 0.3 | 66.0 | 20.2 | 61.0 | 18.7 | 170.0 | 52.0 | 443.0 | 135.6 |
| 33—37 | 39.0 | 8.5 | 69.5 | 15.1 | 1.0 | 0.2 | 61.5 | 13.3 | 64.0 | 13.9 | 210.0 | 45.6 | 445.0 | 96.6 |
| 38—42 | 20.0 | 2.3 | 29.0 | 3.4 | 3.5 | 0.4 | 30.0 | 3.5 | 53.0 | 6.2 | 121.0 | 14.0 | 256.5 | 29.8 |
| 43 and above | 2.5 | 0.1 | — | — | 2.5 | 0.1 | 7.5 | 0.3 | 21.0 | 0.8 | 83.0 | 3.2 | 116.5 | 4.5 |
| Total | 172.0 | 47.0 | 315.0 | 88.8 | 11.0 | 1.8 | 229.0 | 59.3 | 208.0 | 42.7 | 679.0 | 147.9 | 1614.0 | 387.5 |
| Observed No. of births | | 10 | | 17 | | nil | | 25 | | nil | | nil | | 52 |

groups are also set out in the table for various methods of contraception. These added for each of the contraceptive methods (separately) in various columns yield the total number of expected births, had there been no contraceptive practice. The observed number of births are given in the last row of the table. Thus while using diaphragms and condoms the expected number of births were respectively 47.0 and 88.8. The observed corresponding births were 10 and 17. The ratio of the prevented number of births to the expected number could yield an estimate of effectiveness of the specific contraceptive method practised by the general population of couples in the city.

The effectiveness obtained in this manner is set out in Table 5.18. This effectiveness of contraceptives in a random sample of the residents of Poona City, of course, could not be comparable to that of the clinic visitors because of the likely differences in the age compositions and the levels of motivation of those practising the methods. For instance, the percentage of women of ages 18 to 32 years was 90 among the clinic visitors and 66 among the non-sterilized contraceptors in the city. Moreover, the effectiveness calculated for clinic visitors was for contraceptives so that it was based only on accidental pregnancies during the period of practice. Usually this is called effectiveness of contraceptives. When planned as well as accidental pregnancies are included in the calculation, the measure has its utility in estimating the effect of contraception on birth rate. For the residents of Poona City this was calculated as given in Table 5.18. One could also be interested in such comparisons for knowing the effectiveness with which specific groups used various contraceptives. This shown in Table 5.18 reveals that in the general population diaphragm was used with the same success in preventing births as was done by the clinic visitors. Condoms were perhaps used by them with better success than by the clinic visitors. The effectiveness of both these contraceptives among the clinic visitors could be exaggerated, as in their case only the accidental pregnancies were included. Hence the effectiveness was probably higher among the general residents of the city. Among the clinic visitors the observed effectiveness of mental control of the order of 100 per cent was judged to be the result of bias in reporting as mentioned in Chapter IV. Among the general residents of Poona city the effectiveness of mental control was comparatively low, i.e. only 58 per cent, as seen

in Table 5.18. This effectiveness represented perhaps the real or unbiased estimate.

**Table 5.18 : EFFECTIVENESS OF CONTRACEPTIVES AS SEEN AMONG
(i) THE SAMPLE OF RESIDENTS OF POONA CITY AND
AMONG (ii) THE CLINIC VISITORS**

| <i>Method of contraception</i> | <i>Percentage effectiveness in</i> | |
|--|------------------------------------|-------|
| | (i) | (ii) |
| Diaphragm and jelly | 79 | 80 |
| Condom | 81 | 73 |
| Chemical contraceptives | 100* | 48 |
| Mental control | 58 | 100** |
| Vasectomy | 100 | 100 |
| Tubectomy | 100 | 100 |
| Average for all methods | 87 | 77 |
| Average for all methods excluding sterilization | 74 | 76 |

* The years of contraceptive practice for the method were negligible being only 11 years and hence the percentage here is not reliable.

** This as discussed in Chapter IV was due to biased reporting.

The effect of the above contraceptive practice on the birth rate of the city was an important matter that needed discussion, in such a report. Broadly, if 28 per cent⁶ persons of child-bearing age were practising contraception, proportionate reduction in birth rate could be expected. If the contraceptive practice was effective only to the extent of 87 per cent (see Table 5.18), the decline in birth rate of the city would be 24 per cent.

To summarize the findings in this chapter :

(a) The attitudes towards contraceptive practice in the city had remarkably changed during 1951-64.

(b) The extent of knowledge regarding contraception increased enormously as judged from the percentages of 12 and 98 knowing about contraception in 1951 and 1964 respectively.

⁶ This was the percentage obtained when child-bearing age was considered to be 13 to 47 years. If child-bearing age is considered to be 13 to 52 years, as done in the next chapter, the percentage is 26. For comparison of 1951 and 1964 performance the child-bearing age had to be considered as 13 to 52 years in the next chapter.

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(c) Condom and tubectomy seemed to be more acceptable to people recently than the other methods.

(d) Clinics worked effectively among the lower social groups in conducting tubectomies. But their contact with the masses was limited, as only 38 per cent of the people knew about the clinics. There was ample scope for promotional work by the clinics in this matter.

(e) Vasectomy which seemed popular in the past was probably more acceptable to the husbands of highly educated women in the city. But with the spread of contraception among the masses, vasectomy was likely to be less acceptable.

(f) Effectiveness of contraceptive methods was measured by the number of births prevented by their practice. Diaphragms and condoms were used by the general population of couples in the city with greater effectiveness than by the clinic visitors.

(g) The contraceptive practice in the city could reduce its birth rate by about 24 per cent. This was a very rough estimate and could be accepted only with more supporting data.

APPENDIX A₅

For assessment of attitudes of married persons towards contraception in 1964, one per cent random sample of households in the city of Poona was selected from 1961 census list of households. All married couples from the selected households were contacted to find their attitudes towards family planning. Did these married couples represent the general population of married residents of the city? It would be checked by comparing the socio-demographic characteristics of married men or women interviewed in the sample and of married men or women in the city as a whole. There being no other data available for the married from the 1961 census, only the ages of men and women in the two groups were compared. As seen from Tables A_{5.1} and A_{5.2}, the two percentage age distributions were fairly similar. This similarity was adequate for our purpose as age was the most important factor affecting the attitudes of the married towards contraception.

Table A_{5.1} : PERCENTAGE AGE DISTRIBUTIONS OF MARRIED MEN IN THE SELECTED SAMPLE OF 1964 AND OF MARRIED MEN IN THE CITY OF POONA IN THE 1961 CENSUS

| <i>Age group</i> | <i>Percentage of married men</i> | |
|--------------------|----------------------------------|-----------------------------|
| | <i>1964 Survey data</i> | <i>1961 census data</i> |
| —17 | — | 0·8 |
| 18—22 | 3·4 | 4·7 |
| 23—27 | 10·0 | 12·0 |
| 28—32 | 16·3 | 16·7 |
| 33—37 | 15·3 | 16·8 |
| 38—42 | 13·8 | 14·3 |
| 43—47 | 10·9 | 11·3 |
| 48—52 | 12·7 | 8·6 |
| 53—57 | 6·7 | 5·7 |
| 58— | 10·5 | 9·1 |
| Not reported | 0·4 | — |
| Total 100 = | 1336 | 121741 |

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Table A₃.2 : PERCENTAGE AGE DISTRIBUTIONS OF MARRIED WOMEN IN THE SELECTED SAMPLE OF 1964 AND OF MARRIED WOMEN IN THE CITY OF POONA IN THE 1961 CENSUS

| <i>Age group</i> | <i>Percentage of married women</i> | |
|-------------------|------------------------------------|-----------------------------|
| | <i>1964 Survey data</i> | <i>1961 Census data</i> |
| —17 | 3.1 | 6.0 |
| 18—22 | 15.5 | 14.8 |
| 23—27 | 16.2 | 20.1 |
| 28—32 | 18.4 | 18.4 |
| 33—37 | 13.5 | 14.1 |
| 38—42 | 12.1 | 10.1 |
| 43—47 | 8.4 | 6.8 |
| 48—52 | 7.6 | 4.5 |
| 53— | 4.6 | 5.2 |
| Not reported | 0.6 | — |
| Total 100= | 1336 | 117232 |

APPENDIX B₂

*Questionnaire for one per cent random sample of the citizens of
Poona city*

ATTITUDE TOWARDS FAMILY PLANNING

1. Name of the village*/town/city
2. Ward
3. House number
4. Date of investigation
5. Name of the investigator
6. Name of the head of the household
7. Caste
8. Occupation
9. Annual income

(B) Members in the family
and for each of them the following :

1. Name
2. Sex
3. Relation to the head
4. Age
5. Marital status
6. Educational level
7. Occupation

(C) Information regarding couples in the family :

| <i>Couple</i> | <i>Name</i> | <i>Dura- tion of marri- age</i> | <i>Annual income</i> | <i>Number of chil- dren born</i> | <i>Number of chil- dren living</i> | <i>Ages of the living sons</i> | <i>Ages of the living daughters</i> |
|---------------|-----------------|---|--------------------------|--|--|--|---|
| 1 | Husband Wife | | | | | | |
| 2 | Husband Wife | | | | | | |
| 3 | Husband Wife | | | | | | |

(D) For every couple :

1. Any information regarding family planning
2. Opinion regarding the importance of family planning
3. Opinion as to whether the subject, though personal, should be discussed publicly

* Inclusion of village and town here was due to the questionnaire being used for poona district as a whole.

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4. If informed about family planning, the methods known
5. Source of information regarding these methods and years passed since obtaining the information
6. Any knowledge regarding family-planning clinics
7. Names of the clinics known

(E) Any practice of contraception :

- (a) Practising at present
- (b) Practising in the past but not at present
- (c) Never practised contraception because
 - (i) Against family planning
 - (ii) Not against family planning but no need now due to old age
 - (iii) Not against family planning but no need now because of young age. Will practise contraception after getting..... (how many?) children
 - (iv) Decided to get sterilized after..... (how many?) children

(F) Only for those who are practising contraception i.e. for those reporting 'yes' in E (a) :

1. Method used
2. Source of getting the contraceptive
 - (a) Clinic
 - (b) Chemist's shop
 - (c) Arrangement for getting supplies at home (specify)
3. Regularity or otherwise of the contraceptive practice and its duration
4. If not regular, reasons for the same
5. Number of children desired
6. Notes

(G) Only for those who have dropped the use of contraceptive at present i.e. for those reporting 'yes' in E (b) :

1. Period of contraceptive practice in the past
2. Method practised
3. Source of getting contraceptives
4. Reasons for stopping the practice
5. Number of children desired
6. Notes

(H) Only for those who have never practised contraception i. e. for those reporting 'yes' in E (c) :

1. Informed or not regarding the methods of family planning
2. Any contraceptive practice planned for future
3. If yes, after how many children?
4. If no, why?
5. Number of children desired
6. If against family planning, reasons for it

- (I)
1. Knowledge regarding sterilization :
 - (a) Sterilization of the male
 - (b) Sterilization of the female
 2. Opinion regarding the utility of sterilization
 3. If sterilized :
 - (a) Wife sterilized
 - (b) Husband sterilized
 - (c) Place where sterilization performed
 - (d) Date of sterilization
 - (e) Any physical complaints after sterilization
If so, specify the complaints
 4. If no married partner sterilized :
 - (a) Is sterilization planned for future?
 - (b) If so, who will get sterilized?
 - (c) If no intention to get sterilized, reasons for it
- (J) Notes

APPENDIX C₅

The comparison of the attitudes towards family planning in 1951 and in 1964 for the city of Poona had to be based on the interviewed samples of the residents of the city in 1951 and 1964. Both were one per cent random samples from Poona city at two points of time. In 1951 after selecting a household, its head and his biological¹ family were enumerated, and an elaborate questionnaire assessing the attitudes towards family planning was addressed to the head of the family whether married or otherwise. The subject of family planning being new and taboo in the society in 1951, the questionnaire had to be framed in a manner suited to the prevalent conditions² in the city. On the other hand, in 1964, after selecting a household, all the married couples in it were contacted with a view to assessing their attitudes towards family planning. The situation as regards the subject of family planning was so changed during 1951-64 that the questionnaires had to be different in the two surveys, and both of them were well-suited to get good response at the respective time periods.

Certain aspects of the basic attitudes of married couples regarding their knowledge either about contraception and its practice or desire to practice or their attitudes towards the size of family could be compared for the two periods. In 1951 one per cent sample included 1180 heads of households of whom 850 were asked about their attitudes towards family planning. Of these only 778 heads were married. The rest were all widowed. In 1964, 1336 married couples of all ages were contacted to assess their attitudes towards family planning. In assessing the change in the attitudes in the city, it was necessary to examine the socio-economic set up of the two samples of 1951 and 1964. The similarity of samples was not a necessity for the comparison of attitudes. But if some change was observed in the characteristics of the two samples, its assessment could partly help us to ascertain the reasons behind the change in the attitudes. The period of 13 years was not short and some change was expected in the social set-up of the city. In certain matters, the data were not avail-

¹ Biological family of the head of the household consisted of his parents, brothers, sisters and children.

² Refer to 'Fertility and Mortality Survey of Poona District' by Dandekar and Dandekar, publication No. 27 of the Gokhale Institute of Politics and Economics, Poona-4, (India).

able in an exactly similar form in the two surveys. The socio-economic characteristics like caste, literacy, occupation were not available exclusively for the married couples in the 1951 survey. Hence certain broad comparisons were carried out with the help of available data as demonstrated below.

The ages of married men in the two samples of 1951 and 1964 are reproduced in Table C₅.1. They are similar except in the age group above 53 years and the group 38 to 42 years. A little smaller percentage in the age group 38 to 42 years in 1964 compensated for a larger percentage in older ages in the sample. So far as attitudes towards family planning were concerned, with such an age distribution of 1964 one could expect a larger percentage of men in that year who were not concerned with family planning. As could be judged from the findings in the chapter this could only depress and hide certain marked differences in the attitudes observed at two points of time.

Table C₅.1 : COMPARISON OF AGE DISTRIBUTIONS OF MARRIED MALES IN 1951 AND IN 1964 FOR WHOM DATA REGARDING FAMILY PLANNING WERE COLLECTED

| <i>Age group</i> | <i>Percentage of married males</i> | |
|------------------|------------------------------------|------|
| | 1951 | 1964 |
| —27 | 13·5 | 13·4 |
| 28—32 | 16·6 | 16·3 |
| 33—37 | 16·9 | 15·3 |
| 38—42 | 17·3 | 13·8 |
| 43—47 | 11·4 | 10·9 |
| 48—52 | 12·3 | 12·7 |
| 53— | 12·0 | 17·2 |
| Not reported | — | 0·4 |
| Total 100 = | 778 | 1336 |

The caste composition for the two periods under survey was compared for the selected households in 1951 and 1964 as in Table C₅.2. This aspect of the social bearing of the city was not likely to change during 1951-64 unless by exceptional movements or growths of different castes. Except for a slightly higher percentage of Muslims and a smaller percentage of Christians in 1964, the sizes of other caste groups seemed similar. This slight change again was of little signi-

finance in affecting the attitudes towards family planning in the two periods.

Table C_{5.2} : CASTE COMPOSITION OF HOUSEHOLDS SURVEYED IN 1951 AND IN 1964

| <i>Caste</i> | <i>Percentage of households</i> | |
|------------------------------|---------------------------------|-------------|
| | 1951 | 1964 |
| Brahmins | 26.1 | 25.3 |
| Advanced Hindus | 12.0 | 12.8 |
| Marathas | 26.3 | 24.2 |
| Intermediate Hindus—artisans | 8.3 | 6.5 |
| Intermediate Hindus—others | 4.0 | 7.3 |
| Mahars | | 3.6 |
| Other depressed castes | 8.5 | 4.8 |
| Backward castes | 1.7 | 2.9 |
| Muslims] | 7.8 | 11.1 |
| Christians and others | 5.3 | 0.9 |
| Not given | — | 0.6 |
| Total 100 = | 1180 | 1176 |

Table C_{6.3} displays the differences in the occupational compositions of the two periods. As revealed by the table there was a marked

Table C_{6.3} : OCCUPATIONAL DISTRIBUTION OF HOUSEHOLDS SURVEYED IN 1951 AND IN 1964

| <i>Occupation</i> | <i>Percentage of households</i> | |
|--|---------------------------------|-------------|
| | 1951 | 1964 |
| Unskilled manual work | 18.5 | 24.2 |
| Skilled manual work | 19.7 | 9.2 |
| Lowest professions, administrative posts, primary teachers, etc. | 8.0 | 6.5 |
| Small business | 9.8 | 2.5 |
| Highly skilled and supervisory manual work | 4.2 | 11.3 |
| Clerks and shop assistants | 12.5 | 5.1 |
| Intermediate professions, salaried posts, secondary teachers, etc. | 5.3 | 8.2 |
| Medium business | 8.1 | 9.9 |
| Higher professions and salaried posts | 2.0 | 1.8 |
| Owners of factories, large shops, etc. | 1.3 | 0.2 |
| Beggars, prostitutes and pensioners, etc. | 10.6 | 11.8 |
| Unspecified | — | 9.3 |
| Total 100 = | 1180 | 1176 |

change in the occupational structure. But the change of the structure, whether more urbanized or less urbanized, in 1964, could not be easily judged. To study the change it was necessary to examine the methods of classification of occupations in the two surveys and also the price changes during 1951-64 that affected the attitudes towards classification. This was beyond the scope of the present study and no use was therefore made of changes in the occupational structure in the analysis of the changes in attitudes towards family planning in 1951 and 1964.

Literacy appeared to be an important factor in affecting the changes in the attitudes of people towards family planning. Educational level of the married was not available for 1951. Hence in Table C_{5.4} the educational level of the male heads of 1951 is compared with that of the married men of 1964 sample. A slightly higher level of education in 1964 could be responsible for an increase in the family-planning practice of the city.

Table C_{5.4} : EDUCATIONAL DISTRIBUTION OF MALES IN 1951 AND 1964

| <i>Educational level</i> | <i>Percentage of males</i> | |
|---|----------------------------|------|
| | 1951 | 1964 |
| Illiterate | 18.0 | 16.3 |
| Literate up to 7th standard | 45.8 | 46.7 |
| Above 7th standard but below S. S. C. | 13.5 | 8.2 |
| S. S. C. passed, below graduation level | 15.4 | 18.9 |
| Graduate or above | 6.9 | 9.2 |
| Not given | 0.4 | 0.7 |
| Total 100 = | 1115* | 1336 |

* All male heads interviewed in 1951.

CHAPTER VI

IMPACT OF FAMILY PLANNING ON BIRTH RATE

IN THE PRECEDING CHAPTERS it was found that the attitudes towards family planning had changed perceptibly during 1951-64 in the city of Poona. Knowledge regarding contraception and the effectiveness with which contraceptives were practised suggested an appreciable change in the birth rate of the city. Had the birth rate in the city declined? Nobody knew. Vital registration, especially registration of births, was not reliable¹. It was believed to have improved recently. But generally it was unreliable and more so around 1951. The decline in birth rate could not therefore be assessed on the basis of birth registration for the city. Census data for the city in 1951 and 1961 could not reveal any decline in birth rate because census index of birth rate was based on child : woman ratio among the living population and was thus affected by births as well as deaths, specially the infant deaths. The decline in deaths of infants² in the city was imagined to be very pronounced during 1951-61, but its measure, based on registration, was extremely uncertain. The decline in births of small order could not therefore be easily demonstrated by child:

¹ It is discussed in the following chapter. Registered birth rate for the city lingered near-about 31 births per thousand of population during 1948-1966.

² The registered death rate of infants declined from 217 deaths to 94 deaths per thousand births during 1948-66.

woman ratios. Hence to assess the change in birth rates of the city, recourse had to be taken to sample surveys, though birth rates based on sample surveys have also their limitations.

Sample surveys were conducted in the city of Poona in 1951 and 1964, and a great deal of data regarding prevalent fertility pattern was collected in both the surveys. These could be utilized in assessing the change in the birth rates of the city. In the surveys conducted in 1951 and 1964, women of child-bearing age reported births to them in the preceding years. The exact form in which they were reported was not necessarily the same. Moreover the completeness of their reporting had to be checked. There were also instances of the misreporting of ages in the first year of life of infants, which distorted the number of births in a year. Verifying infant death rate, so necessary for checking the completeness of births, was not simple in the absence of requisite precise data; but certain broad plausible assumptions could be made with regard to this rate. Sex-ratio of births also could be broadly estimated with comparative ease so that gross misreporting of births of a sex could be detected. This has been attempted in the subsequent paragraphs so that comparisons could be effected for the two-point data on fertility from the two surveys mentioned above.

The comparison between the birth rates and the fertility patterns in 1951 and 1964 was based on the data collected in house-to-house surveys conducted in the city of Poona. The surveys elicited the required information by interviewing a one per cent random sample of the residents of Poona. Two kinds of data were gathered regarding fertility. These included total fertility performance of couples in their lifetime and that in the year preceding the enquiry. As for the latter the year under survey was not the same from one household to another. It was a moving year in both the surveys. Though the surveys covered some portions of the previous and the following years, they mostly referred to years 1951 and 1964. Thus the surveys could be utilized to compare the fertility performance in specific years 1951 and 1964 as well as the total past performances observed at these two points of time.

The comparison between 1951 and 1964 could not be ideal because of the difference in emphasis in the two surveys. In 1951, main inte-

rest was in knowing the levels of fertility measured in terms of age-specific fertility rates. Family planning was rarely practised or discussed in those days. Hence, through questions and cross questions the fertility of the residents was assessed. In 1964 the social conditions had remarkably changed and family planning was openly discussed more frequently. It led to an emphasis on the family-planning aspect of the residents of Poona in the 1964 survey and comparatively less cross-questioning on data regarding births. If emphasis on the fertility aspect in 1964 were to be as in 1951, the questionnaire would have been overloaded to the detriment of favourable response from the interviewed. In other words, the two surveys of 1951 and 1964 could be branded as fertility survey and family-planning survey respectively. The distinction, though small, called for attention because of the differences in kinds of fertility data collected in the two surveys. The data could be described as follows :

| <i>Fertility data collected for</i> | <i>Survey Year</i> | |
|---|--------------------|---------------|
| | 1951 | 1964 |
| <i>I. - One preceding year</i> | | |
| (i) No. of children born and living in the preceding year | Available | Available |
| (ii) No. of children born and dead in the preceding year | Available | Not Available |
| <i>II. Total fertile period that preceded</i> | | |
| (i) No. of living children | Available | Available |
| (ii) No. of dead children | Available | Available |

As can be seen from the above, the data collected in 1964 were weak because of the absence of information on dead children born in the year of enquiry. This is amply borne out by the following discussion. Firstly, an attempt has been made to compare the data in the two surveys as they were collected without any attempt to evaluate the data or to improve them. The comparable data only indicated some possibilities of decline in the fertility rate during 1951-64. But checking the data for the two surveys revealed some defects in the data. After correcting for these defects an improved estimate of change in the fertility rate of the city was obtained. It involved some assumptions which are discussed in the relevant places. The whole discussion on the change in fertility rates during 1951-64

has been divided into three parts, namely, (1) change in fertility rates as revealed through comparable data in the two surveys without any refinement of the data, (2) checking and refinement of the data occasionally involving certain assumptions, and (3) change in fertility rates in the two surveys as revealed through refined data.

1. *Change in birth rate assessed with unrefined data*

The number of living children in the two years of enquiry could be compared. The age-specific fertility rates based on the number of children born and living in 1951 and 1964 are presented in Table 6.1. The percentage decline in the fertility rates based on these is given in the last column of the table. The decline in fertility levels observed was 30 per cent. Obviously this decline was affected not by changes in birth rates alone but by important changes in death rates too. The infant death rate was estimated to have declined from 162 to 132³ during 1951-1964, and hence the number of living children in 1964 compared to the number of children born in 1964 was likely to be proportionately larger than that in 1951. Hence the comparison in Table 6.1 could not yield a valid comparison between fertility rates at two points of time, especially when accompanied by predominant changes in infant mortality rates. The comparison of total number of children born to women in their lifetime observed at two points of time proved still more fruitless, because it enfolded the comparison of fertility of women over a number of years passed in child-bearing spread over more than 20-25 years. The relevant data shown in Table 6.2 reveal the percentage decline in fertility to be 13. Of course, this decline did not represent the decline between the two years of enquiry namely 1951 and 1964. Thus, both the comparisons indicated a definite decline in fertility, particularly so if mortality and the infant mortality had declined during the intervening years 1951-64. The problem was to assess the decline in relatively precise terms. The best method could be to get age-specific fertility rates for 1951 and 1964 that were based on the number of children born in the two years of enquiry only.

Getting the fertility rates for 1951 presented no difficulties as the data regarding all children born in the year of enquiry were available. But in the case of 1964, the figures for children born and dead

³ See Chapter VII.

Table 6.1 : AGE-SPECIFIC FERTILITY RATES BASED ON THE NUMBER OF CHILDREN BORN AND LIVING IN 1951 AND 1964

| <i>Age group</i> | 1951 | | | 1964 | | | <i>Percentage decline in fertility rates during 1951—64</i> |
|------------------|---------------------------------|--|--|---------------------------------|--|--|---|
| | <i>No. of married women</i> | <i>No. of children born and living in 1951</i> | <i>Fertility rate per 1000 women</i> | <i>No. of married women</i> | <i>No. of children born and living in 1964</i> | <i>Fertility rate per 1000 women</i> | |
| 13—17 | 33 | 7 | 212·1 | 41 | 3 | 73·2 | —65 |
| 18—22 | 164 | 28 | 170·7 | 207 | 44 | 212·6 | 25 |
| 23—27 | 176 | 52 | 295·5 | 216 | 45 | 208·3 | 30 |
| 28—32 | 188 | 42 | 223·4 | 247 | 42 | 170·0 | 24 |
| 33—37 | 109 | 24 | 220·2 | 181 | 14 | 77·3 | 65 |
| 38—42 | 129 | 12 | 93·0 | 161 | 7 | 43·5 | 53 |
| 43—52 | 158 | 5 | 31·6 | 213 | 3 | 14·1 | 55 |
| Total | 957 | 170 | 177·6 | 1266 | 158 | 124·8 | 30* |

* Percentage decline after standardizing the age distribution.

Table 6.2 : AVERAGE NUMBER OF CHILDREN BORN IN LIFETIME, TO WOMEN OF DIFFERENT AGES IN 1951 AND 1964

| Age group | 1951 | | 1964 | | Percentage of decline during 1951-64 |
|-----------|----------------------|------------------------------|----------------------|------------------------------|--------------------------------------|
| | No. of married women | Average No. of children born | No. of married women | Average No. of children born | |
| 13-17 | 33 | 0.2 | 41 | 0.1 | 50 |
| 18-22 | 164 | 1.3 | 207 | 1.0 | 23 |
| 23-27 | 176 | 2.8 | 216 | 2.5 | 11 |
| 28-32 | 188 | 4.2 | 247 | 3.8 | 10 |
| 33-37 | 109 | 5.3 | 181 | 4.8 | 9 |
| 38-42 | 129 | 6.0 | 161 | 5.2 | 13 |
| 43-52 | 158 | 6.3 | 213 | 5.3 | 16 |
| Total | 957 | 4.0 | 1266 | 3.6 | 13* |

* Percentage decline after standardizing the age distribution.

during the year were not available and they had to be estimated. By assuming an infant mortality rate of 132⁴ per thousand births for the year 1964, the age-specific fertility rates for the year were calculated. These rates, along with the corresponding rates for 1951 are presented in Table 6.3 for comparison of fertility patterns in the two years under consideration. The last column of the table presents the decline in age-specific fertility rates during 1951-64, and the percentage decline given in the last row indicates that there was an overall decline of 27 per cent in the birth rate of the city. This decline, though impressive, was unreliable, for even the registered birth rate was nearabout 31 in 1964. The estimate of birth rate for 1951 was nearabout 40 for the city of Poona. This meant that the decline in birth rate could either be about 22 per cent, or the birth rate for the city of Poona was higher than 40, in fact about 43, in 1951 in order to have a decline of 27 per cent during 1951-64 with an assumption of no under-registration in 1964. If this latter estimate of birth rate for the city of Poona is ruled out as implausible⁵,

⁴ Plausibility of this assumption will be thoroughly discussed in the following chapter. Here one could only mention that a big range of infant mortality rates like 100 to 150 infant deaths per thousand births made only a difference of five per cent in the estimated number of births. The estimate of infant mortality rate of 132 was based on refined registration data.

⁵ No estimate of birth rate for any area in Maharashtra exceeded 40 births per thousand of population. Hence for a city like Poona, which was the second biggest in the State, birth rate was not expected to be higher than 40. This statement, however, claims no certainty. Moreover the attempt was to ascertain the decline in fertility in 1964 compared to 1951.

Table 6.3 : AGE-SPECIFIC FERTILITY RATES OF WOMEN BASED ON THE NUMBER OF CHILDREN IN 1951 AND 1964

| <i>Age group</i> | 1951 | | | 1964 | | | <i>Percentage decline in fertility rates during 1951—64</i> |
|------------------|---------------------------------|---|--|---------------------------------|--|--|---|
| | <i>No. of married women</i> | <i>No. of children born in 1951</i> | <i>Fertility rate per 1000 women</i> | <i>No. of married women</i> | <i>No. of children born in 1964*</i> | <i>Fertility rate per 1000 women</i> | |
| 13—17 | 33 | 7 | 212.1 | 41 | 3 | 73.2 | 65 |
| 18—22 | 164 | 32 | 195.1 | 207 | 48 | 231.9 | —19 |
| 23—27 | 176 | 54 | 306.8 | 216 | 50 | 231.5 | 25 |
| 28—32 | 188 | 44 | 234.0 | 247 | 46 | 186.2 | 20 |
| 33—37 | 109 | 25 | 229.4 | 181 | 15 | 82.9 | 64 |
| 38—42 | 129 | 13 | 100.8 | 161 | 8 | 49.7 | 51 |
| 43—52 | 158 | 5 | 31.6 | 213 | 3 | 14.1 | 55 |
| Total | 957 | 180 | 188.1 | 1266 | 173 | 136.7 | 27** |

* Estimated on the basis of infant mortality rate of 132 per 1000 live births.

** Percentage decline after standardizing the age distribution.

there was no possibility of 27 per cent decline in birth rate of the city. Such considerations as these led to a further examination of the data on births in 1951 and in 1964. Was it that differential level of the misreporting of births in the two years of survey resulted in an exaggerated estimate of 27 per cent decline in the birth rate during 1951-64? What were the likely reasons for differential level of misreporting, if any, in the two surveys? Answers to such questions are sought in the following paragraphs.

2. *Checking and refinement of the fertility data*

The possible misreporting of births in the two surveys was examined in respect of (a) the sex-ratio of births, (b) the misreporting of ages in the first year of life, and (c) the differential reporting of living and dead children in 1951 and 1964. These three aspects are discussed separately in the subsequent paragraphs.

(a) The sex-ratio at birth is supposed to be a biological factor and is assumed to have a value of about 105 male births to 100 female births in India as well as in most other countries. In actuality the registered birth rates in the city of Poona indicated 108 male births per 100 female births as will be seen in the next chapter. It meant two possibilities. One was that the sex-ratio at birth was actually nearabout 108:100 rather than 105:100; or the female births were under-enumerated. But the figure 108:100 was observed so consistently for 18 years 1948-66⁶, that one wondered whether it should not be accepted as a fact. Moreover, with change in the level of reliability of data during the decade 1951-61, the value of sex-ratio at birth did not change. It helped in having confidence in the observed value of the sex-ratio. The observed births in 1951 and 1964 surveys had therefore to be examined for their sex-ratio in the light of the figures mentioned above. In 1951, 180 births were observed in the surveyed sample. Out of them, 83 were male and 97 were female. The observed sex-ratio was thus 86 male to 100 female births. As among the 170 children reported to be living at the time of the enquiry of 1951, 81 were males and 89 females giving the sex-ratio as 91 male per 100 female living children. This ratio was higher than that for children born, though males die at a higher rate than females in infancy. Similar examination of the living children under one year for 1964

⁶ Observations are based on more than 300,000 births registered over 18 years from 1948 to 1966 in the city of Poona.

showed that there were about 90 males per 100 females. Thus there was under-reporting of male births occurring in both the years of survey. The observed sex-ratios could, however, arise even due to sampling fluctuations and hence on the strength of a close scrutiny of sex-ratios, under-reporting could not be corrected. The inspection of other aspects of the misreporting of births could perhaps throw light on the extent of under-reporting suspected here.

(b) The reporting of ages of the living children born in the years 1951 and 1964 was scrutinized. The reported ages of the living children under one year are shown in Table 6.4. The number of women observed in 1951 and 1964 were respectively 957 and 1266, i.e. the number observed was 32 per cent higher in 1964. However, the total number of infants was smaller in 1964 than in 1951. The possible explanation could be found in the following : (i) the age distribution of the mothers was slightly different in the two surveyed years; (ii) the birth rate had probably changed during 1951-64; and (iii) the infant death rate had also probably changed during 1951-64. But the age distribution of living children below one year in the two surveyed years could not be affected by (i) and (ii). Only (iii) could affect the age distribution in Table 6.4. There too, the change in infant mortality could effect only a slight change in the

Table 6.4 : AGE DISTRIBUTIONS OF LIVING CHILDREN UNDER ONE YEAR OF AGE IN 1951 AND 1964

| <i>Age in months</i> | <i>Number of living infants</i> | |
|----------------------|---------------------------------|------------|
| | 1951 | 1964 |
| Up to 1 | 14 | 9 |
| — 2 | 14 | 10 |
| — 3 | 13 | 20 |
| — 4 | 12 | 15 |
| — 5 | 7 | 13 |
| — 6 | 21 | 17 |
| — 7 | 19 | 18 |
| — 8 | 20 | 14 |
| — 9 | 13 | 16 |
| — 10 | 11 | 14 |
| — 11 | 12 | 11 |
| — 12 | 14 | 4 |
| Total | 170 | 161 |

age distribution, because examination of the model life tables showed that at high levels of mortality prevalent in the city, a decline in infant mortality by about 50 points was not likely to effect major changes in the age distribution. Hence the percentage age distributions in 1951 and in 1964 could not be expected to be much different. However, the age distributions for infants in Table 6.4 are different for the two years of survey. Obviously there is some misreporting. Since it is possible to estimate the age distribution of infants for a given level of infant mortality, the expected age distributions for the two years of survey have been discussed in the subsequent paragraphs.

So far as 1951 age distribution was concerned, one could easily see in Table 6.4 that there was under-reporting of children aged five months and a corresponding over-reporting for age six months. Similarly, over-reporting of children at age eight months in the table was compensated for by very slight under-reporting in the neighbouring age-months. However, on the whole, there was no gross misreporting at the two extremes of the first year of age. Usually the under-reporting of children in the first year of age was due to non-reporting of the newly born or due to over-reporting the age as one completed year when the babies were in the last months of the first year of age. But the 1951 age distribution in Table 6.4 had no such indications. For details see Appendix A₆. An attempt was similarly made to check the age distribution of those born in 1964. It showed definite tendencies of under-reporting at the two extremes (see Table 6.4) and therefore the age distribution of 1964 was scrutinized further. The age distribution of 2000 infant deaths in the vital registers of Poona in 1964 revealed that the distribution of deaths in the first year of age was as shown in Table 6.5. Obviously the biggest toll of deaths in the first year was in the first four weeks and a sudden fall in death rate in the second month of life was followed by gradual decline in the subsequent months of the first year. With such a schedule of death rates in the various months of the first year, one could estimate an expected age distribution of infants born in a given year. The method of estimation is described in Appendix A₆ at the end of this chapter for both the survey years 1951 and 1964.

The expected and observed number of children aged various months in the first year of life in 1964 is set out in Table 6.6. Obviously the

number of observed children in the first and last two months of the year was much smaller than expected. The expected cohorts of births for children observed at various age-months were calculated as in Table A_{6.2} of Appendix A₆. They are set out in column three of

Table 6.5 : DEATH DISTRIBUTION BY AGE IN THE FIRST YEAR OF LIFE IN THE CITY OF POONA IN 1964

| <i>Age at death</i> | <i>Percentage of deaths</i> |
|---------------------|-----------------------------|
| Up to 4 weeks | 52.6 |
| — 2 months | 8.8 |
| — 3 months | 6.0 |
| — 4 months | 5.2 |
| — 5 months | 3.7 |
| — 6 months | 3.2 |
| — 7 months | 5.0 |
| — 8 months | 2.6 |
| — 9 months | 3.8 |
| — 10 months | 3.5 |
| — 11 months | 3.4 |
| — 12 months | 2.2 |
| Total | 100.0 |

Table 6.6 : EXPECTED AND OBSERVED NUMBER OF CHILDREN IN THE FIRST YEAR OF LIFE IN 1964

| <i>Age</i> | <i>Observed number of children</i> | <i>Expected births*</i> | <i>Expected number of living children**</i> |
|---------------|------------------------------------|-------------------------|---|
| Up to 4 weeks | 9 | 9.6 | 16.6 |
| — 2 months | 10 | 10.8 | 16.4 |
| — 3 months | 20 | 21.8 | 16.2 |
| — 4 months | 15 | 16.5 | 16.1 |
| — 5 months | 13 | 14.4 | 16.0 |
| — 6 months | 17 | 18.9 | 15.9 |
| — 7 months | 18 | 20.1 | 15.8 |
| — 8 months | 14 | 15.7 | 15.8 |
| — 9 months | 16 | 18.1 | 15.7 |
| — 10 months | 14 | 15.9 | 15.6 |
| — 11 months | 11 | 12.6 | 15.5 |
| — 12 months | 4 | 4.6 | 15.4 |
| Total | 161 | 179.0 | 191.0 |

* On the basis of observed number of children in the previous column (See also Appendix A₆).

** On the basis of estimates indicated in Appendix A₆.

Table 6.6. The cohorts based on the data for middle eight months could be considered reliable. In order to get estimates of births in months with unreliable data, the average of expected births in the middle eight months was utilized. Thus the expected number of living children was estimated on the basis of 17.7 births for the first and the twelfth month. The estimated numbers of living children for the first and the twelfth month only were replaced because the numbers in these two months were grossly under-reported. This could result in 19.0 additional living children in the year of survey, namely, 1964. Thus the estimated number of living children would be $161 + 19.0$, i.e. 180. The number of births in 1964 was thus estimated at 198.3, assuming an infant mortality rate of 132 (as estimated in the next chapter). Thus the consideration of the second aspect of reported births based on reported ages of children below 12 months led to the estimation of births in 1964. It was extremely useful because, in 1964 survey, only the living children under one year of age were reported with their ages. The dead children not being known, the above calculations proved very serviceable for estimating the number of births in 1964.

(c) The differential reporting of living and dead children in 1951 and 1964 is another aspect that was employed to correct the birth statistics of 1951 and 1964. The reported numbers of living and dead children from births occurring in 1951 were 170 and 10 respectively. This meant that the number of dead children among 180 born in 1951 was reportedly only 10. The deaths under one year of age of children born in any year might occur in the same calendar year or in the following year. The usual ratio assumed for infant deaths in the calendar year of birth and in the following year is 70:30. The infant mortality rate was found to be nearabout 162 deaths per thousand of births for the year 1951 from the registration data.⁷ On the other hand, the reported deaths in the survey led to an infant mortality rate of 79.4 per thousand births. There were clear indications of the under-reporting of infant deaths. With an infant mortality rate of 162, the expected number of births would be 191.7, if the living children reported under age one were 170. It thus depicted an under-reporting of dead infants in 1951. Moreover, among the reported infant deaths there were only two males and eight females. Usually

⁷ See the next chapter on vital registration of the city.

for the prevalent conditions in Indian communities one expected a larger number of male infant deaths, and this could be expected for Poona City too. Hence one could assume the under-reporting of male infant deaths in the survey of 1951. This assumption was consistent also with the first aspect of under-reporting of male births found in the city survey in 1951 while discussing the sex-ratio at birth, namely, aspect (a) discussed above. The reported number of births was therefore adjusted for under-reported infant deaths in 1951. Thus the consideration of the aspect of differential reporting among the dead and living children could help to improve on the number of reported births in 1951 survey. As for 1964 survey, the information on dead infants of those born in 1964 being dropped from the demographic enquiry, question of differential reporting of dead and living children did not arise.

3. *Change in fertility rates in the two surveys as revealed through refined data*

The fertility rates presented in Table 6.7 were obtained with the data refined as described in (c) above. The assessment of the reported births in the surveys of 1951 and 1964 under the three aspects of possible misreporting no doubt led to improvement in the data regarding the births in the two surveys. With such improved data the number of births in 1964 was 198.3. Had the age-specific fertility rates of 1951 set out in Table 6.7 prevailed in 1964, the number of births would have been 251.7. It meant a decline of 21.2 per cent in the birth rate of the city. The decline observed in Table 6.3 was 27 per cent. After modifying the number of reported births for the likely under-reporting, the decline seemed to be 21.2 per cent. Is the latter estimate more reliable?

With all the care taken by testing the reliability of the data and making the adjustments for improving it, one felt uncertain about the decline in birth rate obtained in this manner. Its reliability could, however, be strengthened if another method were to yield similar result. The alternative method had to be independent of the fertility rates observed in the years of survey. But, as will be found in the subsequent paragraphs, the method was based on the knowledge regarding the practice of contraception and the total number of children born to contraceptors during their life time. It was this latter factor that came in the way of the complete independence of

Table 6.7 : ESTIMATED AGE-SPECIFIC FERTILITY RATES IN 1951 AFTER MAKING ADJUSTMENTS FOR UNDER-REPORTING OF DEAD CHILDREN

| <i>Age group</i> | <i>No. of married women</i> | <i>Estimated* No. of births in 1951</i> | <i>Fertility rate per 1000 women</i> | <i>Smoothed values of fertility rates**</i> |
|------------------|-----------------------------|---|--------------------------------------|---|
| 13—17 | 33 | 8 | 242.4 | 117 |
| 18—22 | 164 | 32 | 195.1 | 265 |
| 23—27 | 176 | 58 | 329.5 | 312 |
| 28—32 | 188 | 47 | 250.0 | 269 |
| 33—37 | 109 | 27 | 247.7 | 191 |
| 38—42 | 129 | 14 | 108.5 | 102 |
| 43—52 | 158 | 6 | 38.0 | 34 |
| Total | 957 | 192 | 200.6 | 201 |

* Estimated on the assumption of infant mortality rate of 162 per 1000 live births in 1951.

** Smoothed and adjusted for the total number of 192 births.

the second method of estimation of change in birth rate during 1951-64. However, it can be granted that the contraceptors of 1964 were generally good respondents and gave out reliable information on contraception as well as the number of children. From this point of view the estimate in 1964 was independent of the responses from non-contraceptors and independent of birth performance only in the year of survey.

An alternative independent estimate of fertility decline for the city during 1951-64 was possible in the present case because information on contraception activity in the city and its effectiveness were known.⁸ Generally, the major contribution to decline in fertility resulted from sterilization whose effectiveness was not in doubt. The remaining contribution to decline in birth rate came from appliance-contraception. Its effectiveness as examined in the earlier chapters was perfectly normal as judged from its comparison with similar studies elsewhere.⁹ Moreover one believed in contraception histories reported by the couples. Misreporting, if any, could be by concealing the practice rather than exaggerating it. Hence an independent esti-

⁸ Fertility and contraception were in a way complements of the same process, and measurement based on each separately was expected to be the same.

⁹ Refer to foot-note 1 of Appendix B₂ of chapter III and Table 5.18 of chapter V.

mate of expected decline in birth rate due to contraception during 1951-64 as well as in 1964 could be compared with the estimate obtained above. Thus the two estimates of the decline in birth rate could be referred to as (i) based on fertility performance, and (ii) based on contraception. The first one was described in the earlier paragraphs. The second one is described in the paragraphs that follow.

As noticed in the last chapter, 334 (26 per cent) out of 1266 couples in reproductive ages were attempting to put a stop to their child-bearing. The fertility could therefore decline by 26 per cent in 1964 as compared to the fertility in 1951 when little contraception was practised. But all couples were not equally fertile nor were they of the same age. Usually the appliance contraceptors belonged to the ages of peak fertility. Moreover, in spite of contraception some could produce children. On the other hand the sterilized were advanced in age and had comparatively lower fertility. All such complications could not bring down the birth rate by 26 per cent—a decline proportionate to the number of contraceptors in the population. The problem therefore arose as to the assessment of fertility of contraceptors practising various methods. It was this fertility that was restricted due to contraception. For instance, one started wondering whether the sterilized persons were as fertile as the others of the same age.

In order to deal with the problem, all the couples interviewed in 1964 were divided into three groups, namely (i) sterilized couples, (ii) non-sterilized contraceptors, and (iii) others. If the three groups had different levels of fertility, it was worth while comparing them with that of a population that was unaffected by contraception. One was thus curious to know the number of pregnancies or births that were prevented through several contraceptive practices. For this purpose the total fertility performance in 1964 could not be depended upon, because it was affected by contraceptive practices besides of course the fact that an estimate independent of fertility performance in 1964 was required. Moreover, fertility of the non-contraceptors of 1964 was not the fertility of a normal non-contraceptor population. The non-contraceptors in 1964 were likely to include a larger than normal proportion of sub-fertile couples including the permanently or temporarily sterile. Hence to judge the differential

levels of fertility of the three groups mentioned above, the fertility rates of 1951 were made use of, as the interviewed couples of 1951 were little affected by contraceptive practice. Here, however, one has to remember that the interest was in knowing the general biological level of fertility of the three groups and not the specific level in the year 1964. Such a distinction was deemed necessary because from the former level one determined the fecundity level of several categories of couples as a whole from their past fertility performance and from the latter one could determine the number of births that were prevented in 1964 because of contraception. In the subsequent paragraphs the general level of fecundity of various categories of contraceptors has been examined.

As the sterilized couples formed 13 per cent of the couples of child-bearing age in 1964, the number of births prevented could be 13 per cent of the expected births in 1964. But the age composition of the sterilized was not the same as that of the other couples, and the sterilized having wives aged about 30 at the time of sterilization were on the declining fertility curve. Hence the prevented number of births due to sterilization could be less than 13 per cent. But there was a belief that those who got sterilized had a higher fecundity than the average of the corresponding general population of the same age. The difference in the two groups of fertility of the sterilized and the non-sterilized could be judged from their past fertility performance, i.e. from their total number of children up to the time of sterilization, while births prevented would depend on their expected fecundity in a given calendar year, say 1964, which was latent. Did the past fertility of the sterilized exceed that of other couples at the same ages?¹⁰

The total number of children born to couples till the age of sterilization was compared to that born to couples in the City of Poona of the same age group in 1951—the year relatively unaffected by contraception. Table 6.8 displays the relevant data. Obviously the number of children to the sterilized was larger than that to the other group by 29 per cent. The difference in the number of children was larger in the earlier age groups than in the more advanced age group. What does it signify? It signifies that the younger the age at sterili-

¹⁰ Here one could consider the fertility or its differentials by duration of marriage. But since all the calculations regarding fertility or contraception or its effectiveness throughout the report are with reference to age, durationwise fertility was considered only when necessary as discussed in the text.

zation the larger was the difference in the fertility of the two groups. This was not unexpected.¹¹ Generally people desired a specific number of children. Once they had it, they got sterilized. The earlier they had it, the more fertile they must have been, the assumption being that couples of a given age group in the two categories were exposed to pregnancies for the same number of years. From this point of view the marriage duration specific fertility rates of the sterilized and of the general population of 1951 for couples in the various age groups were compared and found again to be higher for the sterilized as shown in Table 6.9. The fertility of the sterilized was here seen to be 24 per cent higher than that of the general population of 1951. Thus the sterilized couples seemed more prolific for their age. Because of their sterilization, births that would occur to them at the various ages of the reproductive span would be prevented. Generally the fertility of the sterilized was 29 per cent higher than that of the general non-contraceptor population like that of 1951¹² as observed in Table 6.8. Hence the number of births prevented due to sterilization effective¹³ in 1964 was calculated by raising the expected number of births to the sterilized by 29 per cent of those of the general population¹⁴ unaffected by contraception. This last resulted in the estimate of births that were prevented due to sterilizations. The method

¹¹ Nobody who is sterile would get sterilized. In any society such couples were usually expected to be four to five per cent. Certain couples were incapable of producing more than one or two children. They formed about seven per cent. Thus these 11 to 12 per cent couples would never opt for sterilization.

¹² In certain 'Evaluation Studies' on Family Planning, the fertility of the sterilized is assumed to be 20 per cent higher than that of the general population. This assumption had, however, no support of specific data as seen in the studies. (See the paper by Byung Moo Lee and John Ibsister on 'The Impact of Birth Control Programs on Fertility' in *Family Planning and Population Programs*, ed. Bernard Berelson and others, published by the University of Chicago Press, 1966.) According to us the difference between fertility levels of sterilized and non-sterilized could change from one society to the other depending on the level of motivation to limit the size of family. In societies with higher level of motivation, the difference in the levels of fecundity of the sterilized and non-sterilized could be smaller. But with lower levels of motivation the corresponding difference could be larger.

¹³ Whatever the number of sterilizations and whenever they were sterilized they were supposed to reduce birth rate to the extent they were effective in 1964. Sterilizations undergone in the year of enquiry were treated as not effective in reducing the birth rate for that year and hence were excluded. This is worth recording particularly when tubectomy was popular and it was conducted when women delivered babies.

¹⁴ This no doubt is a crude way since an overall adjustment of 29 per cent is effected rather than considering the prevented cumulated births above each age group. Since a large proportion of sterilizations were conducted after age 28 years, it seemed better to assume 19 per cent higher fertility for the sterilized group taken as a whole.

Table 6.8 : AVERAGE NUMBER OF CHILDREN BORN TO MARRIED WOMEN OF VARIOUS AGES UP TO 1951 AND TO WIVES AMONG THE STERILIZED COUPLES BEFORE STERILIZATION

| Age group (1) | Married women, 1951 | | Sterilized couples, 1964 | | Percentage difference* in columns 3 and 5 (6) |
|------------------|---------------------|---|--|--|--|
| | No. of women (2) | Average No. of children born to them till 1951 (3) | No. sterilized at specific ages (4) | Average No. of children born to them before sterilization (5) | |
| 13—17 | 33 | 0.2 | — | — | — |
| 18—22 | 164 | 1.3 | 10 | 3.4 | 162 |
| 23—27 | 176 | 2.8 | 48 | 4.4 | 57 |
| 28—32 | 188 | 4.2 | 61 | 5.3 | 26 |
| 33—37 | 109 | 5.3 | 34 | 6.1 | 15 |
| 38—42 | 129 | 6.0 | 9 | 6.4 | 7 |
| 43—52 | 158 | 6.3 | 6 | 6.7 | 6 |
| Total | 957 | 4.0 | 168 | 5.2 | 29** 19*** |

* The positive difference indicates higher fertility for the sterilized in 1964 as compared to that for married women in 1951

** Percentage difference after standardizing the age distribution (considering women in all age groups)

*** Percentage difference after standardizing the age distribution (considering women of age 28 and over)

Table 6.9 : AVERAGE NUMBER OF CHILDREN BORN FOR VARIOUS MARRIAGE DURATIONS TO MARRIED WOMEN OF 1951 AND TO THE STERILIZED COUPLES OF 1964

| Duration of marriage (years) (1) | Average number of children born | | Percentage difference* in columns 2 and 3 (4) |
|-------------------------------------|---------------------------------|-----------------------------------|--|
| | married women in 1951 (2) | Sterilized couples in 1964 (3) | |
| 0—4 | 0.6 | 1.7 | 183 |
| 5—9 | 2.2 | 3.4 | 55 |
| 10—14 | 3.5 | 4.8 | 37 |
| 15—19 | 5.2 | 5.9 | 13 |
| 20—24 | 6.3 | 6.8 | 8 |
| 25— | 6.7 | 7.6 | 13 |
| Total | 4.0 | 5.2 | 24** |

* The positive difference indicates higher fertility for the sterilized as compared to that for married women in 1951.

** Percentage difference after standardizing the distribution of women according to their durations of marriage.

of estimation is presented in Table 6.10. The number of births prevented was 34.2. Had the couples not been sterilized their fertility above age 28 years would have been 19 per cent higher and so the number of births prevented would have been 31.5.

Table 6.10 : NUMBER OF BIRTHS THAT WOULD HAVE OCCURRED TO COUPLES IN THE YEAR 1964 IF STERILIZATIONS WERE NOT EFFECTIVE IN 1964

| <i>Age group</i> | <i>Age-specific fertility rate per 1000 married women, 1951</i> | <i>Number of sterilized couples*</i> | <i>Expected No** of births with fertility rates as in 1951</i> |
|------------------|---|--------------------------------------|--|
| 13—17 | 117 | — | — |
| 18—22 | 265 | 1 | 0.3 |
| 23—27 | 312 | 14 | 4.4 |
| 28—32 | 269 | 33 | 8.9 |
| 33—37 | 191 | 44 | 8.4 |
| 38—42 | 102 | 36 | 3.7 |
| 43—52 | 34 | 23 | 0.8 |
| Total | 201 | 151 | 26.5 |

* In this column, the sterilized couples were distributed according to their ages at the time of enquiry. Additional 19 cases were found sterilized in 1964 survey. But 2 of them had crossed child-bearing age and 17 were sterilized only in the year of enquiry.

** Expected number of births to the sterilized with 29 per cent higher fertility would be $26.5 \times 1.29 = 34.2$ and the expected number with 19 per cent higher fertility would be $26.5 \times 1.19 = 31.5$.

The appliance users were also examined for their fertility levels before the start of contraceptive practice. Generally, however, they started the practice early in their reproductive life and they could not be expected to be found markedly more fertile than the normal population. The total number of children to the appliance users before their start of the practice and to the general population of 1951 are set out in Table 6.11.

As expected, the appliance users in 1964 had shown no higher fertility than that of the population surveyed in 1951. This is indicated in Table 6.11. The difference in the fertility rates of the two groups, as found here, was only 0.6 per cent. Hence the number of births expected to them in 1964 (with the assumed fertility of 1951 sample) after deducting the number of births actually observed to

Table 6.11 : AVERAGE NUMBER OF CHILDREN BORN TO MARRIED WOMEN OF VARIOUS AGES IN 1951 AND TO THE CONTRACEPTORS (OTHER THAN STERILIZED) OF 1964 BEFORE THEIR PRACTICE OF CONTRACEPTION

| Age group | Married women, 1951 | | Contraceptors (excluding sterilized), 1964 | | Percentage difference* in columns 3 and 5 |
|--------------|---------------------|------------------------------|--|---|---|
| | Number of women | Average No. of children born | No. of couples starting practice at various ages | Average No. of children born to contraceptors | |
| (1) | (2) | (3) | (4) | (5) | (6) |
| 13—17 | 33 | 0.2 | 4 | 0.8 | 300 |
| 18—22 | 164 | 1.3 | 38 | 1.5 | 15 |
| 23—27 | 176 | 2.8 | 65 | 2.8 | 0 |
| 28—32 | 188 | 4.2 | 39 | 4.1 | -2 |
| 33—37 | 109 | 5.3 | 12 | 5.4 | 2 |
| 38—42 | 129 | 6.0 | 4 | 5.0 | -17 |
| 43—52 | 158 | 6.3 | — | — | — |
| Not given | — | — | 4 | — | — |
| Total | 957 | 4.0 | 166 | 3.0 | 0.6** |

* A positive difference in the last column indicates higher fertility and negative difference a lower fertility in 1964 as compared to that in 1951.

** Percentage difference after standardizing the age distribution.

them yielded the number of births prevented due to contraception. The relevant calculations are set out in Table 6.12.

The prevented number of births by the contraception other than sterilization was thus estimated to be 19.5,¹⁵ as shown in Table 6.12. Hence the total number of births prevented by sterilization as well as other contraception was $34.2 + 19.5 = 53.7$. (Or if we consider the fertility of the sterilized to be only 19 per cent higher, then $31.5 +$

¹⁵ The number of births prevented in this case is 19.5. Here the contraceptive practice though broken because of 15 births either planned or due to contraceptive failure showed that it could prevent about 60 per cent of the expected number (34.5) of births. This percentage could be used as an indicator of use-effectiveness of contraceptive practice and seemed appreciably high. In fact this supports the need for contraceptive practice in the early days of child-bearing when an appreciable decline in births can be attained even with 60 per cent effectiveness of contraceptive practice. This is so because contraception here is practised in the period of peak fertility.

Table 6.12 : NUMBER OF BIRTHS PREVENTED IN THE YEAR 1964 BECAUSE OF CONTRACEPTIVE PRACTICE OTHER THAN STERILIZATION

| Age group | Age-specific fertility rate per 1000 women, 1951 | No. of contraceptors* other than sterilized | No. of births in the year of enquiry | | No. of prevented births, 1964 |
|--------------|--|---|--------------------------------------|-------------|-------------------------------|
| | | | Observed | Expected | |
| 13—17 | 117 | 1 | — | 0.1 | 0.1 |
| 18—22 | 265 | 11 | 2 | 2.9 | 0.9 |
| 23—27 | 312 | 35 | 5 | 10.9 | 5.9 |
| 28—32 | 269 | 48 | 8 | 12.9 | 4.9 |
| 33—37 | 191 | 27 | — | 5.2 | 5.2 |
| 38—42 | 102 | 22 | — | 2.2 | 2.2 |
| 43—52 | 34 | 8 | — | 0.3 | 0.3 |
| Total | 201 | 152 | 15 | 34.5 | 19.5 |

* In this column the contraceptors are distributed according to their ages at the time of enquiry. Additional 14 cases were of contraceptors using appliance or non-appliance methods. But they had started the practice of contraception during the year of enquiry only.

19.5 = 51.0 births were prevented due to sterilization and other contraception.) This number had to be related to the total number of births to get the percentage of births prevented by all the contraceptors. The total number of births estimated by making adjustment for under-reporting of children in 1964 was 198.3, as mentioned earlier in this chapter. Hence the expected total number of births in 1964 in the absence of contraception could be $198.3 + 53.7 = 252.0$. This meant that the percentage of births prevented by contraception was 21.3.¹⁶

Thus the reduction in birth rate, estimated on the basis of fertility performance as in the earlier part of this chapter and that on the basis of effective contraceptive practice in 1964, was respectively 21.2 and 21.3 per cent of fertility in 1951. These two estimates of reduction in birth rate in 1964 agree very closely. All the reported facts with respect to the two phenomena of contraception and fertility in 1964 are placed before the reader with their possible limitations. Their reliability depended on the assumptions made in the process of

¹⁶ Alternatively if fertility of the sterilized is assumed to be only 19 per cent higher, then the total expected births in 1964 could be $198.3 + 51.0 = 249.3$. This meant that the percentage of births prevented by contraception was 20.5.

estimation. Only plausible assumptions were made in both the methods of estimation and the fertility seemed to have declined during 1951-64 by about one-fifth of its value in 1951.

For the estimate of decline in birth rate for the city of Poona calculations were based on a random sample of one per cent in the enquiries at both the points of time. They were subject to sampling variations and the standard errors of age-specific fertility rates were calculated for the sample of 1951. They were large as shown in Table 6.13. The decline observed in 1964 was, however, statistically significant at least for certain age groups. But generally one is sorry to see the limitations of the statistical tools in problems of comparisons such as the present one.

Table 6.13 : AGE-SPECIFIC FERTILITY RATES FOR THE 1951 SURVEY AND THEIR STANDARD ERRORS

| <i>Age (in years)</i> | <i>Expected* fertility rate per 1000 women</i> | <i>Standard error of the rate</i> |
|---------------------------|--|---------------------------------------|
| 15 | 124.9 | 42.4 |
| 20 | 245.3 | 18.3 |
| 25 | 278.6 | 18.7 |
| 30 | 249.6 | 15.9 |
| 35 | 183.7 | 11.9 |
| 40 | 105.7 | 12.5 |
| 45 | 40.8 | 8.9 |

* Expected rates after fitting a third degree polynomial to observed rates.

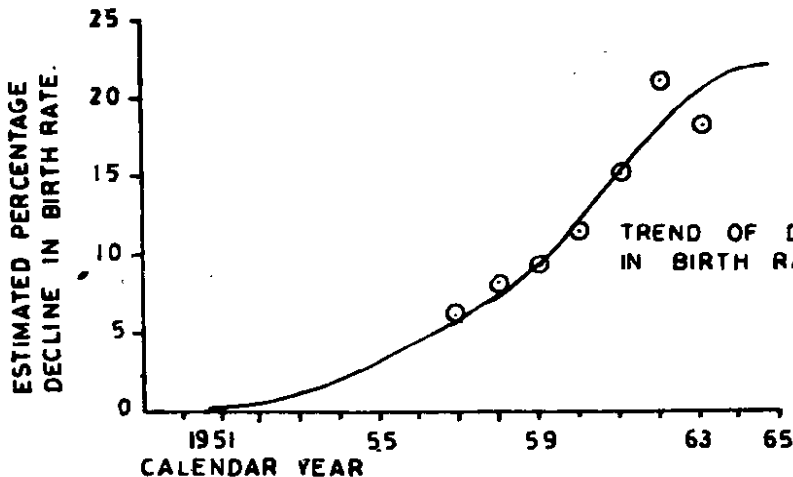
Source : 'Standard errors of age-specific fertility rates' by Kumudini Dandekar, *Artha Vijnana*, Vol. 4, No. 4, December, 1962.

In the above paragraphs, the decline in birth rate is estimated between two points of time, namely, 1951 and 1964. An attempt is now made to estimate the trend of decline during the interval 1951-64. The trend of decline in birth rate during the 13 years 1951-64 could be examined with the aid of contraception histories obtained in 1964. The decline in birth rate in each of the 13 calendar years could be calculated if the expected number of births in each of the calendar years could be compared with that actually observed. It needed reconstruction of age structures in various calendar years under several assumptions. This was fairly laborious if not impossible and hence was not attempted. Moreover, the data regarding children born and dead in

the earlier years not being available, the calculations were not worthy of an attempt. But the total births prevented by the appliance users and the sterilized were estimated for various calendar years by applying relevant fertility rates to get the number of their expected births. In the case of the sterilized all these were prevented. In the case of other contraceptors 63 out of 170 expected births could not be prevented. These are set out in Table 6.14. Their percentage distributions presented in the same table could produce for all practical purposes the trend in fertility decline¹⁷ till 1964 since the period observed under contraception was not long. It was about 10 years or so during which the pattern of total child-bearing could be assumed to be roughly the same. A graph G_{3A} of the trend is shown below.

Graph: G_{6A}

PERCENTAGE DECLINE IN BIRTH RATE IN POONA CITY FOR VARIOUS CALENDAR YEARS



¹⁷ The year-to-year increase observed in this trend could be assumed to conform to the decline in birth rate, as prevention of births and a decline are the same. This assumption could roughly hold good if the total expected fertility performance without contraception could be presumed roughly constant during the 10-year period under consideration.

Table 6.14 : NUMBER OF BIRTHS PREVENTED DUE TO STERILIZATION AND OTHER CONTRACEPTION AND ESTIMATED DECLINE IN BIRTH RATE FOR VARIOUS CALENDAR YEARS

| Calendar year | Births prevented due to sterilization | Percentage distribution of column (2) | Births expected to other contraceptors | Percentage distribution of column (4) | Observed* births to other contraceptors | Estimated** decline in birth rate | |
|------------------|---------------------------------------|---------------------------------------|--|---------------------------------------|---|-----------------------------------|------|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | |
| —1951 | 22 | 11.8 | 2 | 1.2 | 63 | — | |
| 1952 | | | 1 | 0.6 | | 0.3 | |
| 1953 | | | 2 | 1.2 | | 0.9 | |
| 1954 | | | 3 | 1.8 | | 1.9 | |
| 1955 | | | 6 | 3.5 | | 3.2 | |
| 1956 | | | 7 | 4.1 | | 4.5 | |
| 1957 | | | 9 | 4.8 | | 10 | 6.1 |
| 1958 | | | 12 | 6.4 | | 10 | 7.7 |
| 1959 | | | 14 | 7.5 | | 12 | 9.8 |
| 1960 | | | 17 | 9.1 | | 16 | 12.2 |
| 1961 | 23 | 12.3 | 21 | 15.3 | | | |
| 1962 | 31 | 16.6 | 24 | 18.1 | | | |
| 1963 | 27 | 14.4 | 25 | 20.2 | | | |
| 1964 | 32 | 17.1 | 31 | 18.1 | 21.3 | | |
| Total up to 1964 | 187 | 100.0 | 170 | 100.0 | 63 | † | |
| 1965 | 39 | | 38 | | | 22.5 | |
| Total up to 1965 | 226 | | 208 | | | † | |

* These figures were not available for various calendar years.

** Estimated from Graph G_{6A} (drawn on the assumption that the percentage distribution of prevented births could be used to get the trend of decline in birth rate up to 1964).

Number of births prevented by sterilization up to 1964 = 187

Number of births prevented by other contraception up to 1964 = $170 - 63 = 107$

Total number of prevented births = $187 + 107 = 294$

† Not given because cumulative figure has no useful meaning.

With the help of graph G_{6A} it was possible to read the percentage of births prevented in each year of the interval 1951-64. Of the total number of births prevented due to sterilization up to 1964, 60.4 per cent were prevented during the four years 1961 to 1964. The remaining 40 per cent were in the period 1951 to 1960. Similar was the trend observed due to practice of other contraceptive methods too. In short, the rate of decline in birth rate due to contraception, either through sterilization or other contraceptive methods, was gaining momentum more recently. The total decline during the earlier 10 years increased by 50 per cent during the four years 1961 to 1964. In other words, the decline in birth rate observed to be 21.3 per cent in 1964, was probably nearabout six per cent in 1957 and still smaller before this year, if the trend of percentage distribution of decline observed in Table 6.14, was attributable to total decline in birth rate observed in 1964. Just before the census of 1961 the rate of decline in birth rate could be roughly estimated to be nearabout 10 per cent. Hence any estimates based on the whole of the decade 1951-61 could not reveal appreciable decline in the birth rate of the city of Poona on the basis of the 1961 census.

Thus in this chapter estimates of decline in birth rate and of the trend of decline during 1951-64 were obtained. The decline in birth rate was about one-fifth of its value in 1951. In the next chapter vital registration for the city is examined and corrected. With the help of it a modified estimate of decline in birth rate is obtained. It shows a decline of 15.5 per cent in the birth rate during the 13-year interval. One could therefore venture to say that the decline in birth rate of the city was between 15 and 20 per cent during 1951-64.

APPENDIX A₆*Test to check the age-reporting of children under one year of age*

The ages reported in the demographic enquiries are often erroneous in the Indian situation. As for adult ages the age-grouping is one process by which the problem of small errors of age-reporting can be got over. Such procedure is, however, not serviceable for childhood ages and particularly for the first year of age. In this year of age it is suspected that the newly born children are not occasionally reported. Similarly, the children nearing the completion of the first year of age may be reported as having completed the first year. As for the misreporting of ages during the rest of the first year it need not draw much attention for estimation of fertility rates, so long as the children under one year are reported to be under one. In the present appendix the age-reporting of children under one is tested for the two surveys of 1951 and 1964. The procedure of testing is described in the subsequent paragraphs.

The idea in testing was to get an expected age distribution of children under one year with given levels of infant mortality. It was to be compared with the observed number of children at various ages. For this purpose life tables for the first year of age had to be constructed with the infant mortality rates estimated for 1951 and 1964. The death distribution under first year of age observed for the years 1951 and 1964 in the vital registers of the city could be of help in such a construction of life tables.¹ The whole procedure has been worked out in Tables A₆.1 and A₆.2 for the two survey years. Some explanation of the various steps in the calculation may not, however, be out of place.

The distribution of deaths in the survey years was obtained from the registration data.² This was secured by considering male and female births together in proper proportions. The ages at death were considered in the usual age classes (given in column one of the tables) employed in international comparisons. The death distribu-

¹ Had the registration of infant deaths been complete, the estimation of ages of children in the samples surveyed would not have been a problem. But, that not being the case, the death distribution in the first year of age was applied to the estimated infant mortality rates to get the expected age distribution of children in the two surveys.

² Under-reporting of the infant deaths could affect the age distribution at death. Under-reporting, if any, was imagined to be more in the first month than in the later months. Its effect, though small, can be found to strengthen our findings presented later.

tion for the two survey years is given in the second column of each of the two Tables A₆.1 and A₆.2. The deaths in the first four weeks of life formed 44 and 53 per cent respectively of the total infant deaths in 1951 and 1964.³ With the distribution of deaths it was possible to estimate the expected number of deaths in the various intervals of months for the estimated infant mortality rates for the two surveyed years. (See column three of Table A₆.1 and A₆.2 and explanation below.) The number of deaths thus obtained (column three) was for the midpoint of each of the age-intervals in column one. In order to get the total number of deaths up to the end of each age-month-interval, the number of deaths in column three was cumulated as in column four and the expected number of deaths up to the end of each age-interval was read off from the graph based on this column. The expected number of deaths is given in column five. On the basis of these deaths the number completing each exact month of age (usually represented by l_x column of the life table) was calculated as shown in column six. With the help of column six, it was possible to get the expected age distribution of children under one year if (a) they were subject to the given infant mortality rate, and (b) the death distribution in the first year of age was as given in column two, and (c) they were all born at the beginning of the year. But this last condition was not satisfied, and hence the observed age distribution in the surveys could not be compared with the one in column seven. The number of births was generally expected to be spread out evenly⁴ over the whole of the year except for sampling fluctuations. The observed number of living children⁵ at various ages (see column eight) if subject to mortality conditions in (a) and (b) mentioned above could constitute proportions of cohorts of 1000, given in column seven. For example, 20 children (see column eight of Table A₆.1) reported as aged seven months complete formed 87

³ Usually one expects a higher percentage of deaths in the first month with a decline in infant mortality rate. This is because the deaths in the later part of the first year of age can be prevented with greater ease with advance in medical science than those in the first month of life.

⁴ It is observed that the number of births rises a little in the months of July and August. But the rise is slight. It could not affect the age distribution of children under one year in the demographic enquiry covering the preceding 12 months, in various parts of the year, (i.e. the moving year).

⁵ In 1951 survey the dead infants of those born in the preceding year were given. But the months of their birth were not known. In 1964, dead infants in the preceding year were not given separately.

Table A₆.1 : PROCEDURE TO CHECK THE AGE DISTRIBUTION IN MONTHS UNDER THE FIRST YEAR OF AGE OBSERVED IN 1951 SURVEY

| Age of the infant | Percentage of deaths in various age-months (Registration data) | Expected number of deaths if infant mortality rate was 162 per 1000 births | Cumulative total of column(3) | Expected number of deaths up to the end of various months of age | Expected number attaining various ages with a cohort of 1000 births ($l_0=1000$) | Expected number of living children (L_x in various months if $l_0=1000$) | Observed number of living children in 1951 | Expected original cohorts of births for observed children in 1951 |
|---------------------|--|--|-------------------------------|--|--|--|--|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| — 27 days | 43.6 | 67.9 | 67.9 | 78 | l_{28} days = 922 | 933.7 | 14 | 15.0 |
| 28 days — 2 months | 9.3 | 14.5 | 82.4 | 87 | l_2 months = 913 | 917.5 | 14 | 15.3 |
| 2 months — 3 months | 5.9 | 9.2 | 91.6 | 95 | l_3 months = 905 | 909.0 | 13 | 14.3 |
| — 4 months | 4.5 | 7.0 | 98.6 | 102 | l_4 months = 898 | 901.5 | 12 | 13.3 |
| — 5 months | 4.8 | 7.5 | 106.1 | 109 | l_5 months = 891 | 894.5 | 7 | 7.8 |
| — 6 months | 3.4 | 5.3 | 111.4 | 117 | l_6 months = 883 | 887.0 | 21 | 23.7 |
| — 7 months | 6.6 | 10.3 | 121.7 | 124 | l_7 months = 876 | 879.5 | 19 | 21.6 |
| — 8 months | 3.8 | 5.9 | 127.6 | 132 | l_8 months = 868 | 872.0 | 20 | 22.9 |
| — 9 months | 5.1 | 7.9 | 135.5 | 139 | l_9 months = 861 | 864.5 | 13 | 15.0 |
| — 10 months | 4.3 | 6.7 | 142.2 | 146 | l_{10} months = 854 | 857.5 | 11 | 12.8 |
| — 11 months | 5.1 | 7.9 | 150.1 | 154 | l_{11} months = 846 | 850.0 | 12 | 14.1 |
| — 12 months | 3.6 | 5.6 | 155.7 | 162 | l_{12} months = 838 | 842.0 | 14 | 16.6 |
| Total | 100.0 | 155.7 | | | | | 170 | 192.4 |

Explanation for column (3)

On the basis of infant mortality rate of 162 per 1000 births, the number of deaths under one year of age in 1951 was estimated to be 155.7. The procedure is described below.

Probability that a child will die before attaining one year of age was (i. e. q_{0-1yr}) = 0.162.

From this probability, the corresponding age-specific death rate for the first year of age (i. e. m_{0-1yr}) was calculated using the equation

$$m_{0-1yr} = \frac{2q_{0-1yr}}{2-q_{0-1yr}} = \frac{0.324}{1.838} = 0.1763$$

With an original cohort of 1000 births (i. e. l_0), the number of deaths under one year (i. e. d_{0-1yr}) could be given by the number of living children in the first year of age (i. e. L_{0-1yr}) multiplied by the age-specific death rate per child during the first year of age (i. e. m_{0-1yr}).

From the percentage distribution of deaths (given in column two of the table) it was found that 72 per cent of the infant deaths occurred during the first six months. Thus since the distribution of deaths was not uniform in the first year of age, living children in the first year of age could not be a simple average of the original cohort of births and the number of children attaining age one (which were denoted by l_0 and l_1 respectively). The number of living children in the first year of age was therefore estimated by the formula $L_{0-1yr} = 0.28 l_0 + 0.72 l_1$

$$\begin{aligned} &= 0.28 (1000) + 0.72 (838) \\ &= 883.4 \end{aligned}$$

Hence the number of deaths under one year was found to be equal to $883.4 \times 0.1763 = 155.7$

Explanation for column (7)

For all monthly intervals except the first, the number of living children in a given month [i. e. L_x to $(x+1)$ months] was estimated as the average of l_x and l_{x+1} — the number of children attaining ages x and $(x+1)$ months respectively (given in column six). For the first interval (of four weeks) it was observed that the distribution of deaths was not uniform over this interval. Out of the total deaths in this interval, about 85 per cent occurred during first two weeks and the remaining 15 per cent in the last two weeks. Hence the living children in this interval were estimated by the formula—

$$L_{0-28 days} = 0.15 l_0 + 0.85 l_{28 days}$$

Table A₀.2 : PROCEDURE TO CHECK THE AGE DISTRIBUTION IN MONTHS UNDER THE FIRST YEAR OF AGE OBSERVED IN 1964 SURVEY

| <i>Age of the infant</i> | <i>Percentage of deaths in various age-months (Registration data)</i> | <i>Expected number of deaths if infant mortality rate was 132 per 1000 births</i> | <i>Cumulated total of column (3)</i> | <i>Expected number of deaths up to the end of various months of age</i> | <i>Expected number attaining various ages with a cohort of 1000 births ($l_0=1000$)</i> | <i>Expected number of living children (L_x in various months if $l_0=1000$)</i> | <i>Observed number of living children in 1964</i> | <i>Expected original cohorts of births for observed children in 1964</i> | <i>Expected number of living children assuming an average of 17.7 births every month 10</i> |
|--------------------------|---|---|--------------------------------------|---|--|---|---|--|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | 10 |
| — 27 days | 52.6 | 66.5 | 66.5 | 72 | l_{28} days = 928 | 938.8 | 9 | 9.6 | 16.6 |
| 28 days — 2 months | 8.8 | 11.1 | 77.6 | 80 | l_2 months = 920 | 924.0 | 10 | 10.8 | 16.4 |
| 2 months — 3 months | 6.0 | 7.6 | 85.2 | 88 | l_3 months = 912 | 916.0 | 20 | 21.8 | 16.2 |
| — 4 months | 5.2 | 6.6 | 91.8 | 94 | l_4 months = 906 | 909.0 | 15 | 16.5 | 16.1 |
| — 5 months | 3.7 | 4.7 | 96.5 | 99 | l_5 months = 901 | 903.5 | 13 | 14.4 | 16.0 |
| — 6 months | 3.2 | 4.0 | 100.5 | 104 | l_6 months = 896 | 898.5 | 17 | 18.9 | 15.9 |
| — 7 months | 5.0 | 6.3 | 106.8 | 108 | l_7 months = 892 | 894.0 | 18 | 20.1 | 15.8 |
| — 8 months | 2.6 | 3.3 | 110.1 | 112 | l_8 months = 888 | 890.0 | 14 | 15.7 | 15.8 |
| — 9 months | 3.8 | 4.8 | 114.9 | 117 | l_9 months = 883 | 885.5 | 16 | 18.1 | 15.7 |
| — 10 months | 3.5 | 4.4 | 119.3 | 122 | l_{10} months = 878 | 880.5 | 14 | 15.9 | 15.6 |
| — 11 months | 3.4 | 4.3 | 123.6 | 127 | l_{11} months = 873 | 875.5 | 11 | 12.6 | 15.5 |
| — 12 months | 2.2 | 2.8 | 126.4 | 132 | l_{12} months = 868 | 870.5 | 4 | 4.6 | 15.4 |
| Total | 100.0 | 126.4 | | | | | 161 | 179.0 | 191.0 |

Explanation for column 3

On the basis of infant mortality rate of 132 per 1000 births, the number of deaths under one year of age in 1964 was estimated to be 126.4. The procedure is described below.

Probability that a child will die before attaining one year of age was (i.e. $q_{0-1 yr}$) = 0.132.

From this probability, the corresponding age-specific death rate for the first year of age (i.e. $m_{0-1 yr}$) was calculated using the equation

$$m_{0-1 yr} = \frac{2 q_{0-1 yr}}{2 - q_{0-1 yr}} = \frac{0.264}{1.868} = 0.1413$$

With an original cohort of 1000 births (i.e. l_0), number of deaths under one year (i.e. $d_{0-1 yr}$) could be given by the number of living children in the first year of age (i.e. $L_{0-1 yr}$) multiplied by the age-specific death rate per child during the first year of age (i.e. $m_{0-1 yr}$)

From the percentage distribution of deaths (given in column two of the table) it was found that 80 per cent of the infant deaths occurred during the first six months. Thus since the distribution of deaths was not uniform in the first year of age, living children in the first year of age could not be a simple average of the original cohort of births and the number of children attaining age one (which were denoted by l_0 and l_1 year respectively). The number of living children in the first year of age was therefore estimated by the formula—

$$\begin{aligned} L_{0-1 yr} &= 0.20 l_0 + 0.80 l_1 \\ &= 0.20 (1000) + 0.80 (868) \\ &= 894.4 \end{aligned}$$

Hence the number of deaths under one year was found to be equal to $894.4 \times 0.1413 = 126.4$.

Explanation for column 7

For all monthly intervals except the first, the number of children in a given month [i.e. L_x to $(x+1)$ months] was estimated as the average of l_x and l_{x+1} —the number of children attaining ages x and $x+1$ months respectively (given in column six). For the first interval (of four weeks) it was observed that the distribution of deaths was not uniform over this interval. Out of the total deaths in this interval about 85 per cent occurred during the first two weeks and the remaining 15 per cent in the last two weeks. Hence the living children in the interval were estimated by the formula—

$$L_{0-28 days} = 0.15 l_0 + 0.85 l_{28 days}$$

per cent (see column seven of Table A₆.1) of the total number of births occurring between seven to eight months back. Thus the original numbers of births were calculated to get the observed number of living children at various ages. They are presented in column nine. If the ages of living children are properly reported, (see column eight) the numbers in column nine are expected to be evenly spread out except for sampling fluctuations. It is worth while inspecting column nine in Tables A₆.1 and A₆.2 for both the survey years from this point of view.

In 1951 survey, the number of births occurring four to five months back seemed to be under-reported. But there was a compensating number reported in the earlier month. This kind of misreporting could not affect the total number under one year of age reported in the 1951 enquiry. The average number of births was 16.0 for each month, and the births obtained on the basis of observed children were evenly spread over a year. There was no trouble with the number of births obtained on the basis of reported children aged less than one month or nearing the completion of the first year of age for the enquiry in 1951.

A similar scrutiny of column nine in Table A₆.2 for 1964 survey showed exceptionally small numbers of births estimated on the basis of newly born children and those nearing the first year of age. If they were regarded as under-reported, an expected average number of births could be calculated on the basis of births in column nine for the middle eight months of the year, data for which seemed to be reliable. This yielded the average number of births namely 17.7 to be expected each month. Since the observed children that were newly born and those nearing the first year of age seemed to be under-reported in 1964, estimated numbers were put in place of the original figures. In other words, the age distribution of living children in the year of enquiry was obtained after inserting the estimated numbers for the newly born (i.e. under one month of age) and for the 11 months old. It helped to get an estimated age distribution of children under one year of age in 1964. It also helped to reveal some under-reporting that seemed to be present in 1964 in the case of living children under one year.

CHAPTER VII

VITAL REGISTRATION IN POONA CITY

IN A DISCUSSION on assessment of change in birth rate, reference to birth registration should come foremost. Its discussion at this stage therefore would appear misplaced. But the state of birth registration in the city was such that sample surveys were needed to assess its reliability and improve it. With a view to attempting this the present chapter is devoted to scrutiny of birth registration, its evaluation, and to possible methods of improving it with the help of the findings of the surveys discussed in the previous chapter.

Birth registration in India as a whole is notorious for its shortcomings. Certain states like Assam were suspected of having an under-registration of the order of 80 per cent¹ during the decade 1951-61. The State of Maharashtra, in which the city of Poona is located, is generally supposed to be one of the better administered states, often ranked with the Punjab and Madras, as far as registration is concerned. Even in this state the extent of under-registration of births during 1951-61 was estimated at about 25 per cent¹.

¹ See G. K. Mehrotra on 'Under-registration of Births in India' in *Artha Vijnana*, June 1968. See also Appendix A7 for corresponding estimates of the Office of the Registrar General. Both the estimates follow the same method which according to us is very rough, but in the absence of anything better these had to be mentioned.

Estimate of under-registration made for this State by the Office of the Registrar General of Census in India also turned out to be similar. Generally a belief prevailed that bigger metropolitan cities had more efficient administrative machinery suited to registering vital events in a large population². On the other hand, very small villages had a set-up where every small vital event like birth and death in the village was known to everybody in the village including the person in charge of registration and hence the registration appeared efficient in them. It was therefore the middle-sized localities that suffered more from under-registration of vital events. From this point of view, the registration of Poona city (with a population more than half a million) was accepted as fairly reliable, and still one will be surprised to see the registration level for the city examined in the subsequent paragraphs.

Registration data on live births in the city were carefully examined for a span of 18 years from 1948 to 1966. This period covered more than 300,000 live births in the city. The idea in covering the period 1948 to 1966 was to extend the data over two or more years at both ends of the period 1951-64 which is the subject of the present survey. Moreover, the Municipality in the city of Poona attained the status of a Corporation only in 1950. Hence it was worth covering a period prior to 1950 to judge the changes in vital registration in the city in the changed situation. The data up to 1950 could not, however, be compared with those for the later years in respect of absolute numbers because of changes in the boundaries of the city, though relevant rates could be compared if the pattern of registration had not changed during this period. But it was quite possible that there was some timelag between the change in the status and boundaries of the city and in the efficiency of registration of vital events in the newly acquired areas, which affected the comparisons of vital rates particularly in the earlier years after change in the boundary. Judgement regarding this will have to await closer scrutiny of the data.

In Table 7.1 the number of registered live births, the estimated

² For urban areas at least in Maharashtra there is a legal provision for compulsory registration. There is a penalty of Rs. 50 for not registering a birth. But rarely does this seem to be enforced.

Table 7.1: NUMBER OF REGISTERED LIVE BIRTHS, ESTIMATED TOTAL POPULATION, BIRTH RATE AND SEX-RATIO AMONG LIVE BIRTHS FOR POONA CORPORATION AREA IN VARIOUS CALENDAR YEARS DURING 1948-1966

| <i>Calendar year</i> | <i>Registered live births</i> | <i>Estimated total population</i> | <i>Birth rate based on the registered births†</i> | <i>Sex-ratio among live births</i> |
|----------------------|-------------------------------|-----------------------------------|---|------------------------------------|
| 1948 | 8,667* | 450,068 | 19.3* | 108.4 |
| 1949 | 10,154* | 460,145 | 22.1* | 107.5 |
| 1950 | 12,203 | 470,448 | 25.9 | 108.2 |
| 1951 | 14,370 | 480,982 | 29.9 | 106.4 |
| 1952 | 14,704 | 491,516 | 29.9 | 109.9 |
| 1953 | 13,956 | 502,280 | 27.8 | 110.4 |
| 1954 | 14,191 | 513,280 | 27.6 | 105.5 |
| 1955 | 17,510 | 524,521 | 33.4 | 109.5 |
| 1956 | 16,995 | 536,008 | 31.7 | 107.4 |
| 1957 | 17,624 | 547,747 | 32.2 | 105.0 |
| 1958 | 17,104 | 559,743 | 30.6 | 103.5 |
| 1959 | 16,650 | 572,001 | 29.1 | 107.4 |
| 1960 | 16,436 | 584,528 | 28.1 | 107.7 |
| 1961 | 17,385 | 597,329 | 29.1 | 108.6 |
| 1962 | 16,183 | 654,483 | 24.7** | 105.7 |
| 1963 | 18,268 | 668,923 | 27.3 | 107.7 |
| 1964 | 19,904 | 683,463 | 29.1 | 107.8 |
| 1965 | 20,636 | 698,431 | 29.5 | 110.7 |
| 1966 | 22,952 | 713,727 | 32.2†† | 110.6 |
| Total | 305,892 | | | 107.8 |

* Not comparable with other figures because of different coverages of population and registered births.

† This rate is calculated as $\frac{\text{The number of registered births}}{\text{Estimated total population}} \times 1000$

** An exceptional drop in birth rate needing some smoothing.

†† In 1966 the birth rate increased a little or it was just a sampling fluctuation. It was possible that the estimates of population were also deviating from actuality affecting the rates of birth.

population of the city for various calendar years³ and the number of births per 1000 such population are set out for inspection. The number of births in the city increased from about 12,000 to about 23,000 during 1950 to 1966⁴. The birth rates per thousand of population for the city appeared generally lower than expected on

³ Taking 1951-61 census populations for the city the geometric rate of growth was calculated and the estimates of population were obtained as presented in the Table 7.1. This was done even for the populations for three years prior to 1951.

⁴ Whenever ratios are presented they refer to the period 1948-66 and absolute numbers refer to 1950-66.

common sense considerations for the entire period under review and specially so for the early fifties. They increased from 26 to 33 births per thousand of population during 1950-55 and decreased from 33 to about 29 births during 1955-65⁵. Such results, not being anticipated, raised doubts regarding the registration data. There was no reason to expect a birth rate much lower than 40 births per thousand of population in the Poona city nearabout 1950 for a number of reasons. Contraceptive practice was rare in this period. Moreover, the results of the sample survey⁶ in the city in 1951 yielded a birth rate of about 40.0 per thousand of population. The census of 1951 also did not reveal a low birth rate for that year. There were thus strong reasons for doubting the registration data regarding births nearabout 1951. Moreover the registered rate of births increased during 1951 to 1955. Why did it increase? No one knows. Perhaps with major changes in the boundaries of the city, there was a time-lag before the efficiency in administration could touch all departments as well as parts of the city.

The doubts regarding reliability of birth data were further strengthened by the reports from the Department of Vital Registration for the city. According to them ceaseless efforts were made to improve the vital registration of the city but still without complete success till 1966. They reported that attempts at combing out unregistered births, especially in the slums of the city, revealed such cases even as late as 1966, and this provided enough proof of under-registration of births prevalent in the city. The variety of efforts aimed at complete registration included the following operations which improved the registration directly or indirectly. These are described to facilitate our assessment of birth-registration over an 18-year period.

The most important move was to require all the maternity homes and medical institutions to report the births occurring in them directly to the Municipal Corporation within a period of seven days (see Bombay State Municipal Corporation Act, 1949, Section No. 366). The legal endorsement was, however, started only in the early sixties.⁷ This measure was very useful in improving the registration

⁵ See foot-note with asterisks at the foot of Table 7-1

⁶ Survey of Fertility and Mortality in Poona District (Publication No. 27 of the Gokhale Institute, Poona) by Dandekar and Dandekar.

⁷ In spite of the law even the hospitalized births were not completely registered before 1960 and especially so nearabout 1950.

of births especially when majority of them occurred in hospitals. Except for the poorer sections of the residents who could not afford hospital facilities, the registration approached completion. Naturally, the next move was to have more institutions to hospitalize maternity cases from poorer sections of the city, which automatically improved the registration. This was attained by the provision of more and more hospital facilities in the poorer localities at low costs⁸.

Besides the above important methods of improving the registration data, insistence on birth certificates in certain situations assisted the efforts of the department in improving the registration of births. For instance, to have an entry of a newly born baby on the family ration card one had to produce a certificate of birth from the Corporation. Insistence on birth certificate for admission to schools also helped improvement of birth registers, though a little late. From 1964, 'Employees State Insurance' was started in the city for industrial workers. Workers earning less than a specific income, whether on daily wages or on salary basis, are entitled to an allowance of Rs. 30 towards the delivery expenses of their wives. In order to claim this amount, one has to produce the birth certificate from the Corporation. This helped the registration of births among poorer classes.

Besides these measures, an attempt was being made to comb out instances of unregistered births through field work in poor localities. A party of four or five workers of the Malaria Eradication Unit visited such localities every three months and hunted out the unregistered births. This is being done since the early sixties. It was therefore believed that the registration of births was better after 1960 than about a decade earlier. In short, a close examination of the data showed that the birth registration was not trustworthy and less so nearabout 1950 than in 1960 or later.

Registration of births was therefore not to be trusted. But unless the source of error was traced, its improvement was not possible. The suspected under-reporting in the registration could be common to both the sexes or it could be more in the case of one than in the other. Hence the sex-ratios at birth were examined for the registration data. These are laid out in Table 7.1 for various calendar years.

⁸ Still about 10 per cent deliveries in the city occurred outside hospitals (1964). This is a guess by Mr. Ranganathan, Statistician in charge of vital registration for the State.

Sex-ratio at birth is a biological factor not expected to have much regional variation. Very often the value of the sex-ratio at birth assumed for Indian communities is nearabout 105 males per 100 females. Occasionally a range of values like 104 to 107 male births to 100 female births is assumed for them. But the basis of such an assumption is only the uncertainty of all the relevant data available to the demographer. The sex-ratios observed in the registered births for various regions in the country varied so much that one did not trust them. The ratios observed in the 15th round of N.S.S. (2nd sub-sample) varied from 96 to 125 male births per hundred female births in various states of the country. For most of the countries that have reliable data the sex-ratio at birth is observed to be varying only between 105 and 106⁹. The ratios observed in various states in India therefore could presumably arise partly due to under-reporting of female births. One therefore wondered whether there was under-registration of female births in the city of Poona too. The sex-ratio at birth for the city given in Table 7.1 consistently indicates a value nearabout 108 male births to 100 female births. The value was observed to be comparatively regular in the registration of the city for all the 18 years under observation in spite of the probable changes in the level of reliability of the registered data during 1948-66. In other words, with more reliable registration-data after 1960, there seemed no recognizable change in the sex-ratio at birth. This perhaps meant that the under-reporting of births, if any, was not restricted more to one sex than to the other. The value of the sex-ratio at birth was therefore assumed to be 108 rather than any other as it was the value observed for the city. It is not claimed that there was no under-reporting of female births in the city of Poona; but compared to other defects in the registration data discussed here it can perhaps be neglected as a minor source of error. In short, the scrutiny of the sex-ratio at birth in the city of Poona could not help in improving the registered number of births to any significant degree.

The registration of births was thus branded as unreliable, with no possibility of improving it with the help of internal checks or of ascertaining the extent of under-reporting in it. The data of the sample survey in Chapter VI were therefore utilized for the purpose.

⁹ Sex-ratios at birth in various regions of India and in other countries with reliable data are presented in Appendix B, at the end of the chapter.

In Table 6.14 of that chapter the estimated birth rates are provided for the period 1951-64 for the city of Poona. They are based on two assumptions. First assumption is that the birth rate in the city in 1951 was 40 births per 1000 of population. The second is that the birth rate declined by 21.3 per cent during 1951-64. The trend of decline during 1951-64 was estimated on the basis of contraceptive practice and its duration reported in the 1964 survey. Thus the rates for the intervening years of 1951-64 are seen to follow this trend. They are set out in Table 7.2 along with the registered birth rates. Comparing the two sets of rates, estimates of under-registration of births are obtained for various calendar years as shown in the last column of Table 7.2. The estimated rates of under-registration do not seem to be untrustworthy at least on common sense considerations. If they were to be doubted at all, the rate for 1964 looked

Table 7.2 : THE ESTIMATED PERCENTAGES OF UNDER-REGISTRATION OF BIRTHS IN VARIOUS CALENDAR YEARS

| <i>Calendar year</i> | <i>Expected birth rate per 1000 population</i> | <i>Registered birth rate per 1000 population</i> | <i>Estimated percentage of under-registration</i> |
|-----------------------------|--|--|---|
| 1951 | 40.0 | 29.9 | 25.3 |
| 1952 | 39.9 | 29.9 | 25.0 |
| 1953 | 39.6 | 27.8 | 29.8 |
| 1954 | 39.2 | 27.6 | 29.5 |
| 1955 | 38.7 | 33.4 | 13.7 |
| 1956 | 38.2 | 31.7 | 17.0 |
| 1957 | 37.6 | 32.2 | 14.4 |
| 1958 | 36.9 | 30.6 | 17.2 |
| 1959 | 36.1 | 29.1 | 19.4 |
| 1960 | 35.1 | 28.1 | 19.9 |
| 1961 | 33.9 | 29.1 | 14.1 |
| 1962 | 32.8 | 24.7 | † |
| 1963 | 31.9 | 27.3 | 14.4 |
| 1964 | 31.4 | 29.1 | 7.3 |
| 1964 (Alternative estimate) | 33.8* | | 14.0** |

* Expected on the basis of 14 per cent under-registration in the last column.

** Maximum alternative value in lieu of earlier trend observed in the column.

† Not estimated due to its inconsistency with the trend observed for other years.

smaller compared to those for the earlier years. If it was treated as a chance fluctuation, the value of 14 could be assumed for under-registration in 1964. In that case, the estimate of birth rate for 1964 in the second column of Table 7.2 had to be revised to 33.8 births per 1000 population. One felt justified in revising the estimate of birth rate for the year 1964, because the revised figure was associated with a level of under-registration which fell in line with the past trend of 14 years. The method amounted to a reiterative process which ensured internal consistency of all the estimates of birth rates, under-registration and their trends. Thus the decline in birth rate in 1964 attained a revised value based on a decline of 6.2 births from 40 of 1951. The new estimate of decline in birth rate during 1951-64 was 15.5 per cent, if observations of Chapter VI were modified in the light of estimated trend of under-registration. The decline in birth rate during 1951-64 could thus presumably lie between 15.5 and 21.3 per cent. It seems pertinent to repeat here that the claim is only for 'consistency' of the birth rates, the decline in them and the estimates of under-registration. Obviously with uncertain data on all the relevant items, no claim can be made for 'reliability' of estimation.

Birth registration and its evaluation for the city of Poona was thus achieved with the help of a sample survey. In vital registers for the city, another important item included death registration. In the following paragraphs an attempt is made to estimate death registration and corresponding infant death rates for the city. In fact improvement of birth registration could not be meaningful without assurance of reasonable estimates of infant death rates.

Estimation of death rates

Problem of estimation of death rates was not generally considered to be perplexing. This was because the disposal of the dead especially in adult ages was not easy without registration. Attempt at completeness of their registration was achieved easily by hindering the disposal if not registered. A reasonably efficient administration of cemeteries and crematoria was believed to achieve this in most areas. Especially in big cities the registration of the dead was accomplished much more adequately than in non-city areas. Here under-registration of the dead, if present, was mostly due to deaths occurring in

the very young ages below one year. The whole mechanism of the easy disposal of such dead infants has not been conceptually pictured or studied except as their imagined disposal in the back-yard or farms in the thinly populated areas of the city or on its fringes, and in the relatively inefficient working of crematoria on the outskirts of the city.

As for the city of Poona, one expected a reasonably efficient administration of its crematoria. Hence if any under-registration of deaths was present in the city, it was likely to be restricted mainly to infant deaths. It is worth while therefore to examine closely the trend of infant mortality in the city.

In Table 7.3, the registered infant deaths in the city during 1948 to 1966 are set out for inspection. Along with them are exhibited the number of registered live births and the infant mortality rates per thousand of such births. The trend of infant mortality as observed here does not necessarily exhibit an unexpected trend. The rates changed from about 200 deaths to 100 deaths per 1000 live births during the 18 years' period under observation. One expected an appreciable decline in infant mortality during the period and that was assumed to be depicted by these rates in Table 7.3. But on an assumption of definite under-registration of births, the infant mortality rates as shown here could not be relied on. Hence the registered numbers of births were corrected for under-registration and relevant infant mortality rates were calculated as shown in the last column of Table 7.3. The trend of such revised infant mortality rates is quite different and shows a decline of only 10 per cent or so in infant mortality during a 14-year period. This was unexpected. Moreover, the trend can be justified only on the assumption that infant deaths are completely registered. But it is generally presumed (and rightly so) that births remain unregistered more often because of deaths among infants. If it is so, the number of registered infant deaths would also need revision. How to effect this revision is a problem. Can one assume that all unregistered births were also infant deaths? This does not sound reasonable because one frequently comes across unregistered births of living persons. It is very difficult to get a clue to this problem without any reliable data at hand. One therefore had to look for extraneous sources to implement a revision of the numbers of registered infant deaths.

Table 7.3 : REGISTERED LIVE BIRTHS AND CORRECTED LIVE BIRTHS WITH CORRESPONDING INFANT DEATH RATES IN POONA CITY FOR THE YEARS 1948 TO 1966

| <i>Calendar year</i> | <i>Registered live births</i> | <i>Registered infant deaths</i> | <i>Infant death rate per 1000 registered live births</i> | <i>Number of live births corrected for under-registration</i> | <i>Infant deaths per 1000 live births in the previous column</i> |
|----------------------|-------------------------------|---------------------------------|--|---|--|
| 1948 | 8,667* | 1,885* | 217.5 | — | — |
| 1949 | 10,154* | 2,027* | 199.6 | — | — |
| 1950 | 12,203 | 2,003 | 164.1 | — | — |
| 1951 | 14,370 | 1,974 | 137.4 | 19,241 | 102.6 |
| 1952 | 14,704 | 1,975 | 134.3 | 19,600 | 100.8 |
| 1953 | 13,956 | 1,935 | 138.7 | 19,887 | 97.3 |
| 1954 | 14,191 | 1,895 | 133.5 | 20,123 | 94.2 |
| 1955 | 17,510 | 1,878 | 107.3 | 20,294 | 92.5 |
| 1956 | 16,995 | 1,611 | 94.8 | 20,479 | 78.7 |
| 1957 | 17,624 | 1,676 | 95.1 | 20,585 | 81.4 |
| 1958 | 17,104 | 1,454 | 85.0 | 20,662 | 70.4 |
| 1959 | 16,650 | 1,525 | 91.6 | 20,663 | 73.8 |
| 1960 | 16,436 | 1,563 | 95.1 | 20,512 | 76.2 |
| 1961 | 17,385 | 1,524 | 87.7 | 20,236 | 75.3 |
| 1962 | 16,183 | 1,813 | 112.0 | — | — |
| 1963 | 18,268 | 1,874 | 102.6 | 21,337 | 87.8 |
| 1964 | 19,904 | 2,084 | 104.7 | 23,148 | 90.0 |
| 1965 | 20,636 | 2,063 | 100.0 | — | — |
| 1966 | 22,952 | 2,091 | 91.1 | — | — |

Source : The vital registration records of the Poona Municipal Corporation.

* Not comparable with other figures because of different coverage.

** Unexplainable drop and hence cannot be relied on.

Certain general observations regarding the extent of under-registration of births and deaths by the office of the Registrar General of India could be utilized here for getting the instrument of revision of vital registration. It was observed by this office that the proportion of unregistered births was always smaller than or equal to the proportion of unregistered deaths in most of the states. The relevant data are presented in Appendix A₇ at the end of this chapter. The verbal argument in favour of such a statement was that births remained more often unregistered because of early death in infancy than among living births. Whatever was observed to hold good universally for most of the states of the Indian Union could presumably be true, at least partly, for the city of Poona. Therefore,

if (a) the proportion of unregistered births was smaller than or equal to the proportion of unregistered deaths, and if (b) the under-registration was assumed to be mostly restricted to infant deaths¹⁰, the expected infant mortality rate for the city of Poona was bound to be larger than the registered infant mortality rate. Little else was known about the relative level of registration of births and deaths. However, it is the above vague knowledge of the relative level of under-registration among births and deaths which is used in estimating the under-registration of deaths in the subsequent paragraphs.

Under the assumption that the proportion of under-registration of deaths is equal to that of births, the problem of revising under-registration of deaths is solved. With the help of the percentages of under-registration, the total number of unregistered deaths can be estimated as shown in columns 2 to 5 of Table 7.4. If all these are infant deaths by the second assumption stated above, they have to be added to the registered infant deaths to get their revised number as in column 7 of the table. These deaths when related to the revised number of live-births yield infant mortality rates as shown in column 8. There being no tests to judge their trustworthiness only common sense considerations help us. The trend of rates in column 8 appears all right for all practical purposes except for the first four years. Why were the rates so high for this period and then a sudden fall in them in 1955 and later years? Or was it that the rates up to 1954 were the more reliable and those for the later period suffered? Generally with passage of time the registration of births as well as deaths in the city was believed to have improved. Could it be that the assumptions involved in revising the rates were more appropriate in one period than in the other? Our conjecture is that before 1955 the under-registration of births and deaths was of a different order than from 1955 onwards for reasons of change in boundaries as well as efficiency in administration. Hence perhaps the assumption that unregistered deaths were all infant deaths did not hold good for this period. This conjecture was ventured because certain regression techniques to test the infant mortality data also corroborated it. Hence the infant mortality rates for the early years of 1951-54 were further revised in the light of discussion given below.

¹⁰ This could be true only when the extent of under-registration was below a specific level. In the case of Poona city it could be assumed without being much in error.

Table 7.4 : THE INFANT MORTALITY RATES CORRECTED FOR UNDER-REGISTRATION, IN THE CITY OF POONA, IN VARIOUS CALENDAR YEARS

| <i>Calendar year</i> | <i>Estimated percentage of unregistered deaths*</i> | <i>Registered total deaths</i> | <i>Total deaths corrected for under-registration</i> | <i>Estimate of unregistered deaths = Col. (4) — Col. (3)</i> | <i>Registered infant deaths</i> | <i>Expected number of infant deaths* = Col. (5) + Col. (6)</i> | <i>Infant mortality rate corrected for under-registration</i> | <i>Modified estimate*** of infant mortality rate</i> |
|----------------------|---|--------------------------------|--|--|---------------------------------|--|---|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1951 | 25.3 | 7,016 | 9,392 | 2,376 | 1,974 | 4,350 | 226.1 | 162.1 |
| 1952 | 25.0 | 7,607 | 10,143 | 2,536 | 1,975 | 4,511 | 230.0 | 159.8 |
| 1953 | 29.8 | 8,684 | 12,370 | 3,686 | 1,935 | 5,621 | 282.6 | 157.5 |
| 1954 | 29.5 | 7,321 | 10,384 | 3,063 | 1,895 | 4,958 | 246.4 | 155.2 |
| 1955 | 13.7 | 7,788 | 9,024 | 1,236 | 1,878 | 3,114 | 153.4 | 152.9 |
| 1956 | 17.0 | 6,887 | 8,298 | 1,411 | 1,611 | 3,022 | 147.6 | 150.6 |
| 1957 | 14.4 | 7,522 | 8,787 | 1,265 | 1,676 | 2,941 | 142.8 | 148.4 |
| 1958 | 17.2 | 7,063 | 8,530 | 1,467 | 1,454 | 2,921 | 141.4 | 146.1 |
| 1959 | 19.4 | 7,242 | 8,985 | 1,743 | 1,525 | 3,268 | 158.3 | 143.8 |
| 1960 | 19.9 | 6,399 | 7,989 | 1,590 | 1,563 | 3,153 | 153.7 | 141.5 |
| 1961 | 14.1 | 6,273 | 7,303 | 1,030 | 1,524 | 2,554 | 126.1 | 139.2 |
| 1962 | N. A. | 7,239 | N. A. | N. A. | 1,813 | N. A. | N. A. | 136.9 |
| 1963 | 14.4 | 7,017 | 8,197 | 1,180 | 1,874 | 3,054 | 143.1 | 134.6 |
| 1964 | 7.3 | 7,090 | 7,648 | 558 | 2,084 | 2,642 | 123.1 | 132.3 |

* Estimated as explained in the text and are equal in percentage to under-registered percentage of births.

** Unreliable as explained in the text.

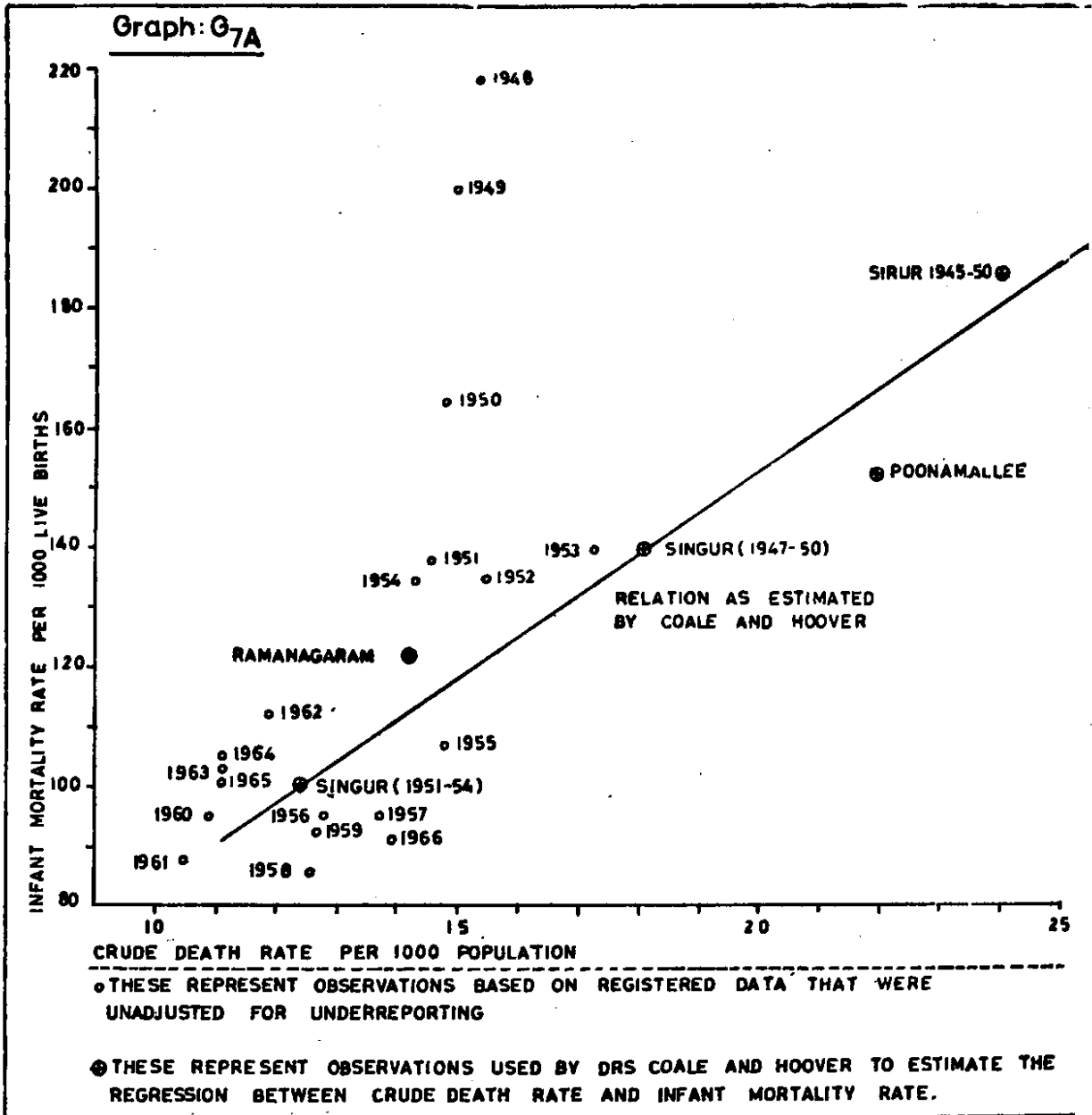
*** Estimated on the basis of regression line fitted to the infant mortality rates (in column 8) for the period 1955 to 1964.

Revision of infant mortality rates with the help of regression techniques

Anybody familiar with Indian vital registration knows how risky it is to give a single dependable value for infant mortality for any part of the country. The construction of life table for any region of the country was therefore often based on alternative assumptions regarding infant mortality. These alternatives often covered a big range of values between which the truth was expected to lie. To get a rough check on the estimates of infant mortality rate for the city of Poona, the technique applied by Drs. Coale and Hoover¹¹ in case of Indian communities was employed. The technique consisted of examining the association between crude death rate for all ages and the corresponding infant mortality rate. The technique though admittedly rough was useful in bringing out gross errors in estimated infant mortality rates especially when the registration of births and deaths was reasonably dependable.

Drs. Coale and Hoover depended on the association observed between crude death rate at all ages and infant mortality rates in Singur (1947-50 and 1951-54) in the suburbs of Calcutta in West Bengal, Ramanagaram in Mysore State, Sirur in Maharashtra State, and Poonamallee in Madras State, most of which were observed in the early fifties. These communities supposedly had ideal registration. The association observed for them is shown in Graph G_{7A} where crude death rates based on deaths at all ages are put on the x-axis and the infant mortality rates on the y-axis. Though the association observed on G_7 related to non-city areas, the relation could be assumed to hold good, at least broadly, for the city of Poona too. Hence the values of the registered infant mortality rates and corresponding crude death rates for the 18 years from 1948 to 1966 were put on the same graph. Two points appeared striking. Firstly the infant mortality rates for the early years of 1950's and for the period prior to 1950 were gross over-estimates. Secondly, the points representing later years though agreed closely with the Coale and Hoover regression line, their location was not fluctuating randomly about the line. For consecutive years they seemed to be concentrated either below or above the line.

¹¹ See 'Population Growth and Economic Development in Low Income Countries' by Drs. Coale and Hoover, page 53. It covered five reliable observations on Indian communities which were either rural or of the suburbs of cities.



This raised two questions : (1) Were the registered rates grossly erroneous? and (2) Was it necessary to modify the regression observed by Coale and Hoover for city conditions?

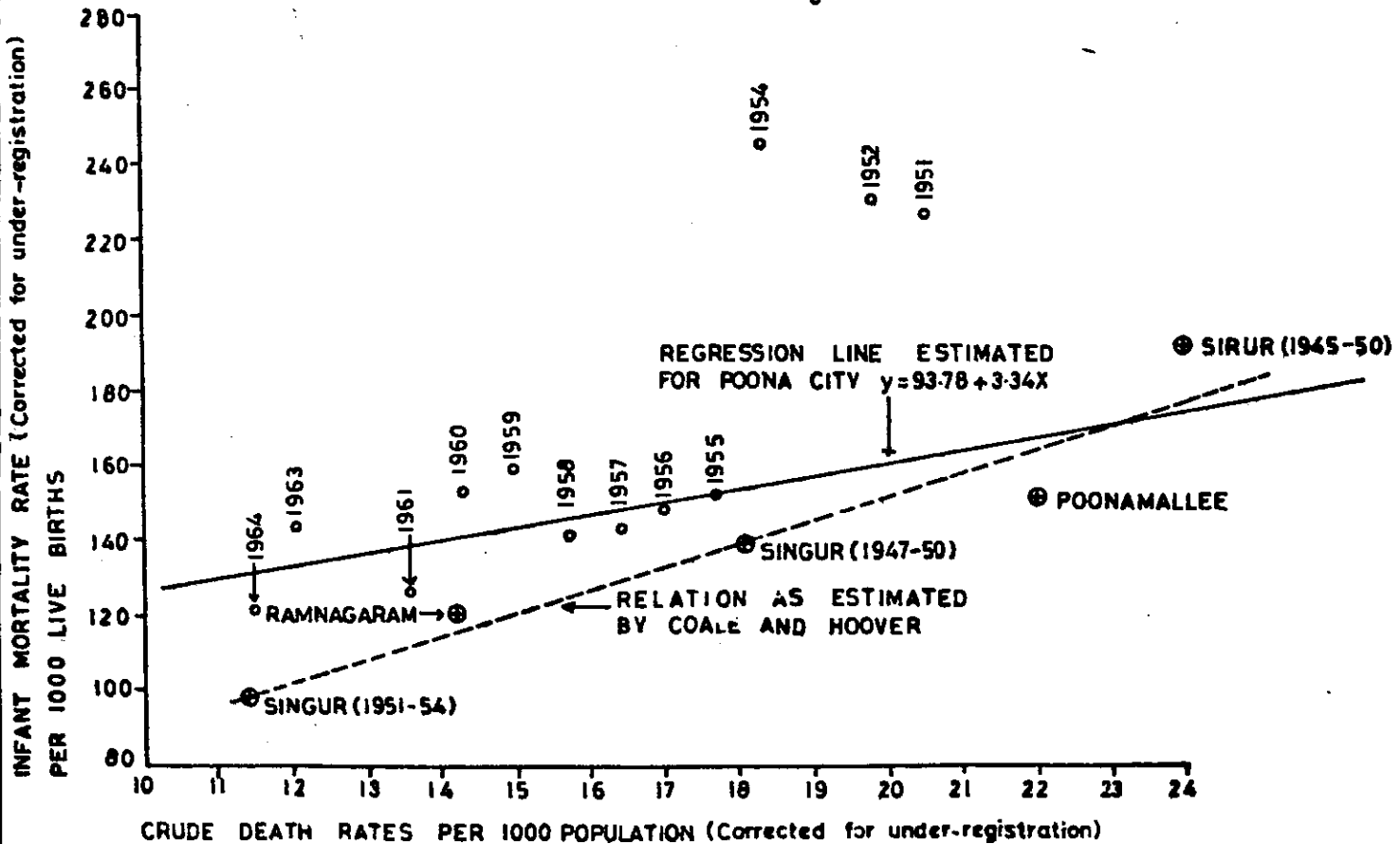
Considering the first question, one had to conclude that the infant mortality rates for calendar years nearabout 1950 seemed to be gross over-estimates on the strength of the relation observed in the graph. Especially the infant mortality rate was suspected of error as deaths at later ages than one, demanded better registration, at least in cities, because of difficulties in the disposal of the dead at these ages. The values of infant mortality rates based on ratios of infant deaths to live births could be over-estimates if the denominators in the ratios were under-estimated to a larger extent. This supported our earlier finding that the under-registration of births was markedly defective nearabout 1950's compared to later years under observation. In short, the registered rates needed correction, for under-registration of both births and deaths, especially the infant deaths.

If the registered number of births and deaths were corrected as discussed in the earlier pages, the association between the crude death rates based on deaths at all ages¹² and infant mortality rates could be re-examined for them. The corrected rates are presented in Graph G_{7B}. An independent regression line was fitted for the city of Poona, ignoring the observations before 1955. These observations had to be ignored as they fell too apart from the observed track met with in areas with ideal registration. One therefore could conclude that the assumption of under-registration of deaths being wholly restricted to infant deaths could not probably hold good for this period to the same extent as for the later years. A few important aspects of the new regression line for the city also demanded attention.

The Coale and Hoover regression line is shown in Graph G₇^B for comparing the regression line observed in the city of Poona. Two points were to be noted about the difference in them. One was that the regression line for Poona city had higher infant mortality rate than that observed for non-city communities of Coale and Hoover line. The second difference lay in the slope of the line which was slightly smaller for the city than for the non-city areas. These could

¹² Deaths for all ages were corrected for under-registration of infant deaths.

Graph : G7B



● THESE REPRESENT OBSERVATIONS USED BY DRS. COALE AND HOOVER TO ESTIMATE THE REGRESSION BETWEEN CRUDE DEATH RATE AND INFANT MORTALITY RATE.

lead to two conclusions. The contribution of infant mortality to total mortality in the city was slightly higher than that in the non-city area. Secondly the fall in infant mortality rate for a unit decline in crude death rate was at a slightly smaller rate in the city than in the non-city area. This difference, however, was small. But one wondered whether one could come to the conclusion that Poona city had a higher infant mortality rate than that observed in non-city Indian communities. Such statements have rarely been corroborated with factual data in Indian conditions till today. It is no surprise if one observes a higher infant mortality rate in a city where life may be more congested. But the whole argument is based not on very strong grounds. In the absence of any better estimates, the infant mortality rates were estimated by fitting a line to the corrected infant mortality rates for the period 1955 to 1964. On the basis of this line the estimates of infant mortality rates for the period of 1951 to 1964 were obtained. This suggested infant mortality rates of 162 and 132 for the two survey years of 1951 and 1964. The rates for all the years are set out in the last column of the Table 7.4.

To summarize, this chapter sheds light on three aspects of the vital registers for the city of Poona.

(a) Their unreliability as far as the pattern and extent of under-registration.

(b) Rough estimates of under-registration of births (Table 7.3) for the city. These reveal that the extent of under-registration in the city changed from 25 per cent to 14 per cent during 1951 to 1964.

(c) Rougher estimates of infant mortality rates for the city (Table 7.4). The estimated infant mortality rates revealed that the rate declined by 30 points (i.e. from 162 to 132 deaths per thousand births) during 1951 to 1964.

APPENDIX A₁

METHOD OF ESTIMATION OF PERCENTAGE OMISSION OF BIRTHS AND DEATHS IN DIFFERENT STATES AS GIVEN BY THE OFFICE OF THE REGISTRAR GENERAL, INDIA

| States | Per cent increase over 1951 | Net decadal migration rate | Computed (1951-60) | | Registered (1951-60) | | | Percentage omission | |
|--------------------------|-----------------------------|----------------------------|--------------------|-------|----------------------|-------|-------|---------------------|--------|
| | | | B. R. | D. R. | I. D. R. | B. R. | D. R. | Births | Deaths |
| <i>(a) Northern Zone</i> | | | | | | | | | |
| 1. Punjab | 25.9 | -3.17 | 44.7 | 18.9 | 110 | 39.9 | 14.7 | 10.8 | 22.2 |
| 2. Rajasthan | 26.2 | -0.05 | 42.7 | 19.4 | 117 | — | — | — | — |
| <i>(b) Central Zone</i> | | | | | | | | | |
| 3. Uttar Pradesh | 16.7 | -1.27 | 41.5 | 24.9 | 186 | 15.9 | 9.2 | 61.7 | 63.1 |
| 4. Madhya Pradesh | 24.2 | 1.80 | 43.2 | 23.2 | 175 | 19.7 | 12.3 | 52.1 | 47.4 |
| <i>(c) Eastern Zone</i> | | | | | | | | | |
| 5. Assam | 34.5 | 7.95 | 49.3 | 26.9 | 184 | 9.7 | 4.4 | 80.3 | 83.6 |
| 6. Bihar | 19.8 | 0.84 | 43.4 | 26.1 | 145 | 15.0 | 7.9 | 65.4 | 79.7 |
| 7. Orissa | 19.8 | 0.67 | 40.4 | 22.9 | 159 | 24.7 | 15.5 | 38.8 | 32.3 |
| 8. West Bengal | 32.8 | 6.61 | 42.9 | 20.5 | 120 | 21.5 | 8.9 | 50.0 | 56.6 |
| <i>(d) Southern Zone</i> | | | | | | | | | |
| 9. Andhra Pradesh | 15.7 | 0.06 | 39.7 | 25.2 | 111 | — | — | — | — |
| 10. Kerala | 24.8 | -0.79 | 38.9 | 16.1 | 120 | — | — | — | — |
| 11. Madras | 11.9 | -1.29 | 34.9 | 22.5 | 109 | 28.1 | 14.5 | 19.5 | 35.4 |
| 12. Mysore | 21.6 | 0.17 | 41.6 | 22.2 | 120 | — | — | — | — |
| <i>(e) Western Zone</i> | | | | | | | | | |
| 13. Gujarat | 26.9 | 1.76 | 45.7 | 23.5 | 110 | — | — | — | — |
| 14. Maharashtra | 23.6 | -0.26 | 41.2 | 19.8 | 109 | 32.3 | 15.2 | 21.6 | 24.3 |
| All-India | 21.1 | 0.80* | 41.7 | 22.8 | 139 | 22.1 | 11.3 | 47.0 | 50.4 |

* Including Union Territories.

Source : 'Vital Statistics of India for 1961' issued by the Registrar General India, Ministry of Home Affairs, New Delhi, 1964, Page XL of Introduction.

APPENDIX B₇

SEX-RATIO AT BIRTH FOR VARIOUS STATES OF INDIA (FROM VITAL REGISTRATION) AND FOR OTHER COUNTRIES

| <i>States</i> | <i>Sex-ratio at birth</i> | |
|----------------|---------------------------|-------------------|
| | <i>Total area</i> | <i>Rural area</i> |
| Andhra Pradesh | 107·7 | 107·5 |
| Assam | 107·3 | 107·3 |
| Bihar | 110·0 | 109·6 |
| Delhi | 109·4 | 116·1 |
| Gujarat | 111·6 | 111·7 |
| Kerala | 107·0 | 106·5 |
| Madhya Pradesh | 105·6 | 104·9 |
| Madras | 114·7 | 108·1 |
| Maharashtra | 108·5 | 108·5 |
| Mysore | 107·9 | 108·4 |
| Orissa | 108·3 | 108·4 |
| Punjab | 114·2 | 114·2 |
| Rajasthan | 121·8 | N. A. |
| Uttar Pradesh | 123·1 | 125·4 |
| West Bengal | 108·4 | 108·4 |

Source : Vital Statistics of India for 1964, pp. 37-38.

| <i>Other countries</i> | |
|----------------------------|---------------------------|
| <i>Country</i> | <i>Sex-ratio at birth</i> |
| Japan 1953-57 | 106 |
| U. S. A. 1953-57 | 105 |
| France 1954-58 | 105 |
| Sweden 1953-57 | 106 |
| England & Wales 1954-58 | 106 |

Source : Demographic Year-book (1959),
United Nations.

APPENDIX B₇—Contd.SEX-RATIO AT BIRTH IN VARIOUS STATES IN INDIA BASED ON
NATIONAL SAMPLE SURVEY

| <i>India</i> | |
|-----------------|-------------------------------|
| <i>States</i> | <i>Sex-ratio at birth</i> |
| Andhra Pradesh | 105 |
| Assam | 125 |
| Bihar | 108 |
| Gujarat | 101 |
| Jammu & Kashmir | 108 |
| Kerala | 101 |
| Madhya Pradesh | 114 |
| Madras | 98 |
| Maharashtra | 99 |
| Mysore | 104 |
| Orissa | 101 |
| Punjab | 121 |
| Rajasthan | 109 |
| Uttar Pradesh | 102 |
| West Bengal | 96 |
| All-India | 104 |

Source : The National Sample Survey report on fifteenth round (Differential birth, death and infant mortality rates in rural households). Appendix Tables A₂.1 and A₂.2 pages 21 and 22.

CHAPTER VIII

LOOP EXPERIENCE IN POONA CITY

A DISCUSSION of family-planning activity and its trend in the city of Poona during 1951-64 would not be complete without reference to possible later developments in the field. This might facilitate forecasting the future trends of activity in the city with further possibilities of decline in birth rate. In the early months of 1965, the Government of India was considered by many to be rather conservative in not granting an outright sanction for fitting the intra-uterine-device,¹ popularly known as Lippe's loop in the family-planning programme. The mass programmes in some other countries especially Korea, Taiwan and Singapore seemed markedly progressive in contrast to the shilly-shally attitude of the government in accepting the loop for mass consumption. But the family-planning conference of 1965 in Geneva came out with extremely hopeful results regarding the prospects of I.U.D. in mass family-planning programmes in a number of countries. This perhaps enthused the Indian Government as well as the Government of Maharashtra State to launch a zealous action programme especially in the district of Poona. Fortunately the Gokhale Institute could collect basic socio-economic records for women who got the loop inserted, either in the

¹ Henceforth referred to only as *I.U.D.* or loop.

clinics of the city of Poona or in the 'loop-camps' conducted by the Government in non-city areas of the district of Poona for the convenience of the villagers. The present chapter is devoted to the findings on loop cases mainly in the city. Incidentally, however, the findings for non-city areas are set out for comparison.

In the field of contraceptives, the I.U.D. seemed to be the *super novae* of the day, at least for the developing countries. It seemed to offer the key to the problem of population control as it possessed many of the merits demanded of a contraceptive for mass programmes in the developing countries. In countries like Korea or Taiwan going enthusiastically with the loop programmes, 20 per cent women were found to be unsuited for loop-fitting. About 30 per cent² of those with a loop inserted were getting the device removed by the end of one year. This percentage increased to about 40 and 50 by the end of the second and the third year respectively. These findings were considered encouraging by administrators of many developing countries. Loops seemed more effective than the so-called traditional methods. Moreover the process of loop-fitting being reversible, it looked more attractive than the sterilization.

The organization of a loop programme demanded a responsible medical service as well as a careful follow-up. Great care in the organization was all the more necessary at the beginning of a programme which was to shape the attitudes of masses towards the new contraceptive. In the city of Poona, all the clinics were entrusted with the work of loop insertion. The clinics were equipped with the required medical personnel. A specially designed recording system was supposedly maintained for loop-cases at all the clinics.

The citizens of Poona thus acquired an additional family-planning facility. The interest therefore lay in their reactions to the loop. Did the introduction of the loop accelerate the contraceptive activity in the city? Or did the loop give it a set-back? Did the people shift from other contraceptives to the loop or *vice versa*? What was the likely place of the I.U.D. in the contraceptive tools of the citizens of Poona? These are the questions, answers to which are sought in the following pages.

The family-planning clinics of Poona started the work of loop

² These percentages broadly sum up the findings of studies like Taichung and others presented at the Geneva Conference (see Barelson and others, *Family Planning and Population Problems*, Chicago, (ed.), University of Chicago Press, 1966).

insertion in the middle of the year 1965. There were more than 2000 loop insertions done by them before the end of 1966. In the present chapter it is proposed to analyse the data for only three clinics, chosen such that one clinic is from each of the three kinds of organizations, namely, the municipal corporation, the Government, and the voluntary organizations. The clinics were so chosen that they were scattered widely over the city to represent the city geographically. There were 1161³ loop insertions done in the three selected clinics till the end of 1966. All the cases from one clinic⁴ and those whose addresses were roughly within half a mile of the other two clinics were chosen for interview. Thus 656 cases were selected for interview. The information regarding the number of loop insertions, the number of cases selected and the number interviewed in 1967 is presented in Table 8.1.

Table 8.1 : NUMBER OF SELECTED AND INTERVIEWED CASES OF LOOP FROM THE TOTAL CASES IN EACH OF THE THREE SELECTED FAMILY-PLANNING CLINICS

| | <i>Name of the selected family-planning clinic</i> | | | <i>Total</i> |
|--|--|---------------------------------|-----------------|--------------|
| | <i>S. S. Mandir</i> | <i>Regional Training Centre</i> | <i>Shaniwar</i> | |
| Number of loop cases available from the clinic (up to December 1966) | 197 | 571 | 393 | 1161 |
| Number of cases selected for interview | 197 | 291 | 168 | 656 |
| Number of cases interviewed | 155 | 212 | 122 | 489 |

The records in the clinics provided the addresses of women adopting the loop, their ages, the number of their children and the date of loop insertion. But the required follow-up of cases had been poorly performed by the clinics and hence recourse had to be taken

³ Doubling the number of loop cases of 18 months, they could be compared with the number of clinic visitors in the course of three years 1961-63. The number compared very favourably so that the family-planning programme showed signs of progress with loop insertions. Moreover the acceptors of loop were genuine acceptors of contraception compared to those of other contraceptives in the clinics.

⁴ Because their number was comparatively small.

to interviewing them in their homes. A questionnaire was addressed to such women to seek information on the following points regarding the loop.

- (a) Source of knowledge regarding the loop.
- (b) Promoting agency to initiate action.
- (c) Condition of the loop — whether it was *in situ*, removed or expelled or whether it was reinserted.
- (d) Period of loop insertion, whether lactation amenorrhoea or not.
- (e) Duration of loop experience.
- (f) Troubles arising because of the loop, and their nature in lactation amenorrhoea and other period.
- (g) Medical treatment available or sought.
- (h) Effect of the loop on regularity of menstrual periods.
- (i) Reactions of women to the loop and its side-effects to measure their strength of motivation.
- (j) Reactions to the loop in various socio-demographic classes of women.
- (k) Extent of favourable attitudes to the loop at the time of enquiry and of willingness to propagate the practice of the loop.
- (l) Shift to the loop from other contraceptives and *vice versa*.

The questionnaire used for the enquiry is reproduced in Appendix A₈. The same questionnaire was also canvassed in non-city areas of Poona district. The conditions under which the loop programme was administered there, were different from those in the city. This explains the inclusion of certain questions in the questionnaire relating to the loop-camps held in the non-city areas. The experience of the non-city people could be different due to paucity of medical facilities and skepticism among villagers towards anything new and whose side-effects they were ignorant of. Non-city experiences with the loop are noted in Appendix B₈, for comparison. These cover about 900 cases.

Of the 656 cases selected for interview in Poona city, only 489 could be contacted in their homes by the investigators of the Gokhale Institute. Thus about three-fourth of the cases were contacted and interviewed. The non-contacted cases constituting one-fourth of the selected ones, did not form any special socio-economic demographic category. Nor was their experience regarding the loop much different

from that of the contacted cases, as noted in the clinic records. Hence the experiences of the interviewed could be assumed to represent broadly those of the general population with loop insertions.

Source of information regarding the loop

It is very difficult to get information about the source which gave a stimulus to persons to adopt the loop. All the same, in Table 8.2, the reported source of information regarding the loop conveys most credit to the clinic workers. The next group carrying the information is friends and relatives of the interviewed women. This is a rather dubious category as it does not convey any idea about the primary source of information of those friends and relatives; still one gets an idea as to how contraceptive knowledge can get disseminated among women. It also indicates that the taboo on such discussions is giving way. This probably was due to mass-media like radio and newspapers that discussed the loop programme. A significant percentage (i.e. 11.7) of women reported radio as the source of information regarding the loop. It seemed that this category was possibly under-reported and corresponding over-reporting existed in the earlier two categories. The radio being a very powerful medium of mass communication, one is interested to know how useful it has been in the case of the loop programme. It is possible that a large number of friends and relatives heard about the loop on the radio and conveyed the information to the interviewed. Or listening to the radio, women went to the clinics for further action. But these are all conjectures.

Table 8.2 : DISTRIBUTION OF LOOP ADOPTERS ACCORDING TO REPORTED SOURCE OF INFORMATION REGARDING THE LOOP

| <i>Source of information</i> | <i>No. of women</i> | <i>Percentage</i> |
|--|---------------------|-------------------|
| Books and other published material | 52 | 10.6 |
| Radio, exhibition, etc. | 57 | 11.7 |
| Friends or relatives (including husband) | 139 | 28.4 |
| Clinic worker in the medical institution | 229 | 46.9 |
| Clinic worker at the home of the interviewed | 7 | 1.4 |
| Others (political leaders, social workers, etc.) | 1 | 0.2 |
| Not given | 4 | 0.8 |
| Total | 489 | 100.0 |

Social status of those adopting a loop

The social status of women resorting to a loop was found more often to be higher than that found in the general population as defined by their caste, education, and occupation. The relevant information is laid out in Appendix C₈. The comparison of women adopting a loop with the interviewed clinic visitors of Chapter IV indicates that socially the two groups resemble each other. However, there was some difference in the number of children the two categories had, the loop adopters having a slightly larger number of children. Women adopted the appliances early in their reproductive life with fewer children. If their number of children increased beyond the desired one, they resorted to sterilization. This they did after making allowance for the fact that sterilization was irreversible. It led to having a larger number of children than desired at the time of sterilization. Women adopting a loop were on the other hand motivated to do so probably in place of sterilization because of the reversibility of loop insertion. Majority of them had the desired number of children and needed no extra ones as when resorting to irreversible sterilization. They seemed highly motivated since they were prepared to submit themselves to the hands of a doctor for a lasting contraceptive. This high motivation is also borne out by the data presented later in this chapter.

Contraceptive practice before loop insertion

Among the interviewed 489 cases, 250 reported no contraceptive practice before loop insertion. The others had practised or had at least a try at other methods. Comparison of the earlier contraceptive practice of the loop adopters and that of one per cent random sample of interviewed women in the city (refer to Chapter V) as shown in Table 8.3 is interesting. Only those women from the random sample who were motivated to a contraceptive practice currently or in future could be validly compared with the I.U.D. adopters to know any shift in the choice of a contraceptive due to introduction of the I.U.D. The two percentage distributions in columns three and five of the table reveal that women shifted to the loop mainly from groups who had planned to get sterilized. Thus none probably adopted the I.U.D. for spacing the children.

Table 8.3 : DISTRIBUTION OF LOOP ADOPTERS AND OF THE ONE PER CENT RANDOM SAMPLE OF THE INTERVIEWED WOMEN IN POONA CITY ACCORDING TO PRACTISED CONTRACEPTIVE METHOD

| <i>Contraceptive method practised</i> | <i>Women using the specific contraceptive method before loop insertion</i> | | <i>Women motivated* to contraception (Poona city sample)</i> | |
|---------------------------------------|--|-------------------|--|-------------------|
| | <i>Number</i> | <i>Percentage</i> | <i>Number</i> | <i>Percentage</i> |
| Diaphragm and jelly | 75 | 15.3 | 33 | 6.3 |
| Condom | 123 | 25.2 | 83 | 15.9 |
| Chemical contraceptives | 15 | 3.1 | 9 | 1.7 |
| Mental control | 14 | 2.9 | 41 | 7.9 |
| Oral tablets | 1 | 0.2 | — | — |
| Method not-specified | 8 | 1.6 | — | — |
| No contraceptive method practised | 250 | 51.1 | 356 | 68.2 |
| Information not given | 3 | 0.6 | — | — |
| TOTAL | 489 | 100.0 | 522 | 100.0 |

* These women include married women of age 13-47 who were users of some contraceptive method other than sterilization or who were willing to use some contraceptive or willing to get sterilized in future.

Side-effects of loop insertion

The loop falls in the category of intra-uterine-devices for prevention of births. It usually comes in different sizes. But the ones available to the clinics in the city of Poona were of size 30 mm. The other sizes that were heard of were 25, 27.5, and 31 mm., but since these were not available in the clinics for use, no experience about them could be gathered. In a number of enquiries with regard to I.U.D., conducted in other countries, it was found that with larger-sized loop, proportion of cases suffering from bleeding after loop insertion increased, and with smaller sizes, the cases of expelled loops increased.

The experiences noted in many countries showed that more than 20 per cent of the cases were not suitable for fitting a loop. Often, these women suffered from erosion, white discharge, pelvic inflammation, bulky uterus, fibroid, or suspected cancer, besides anaemia.

There were also cases of suspected pregnancy.⁵ The recording system with regard to I.U.D. in the present programme did not seek any information on cases rejected for loop insertion. This was a grave defect in the recording system at least in the initial preparation for the programme. One had therefore to rely only on the verbal reports of the doctors in charge of the programme. They carried an impression that rejected cases were small in number. But they could not make any confident statement regarding the extent of rejected cases in the three clinics under consideration. In India, one expected a larger number of cases unfit for the loop as compared to other countries. Initial screening, as seen later in the chapter, seemed to be casual, which perhaps swelled the removal rates especially in the non-city area.

Women did not have to face the problem of pregnancy at loop insertion when a loop was fitted during the period of lactation amenorrhoea. One hundred and seven women out of 489 got the loop while in this amenorrhoea. Did this make any difference to their reactions to the loop? There prevailed a feeling among some doctors that women had less bleeding when the loop was fitted during lactation amenorrhoea; but the onset of menstruation occasionally came a little earlier and the bleeding due to loop insertion was extreme nearabout the period of peak fecundity. According to the doctors it was because of this that the conception rate was exceptionally large among women in whose cases the loop was removed because of excessive bleeding. Therefore, in the subsequent paragraphs, information is sought on (i) the first onset of menstruation, (ii) regularity of menstrual cycles, and (iii) the bleeding trouble of women with loop insertion during the period of lactation amenorrhoea and other period when women were regularly menstruating. This was to verify the prevalent impressions about the I.U.D.

Onset of menstruation after loop insertion

The onset of first menstrual cycle after the insertion of a loop was in the normal course of time in 55 per cent cases. About one-fourth

⁵ As for suspected pregnancy, women visiting the clinics in Poona were usually asked to come for loop insertion during the first week of their menstrual cycle. If they turned up later they were advised to come after the next onset of menstruation. They were, however, advised the practice of other contraceptives during the interim. But sometimes women misreported the date of menstruation and got the loop inserted. This finally led to the fitting of a loop only during the menstrual period, in the clinics of Poona city. But the rule came late in the programme.

of the interviewed women reported earlier menses than usual after loop insertion.⁶ The data on this aspect are set out in Table 8.4. The women with a loop inserted during lactation amenorrhoea reported early or late onset as compared to their 'expected' period of amenorrhoea. As seen from Table 8.5 'earlier than usual' onset was

Table 8.4 : EFFECT OF LOOP INSERTION ON THE FIRST MENSTRUAL CYCLE AFTER INSERTION

| <i>Onset of first menstrual cycle after loop insertion</i> | <i>No. of women</i> | <i>Percentage</i> |
|--|---------------------|-------------------|
| Earlier than normal | 119 | 24.3 |
| Normal | 271 | 55.4 |
| Later than normal | 26 | 5.3 |
| No menses | 39 | 8.0 |
| Continuous trouble regarding bleeding from the time of insertion | 22 | 4.5 |
| Not reported | 12 | 2.5 |
| Total | 489 | 100.0 |

Table 8.5 : AVERAGE PERIOD OF LACTATION AMENORRHOEA FOR WOMEN GETTING LOOP INSERTED DURING THAT PERIOD AND THE REPORTED EFFECT ON THE PERIOD DUE TO LOOP INSERTION

| <i>Period of lactation amenorrhoea</i> | <i>Number of women</i> | <i>Percentage</i> | <i>Average period (in months) of lactation amenorrhoea for these women</i> |
|--|------------------------|-------------------|--|
| Shorter than normal | 10 | 9.3 | 9.7 |
| Normal | 66 | 61.7 | 11.5 |
| Longer than normal | 6 | 5.6 | 12.8 |
| Not known because: | | | |
| (i) Women were in amenorrhoea at the time of enquiry | 6 | 5.6 | 17.5 |
| (ii) Women were in amenorrhoea when the loop was removed or expelled | 19 | 17.8 | 10.4 |
| Total | 107 | 100.0 | 11.5 |

⁶ Though such a report by respondents had no precise quantitative basis.

reported by them only in about nine per cent and 'later than usual' onset in about six per cent cases. There seemed little difference in their average period of lactation amenorrhoea which varied only between 10 and 13 months. Moreover the number of cases with a loop inserted during the period of amenorrhoea was only 107⁷ including those 25 whose amenorrhoea did not end with loop *in situ*. In short, there was no evidence to prove the effect of loop insertion on the onset of menstruation.

Regularity of menstruation after loop insertion

Information collected on the regularity of menstrual cycles did not reveal much disturbance in it due to loop insertion. The relevant data in Table 8.6 bring out this point clearly.

Bleeding trouble after loop insertion

Bleeding was excessive in a large proportion of cases and only about 23 per cent (112) women had no complaint worth a mention. But others suffered due to bleeding and other physical troubles.

The number of bleeding days for women with a loop inserted during the period of lactation amenorrhoea and other period reveals their slightly smaller extent with loop insertion during amenorrhoea as seen in Table 8.7. But did this group start profuse bleeding later at the peak of fecundity? Any direct evidence on this could not be given. Nor was the number of observations large enough to rely on them. However, an indirect evidence could be collected on the basis of conception rates of women immediately after the removal of the loop. The conception rates presented in Table 8.8 are no doubt high.⁸ But for a strong evidence on the point raised above, more data regarding the time and extent of bleeding based on women with various levels of fertility will be necessary. It was difficult to get these.

⁷ This number seems large for women in our societies. As will be seen from the Appendix B₉, the corresponding number for non-city area was still larger. How could this be the case for women with lower level of motivation in the matter of contraception? It is feared that women were perhaps pregnant and reporting that they were in lactation amenorrhoea. This was perhaps to induce abortion. If it was in fact the case, doctors inserting loops ought to be blamed. But all this is just guess-work.

⁸ As judged from the corresponding performance in the non-city areas of Poona district, the conception rates in the city appear higher. Obviously this was due to longer exposure to conception in the non-city area with delayed investigation of cases of loop removals. This emphasizes the point already made that the conception rate is higher immediately after the loop removal, and with longer period passing between the loop removal and enquiry, the conception rates gradually attain normal values.

Table 8.6 : EFFECT OF LOOP INSERTION ON REGULARITY OF MENSTRUAL CYCLE, BLEEDING AND OTHER PHYSICAL PAIN

| Regularity of menstrual cycle | Trouble regarding bleeding | Cases with no physical pain | | Cases reporting physical pain | | Total | |
|-------------------------------|-------------------------------|-----------------------------|--------------|-------------------------------|--------------|-------------|--------------|
| | | No. | Percentage | No. | Percentage | No. | Percentage |
| Regular | No trouble regarding bleeding | 112 | 51.4 | 71 | 27.9 | 183 | 37.4 |
| Regular | Excessive bleeding | 84 | 38.5 | 146 | 57.5 | 230 | 47.0 |
| Regular | White discharge | 8 | 3.7 | 14 | 5.5 | 22 | 4.5 |
| Irregular | No trouble regarding bleeding | 3 | 1.4 | 6 | 2.4 | 9 | 1.8 |
| Irregular | Excessive bleeding | 4 | 1.8 | 8 | 3.1 | 12 | 2.5 |
| Irregular | White discharge | 2 | 0.9 | 2 | 0.8 | 4 | 0.8 |
| Regularity not reported | Intermittent bleeding | 5 | 2.3 | 7 | 2.8 | 12 | 2.5 |
| Information not given | | — | — | — | — | 17* | 3.5 |
| Total | | 218 | 100.0 | 254 | 100.0 | 472 | 100.0 |
| | | | | | | +17* | |

* In respect of cases with no information on the above items it was found that the loop was *in situ* for a very short period so that the women could not report the effect of the loop on regularity of menstrual cycle and other troubles.

In spite of the reported bleeding troubles it is surprising that 63 per cent women seemingly reported no need of medical treatment. Perhaps, they had only some minor troubles. As shown in Table 8.9 a sizable proportion of loop adopters (17 per cent) was satisfied with the loop as their troubles were overcome after treatment. Thus 80 per cent had no unfavourable reaction to the loop due to serious bleeding. Or because of high level of motivation to limit the size of family, they did not feel like complaining. However, a significant percentage (namely 11) remained dissatisfied in spite of medical treatment. What was then their reaction to the loop at the time of enquiry? Did they continue to wear it?

Table 8.7 : DISTRIBUTION OF WOMEN WITH LOOP INSERTED DURING LACTATION AMENORRHOEA AND OTHER PERIOD WHEN WOMEN MENSTRUATE REGULARLY, ACCORDING TO THE NUMBER OF BLEEDING DAYS IMMEDIATELY AFTER INSERTION

| No. of bleeding days | Women with loop inserted during lactation amenorrhoea | | Women with loop inserted during other period | | Total | |
|----------------------|---|--------------|--|--------------|------------|--------------|
| | No. | percentage | No. | Percentage | No. | Percentage |
| No bleeding | 19 | 17.8 | 44 | 11.5 | 63 | 12.9 |
| 1—3 days | 31 | 29.0 | 83 | 21.7 | 114 | 23.3 |
| 4—7 days | 38 | 35.5 | 123 | 32.2 | 161 | 32.9 |
| —2 weeks | 7 | 6.5 | 80 | 21.0 | 87 | 17.8 |
| —4 weeks | 3 | 2.8 | 22 | 5.8 | 25 | 5.1 |
| —8 weeks | 2 | 1.9 | 11 | 2.9 | 13 | 2.7 |
| More than 8 weeks | 6 | 5.6 | 12 | 3.1 | 18 | 3.7 |
| Not given | 1 | 0.9 | 7 | 1.8 | 8 | 1.6 |
| Total | 107 | 100.0 | 382 | 100.0 | 489 | 100.0 |

Table 8.8 : CONCEPTION RATES EXPERIENCED IMMEDIATELY AFTER THE REMOVAL OF LOOP, FOR WOMEN WITH THE LOOP REMOVED

| Age | Woman-years of exposure (after removal up to the date of enquiry) | Number of conceptions* | Conception rate** per 1000 years of exposure |
|--------------|---|------------------------|--|
| 13—17 | 2.00 | — | — |
| 18—22 | 13.33 | 11 | 825.2 |
| 23—27 | 61.00 | 34 | 557.4 |
| 28—32 | 38.91 | 13 | 334.1 |
| 33—37 | 14.84 | 2 | 134.8 |
| 38—42 | 6.00 | 1 | 166.7 |
| 43—47 | 1.75 | — | — |
| Total | 137.83 | 61 | 442.6 |

* Considering conceptions rather than births seemed to be necessary to get a more sensitive measure of fecundity immediately after the loop removal. Naturally here the period of exposure does not include periods of pregnancy or *post-partum* amenorrhoea.

** Due to paucity of data, age-specific conception rates were not calculated separately for women who got the loop inserted in lactation amenorrhoea. However, it was verified that for all ages together, the proportion of conceptions after the loop removal was proportional to the number of women with a loop inserted during amenorrhoea and other period.

Table 8.9 : DISTRIBUTION OF LOOP ADOPTERS ACCORDING TO THE MEDICAL TREATMENT IMMEDIATELY AFTER INSERTION AND EFFECTIVENESS OF THE TREATMENT

| <i>Medical treatment immediately after insertion</i> | <i>No. of women</i> | <i>Percentage</i> |
|--|---------------------|-------------------|
| Did not require any treatment | 310 | 63.4 |
| Treatment sought and proved effective | 82 | 16.8 |
| Treatment sought but with no effect | 54 | 11.0 |
| Treatment neglected | 36 | 7.4 |
| Not given | 7 | 1.4 |
| Total | 489 | 100.0 |

Reactions to the loop after bleeding experience

Table 8.10 shows that half the interviewed women had the loop *in situ* at the time of enquiry. The removals constituted almost an equal percentage whether the loop was inserted during amenorrhoea or not. It was suspected that young women or those with smaller number of children could get scared with bleeding and other troubles and hence got the loop removed. Closer examination of the women in various categories of loop-condition did not disclose any relation between the extent of the removal of loop and the number of children or young age of the mothers. The question therefore arose: Why was it that the loop was removed? Or was it that cases with the loop *in situ* were so only for a small period?

The number of months for which the loop was *in situ* after insertion is indicated in Table 8.11. Women with a loop *in situ* at the time of enquiry had it for about 15 months. Even those who had it removed wore it for nine and a half months on an average. Thus the total experience covered 5669⁹ women-months with a loop.

Removal and expulsion rates of loop

The removal and expulsion rates after various durations of the loop *in situ* were calculated applying the life-table technique as shown in Appendix D₈. The cumulative rates of removal and expulsion for the loop are set out in Table 8.12. They are for loops of size 30 mm. as this was the only size available for loop programme

⁹ During these months there occurred five pregnancies. If 414 months of the loop in lactation amenorrhoea are left out there were only 1.2 pregnancies per 100 years of the loop in place. Undoubtedly this is a low rate of failure of the loop as a contraceptive.

Table 8.10 : DISTRIBUTION OF WOMEN WITH A LOOP INSERTED DURING LACTATION AMENORRHOEA AND OTHER PERIOD OF REGULAR MENSTRUATION, ACCORDING TO THE CONDITION OF THE LOOP AT THE TIME OF ENQUIRY

| Condition of loop at the time of enquiry | Women with the loop inserted during | | | | Total | |
|--|-------------------------------------|--------------|--------------------------------------|--------------|------------|--------------|
| | Amenorrhoea | | Other period of regular menstruation | | | |
| | Number | Percentage | Number | Percentage | Number | Percentage |
| Loop <i>in situ</i> | 53 | 49.6 | 192 | 50.2 | 245 | 50.2 |
| Loop removed | 41 | 38.3 | 149 | 39.0 | 190 | 38.9 |
| Loop expelled | 9 | 8.4 | 22 | 5.8 | 31 | 6.3 |
| Loop reinserted after first removal | 3 | 2.8 | 4 | 1.0 | 7 | 1.4 |
| Loop reinserted after first expulsion | — | — | 6 | 1.6 | 6 | 1.2 |
| Loop removed after reinsertion | 1 | 0.9 | 5 | 1.3 | 6 | 1.2 |
| Loop expelled after reinsertion | — | — | 1 | 0.3 | 1 | 0.2 |
| Not given | — | — | 3 | 0.8 | 3 | 0.6 |
| Total | 107 | 100.0 | 382 | 100.0 | 489 | 100.0 |

Table 8.11 : TOTAL AND AVERAGE DURATION IN MONTHS FOR WHICH THE LOOP WAS *in situ* FOR WOMEN WITH DIVERSE LOOP EXPERIENCE AFTER FIRST INSERTION

| Loop experience after first insertion | Number of women | Total months of use | Average* months of use |
|---------------------------------------|-----------------|---------------------|------------------------|
| Loop <i>in situ</i> | 245 | 3610 | 14.9 |
| Loop removed | 198 | 1866 | 9.5 |
| Loop expelled | 43 | 193 | 4.7 |
| Not given | 3 | — | — |
| Total | 489 | 5669 | 11.8 |

* The averages are based on the cases reporting the months of use. There were in all five cases who did not report the months of use too, besides the three cases not reporting the condition of loop.

in Poona city or nearby non-city areas. As seen from Table 8.12 the expulsion rates get stabilized after six months or so. But the removal rates seem to rise fast with larger duration. The impression one gathered from the interviews with women was that women bore the device in spite of bleeding for a year or longer with full trust in it. But by the close of the year 1966, the whole climate arose against the device.¹⁰ A panic arose because the women from non-city area were not adequately informed about the side-effects of the loop. The loop removal rate consequent to bleeding experienced by these women does not seem to be exceptionally bad as indicated by the rates in non-city areas (see Table B₈.12 in Appendix B₈). But with no previous knowledge in the matter, their bleeding experience was much publicized in the newspapers. Consequently, in the city as well as non-city areas, those who had the loop got it removed, perhaps with an exception of those who had the least complaint. The removal rates up to 12 or 18 months in the city of Poona were not much affected by the panic in the non-city area caused by bleeding. But the rates for months above 18 seemed exceptionally high. They, being affected by the panic, could not be validly compared with other similar data. Besides, the removal rates above 18 months or so were not based on adequate number of observations in the city.

Comparison of the removal and expulsion rates with other similar data in the country was not possible. In one or two stray cases where the rates were available the size of the sample or the techniques of calculation of rates were not available and the relevant data could not be verified. Recourse had therefore to be taken to international comparisons besides the comparison with non-city experience. In Table 8.12 comparable figures for the United States, Taichung Study in Taiwan and Koyang Study in Korea are exhibited. The removal rates in the United States are much smaller than those observed in Poona study. But the Taichung and Koyang rates are very close to those in Poona city for durations up to 12 months. For higher durations the rates in Poona were obviously much higher than those observed in the above two Asian studies. Reason for this disparity was clearly the panic affecting the rates in Poona.

As for the expulsion rates they were higher for all studies in other countries and even those in the non-city areas of the Poona district

¹⁰ The number of loop insertions fell rapidly after 1966 so that there were no insertions at all in 1968.

Table 8.12 : CUMULATIVE RATES OF REMOVAL AND EXPULSION PER 100 FIRST INSERTIONS OF THE LOOP OF SIZE 30 MM. AT THE END OF SUCCESSIVE INTERVALS

| Interval after loop insertion (months) | Cumulative removal rate per 100 first insertions | | | | | Cumulative expulsion rates per 100 first insertions | | | | |
|--|---|----------|------------------|---------------------------|-------------------------|--|----------|------------------|---------------------------|-------------------------|
| | Present survey | | United States | Taichung in Taiwan† | Koyang in Korea†† | Present survey | | United States | Taichung in Taiwan† | Koyang in Korea†† |
| | City | Non-city | | | | City | Non-city | | | |
| 0—1 | 1.44 | 1.59 | — | — | — | 0.82 | 3.76 | — | — | — |
| 1—2 | 5.18 | 5.91 | — | — | — | 3.11 | 6.04 | — | — | — |
| 2—3 | 8.30 | 7.96 | — | — | 8.5 | 4.15 | 7.63 | — | — | 4.7 |
| 3—6 | 13.43 | 13.08 | — | — | 12.6 | 6.71 | 10.70 | — | — | 7.3 |
| 6—9 | 21.90 | 18.66 | — | — | — | 7.40 | 12.76 | — | — | — |
| 9—12 | 25.83 | 22.42 | 17.3* | 22.8 | 20.7 | 7.89 | 13.21 | 9.1* | 10.5 | 9.4 |
| 12—18 | 39.34 | 37.07 | — | — | 27.4 | 9.03 | 15.14 | — | — | 11.3 |
| 18—24 | 56.20§ | 45.45 | 28.8* | 38.2 | 33.2 | 9.68§ | 15.95 | 11.0* | 12.4 | 13.1 |
| | | 25.5** | | | | | | | | |

§ Calculations for this interval are not reliable being based on smaller number of observations. (See Appendix D₈.)

* Rates for loop of size 31 mm. } Source : 'Intra-Uterine Contraception Research Report' by Dr. Tietze, *Studies in Family Planning* No 18 (and Supplement), April 1967, U. S. A., pp. 22 & 23, Tables 4 & 5.
 ** Rates for loop of size 30 mm. }

† Rates for loops of size 27.5 to 31 mm. Source : 'Retention of IUDS—An International Comparison' *Studies in Family Planning* No. 18 (and Supplement), April 1967, p. 5, Table 5.

†† Source : 'Improving access to the IUD: Experiments in Koyang, Korea', *Studies in Family Planning* No. 27, March 1968, p. 8, Table 7.

than in Poona city. But it was probably due to the inclusion of various sizes of the loop including smaller ones in other Asian countries. As for the non-city areas it is difficult to explain the higher expulsion rates as discussed in the Appendix. There appeared two possible explanations for such high rates. One was the bulky uterus of non-city women which could possibly be due to larger number of children they had or due to their large percentage (44 per cent) getting the loop fitted during lactation amenorrhoea. Other possible explanation was perhaps the peculiar working conditions of rural women, working on the farms or household chores. Sometimes one also doubted the high percentage of non-city women (44) getting the loop fitted in lactation amenorrhoea. Could these be pregnant and reporting that they were in amenorrhoea? One does not know.

Leaving out expulsions and removals the retention rates for loops can be obtained. These being available for many countries are set out in Appendix E, along with those for other countries. The difference observed in the loop experience of Poona city and other studies presumably arose for the following reasons:

(1) In the United States the loop was not advocated for mass programme. This makes a difference in the administration of the loop programme.

(2) Loops of various sizes were fitted to women with varying constitutions, in studies other than Poona study.

(3) The efficiency of the initial screening for determining the eligibility of women for loops perhaps differed. This, of course, boiled down to difference in the level of administration of the programme.

Interest of women in loop when it was in situ, expelled or removed

In introducing the loop programme in Poona city (or nearby area), the idea was to assess its popularity so as to introduce it for mass consumption. It was to be done with the prevalent medical facilities available to an average inhabitant in the region. From this point of view it was pertinent to follow the history of interest in loop in the city of Poona as well as in the nearby area.

The interest in loop as a solution for small family seemed obvious among its adopters in the city. Those who got it removed often had serious bleeding troubles before the removal. The reasons for re-

removal are recorded in Table 8.13. The pattern of causes of removal here seemed a little different from the pattern noted by Dr. Tietze in the United States as shown in the table. Bleeding was more frequent in the loop programme in Poona. 'Other medical reasons' only bring out the difference in the level of medical attention available in the two groups.

Table 8.13 : DISTRIBUTION OF WOMEN WITH THE LOOP REMOVED ACCORDING TO REASON FOR REMOVAL

| <i>Reason for removal</i> | <i>Number of loop adopters</i> | | | |
|---------------------------|--------------------------------|-------------------|-----------------------|-------------------|
| | <i>Present Survey</i> | | <i>United States*</i> | |
| | <i>Number</i> | <i>Percentage</i> | <i>Number</i> | <i>Percentage</i> |
| Medical reasons : | | | | |
| Bleeding and/or pain | 157 | 81.0 | 394 | 60.2 |
| Other medical reasons | 16 | 8.2 | 125 | 19.1 |
| Planning a pregnancy | 5 | 2.6 | 73 | 11.2 |
| Other personal reasons | 16 | 8.2 | 62 | 9.5 |
| Total | 194** | 100.0 | 654† | 100.0 |

* *Source* : 'Intra-Uterine Contraception Research Report' by Dr. Tietze. *Studies in Family Planning* No. 18 (and Supplement), April 1967, published by The Population Council, U. S. A., page 21, Table 2. The data quoted here refer to Loop C (30 mm.) as these are comparable with those in the present survey.

** Four cases where the reason for removal is reported to be pregnancy are not included.

† Fifteen cases where the loop was removed at "investigator's choice" are not included.

It is important to note that a significant proportion of women bore the device in spite of discomfort. As pointed out in Table 8.14, half of the women had discomfort, serious or mentionable, and a large proportion of them had excessive bleeding. In the face of it only about six per cent of the total loop-wearers were unfavourable to the loop. A large majority of about 80 per cent still approved of the loop with no reservations. (See Table 8.15.) This provides an abundant evidence of the acute motivation of the loop adopters. Even those that had the loop removed, shifted to other contraceptives as manifest in Table 8.16. It was so even when half of the loop adopters had never practised contraception before loop insertion. As noticed in the earlier chapter, here too condoms and tubectomy seemed to satisfy the needs of the people after failure to maintain the loop.

Table 8.14 : DISTRIBUTION OF WOMEN WITH THE LOOP *in situ* ACCORDING TO DISCOMFORT THEY SUFFERED

| <i>Nature of discomfort</i> | <i>Number of women</i> | <i>Percentage</i> |
|---|------------------------|-------------------|
| No discomfort | 123 | 50.2 |
| Excessive bleeding (with or without reported physical pain) | 47 | 19.2 |
| White discharge (with or without reported physical pain) | 20 | 8.2 |
| Intermittent bleeding | 2 | 0.8 |
| Physical pain (pain in waist, back-ache, general weakness etc.) | 49 | 20.0 |
| Irregular menstrual cycles | 4 | 1.6 |
| Total | 245 | 100.0 |

Table 8.15 : DISTRIBUTION OF WOMEN WITH THE LOOP *in situ* ACCORDING TO THEIR ATTITUDE TOWARDS LOOP INSERTION

| <i>Attitude towards loop insertion</i> | <i>Number of women</i> | <i>Percentage</i> |
|--|------------------------|-------------------|
| Favourable | | |
| (i) Unconditional approval and had no physical pain | 174 | 71.0 |
| (ii) Unconditional approval though suffering from some physical pain | 22 | 9.0 |
| (iii) Unconditional approval but planning sterilization | 1 | 0.4 |
| (iv) Unconditional approval but planning a baby | 2 | 0.8 |
| (v) Conditional approval because of doubts regarding after-effects | 20 | 8.2 |
| (vi) Conditional approval if relieved from physical pain | 9 | 3.7 |
| Not favourable | | |
| (i) Because of physical pain, bleeding etc. | 11 | 4.5 |
| (ii) Because no trust in the method | 2 | 0.8 |
| (iii) Reason not given | 1 | 0.4 |
| Attitude not given | 3 | 1.2 |
| Total | 245 | 100.0 |

Table 8.16 : CONTRACEPTIVE PRACTICE OF WOMEN WITH THE LOOP REMOVED OR EXPELLED AFTER FIRST INSERTION

| <i>Practice of contraception</i> | <i>Women with loop removed</i> | <i>Women with loop expelled</i> | <i>Total</i> | |
|---|------------------------------------|-------------------------------------|---------------|-------------------|
| | | | <i>Number</i> | <i>Percentage</i> |
| Reinsertion of loop | 8 | 12 | 20 | 8.3 |
| Diaphragm and jelly | 17 | 1 | 18 | 7.5 |
| Condom | 43 | 6 | 49 | 20.3 |
| Chemical contraceptives | 1 | 1 | 2 | 0.8 |
| Mental control | 6 | — | 6 | 2.5 |
| Vasectomy | 3 | — | 3 | 1.2 |
| Tubectomy | 29 | 3 | 32 | 13.3 |
| Intention to get sterilized | 14 | 1 | 15 | 6.2 |
| No practice | 41 | 10 | 51 | 21.2 |
| Dropped the practice after using a contraceptive for some period | 3 | 1 | 4 | 1.7 |
| No practice, pregnant | 33 | 7 | 40 | 16.6 |
| Information not given | — | 1 | 1 | 0.4 |
| Total | 198 | 43 | 241 | 100.0 |

Note : The categories of women with 'loop removed' and 'loop expelled' refer to the type of termination after first insertion. The reinsertion cases are included in the category of loop removed or loop expelled as found after first insertion.

Reaction to contraception after the loop removal

Only about 21 per cent women had taken no recourse to any contraceptive after the failure with loop. About 17 per cent were found pregnant at the time of enquiry. These perhaps had cooled off from any intention to contraception. But this is a pure guess in the absence of any positive statement from them regarding future practice. If these had no intention to contraception 38 per cent could be branded as 'not interested' any more in the subject. This percentage though lower than the initial 50 per cent not practising contraception before loop insertion was certainly significant in considering the impact of the loop programme on the attitudes of women towards the subject.

Similarity of loop experience in Poona with other programmes

The findings with regard to loop programme in the city discussed above were not utterly disheartening. A loop could be worn by women to prevent pregnancies at least for some period. Nor was their experience much different from that in other countries like

Pakistan, or Taichung in Taiwan, or Koyang in Korea for the first 12 months after the loop insertion. The satisfaction and dissatisfaction with the loop, in Poona city, was not in the ratio of 1:1 but 2:3 as only four-fifth of the 50 per cent women with a loop *in situ* seemed to be without serious trouble at the time of enquiry. Obviously dissatisfaction with the loop could spread faster in a society where group acceptance is more common and any programme assumes the shape of a mass programme. The cases of loop insertion in later years stand testimony to this. Their number declined rapidly in the city as noticed in Table 8.17.

Table 8.17 : NUMBER OF LOOP INSERTIONS DONE IN VARIOUS FAMILY-PLANNING CLINICS IN POONA CITY FROM 1965 TO 1968

| Name of the family planning clinic | Year of report* | | | |
|---------------------------------------|-----------------|---------|-----------------------------------|------|
| | 1965—66 | 1966—67 | April 1967 to December 1968 | |
| Shaniwar | 288 | 105 | 67 | |
| K. E. M. Hospital | 211 | 13 | 7 | |
| Sonawane Hospital | 73 | 36 | 17 | |
| Guruwar | 165 | 89 | 43 | |
| | Year of report | | | |
| | 1965 | 1966 | 1967 | 1968 |
| Police Welfare Centre | 81 | 75 | 22 | 8 |
| S. S. Mandir | 122 | 78 | 37 | 11 |
| Wadarwadi | 79 | 55 | 27 | 5 |
| B. J. Medical College | 129 | 147 | 80 | 23 |

* The year of report was not uniform for all the clinics. For four of the clinics data were available for different calendar years while for others these were available for financial years (i. e. April 1 to March 31, denoted e.g as 1965-66, etc).

For one clinic, viz., Regional Training Centre, the required data were not available.

The experience gathered in Poona city or similar other regions in the country need not be wasted. Indeed, in an appreciable number of cases the device helped to prevent births for a period of at least one year or so. Still the loop is obviously not harmless and hence acceptable for a mass programme, especially with inadequate medi-

cal facility in the immediate neighbourhood. The results of the mass programmes with the loop, in the non-city areas of the district of Poona, are worthy of inspection in this context. There too only 29 per cent women were still wearing a loop at the time of enquiry in 1968 as described in Appendix B₈. A careful study of the most recent trends of mass programmes in Singapore, Taiwan or Korea also does not help to entertain much hope in the success of the programme.¹¹ In Singapore the loop has definitely declined in popularity. So is the case with Korea and Taiwan where a constantly increasing number of loop insertions and other inputs have only been able to maintain the initial number of loop wearers. One, however, wonders how the increasing numbers can be obtained for loop insertions in these areas.

To sum up, the experience with the loop in Poona city is not unique. Though the loop may be unsuited for mass programme, it certainly has its place as a useful contraceptive. It need not therefore be deserted completely.

¹¹ *Studies in Family Planning* No. 28, April 1968, pp. 1-11; and No. 29, April 1968, pp. 1-9; published by the Population Council, New York, U.S.A.

APPENDIX A₈

Questionnaire for the follow-up survey of women adopting a loop

- | | |
|--------------------------------------|---|
| 1. Village or town | 2. Taluka |
| 3. District | 4. Date of investigation |
| 5. Date of loop insertion | 6. Name of the head of the household |
| 7. Caste | 8. Address |
| 9. Name of the woman adopting a loop | 10. Relation with the head of the household |

Information regarding the couple adopting a loop

| 11. Name | 12. Age in com- pleted years | 13. Educa- tional level | 14. Annual income (in Rs.) | 15. Occu- pation | 16. Order of marri- age | 17. Age at present marri- age |
|-------------|--|----------------------------------|-------------------------------------|------------------------|-------------------------------------|---|
| Husband | | | | | | |
| Wife | | | | | | |

Information regarding children born to the interviewed

- | | |
|--|---|
| 18. Total number of children born | 19. No. of living sons Their ages |
| 20. No. of living daughters Their ages | 21. No. of children dead |
| 22. No. of still births | 23. No. of abortions |
| 24. Age of the youngest child | 25. Date of birth of the youngest child |
| 26. Age of this child at the time of loop insertion | |
| 27. Whether the loop was inserted during the period of lactation amenorrhoea (after the previous delivery) | |
| 28. If so, period of lactation amenorrhoea | |
| 29. Duration in months after lactation amenorrhoea if the loop was inserted after this period | |
| 30. Current pregnancy, if any | |
| 31. If pregnant, month of pregnancy | |
| 32. Knowledge regarding family planning before loop insertion | |
| 33. Period of knowledge regarding family planning | |
| 34. Source of information regarding family planning | |
| 35. Family planning methods known— | |
| (a) Diaphragm and jelly | (f) Vasectomy |
| (b) Jelly alone | (g) Loop |
| (c) Condom | (h) Safe period |
| (d) Foam tablets | (i) Coitus interruptus |
| (e) Tubectomy | (j) Others (specify) |
| 36. If any of these methods are practised, mention the methods. | |
| 37. Period of their practice | |

38. If no methods are ever used in spite of knowledge regarding them, reason for no use
39. Whether wanted more children
40. How many?

Information regarding the loop insertion

1. When was the information regarding loop first obtained?
2. Why was the loop preferred to other family-planning methods?
 - (a) Did not know any other method
 - (b) Loop is a convenient method with no botheration
 - (c) Loop can be removed at any time
 - (d) Fear regarding sterilization
 - (e) Was not willing for loop insertion but succumbed to somebody's pressure
 - (f) Was pregnant at the time of loop insertion and got the loop inserted in order to cause abortion
 - (g) Others (specify)
3. Was the interviewed motivated to adoption of loop by somebody?
4. From whom was the information regarding loop obtained? State the nature of information obtained.
5. Opinion regarding the loop before insertion
6. Whether the opinion is changed now
7. Was there any discussion between the interviewed and her husband regarding loop insertion?
8. Reaction of the husband to the proposal of loop insertion.
9. Was the consent of elderly persons in the house taken before loop insertion?
10. Did the interviewed know that an allowance was offered for getting the loop inserted?
11. Did she receive the amount? If yes, how much?
12. Place of camp where she got the loop inserted

| | | |
|---------|--------|---------------------------|
| Village | Taluka | Distance from her village |
|---------|--------|---------------------------|
13. Transport arrangement for attending the place of camp
14. Total time spent for the loop insertion (including the time spent for journey, time spent at the place of camp, etc.)

Information regarding the immediate effects of loop insertion

15. On what day of the menstrual cycle was the loop inserted?
16. Instructions given regarding after-care
17. Who gave them?
18. Describe the instructions
19. Were any drugs or medicines provided?
20. Which?
21. How long were these to be taken?
22. Whether this was done
23. Did it prove effective? How?
24. If the treatment was not followed, why?
25. Number of days of bleeding immediately after loop insertion
26. Was any medical help available for the trouble?
27. Number of days after which the follow-up visit was paid by the workers to the health department

28. Was it necessary to have the follow-up visit paid earlier?
29. Why?
30. Was there any instance when no medical help was available even when suffering from severe trouble?
31. What was done in such a case?
32. Any suggestions for improving the programme (like medical examination, medical help and after-care) of loop insertion

Effect of the loop on menstrual cycle

33. Number of days after loop insertion when menstruation occurred
34. Was this specific cycle shorter or longer than the normal menstrual cycle?
35. Number of days of bleeding during menses following loop insertion
36. Was this bleeding for more days than usual?
37. How many days more?
38. If any other new trouble in these menses, specify
39. Was the bleeding or other trouble experienced in the later menstrual periods? Describe (Number of cycles etc.)
40. Whether the menstrual cycle is regular at present. If not, is it shorter or longer? Describe
41. Trouble (other than that in the menses) after loop insertion not experienced earlier
42. Type of medical help sought
43. Was the necessary medical help available?
44. Complaints, if any, regarding the availability of medical help

After-effects of loop insertion

If the loop is in place

45. Duration after loop insertion
46. Any current health trouble because of loop insertion
47. If so, specify—
 - (a) Excessive bleeding during menses
 - (b) Pain in abdomen
 - (c) Backache
 - (d) Intermittent bleeding
 - (e) Some pain at the time of coitus
 - (f) Irregular menses
 - (g) Others (specify)
48. Present opinion regarding loop insertion
49. Did you advise other women to accept loop?
50. No. of women advised
51. How many relatives? Friends?

If the loop is removed

52. Reason for removal
53. Period between insertion and removal
54. Where and by whom was the loop removed?
55. Whether suffering from health trouble even after the removal of the loop
56. If so, describe the trouble

57. Use of family-planning method after the removal of the loop
58. The method practised at present
59. If not practising any method, is there any plan of family-planning practice?
60. Is sterilization intended? If yes, vasectomy or tubectomy?
61. If not, reasons
62. Any pregnancy after the removal of the loop? Month of pregnancy

If the loop is expelled

63. Period between loop insertion and expulsion
64. How was expulsion ascertained?
65. Was the loop reinserted?
66. If yes, when and the medical institution where reinserted
67. If not reinserted, the method of family planning used at present
68. The method used and the period of use
69. If not using any method at present, plan of family-planning practice for future
70. Is sterilization intended? If yes, vasectomy or tubectomy?
71. If not, state reasons
72. Any pregnancy after the expulsion of loop? Month of pregnancy

APPENDIX B₈*Loop experience in the non-city area (Poona district)*

For the non-city areas in Poona district, the loop-camps were conducted in 1965 and 1966. The number of loop insertions attained in this period though far above three thousand, our analysis deals only with 1335 cases of the loop in five sub-divisions of the district since the enquiry is incomplete. In the loop-camps women from various nearby villages (or towns) were gathered together for loop insertion. Certain villages (or towns) had very few cases. To mitigate the problem of tracing the cases for investigation in 1968, only those from villages and towns with more than 15 loop adopters were selected for interview. Out of 1335 only 889, i.e. two-third, could be actually interviewed. This appendix presents the experience about the loop as obtained from the interviews with 889 women, which can be compared validly with the Poona city experience. The sample of 889 women did not differ significantly from the 1335 women constituting the universe in the matter of demographic composition.

All the information is set out in various tables in exactly the same form as adopted for the city in Chapter VIII. Even the number of tables is kept the same so that a table numbered 8.6 for the city is B₈.6 for the non-city area. This is to facilitate comparison between the two areas.

A point to be noted regarding the city and non-city experiences with the loop is that the camp technique was adopted only in the non-city areas. Due to the paucity of medical skills here, an established medical centre could not be afforded for the after-care of the loop adopters. This drawback of the non-city areas made all the difference between the city and the non-city experience with the loop. Even in the city there was no follow-up of the loop cases. But the loop adopters there could seek medical help in times of difficulty.

Briefly the non-city experience can be described as follows:

1. The motivation to adopt a loop was accomplished mostly by the family-planning workers of the non-city clinics.
2. Most of the loop adopters (89 per cent) had never practised any contraceptive method before.
3. A percentage as large as in the city suffered bleeding after

loop insertion, and 12 per cent had no effective treatment to get over serious physical troubles due to it.

4. At the time of enquiry only 29 per cent had the device *in situ*. Partly this was so because a longer time elapsed between loop insertion and our enquiry in the non-city area than in the city.

5. Those with the device *in situ* were satisfied with it in half the cases. It was so even in the city.

6. The removal and expulsion rates for loops in non-city area show a slightly different pattern than that observed in Poona city. The removal rates in the non-city area are lower and expulsion rates higher than those in the city. It is difficult to explain the higher expulsion rates in the non-city area except as due to peculiar reporting or due to different constitution of rural women. Thus there were the following alternative possibilities:

- (a) Non-city women reported expulsion of loop even when they had it removed.
- (b) They had a bulky uterus because of high parity which was more prevalent among them. Non-city women got the loop fitted when they had 4.5 children on an average. In the city they had 3.0 children on an average.
- (c) A large percentage i.e. 44 per cent of non-city women reportedly got the loop fitted while they were in lactation amenorrhoea. There was a possibility that some women while pregnant got the loop inserted to have abortion. They probably reported that they were in lactation amenorrhoea. Such possibility however throws light on the administration of the loop programme and the efficiency with which women were screened for eligibility before loop insertion.
- (d) Or could it be that the village women working on farms or bringing household water from distant places did heavy physical work and hence had the loop expelled more often?

7. More than 13 per cent of the women who got the device removed, did so specifically for the panic about the after-effects of the loop which raged round the area.

8. More than 70 per cent of the initial loop adopters had no loop at the time of enquiry. But only 44 per cent of them did not state any specific contraceptive method they planned to adopt. This was a low percentage compared to the 89 per cent who practised no con-

traceptive method before loop adoption. Interestingly enough about 38 per cent of those without loop had adopted or planned to adopt sterilization. Thus the loop adopters failing with loop took refuge in sterilization. They were not scared away from contraception.

In the following pages, we have only presented the material regarding loop experience in non-city area of Poona district which is easily comparable to that of the city experience. More details regarding the non-city experience are not presented here. When the non-city follow-up study will be complete all the data regarding the project will be put together in one separate publication.

Table B_s.1 : NUMBER OF SELECTED AND INTERVIEWED CASES OF LOOP IN THE FIVE TALUKAS OF POONA DISTRICT

| | <i>Name of the taluka or sub-division</i> | | | | | <i>Total</i> |
|-----------------------------|---|-----------------|----------------|-------------|---------------|--------------|
| | <i>Dhond</i> | <i>Baramati</i> | <i>Indapur</i> | <i>Bhor</i> | <i>Junnar</i> | |
| Number of cases selected | 228 | 406 | 278 | 174 | 249 | 1335 |
| Number of cases interviewed | 152 | 281 | 184 | 99 | 173 | 889 |
| Percentage interviewed | 66.7 | 69.2 | 66.2 | 56.9 | 69.5 | 66.6 |

Table B_s.2 : DISTRIBUTION OF LOOP ADOPTERS ACCORDING TO REPORTED SOURCE OF INFORMATION REGARDING THE LOOP

| <i>Source of information regarding the loop</i> | <i>Number of women</i> | <i>Percentage</i> |
|--|------------------------|-------------------|
| Books and other published material | 19 | 2.1 |
| Radio, exhibition, etc. | 14 | 1.6 |
| Friends or relatives (including husband) | 206 | 23.2 |
| Clinic worker in the medical institution | 29 | 3.3 |
| Clinic worker at the home of the interviewed | 595 | 66.9 |
| Private doctor | 1 | 0.1 |
| Others (political leaders, social workers, etc.) | 11 | 1.2 |
| Interviewed had no idea about the loop | 10 | 1.1 |
| Not reported | 4 | 0.5 |
| Total | 889 | 100.0 |

Table B₃ : DISTRIBUTION OF LOOP ADOPTERS ACCORDING TO CONTRACEPTIVE METHOD PRACTISED BEFORE LOOP INSERTION

| <i>Contraceptive method practised</i> | <i>Women using the specific contraceptive method before loop insertion</i> | |
|---------------------------------------|--|-------------------|
| | <i>Number</i> | <i>Percentage</i> |
| Diaphragm and jelly | 8 | 0.9 |
| Condom | 67 | 7.5 |
| Chemical contraceptives | 10 | 1.1 |
| Mental control | 4 | 0.5 |
| Oral tablets | 4 | 0.5 |
| Method not specified | 2 | 0.2 |
| No contraceptive used | 791 | 89.0 |
| Vasectomy done before loop insertion | 3 | 0.3 |
| Total | 889 | 100.0 |

Table B₄ : EFFECT OF LOOP INSERTION ON THE FIRST MENSTRUAL CYCLE AFTER INSERTION

| <i>Onset of first menstrual cycle after loop insertion</i> | <i>Number of women</i> | <i>Percentage</i> |
|--|------------------------|-------------------|
| Earlier than normal | 63 | 7.1 |
| Normal | 348 | 39.2 |
| Later than normal | 50 | 5.6 |
| No menses | 288 | 32.4 |
| Continuous trouble regarding bleeding from the time of insertion | 99 | 11.1 |
| Not reported | 41 | 4.6 |
| Total | 889 | 100.0 |

Table B.6 : EFFECT OF LOOP INSERTION ON REGULARITY OF MENSTRUAL CYCLE, BLEEDING AND OTHER PHYSICAL PAIN

| <i>Regularity of menstrual cycle</i> | <i>Trouble regarding bleeding</i> | <i>Cases with no physical pain</i> | | <i>Cases reporting physical pain</i> | | <i>Total</i> | |
|--------------------------------------|-----------------------------------|------------------------------------|-------------------|--------------------------------------|-------------------|---------------|-------------------|
| | | <i>Number</i> | <i>Percentage</i> | <i>Number</i> | <i>Percentage</i> | <i>Number</i> | <i>Percentage</i> |
| Regular | No trouble regarding bleeding | 179 | 52.8 | 134 | 24.8 | 313 | 35.2 |
| Regular | Excessive bleeding | 47 | 13.9 | 149 | 27.5 | 196 | 22.1 |
| Regular | White discharge | 3 | 0.9 | 62 | 11.5 | 65 | 7.3 |
| Irregular | No trouble regarding bleeding | 2 | 0.6 | 18 | 3.3 | 20 | 2.2 |
| Irregular | Excessive bleeding | 4 | 1.2 | 10 | 1.8 | 14 | 1.6 |
| Irregular | White discharge | — | — | 7 | 1.3 | 7 | 0.8 |
| Regularity not reported | Excessive bleeding | 43 | 12.7 | — | — | 43 | 4.8 |
| Regularity not reported | Intermittent bleeding | 13 | 3.8 | 61 | 11.3 | 74 | 8.3 |
| Regularity not reported | — | 48 | 14.1 | 100 | 18.5 | 148 | 16.7 |
| Information not given | — | — | — | — | — | 9* | 1.0 |
| Total | | 339 | 100.0 | 541 | 100.0 | 889 | 100.0 |

* For these cases no information was available regarding the effect of loop insertion either on regularity of menstrual cycle or trouble regarding bleeding and other physical pain.

Table B_{8.7} : DISTRIBUTION OF WOMEN WITH LOOP INSERTED DURING LACTATION AMENORRHOEA AND OTHER PERIOD WHEN WOMEN MENSTRUATE REGULARLY ACCORDING TO THE NUMBER OF BLEEDING DAYS IMMEDIATELY AFTER INSERTION

| <i>No. of bleeding days</i> | <i>Women with loop inserted during lactation amenorrhoea</i> | | <i>Women with loop inserted during other period</i> | | <i>Total</i> | |
|-----------------------------|--|-------------------|---|-------------------|---------------|-------------------|
| | <i>Number</i> | <i>Percentage</i> | <i>Number</i> | <i>Percentage</i> | <i>Number</i> | <i>Percentage</i> |
| No bleeding | 141 | 35.8 | 127 | 25.7 | 268 | 30.1 |
| 1—3 days | 113 | 28.7 | 132 | 26.7 | 245 | 27.6 |
| 4—7 days | 70 | 17.7 | 99 | 20.0 | 169 | 19.1 |
| —2 weeks | 30 | 7.6 | 60 | 12.1 | 90 | 10.1 |
| —4 weeks | 15 | 3.8 | 45 | 9.1 | 60 | 6.7 |
| —8 weeks | 5 | 1.3 | 10 | 2.0 | 15 | 1.7 |
| More than 8 weeks | 15 | 3.8 | 20 | 4.0 | 35 | 3.9 |
| Not given | 5 | 1.3 | 2 | 0.4 | 7 | 0.8 |
| Total | 394 | 100.0 | 495 | 100.0 | 889 | 100.0 |

Table B_{8.8} : CONCEPTION RATES EXPERIENCED IMMEDIATELY AFTER THE REMOVAL OF LOOP FOR WOMEN WITH THE LOOP REMOVED

| <i>Age in years</i> | <i>Woman-years of exposure (after removal up to the date of enquiry)</i> | <i>Number of conceptions*</i> | <i>Conception rate per 1000 years of exposure</i> |
|---------------------|--|-------------------------------|---|
| 13—17 | — | — | — |
| 18—22 | 23.09 | 14 | 606.3 |
| 23—27 | 126.33 | 67 | 530.4 |
| 28—32 | 213.16 | 96 | 450.4 |
| 33—37 | 172.42 | 62 | 359.6 |
| 38—42 | 112.69 | 24 | 213.0 |
| 43—47 | 32.58 | 5 | 153.5 |
| 48—52 | 9.32 | — | — |
| Total | 689.59 | 268 | 388.6 |

* Considering conceptions rather than births seemed necessary to get a more sensitive measure of fecundity immediately after the loop removal.

Table B₉ : DISTRIBUTION OF LOOP ADOPTERS ACCORDING TO THE MEDICAL TREATMENT IMMEDIATELY AFTER INSERTION AND EFFECTIVENESS OF THE TREATMENT

| <i>Medical treatment immediately after insertion</i> | <i>No. of cases</i> | <i>Percentage</i> |
|--|---------------------|-------------------|
| Did not require any treatment | 495 | 55.7 |
| Treatment sought and proved effective | 221 | 24.9 |
| Treatment sought but with no effect | 108 | 12.1 |
| Treatment neglected | 59 | 6.6 |
| Not given | 6 | 0.7 |
| Total | 889 | 100.0 |

Table B₁₀ : DISTRIBUTION OF WOMEN WITH A LOOP INSERTED DURING LACTATION AMENORRHOEA AND OTHER PERIOD OF REGULAR MENSTRUATION ACCORDING TO THE CONDITION OF THE LOOP AT THE TIME OF ENQUIRY

| <i>Condition of loop</i> | <i>Women with a loop inserted during</i> | | | | <i>Total</i> | |
|---------------------------------------|--|-------------------|---|-------------------|---------------|-------------------|
| | <i>amenorrhoea</i> | | <i>other period of regular menstruation</i> | | | |
| | <i>Number</i> | <i>Percentage</i> | <i>Number</i> | <i>Percentage</i> | <i>Number</i> | <i>Percentage</i> |
| Loop <i>in situ</i> | 98 | 24.8 | 157 | 31.7 | 255 | 28.7 |
| Loop removed | 220 | 55.7 | 254 | 51.4 | 474 | 53.3 |
| Loop expelled | 61 | 15.5 | 59 | 11.9 | 120 | 13.5 |
| Loop reinserted after first removal | 1 | 0.3 | 2 | 0.4 | 3 | 0.3 |
| Loop reinserted after first expulsion | 3 | 0.8 | 3 | 0.6 | 6 | 0.7 |
| Loop removed after reinsertion | 1 | 0.3 | 5 | 1.0 | 6 | 0.7 |
| Loop expelled after reinsertion | 6 | 1.5 | 11 | 2.2 | 17 | 1.9 |
| Loop reinserted more than two times | 1 | 0.3 | 2 | 0.4 | 3 | 0.3 |
| Not given | 3 | 0.8 | 2 | 0.4 | 5 | 0.6 |
| Total | 394 | 100.0 | 495 | 100.0 | 889 | 100.0 |

Table B_{8.11} : TOTAL AND AVERAGE DURATION IN MONTHS FOR WHICH THE LOOP WAS *in situ* FOR WOMEN WITH DIVERSE LOOP EXPERIENCE AFTER FIRST INSERTION

| <i>Loop experience after first insertion</i> | <i>Number of women</i> | <i>Total months of use</i> | <i>Average months of use</i> |
|--|------------------------|----------------------------|------------------------------|
| Loop <i>in situ</i> | 255 | 6396 | 25.1 |
| Loop removed | 473 | 6007 | 12.7 |
| Loop expelled | 156 | 667 | 4.3 |
| Not given | 5 | — | — |
| Total | 889 | 13070 | 14.8 |

Table B_{8.12} : CUMULATIVE RATES OF REMOVALS AND EXPULSIONS PER 100 FIRST INSERTIONS OF THE LOOP OF SIZE 30 MM AT THE END OF SUCCESSIVE INTERVALS

| <i>Interval after loop insertion (months)</i> | <i>Cumulative removal rate per 100 first insertions</i> | <i>Cumulative expulsion rate per 100 first insertions</i> |
|---|---|---|
| 0—1 | 1.59 | 3.76 |
| 1—2 | 5.91 | 6.04 |
| 2—3 | 7.96 | 7.63 |
| 3—6 | 13.08 | 10.70 |
| 6—9 | 18.66 | 12.76 |
| 9—12 | 22.42 | 13.21 |
| 12—18 | 37.07 | 15.14 |
| 18—24 | 45.45 | 15.95 |
| 24—30 | 52.98 | 16.08 |
| 30—36 | 56.16 | 16.28 |

Table B_{8.13} : DISTRIBUTION OF WOMEN WITH THE LOOP REMOVED ACCORDING TO REASON FOR REMOVAL

| <i>Reason for removal</i> | <i>Number of women</i> | <i>Percentage</i> |
|---------------------------|------------------------|-------------------|
| Medical reasons: | | |
| Bleeding and/or pain | 401 | 84.9 |
| Other medical reasons | 3 | 0.6 |
| Other personal reasons | 65* | 13.7 |
| Not given | 4 | 0.8 |
| Total | 473 | 100.0 |

* This group mostly included the panic stricken loop wearers.

Table B₈.14 : DISTRIBUTION OF WOMEN WITH THE LOOP *in situ* ACCORDING TO DISCOMFORT THEY SUFFERED

| <i>Nature of discomfort</i> | <i>Number of women</i> | <i>Percentage of women</i> |
|---|------------------------|----------------------------|
| No discomfort | 122 | 47.8 |
| Excessive bleeding (with or without physical pain) | 43 | 16.9 |
| White discharge (with or without physical pain) | 10 | 3.9 |
| Intermittent bleeding | 6 | 2.4 |
| Physical pain (pain in waist, backache, general weakness, etc.) | 60 | 23.5 |
| Irregular menstrual cycles | 13 | 5.1 |
| Not reported | 1 | 0.4 |
| Total | 255 | 100.0 |

Table B₈.15 : DISTRIBUTION OF WOMEN WITH THE LOOP *in situ* ACCORDING TO THEIR ATTITUDE TOWARDS LOOP INSERTION

| <i>Attitude towards loop insertion</i> | <i>Number of women</i> | <i>Percentage</i> |
|--|------------------------|-------------------|
| Favourable | | |
| (i) Unconditional approval and had no physical pain | 138 | 54.1 |
| (ii) Unconditional approval though suffering from some physical pain | 65 | 25.5 |
| (iii) Unconditional approval but planning sterilization | — | — |
| (iv) Conditional approval because doubts regarding after-effects | 1 | 0.4 |
| (v) Conditional approval if relieved from physical pain | 4 | 1.6 |
| Not favourable | | |
| (i) Because of physical pain, bleeding etc. | 33 | 12.9 |
| (ii) Because no trust in the method | — | — |
| (iii) Because of after-effects | 1 | 0.4 |
| (iv) Reason not given | 10 | 3.9 |
| Attitude not given | 3 | 1.2 |
| Total | 255 | 100.0 |

**Table B₈.16 : CONTRACEPTIVE PRACTICE OF WOMEN WITH THE LOOP
REMOVED OR EXPELLED AFTER FIRST INSERTION**

| <i>Practice of contraception</i> | <i>Women with loop removed</i> | <i>Women with loop expelled</i> | <i>Total</i> | |
|--------------------------------------|------------------------------------|-------------------------------------|---------------|-------------------|
| | | | <i>Number</i> | <i>Percentage</i> |
| Reinsertion of loop | 7 | 29 | 36 | 5.7 |
| Diaphragm and jelly | 1 | — | 1 | 0.2 |
| Condom | 22 | 5 | 27 | 4.3 |
| Chemical contraceptives | 11 | 1 | 12 | 1.9 |
| Oral tablets | 5 | — | 5 | 0.8 |
| Mental control | 8 | — | 8 | 1.3 |
| Vasectomy | 49 | 17 | 66 | 10.5 |
| Tubectomy | 57 | 17 | 74 | 11.7 |
| Intention to get sterilized | 72 | 28 | 100 | 15.9 |
| No practice | 190 | 50 | 240 | 38.1 |
| No practice, pregnant | 32 | 3 | 35 | 5.6 |
| No need | 16 | 4 | 20 | 3.2 |
| Information not given | 3 | 2 | 5 | 0.8 |
| Total | 473 | 156 | 629 | 100.0 |

APPENDIX C₈

Comparison of socio-demographic status of loop adopters and the clinic visitors

Table C_{8.1} : DISTRIBUTION OF LOOP ADOPTERS AND THE INTERVIEWED CLINIC VISITORS ACCORDING TO CASTE

| <i>Caste</i> | <i>Loop adopters</i> | | <i>Interviewed clinic visitors</i> | |
|--------------------------------|----------------------|-------------------|------------------------------------|-------------------|
| | <i>Number</i> | <i>Percentage</i> | <i>Number</i> | <i>Percentage</i> |
| Brahmins | 171 | 35.0 | 209 | 34.9 |
| Advanced Hindus | 83 | 17.0 | 70 | 11.7 |
| Marathas | 130 | 26.6 | 150 | 25.1 |
| Intermediate Hindus (artisans) | 36 | 7.4 | 43 | 7.2 |
| Intermediate Hindus (others) | 27 | 5.5 | 33 | 5.5 |
| Mahars | 4 | 0.8 | 19 | 3.2 |
| Other Depressed Hindus | 10 | 2.0 | 16 | 2.7 |
| Backward Hindus | 1 | 0.2 | 3 | 0.5 |
| Muslims | 15 | 3.1 | 42 | 7.0 |
| Christians and others | 4 | 0.8 | 9 | 1.5 |
| Not given | 8 | 1.6 | 4 | 0.7 |
| Total | 489 | 100.0 | 598 | 100.0 |

Table C_{8.2} : DISTRIBUTION OF LOOP ADOPTERS AND THE INTERVIEWED CLINIC VISITORS ACCORDING TO EDUCATIONAL LEVEL

| <i>Educational level</i> | <i>Loop adopters</i> | | <i>Interviewed clinic visitors</i> | |
|--------------------------------|----------------------|-------------------|------------------------------------|-------------------|
| | <i>Number</i> | <i>Percentage</i> | <i>Number</i> | <i>Percentage</i> |
| Illiterate | 90 | 18.4 | 114 | 19.0 |
| Literate up to 7th Std. | 227 | 46.5 | 312 | 52.1 |
| Above 7th Std., below S. S. C. | 54 | 11.0 | 50 | 8.4 |
| S. S. C., below graduation | 102 | 20.9 | 96 | 16.1 |
| Graduate or above | 7 | 1.4 | 22 | 3.7 |
| Not given | 9 | 1.8 | 4 | 0.7 |
| Total | 489 | 100.0 | 598 | 100.0 |

Table C_{8.3} : DISTRIBUTION OF LOOP ADOPTERS AND THE INTERVIEWED CLINIC VISITORS ACCORDING TO THE OCCUPATION OF THE HUSBAND

| <i>Occupation of the husband</i> | <i>Loop adopters</i> | | <i>Interviewed clinic visitors</i> | |
|---|----------------------|-------------------|------------------------------------|-------------------|
| | <i>Number</i> | <i>Percentage</i> | <i>Number</i> | <i>Percentage</i> |
| Agriculture | 2 | 0.4 | 2 | 0.3 |
| Unskilled manual work | 19 | 3.9 | 53 | 8.9 |
| Skilled manual work | 39 | 8.0 | 50 | 8.4 |
| Lowest professions and administrative posts | 31 | 6.3 | 83 | 13.9 |
| Primary teacher | 7 | 1.4 | 3 | 0.5 |
| Small business | 16 | 3.3 | 28 | 4.7 |
| Highly skilled and supervisory manual work | 102 | 20.9 | 100 | 16.7 |
| Clerks and shop assistants | 39 | 8.0 | 104 | 17.4 |
| Intermediate professions | 57 | 11.7 | 76 | 12.7 |
| Secondary teachers | 7 | 1.4 | 23 | 3.8 |
| Medium business | 34 | 7.0 | 26 | 4.3 |
| Higher professions and salaried services | 3 | 0.6 | 4 | 0.7 |
| Owners of factories, large shops, etc. | 19 | 3.9 | 7 | 1.2 |
| Students, the unemployed and pensioners | 7 | 1.4 | 11 | 1.8 |
| Service—unspecified | 99 | 20.2 | 25 | 4.2 |
| Not given | 8 | 1.6 | 3 | 0.5 |
| Total | 489 | 100.0 | 598 | 100.0 |

Table C_{8.4} : DEMOGRAPHIC CHARACTERISTICS OF LOOP ADOPTERS AND ALL CLINIC VISITORS

| <i>Demographic Characteristics</i> | <i>Loop adopters</i> | <i>Clinic visitors</i> |
|---|----------------------|------------------------|
| Median age | 26.4 years | 24.8 years |
| Average number of children born | 3.6 | 3.2 |
| Average number of children living | 3.0 | 2.8 |
| Percentage of women with no child living | 0.4 | 1.4 |
| Percentage of women with one child living | 11.2 | 18.1 |
| Percentage of women with two or smaller number of living children | 42.2 | 47.2 |
| Percentage of women with three or smaller number of living children | 66.5 | 72.2 |

APPENDIX D₈*Estimation of the removal and expulsion rates*

The loop insertions examined in the present study in Poona city were only 489 in number. They were mostly conducted before the commotion that dislodged the faith of the people in the device. As stated in the text the raid to get the loop removed started in 1967. This gave a respite to the loop wearers to experience it without panic for a little more than a year. Hence the rates of removal were likely to be unaffected by the raid for loop removal for this duration. Even for this interval, the effect of panic would have been observed had the number of loop insertions been large just before the enquiry. But this was not so. When the present enquiry was started in 1967, the number of loop insertions was dwindling fast. The panic would not have affected the performance of the loop wearers wearing the device for a period above 12 months, had they experienced no trouble with loop. But it was sheer tolerance associated with earnest desire to limit the family-size that enabled them to wear the device in spite of bleeding. With the climate full of distrust for the device the removal rate swelled abnormally for durations of 18 months and still more so for longer durations. The relevant calculations to estimate the removal rates are set out in the subsequent paragraphs. The same method was applied to get the non-city rates.

The method consisted of applying the life table techniques to loop insertions. Loop being *in situ* and not *in situ* were the two possibilities considered after loop insertion. This latter possibility was called termination of the loop which included loop removal and loop expulsion. Termination rates of loop corresponded to mortality rate of life tables. These are set out in Table D₈.1 for Poona city and D₈.2 for non-city area of Poona district. Starting with cumulative termination rates of loop the interval specific rates are calculated in Table D₈.3. Corresponding rates for non-city area are given in Table D₈.4. The termination rates are split into removal rates and expulsion rates by using the observed proportions of removed and expelled loops in various intervals. In splitting the termination rates, one more category, namely of pregnancy after loop insertion and hence the ineffectiveness of the loop, is also added. But such cases being rare they could be neglected. The estimated removal and expulsion rates are shown in columns seven and eight. They are cumulated in the last two columns of the tables D₈.3 and D₈.4.

Table D₈.1 : CALCULATION OF CUMULATIVE TERMINATION RATES PER 100 FIRST INSERTIONS (POONA CITY)

| Number of months after loop insertion <i>x</i> | Number of women experiencing at least <i>x</i> months | Number of terminations between months <i>x</i> to <i>x</i> + 1 | Probability of termination between months <i>x</i> to <i>x</i> + 1 <i>q_x</i> † | Probability that the loop will be in situ between months <i>x</i> to <i>x</i> + 1 <i>p_x</i> = 1 - <i>q_x</i> | Probability that the loop will be in situ at the end of <i>x</i> months $\prod_{i=1}^x p_i = p_1 p_2 \dots p_x$ | Cumulative rate of termination per 100 insertions at the end of <i>x</i> months $\left(1 - \prod_{i=1}^x p_i\right) \times 100$ | Smoothed cumulative rates of termination§ per 100 insertions at the end of <i>x</i> months |
|---|---|--|--|--|--|--|--|
| 0 | 486 | 11 | 0.02263 | 0.97737 | 1.00000 | — | — |
| 1 | 470 | 30 | 0.06383 | 0.93617 | 0.97737 | 2.263 | 4.2 |
| 2 | 440 | 20 | 0.04545 | 0.95455 | 0.91498 | 8.502 | 8.1 |
| 3 | 414 | 17 | 0.04106 | 0.95894 | 0.87339 | 12.661 | 12.3 |
| 4 | 393 | 8 | 0.02036 | 0.97964 | 0.83752 | 16.248 | 16.0 |
| 5 | 376 | 12 | 0.03191 | 0.96809 | 0.82047 | 17.953 | 19.5 |
| 6 | 356 | 20 | 0.05618 | 0.94382 | 0.79429 | 20.571 | 22.5 |
| 7 | 322 | 9 | 0.02795 | 0.97205 | 0.74967 | 25.033 | 25.5 |
| 8 | 308 | 11 | 0.03571 | 0.96429 | 0.72872 | 27.128 | 28.6 |
| 9 | 292 | 10 | 0.03425 | 0.96575 | 0.70270 | 29.730 | 31.5 |
| 10 | 276 | 4 | 0.01449 | 0.98551 | 0.67863 | 32.137 | 33.9 |
| 11 | 261 | 5 | 0.01916 | 0.98084 | 0.66880 | 33.120 | 36.6 |
| 12 | 249 | 27 | 0.10843 | 0.89157 | 0.65599 | 34.401 | 39.0 |

| | | | | | | | |
|-----|-----|----|---------|---------|---------|--------|------|
| 13 | 213 | 6 | 0·02817 | 0·97183 | 0·58486 | 41·514 | 41·0 |
| 14 | 195 | 1 | 0·00513 | 0·99487 | 0·56838 | 43·162 | 43·2 |
| 15 | 189 | 7 | 0·03704 | 0·96296 | 0·56546 | 43·454 | 45·2 |
| 16 | 160 | 8 | 0·05000 | 0·95000 | 0·54452 | 45·548 | 47·0 |
| 17 | 132 | 2 | 0·01515 | 0·98485 | 0·51729 | 48·271 | 48·9 |
| 18 | 115 | 17 | 0·14783 | 0·85217 | 0·50945 | 49·055 | 51·0 |
| 19 | 88 | 2 | 0·02273 | 0·97727 | 0·43414 | 56·586 | 52·6 |
| 20 | 74 | — | 0·00000 | 1·00000 | 0·42427 | 57·573 | 54·8 |
| *21 | 45 | 7 | 0·15556 | 0·84444 | 0·42427 | 57·573 | 56·4 |
| *22 | 25 | — | 0·00000 | 1·00000 | 0·35827 | 64·173 | 58·2 |
| *23 | 15 | 1 | 0·06667 | 0·93333 | 0·35827 | 64·173 | 59·7 |
| *24 | 14 | 2 | 0·14286 | 0·85714 | 0·33438 | 66·562 | 61·0 |
| *25 | 7 | — | 0·00000 | 1·00000 | 0·28661 | 71·339 | 62·7 |
| *26 | 3 | — | 0·00000 | 1·00000 | 0·28661 | 71·339 | 63·9 |
| *27 | 2 | 1 | 0·50000 | 0·50000 | 0·28661 | 71·339 | 65·1 |
| *28 | 1 | — | — | — | 0·14330 | 85·670 | 66·6 |

† q_x here differs slightly from the usual q_x of the life table. It is because a small number of women having loop at least for x months were not exposed to it for the whole of the $x+1$ th month, at the time of enquiry.

§ The data regarding terminations seem to suffer from concentrations at certain durations of loop experience due to mis-reporting. Some smoothing procedures were employed to get rid of the concentrations and the smoothed rates are obtained. Smoothing was done by grouping the terminations at proper points and cumulating them before reading the single month values in this column.

* The rates being based on less than 50 observations are not reliable.

Table D_{8.2} : CALCULATION OF CUMULATIVE TERMINATION RATES PER 100 FIRST INSERTIONS (NON-CITY AREA, POONA DISTRICT)

| Number of months after loop insertion x | Number of women experiencing at least x months | Number of terminations between months x to $x+1$ | Probability of termination between months x to $x+1$ $q_x \dagger$ | Probability that the loop will be in situ between months x to $x+1$ $P_x = 1 - q_x$ | Probability that the loop will be in situ at the end of x months $\prod_{i=1}^x p_i = P_1 P_2 \dots P_x$ | Cumulative rate of termination per 100 insertions at the end of x months $\left(1 - \prod_{i=1}^x p_i\right) \times 100$ | Smoothed cumulative rates of terminations per 100 insertions at the end of x months |
|--|--|--|---|--|---|---|---|
| 0 | 879 | 47 | 0.05347 | 0.94653 | 1.00000 | — | — |
| 1 | 832 | 58 | 0.06971 | 0.93029 | 0.94653 | 5.347 | 6.0 |
| 2 | 774 | 32 | 0.04134 | 0.95866 | 0.88055 | 11.945 | 10.8 |
| 3 | 741 | 38 | 0.05128 | 0.94872 | 0.84415 | 15.585 | 14.7 |
| 4 | 703 | 19 | 0.02703 | 0.97297 | 0.80086 | 19.914 | 18.3 |
| 5 | 684 | 16 | 0.02339 | 0.97661 | 0.77921 | 22.079 | 21.6 |
| 6 | 668 | 38 | 0.05689 | 0.94311 | 0.76098 | 23.902 | 24.9 |
| 7 | 630 | 10 | 0.01587 | 0.98413 | 0.71769 | 28.231 | 28.2 |
| 8 | 620 | 19 | 0.03065 | 0.96935 | 0.70630 | 29.370 | 31.2 |
| 9 | 601 | 16 | 0.02662 | 0.97338 | 0.68465 | 31.535 | 34.5 |
| 10 | 585 | 14 | 0.02393 | 0.97607 | 0.66642 | 33.358 | 37.5 |
| 11 | 571 | 7 | 0.01226 | 0.98774 | 0.65047 | 34.953 | 41.1 |
| 12 | 568 | 103 | 0.18134 | 0.81866 | 0.64250 | 35.750 | 43.5 |
| 13 | 460 | 3 | 0.00652 | 0.99348 | 0.52599 | 47.401 | 46.5 |
| 14 | 457 | 9 | 0.01969 | 0.98031 | 0.52256 | 47.744 | 48.9 |
| 15 | 448 | 19 | 0.04241 | 0.95759 | 0.51227 | 48.773 | 51.0 |
| 16 | 429 | 8 | 0.01865 | 0.98135 | 0.49054 | 50.946 | 53.4 |
| 17 | 420 | 6 | 0.01429 | 0.98571 | 0.48139 | 51.861 | 55.2 |

| | | | | | | | |
|-----|-----|----|---------|---------|---------|--------|------|
| 18 | 414 | 46 | 0·11111 | 0·88889 | 0·47451 | 52·549 | 57·0 |
| 19 | 367 | 4 | 0·01090 | 0·98910 | 0·42179 | 57·821 | 59·1 |
| 20 | 363 | 2 | 0·00551 | 0·99449 | 0·41719 | 58·281 | 60·6 |
| 21 | 361 | 10 | 0·02770 | 0·97230 | 0·41489 | 58·511 | 62·1 |
| 22 | 350 | 12 | 0·03429 | 0·96571 | 0·40340 | 59·660 | 63·0 |
| 23 | 336 | 8 | 0·02381 | 0·97619 | 0·38957 | 61·043 | 64·2 |
| 24 | 321 | 36 | 0·11215 | 0·88785 | 0·38029 | 61·971 | 65·1 |
| 25 | 271 | 5 | 0·01845 | 0·98155 | 0·33764 | 66·236 | 66·0 |
| 26 | 254 | 7 | 0·02756 | 0·97244 | 0·33141 | 66·859 | 66·9 |
| 27 | 236 | 6 | 0·02542 | 0·97458 | 0·32228 | 67·772 | 67·6 |
| 28 | 216 | 2 | 0·00926 | 0·99074 | 0·31409 | 68·591 | 68·4 |
| 29 | 187 | 6 | 0·03209 | 0·96791 | 0·31118 | 68·882 | 69·3 |
| 30 | 131 | 4 | 0·03053 | 0·96947 | 0·30119 | 69·881 | 69·9 |
| 31 | 114 | — | 0·00000 | 1·00000 | 0·29199 | 70·801 | 70·2 |
| 32 | 93 | 3 | 0·03226 | 0·96774 | 0·29199 | 70·801 | 70·8 |
| 33 | 79 | 2 | 0·02532 | 0·97468 | 0·28257 | 71·743 | 71·7 |
| 34 | 69 | 2 | 0·02899 | 0·97101 | 0·27542 | 72·458 | 73·3 |
| 35 | 63 | — | 0·00000 | 1·00000 | 0·26744 | 73·256 | 72·6 |
| 36 | 63 | 6 | 0·09524 | 0·90476 | 0·26744 | 73·256 | 72·9 |
| *37 | 45 | — | 0·00000 | 1·00000 | 0·24197 | 75·803 | 73·2 |
| *38 | 43 | 1 | 0·02326 | 0·97674 | 0·24197 | 75·803 | 73·5 |
| *39 | 17 | — | 0·00000 | 1·00000 | 0·23634 | 76·366 | 73·8 |
| *40 | 9 | — | — | — | 0·23634 | 76·366 | 74·1 |

† See corresponding foot-note to table D₈-1.

§ The data regarding terminations seem to suffer from concentrations at certain durations of loop experience due to mis-reporting. Some smoothing procedures were employed to get rid of the concentrations and the smoothed rates are obtained. Smoothing was done by grouping the terminations at proper points and cumulating them before reading the single month values in this column.

* The rate being based on less than 50 observations are not reliable.

Table D₃ : ESTIMATION OF CUMULATIVE RATES OF REMOVALS AND EXPULSIONS PER 100 FIRST INSERTIONS AT THE END OF SUCCESSIVE INTERVALS (POONA CITY)

| Interval after loop insertion (months) | Cumulative termination rates at the end of successive intervals (per 100 insertions) | Interval specific termination rates per 100 first insertions† | Observed proportion among total terminations | | | Estimated rate of removals & of expulsions in specific intervals | | Estimates of cumulative rates per 100 first insertions at the end of successive intervals | |
|--|--|---|--|------------|-------------|--|----------------|---|----------------|
| | | | Removals | Expulsions | Pregnancies | Removal rate | Expulsion rate | Removal rate | Expulsion rate |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 0—1 | 2.26 | 2.26 | 0.636 | 0.364 | — | 1.44 | 0.82 | 1.44 | 0.82 |
| 1—2 | 8.50 | 6.24 | 0.600 | 0.367 | 0.033 | 3.74 | 2.29 | 5.18 | 3.11 |
| 2—3 | 12.66 | 4.16 | 0.750 | 0.250 | — | 3.12 | 1.04 | 8.30 | 4.15 |
| 3—6 | 20.57 | 7.91 | 0.649 | 0.324 | 0.027 | 5.13 | 2.56 | 13.43 | 6.71 |
| 6—9 | 29.73 | 9.16 | 0.925 | 0.075 | — | 8.47 | 0.69 | 21.90 | 7.40 |
| 9—12 | 34.40 | 4.67* | 0.842 | 0.105 | 0.053 | 3.93* | 0.49 | 25.83 | 7.89 |
| 12—18 | 49.05 | 14.65 | 0.922 | 0.078 | — | 13.51 | 1.14 | 39.34 | 9.03 |
| 18—24** | 66.56 | 17.51 | 0.963 | 0.037 | — | 16.86 | 0.65 | 56.20 | 9.68 |

Col. 7=Col.3 × Col.4

Col.8 = Col.3 × Col.5

Col.9 = Cumulated total of Col. 7 up to the end of specific intervals.

Col.10 = Cumulated total of Col.8 up to the end of specific intervals.

* The figures here are obviously affected by preference of the reporters to report a duration of 12 months for loop. Such cases being treated as of completed 12 months' duration were presumed as running the duration of the 13th month.

** Calculations for this interval are not reliable being based on smaller number of observations.

† Generally the disturbances observed in the smooth run of this column are due to peculiar methods of reporting the duration of loop.

Table D₈.4 : ESTIMATION OF CUMULATIVE RATES OF REMOVALS AND EXPULSIONS PER 100 FIRST INSERTIONS AT THE END OF SUCCESSIVE INTERVALS (NON-CITY AREA, POONA DISTRICT)

| Interval after loop insertion (months) | Cumulative termination rates at the end of successive intervals (per 100 insertions) | Interval specific termination rates per 100 first insertions† | Observed proportion among total terminations | | | Estimated rate of removals & of expulsions in specific intervals | | Estimates of cumulative rates per 100 first insertions at the end of successive intervals | |
|--|--|---|--|------------|-------------|--|----------------|---|----------------|
| | | | Removals | Expulsions | Pregnancies | Removal rate | Expulsion rate | Removal rate | Expulsion rate |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 0-1 | 5.35 | 5.35 | 0.298 | 0.702 | — | 1.59 | 3.76 | 1.59 | 3.76 |
| 1-2 | 11.95 | 6.60 | 0.655 | 0.345 | — | 4.32 | 2.28 | 5.91 | 6.04 |
| 2-3 | 15.59 | 3.64 | 0.563 | 0.437 | — | 2.05 | 1.59 | 7.96 | 7.63 |
| 3-6 | 23.90 | 8.31 | 0.616 | 0.370 | 0.014 | 5.12 | 3.07 | 13.08 | 10.70 |
| 6-9 | 31.54 | 7.64 | 0.731 | 0.269 | — | 5.58 | 2.06 | 18.66 | 12.76 |
| 9-12 | 35.75 | 4.21* | 0.892 | 0.108 | — | 3.76* | 0.45 | 22.42 | 13.21 |
| 12-18 | 52.55 | 16.80 | 0.872 | 0.115 | 0.014 | 14.65 | 1.93 | 37.07 | 15.14 |
| 18-24 | 61.97 | 9.42 | 0.890 | 0.086 | 0.024 | 8.38 | 0.81 | 45.45 | 15.95 |
| 24-30 | 69.88 | 7.91 | 0.952 | 0.016 | 0.032 | 7.53 | 0.13 | 53.08 | 16.08 |
| 30-36 | 73.26 | 3.38 | 0.941 | 0.059 | — | 3.18 | 0.20 | 56.26 | 16.28 |

Col.7 = Col.3 × Col.4

Col.8 = Col.3 × Col.5

Col.9 = Cumulated total of Col.7 up to the end of specific intervals.

Col.10 = Cumulated total of Col.8 up to the end of specific intervals.

* The figures here are obviously affected by preference of the reporters to report a duration of 12 months for loop. Such cases being treated as of completed 12 months' duration were presumed as running the duration of the 13th month.

† Generally the disturbances observed in the smooth run of this column are due to peculiar methods of reporting the duration of loop.

APPENDIX E₈

**Table E_{8.1} : CUMULATIVE RETENTION RATES PER 100 IUD INSERTIONS
IN PROGRAMMES CONDUCTED IN VARIOUS COUNTRIES**

| Name of the country and the study | Cumulative retention rates (without reinsertions) | | | | | |
|--|---|------|------|-------|------|----|
| | Months after loop insertion | | | | | |
| | 6 | 12 | 18 | 24 | 30 | 36 |
| <i>Fiji</i> (Loop size 31 mm) | — | 75.5 | — | 64.3 | — | — |
| <i>Korea</i> : | | | | | | |
| National programme | — | 62.4 | — | 43.7 | 31.0 | — |
| Sungdong Gu area | 70.5 | 58.8 | 52.9 | — | — | — |
| <i>Pakistan</i> : | | | | | | |
| National Research Institute | 81.1 | 71.3 | 60.8 | 50.6 | — | — |
| Hyderabad | 80.0 | 69.2 | 65.6 | — | — | — |
| Karachi | 90.2 | 76.8 | 58.3 | 43.1 | — | — |
| Lulliani | 78.8 | 62.9 | 44.3 | 30.6 | — | — |
| <i>Taiwan</i> : | | | | | | |
| Province-wide | 71.8 | 59.8 | 51.6 | — | — | — |
| Taichung | 78.2 | 65.6 | 56.4 | 48.7 | — | — |
| Changhua | 84.3 | 73.8 | 67.8 | — | — | — |
| <i>Thailand</i> | 75.3 | 61.0 | 54.1 | — | — | — |
| <i>Tunisia</i> | 84.2 | 75.2 | 66.3 | — | — | — |
| <i>United States</i> : | | | | | | |
| Co-op. Stat. Progr. (Loop size 31 mm) | 82.5 | 72.9 | 65.3 | 59.8 | 51.8 | — |
| <i>Present Survey Of I.U.D. cases In Poona Dist. (Loop size 30 mm)</i> | | | | | | |
| <i>Poona city area</i> | 79.4 | 65.6 | 50.9 | 33.6* | — | — |
| <i>Non-city area</i> | 76.1 | 64.2 | 47.5 | 38.0 | — | — |

Source : Retention of IUDs : An International Comparison. Studies in Family Planning, No. 18 (and supplement), April 1967, page 4, Table 4.

* The rate being based on less than 50 observations is not reliable.

CHAPTER IX

RESUMÉ

IT IS TIME that evaluation of family-planning programmes and of the efforts put in them for their promotion is attempted in various parts of the country with the passage of three five-year-plan periods. With the failure of the last census to reveal any impact of the effort on the population growth or on birth rate, a need was felt to resort to sample surveys to measure the impact at least in certain populations more amenable to contraception programme. Moreover, if there was no impact, reasons behind this had to be explored. This is attempted in the present report.

The first chapter provides a background with the description of the multi-sided effort by the Government, to promote family planning during 1951-66. It sets out data for the country as a whole. The data give an idea as to the volume of effort put in by the government in the field of family planning. Such a background helps to project an action to be expected in a city like Poona which is under study in the present report. Choice of the city of Poona for evaluating the family-planning activity was determined by the availability of relevant data for the city for 1951, the year of starting the planned effort in the country. It is not intended to generalize the results of the city for city-populations in the country. A city like Poona is ex-

pected to be a forerunner in the race of birth-control due to its peculiar socio-cultural set-up. It is a city with half a million and more population. It is an old educational centre with a significantly rising potential of employment because a number of engineering and chemical factories have arisen on its fringes. Moreover, the vicinity of Bombay, the congested metropolitan city, is congenial to greater industrialization of the city of Poona in the effort at decentralization of industries in the metropolis. With all such potential, the city has still a non-industrial character. The cultural set-up of the city is less conservative than that of an average city in India. The encouraging or discouraging prospects of family planning in such a city anticipate hopes or frustrations in the field for large masses of population in many cities in the country.

The second chapter describes the setting of the family-planning clinics in the city, the adequacy of their number, and the recording system. All the clinics were located near medical institutions such as dispensaries and maternity hospitals. This no doubt helped the collection of clientele for the clinics. Most of the clinic visitors thus visited the place for medical help and were not self-motivated to gather information on family planning. It meant that the clinics provided an agency to motivate the people to practise family planning and also to supply them the necessary facilities. They were sufficiently spread out all over the city so that 30 and 84 per cent citizens had the clinics respectively within a distance of one-fourth and one-half mile.

The recording system of the clinics was very defective and is described in great detail in the second chapter. The system seemed mainly guided by the requirements of monthly reports to the Government. For almost each entry of this report there was a separate register in the clinic. This made the recording system so elaborate that the Government decided to get rid of the system after five years or so. The casecards maintained by the clinics could provide all the necessary information for the follow-up of the clinic visitors or for judging the performance of the clinics. But the staff was not informed about indexing of casecards or about the purpose behind the maintenance of records. It led to confusion in spite of the sincerity of family-planning workers revealed in their request to us to suggest better ways of maintaining the records. The number of clients

in each clinic was small due to its recent start and this initial period could be used for making the staff record-conscious. Periodical supervision of the work of the clinics could avoid a number of difficulties. There also seemed some over-reporting of the number of clinic visitors in the monthly reports by the clinics to the Government. One did not know whether it was deliberate.

Chapter III is devoted to the analysis of information only on case-cards in the clinics during 1961-63. Information on the age of visitor-wives and their children was often entered in the casecards. But the entries regarding socio-economic status of the visitors were either not made, or were faulty. There was no follow-up of the clinic visitors. Thus there was little on the casecards to ascertain the contraceptive practice of the clinic visitors or to judge the performance of the clinics in terms of the number of effective contraceptors. From whatever information available, the clinic visitors generally seemed to belong to upper strata of the society. But there was an appreciable number also from the lower strata as indicated by their educational level or by their occupations. The number of clinic visitors during 1961-63 constituted only eight per cent of the married women in the city, of age 18 to 32 years. These were advised contraceptive methods other than sterilization. In the earlier period under observation diaphragm was prescribed more frequently than other contraceptives. But later, there was a definite shift towards condom. Besides the above advised appliance and non-appliance methods, there were 18 per cent of the married women in the city, of age 23 to 42 years who were advised sterilization. These percentages looked small and particularly so the percentage advised methods other than sterilization. Reasons for it could not be ascertained unless the interest and practice of contraception in the general population of the city was known. Moreover out of the eight per cent clinic visitors of age 18 to 32 years, 70 per cent discontinued visiting the clinic. Similar large percentages of discontinued cases were observed in the clinics of the city of Bombay and Delhi too. This phenomenon was probably universal. The interest in family planning or reasons behind the discontinuance of such cases were of great interest to us; but the relevant information could be collected only by interviews of the visitors in their homes. This was not done for the studies in Bombay or in Delhi. For Poona city, it was done and the findings are pre-

sented in Chapter IV. In Chapter III, however, an attempt was made to find out the categories that discontinued clinic-visiting. The scrutiny of the meagre information on socio-economic demographic status or on duration of recorded family-planning practice in the casecards indicated no difference between those who continued or discontinued clinic visiting. From such an analysis, it appeared that clinic visitors discontinued their visits to clinics but practised contraception without their help. This could be verified only by findings presented in Chapter IV based on the interviews of clinic visitors in their homes.

All the information collected with the interviews of 20 per cent clinic visitors in their homes is set out in Chapter IV. Besides, the method of selecting the twenty per cent sample is described here in detail. A large portion of the selected sample could not be contacted. In a large number of cases it was because the clinic visitors were not traced at the noted addresses due to their transfer from Poona, or due to the change of their addresses or in certain cases, they were from outside Poona. But 17 per cent of the total clinic visitors could not be traced as their addresses were not correctly given. However, the representative character of the sample was undisturbed, as shown in the chapter.

Interviews with the clinic visitors helped to assess the attitudes of the clinic visitors towards the clinics and the contraception practice. There were hardly any complaints regarding the services of the clinics. About 80 per cent of the interviewed clinic visitors were active regarding contraception. These included the 10 per cent sterilized and the seven per cent genuinely planning to get sterilized. Of the total sterilizations, two-thirds were for tubectomy, and it seemed much popular more recently. One surprising finding was the active interest in contraception even of those who had stopped visiting the clinic. More than 80 per cent of them were positively active in the matter of family planning without any contact with the clinics for contraceptive supplies or contraceptive knowledge. It obviously meant that the clinics were useful in disseminating contraceptive information to them, and this was enough to drive them to contraceptive practice. This was specially important because most of the clinic visitors were absolutely passive with regard to family-planning

activity before contact with the clinic. Even this visit to the clinic was not self-motivated.

As for the popularity of the contraceptives prescribed in the clinics, one found that 45 per cent had stuck to their practice and the rest moved to other methods including sterilization. This proved a very healthy and desirable attitude as people definitely experimented with the appliances even in the early reproductive life before they made their final decisions.

The efficiency of the clinics could be measured from the number of clinic visitors undoubtedly motivated to contraceptive action. Personality of the field workers mattered a lot in motivating the people to action and clinics 2 and 9 were found comparatively less efficient. It seemed that closer supervision of their work and standardization of their routine could achieve better results in the field of family planning.

It was found that 598 interviewed clinic visitors were informed about contraception for 1595 years in all. But their contraceptive practice covered only 1026 years. The contraception was practised by the visitors with 77 per cent efficiency in avoiding births. But a comparison of the expected and observed births to the clinic visitors showed that the observed births were 63 per cent of the expected births. It meant that the contraceptive practice of the clinic visitors could avoid 37 per cent of the possible births to them. Though the efficiency of contraceptive practice was 77 per cent, only about 37 per cent births were avoided because contraception was not practised for all the time the clinic visitors knew about it.

Generally the findings of Chapter IV demonstrate the importance of the role of family-planning clinics in promoting contraceptive action and there seemed all the need for increasing their numbers, not in an elaborate form but in a simple form of supply depots with field workers attached to them. The records maintained by the clinics were in a deplorable state probably because of lack of education and training in the maintenance. The recording system corrected of its defects will be much simplified and will definitely help easy assessment of the success of the clinics. Cascards with proper indexing is all that is needed and will help greatly in accounting the whole performance of the clinics in terms of (a) number of acceptors, (b) time and money inputs, and (c) impact on birth rate. The categories visit-

ing clinics seem to be different because cases of sterilization are not included in the casecards. It is this fact that apparently depresses the real achievement of the clinics which promoted sterilization with perhaps better success but which was not accounted for by the casecards. This was a drawback of the casecards. They ought to have been kept up to date and closed only when not needed any further.

The role of family-planning clinics in the total contraceptive activity of the city could be known only after an examination of the interest in the subject and of the source of information about family planning in the total population of the city. Results obtained on the basis of one per cent random sample in the city are analysed in Chapter V. This sample was surveyed in 1964-65. A similar sample observed in the city in 1951 provides the necessary material for ascertaining the change that occurred in the city during 1951-64 in the matter of family-planning activity.

Considerable change had taken place in the city during this period. In 1951 only 12 per cent admitted any knowledge regarding methods of family planning. In 1964, the percentage of such was 98. At the same time in 1951, more than 40 per cent were favourable to family planning and further developments during 1951-64 guided their attitudes to positive action as seen in 1964. From a meagre family planning practice in 1951, one could find in 1964 almost a universal knowledge regarding the subject backed by a positive action in 47 per cent cases. Of these, more than half were sterilized. Besides, an equal percentage (23.6) had genuinely planned to get sterilized. Of those that were sterilized only one-fifth were males, the rest being females. Those that were willing to take action in future had made up their mind about it, early in the reproductive life. The negligible few that were opposed, were so for some specific reasons backed by knowledge or experience regarding family planning as reported by them. In other words, the opposition in 1951 was on the grounds of immorality or God's will. In 1964, it was due to individual dislike. The ideas about being 'too young' or 'too old' to know or practise family planning had also changed during 1951-64. The average desired number of children changed from 5.3 to 3.6. Generally one also observed a gradual shift from vasectomy to tubectomy as the family-planning programme moved from special groups to masses.

As for the source of information regarding contraception, one-

fourth of the couples had read about it. A little less than 60 per cent had discussed the subject with friends and relatives. Obviously a discussion on the subject was no longer a taboo and the credit for this probably went to the mass media like the radio or the printed material in newspapers and other journalistic sources.

The family-planning practice was getting popular with low education groups and low status castes. This affected the family-planning practice in the city in two ways. One was that the average number of children to the sterilized or appliance users did not come down during 1951-64. The second was that tubectomy got more popular than vasectomy and almost replaced it. The couples from lower strata definitely preferred tubectomy to vasectomy. It was the husbands of the highly educated women in the city that got sterilized. In most of the other cases couples resorted to tubectomy. If one considered the relative popularity of the various contraceptive methods, tubectomy was the most popular. It was followed by condom. Vasectomy ranked with diaphragm in popularity. This finding was of great importance in administering the family-planning programme in rural areas. If likes and dislikes regarding contraceptive methods in the rural areas resembled those in the city of Poona, tubectomy facilities had to be offered before an appreciable dint was made on their birth rates. Offering less popular vasectomy, there may be 'wastage' of effort and slowing down of progress of the family-planning programme. Strong is also the case for advocating condoms to young couples in the rural areas. They may use them effectively and with better control of child-bearing with their higher fertility in young ages. It was worth recording this because sheer dependence on sterilization could not help as women easily had four children before age 24 years.

In Chapter V, effectiveness of the various contraceptives is estimated for couples in the city practising various methods. This was a little higher than that of the clinic visitors. A very rough estimate of the effect of contraception on the birth rate of the city showed that the rate declined by 24 per cent. More refined estimates of the effect are attempted in Chapter VI as described in subsequent paragraphs.

The change in fertility rates at two points of time, namely 1951 and 1964, is estimated in Chapter VI. The available fertility data for

the two years were not identical. Comparisons based only on the available data could not therefore be valid. For example, comparison of living children born to couples in 1951 and 1964, or of total children born to couples in their life time could not provide a valid estimate of decline in birth rate during 1951-64. One could, however, see a definite decline in birth rate even from such comparisons.

Main difficulty in comparison of fertility conditions in 1951 and 1964 was the lack of data on births of children in 1964 who were dead at the time of survey. Allowing for the dead infants in this year, the fertility in the two years of survey was compared. Here the data for the two years were used without verifying their reliability. A decline of 27 per cent was observed in the birth rate of the city during 1951-64. But the fertility data for the two years of survey were not without perceptible defects. Most of the routine tests were employed to evolve improvement in the data. For instance, the age distribution of living infants during the first year of age in 1964 revealed obvious defects in the data, but not for the year 1951. Relevant corrections were applied to the fertility data for 1964. The life table techniques were utilized for this purpose and are explained in an appendix to the chapter.

Proportions living and dead could also be examined to check the fertility data for the years surveyed. The relevant data not being available for 1964, those only for 1951 were examined and corresponding modifications were introduced to revise the data. Such processed or modified data yielded an estimate of decline in birth rate to be about 21 per cent in the city of Poona during 1951-64. However, one could be hesitant in offering such an estimate because of inevitable inattention to sampling errors of the fertility statistics. This inspired one to get another independent estimate of decline in fertility.¹ One possibility was to base the estimate on the contraceptive practice observed in the city in 1951 and 1964. Proportion practising a contraceptive and the effectiveness of the practice together could help estimating the decline in fertility or the birth rate of the city. But this method could not be a completely independent method. It was based on the data regarding the total number of children besides those mentioned above. However, there being no other pos-

¹ This could not improve the matters as far as sampling errors were concerned. But it could create more confidence in the estimates if they agreed closely.

sibility, the decline in birth rate was estimated by this method and yet it yielded exactly the same figure for estimate of decline in birth rate. Thus with available means, the decline in birth rate was accepted to be about 21 per cent during 1951-64.

The trend of decline in birth rate of the city for the intervening years 1951-64, was also ascertained in this chapter. It was observed that the family-planning practice was getting accelerated after 1960, and the decline in birth rate during the decade 1951-60 was only half of that during 1961-64. In 1957 the decline was about six per cent. By about 1961 census the decline was about 10 per cent. This is why perhaps the census of 1961 did not detect a decline in birth rate in terms of the child/woman ratio. As is well known, the death rate and especially the infant death rate had also declined appreciably during the decade preceding the 1961 census and the child/woman ratio was affected by this decline. In Chapter VII, an attempt is made to estimate the decline in infant mortality rate while evaluating the vital registers for the city of Poona.

A few by-products of the study in Chapter VI include: (i) techniques of constructing the age distribution for the first year of age, (ii) techniques of measuring the effectiveness of contraceptives and (iii) problems of estimating the expected births during the contraceptive practice, and of assessing fertility of women when they are not in lactation amenorrhoea as differentiated from the 'natural' group of women including those both in amenorrhoea and others. In this chapter verification was also possible of the common impression that sterilized couples have a higher fertility than the average.

Chapter VII is devoted to the examination of the vital registration for the city of Poona for the years 1948 to 1966. An examination of the data destroys all faith in the data, especially when one sees the 18-year trend of registration. The data suffer from a variety of defects. There is little in the registration which one can hold or assume firmly to improve or estimate any other aspect of the data on fertility or mortality. Finding the registration data incapable of providing even a rough estimate of the change in birth rate or death rate, an exercise is attempted in this chapter to improve the registration data with the help of results obtained in the preceding chapter. Such an exercise could also help to ensure confidence in our findings of Chapter VI if by their use one got results consistent with

expectations. Estimates of under-registration of births and deaths in the city were obtained in the chapter on the following assumptions:

(i) Birth rates for the years 1951 and 1964 are those estimated in the surveys, and naturally the decline in birth rate also as estimated in Chapter VI.

(ii) The trend of decline in birth rate as estimated in Chapter VI.

On the above assumptions the birth rates for the city for individual years during 1951-64 could be estimated. Comparison of these with the registered birth rates could yield the estimate of percentage of unregistered births in the city for the various years. These estimates appear consistent with the expected levels of under-registration for the various years except for a few erratic observations which could be smoothed out. Such smoothing also helps to revise the estimates of decline in birth rate observed in Chapter VI. The result is an estimated decline in birth rate of about 15 to 20 per cent in the city of Poona during 1951-64. The estimated extent of under-registration is of the order of 25 per cent in 1951 and about 7 to 14 per cent in 1964. It has been repeatedly stated that the claim of the authors is for 'consistency' of the various estimates and cannot be for 'accuracy' or 'reliability'. Consideration of any values far different from the estimated ones completely topple our ideas such as the level of registration improving day by day, the declining of infant mortality or the possibilities of declining birth rate. The only alternative which could be plausible and which is not considered is the birth rate of Poona city being appreciably above 40 births per thousand population in 1951. But the authors do not repent on that account.

An attempt was made in Chapter VII to get some rough estimates of infant mortality for the period under observation in this report. Infant mortality in this country is always a subject for guess-work. Moreover, the estimates of birth rates or age structures are not so sensitive to the experienced changes in infant mortality rates and hence sizable errors in them cannot be easily detected. The infant mortality for the city was estimated to be 162 and 132 deaths per 1000 births in 1951 and 1964 respectively. Regression techniques were utilized in estimating the infant mortality rates. The estimation also throws light on the relations between crude death rate and infant mortality rate and on the city/non-city differences in infant

mortality rates. However, one has to admit that the technique of regression employed here is crude.

Up to Chapter VII the report deals with family-planning activity and vital rates in the city of Poona up to 1964. A new tool of family planning, namely, *Intra Uterine Device* (I.U.D.) was introduced in the city in the latter half of 1965 and its popularity with possible impact on birth rate had to be ascertained. This was done in Chapter VIII. There were more than 2000 loop insertions done in the city during the next two years and more than 3300 in the non-city areas of the district of Poona. Samples of 650 loop insertions in the city and about 2000 in the non-city area were selected for interview to get their reactions to loop. At the time of report writing the investigation in the city was complete, but, for the non-city area, only 900 cases were covered. Hence in the present report only about 900 cases in the non-city area are taken for analysis. The interest lay in the analysis of loop insertions of the non-city areas because the reactions to loop in non-city areas did affect significantly the attitudes towards loop in Poona city. The non-city experiences were advertised in newspapers to a large extent because they were a part of I.U.D. campaign for the district of Poona. For a number of reasons given below, the campaign did not prove successful.

(i) Screening of eligible cases was not efficiently done. In well-conducted campaigns in other countries 20 to 30 per cent cases were rejected as unsuited for loop insertion. In the present campaign few cases were reportedly rejected and worse still, they were not counted or recorded giving reasons for the rejection.

(ii) Persons resorting to I.U.D. or even the staff dealing with such persons were not adequately informed of the side-effects with the result that they turned the loop wearers panicky.

The rates of loop removal for the city as well as non-city areas were found higher than those for loop wearers in mass programmes in other countries. The difference was small in the rates up to first 12 months. But it increased for higher durations. In fact, the number of new insertions dwindled down so fast after 1966, that even the best qualified doctors could not get any new cases opting for I.U.D.

Expulsion rates were found to be large in the non-city area compared to the rates in the city for the same size of loop. It was difficult

to know the reasons behind this. But following possibilities could be considered.

- (i) Non-city women could have a bulky uterus because they had a larger number of children born before loop insertion. Moreover 44 per cent of them had the loop fitted in lactation amenorrhoea when the uterus could be more bulky. (This latter was, however, doubted as being a misreport. Women were perhaps pregnant and they were accepted for loop as being in lactation amenorrhoea.)
- (ii) The peculiar physical labour at home or in the farms could be responsible for higher rate of expulsion in the non-city areas.

Generally, however, it appeared that women wore the device patiently because their motivation to limit the number of children was genuine. In spite of the bleeding troubles, about 50 per cent in the city and about 29 per cent in the non-city area wore I.U.D. at the time of enquiry. A large majority of those who got rid of the device shifted to tubectomy and condom. The findings here resembled those in other countries like Korea, Taiwan or Singapore. There too the popularity of the I.U.D. programme declined as found in some of the publications. Moreover even in these countries the I.U.D. wearers shifted to sterilization after getting rid of the loop. I.U.D. was perhaps not suited for mass programmes with the level of efficiency available in countries like India. But one has to admit that the contraceptive device has its place in the contraceptive armoury as it suits certain constitutions.

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| <i>Page No.</i> | <i>Line No.</i> | <i>Instead of</i> | <i>Read</i> |
|-----------------|---|-----------------------|-------------------------------------|
| 9 | 1 (Foot-note) | The committee | ¹ The committee |
| 18 | Last but 1st (Foot-note of Table 2·2) | thi | this |
| 18 | Last but 2nd (Foot-note of Table 2·2) | wa | was |
| 33 | Last but 3rd | 21) | (21) (a) |
| 82 | 2 (Table heading) | of living children | of the number of living children |