CHILD HEALTH AND FAMILY PLANNING IN INDIA
(A GEOGRAPHICAL ANALYSIS)

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I certify that the dissertation submitted by Ritu Dhingra entitled CHILD HEALTH AND FAMILY PLANNING IN INDIA (A Geographical Analysis), in fulfilment of six credits out of the total requirements of twenty four credits for the Degree of Master of Philosophy (M.Phil), of the University, is a bonafied work to the best of my knowledge and may be placed before the examiners for evaluation.

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Dated: 5-1-1983

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Ritu

Ritu Dhingra

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CHAPTER I

INTRODUCTION

1. Nature of the Problem

> "We are guilty of many errors and many faults, but one worst crime is abandoning the children, neglecting the fountain of life. Many of the things we need can wait. The child cannot, right now is the time his bones are being formed, his blood is being made and his senses are being developed. To him we cannot answer 'tomorrow'. His name is 'Today'
>
> Nobel Laureate Gabriel Mistral[1]

Where two thirds of humanity lives in the developing world, where 80 percent or more of the population lives in rural areas, where young people under the age of 15 and women in child rearing age comprise more than half of the population of an average developing country, the health status of that community assumes a vital role.

Perhaps a lot of time is spent asking why children are malnourished and too little asking why other children are healthy. Inadequate food and poverty are the major causes of undernourishment. These are further aggravated by unfavourable environment, infection and infestations during the early period of life. Unhealthy drinking water, poor environment, sanitation and unsatisfactory housing favours the spread of these infections. Besides, prompt medical care is not available especially to the lower socio-economic groups particularly in rural areas.

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1. Vridula Sharma. "Malnutrition among pre-school children"; Some Facts of Child Development, NIPCCD, New Delhi, pp. 62.

The problem of child health can be reviewed from the following facts. Of the 1550 million children in the world, one in every six is an Indian. The 248 million children of India form nearly 16 percent of all the world's children[2]. The 1971 Census showed that 42% of the Indian population consists of children under 14 years of age, which is about twice as much as in other countries of the world (eg. United States 9.37%, Sweden 21.20%, Japan 24.50%). According to 1976 projection, about 99.4 million children, nearly two-fifths of the total Indian child population, live in conditions adverse to survival[3]. Estimates in April 1977, indicated that as many as 126 million children lived below the poverty line[4].

While the age group 0-14 years is a category relevant only in economic terms, the health needs have to be assessed for different age groups within this group because of rapid growth in the early childhood years. The child's fight for survival does not seem to succeed; and for every 1,000 babies born alive, 122 die in the first year of life[5]. The mortality rate for the lowest age

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2. UNICEF: "Child in India" International Year of the Child, 1979, New Delhi (A Report).

3. Ibid.

4. Ibid.

5. Ibid.

group (0-4) is three and a half times more than that of the next age group (5-14 years)[6].

The magnitude of the problem can be further assessed from the fact that there are an estimated 10 million malnourished children in India, and 100,000 children die from its effect every year[7].

Many children in India die young for lack of timely health care. About 50 percent of deaths in the 0-1 year age group are due to dysentary, diarrhoea, respiratory diseases and gastro-intestinal disorders. In the 1-4 year age group, mortality is specifically related to respiratory, digestive and parasitic diseases[8].

The problem of health services can be seen from the fact that where 80 percent of Indians live in rural and tribal areas, only 30 percent of hospital beds and 20 percent of doctors in the country are available there[9]. At the time of child birth the proportion of women receiving skilled assistance ranges from 20 to 50 percent

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6. Ibid.
7. Ibid.
8. Ibid.
9. Ibid.

in different parts of the country[10].

The aspect of family planning acceptance and performance - signifying the efforts being made towards a restricted family size to improve the quality of life of the children and to provide them a better living status shows that only 24.24 percent of the couples in the reproductive age group are currently protected; thus three fourth of them still remaining to be protected by any method[11].

Child's health, nutrition and family Welfare thus are closely linked. Solving these problems can only be achieved by approaching their factors together. Thus conceptualising their roles within the health framework is important. Nutritions full potential contribution to health and family planning can be seen from what Roberts said many years ago, "Nutrition is to total health what reading is to total education"[12].

2. Problem Evaluation

Keeping the above facts into consideration, the health status of a population of a country has to be described by certain set of indicators. Mortality rates have been used here as an index of health more out of compulsion than out of choice. Since causes and correlates of mortality are not fully known, the mortality rates as such are used as an indicator of overall health status.

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10. Ibid.

11. Ministry of Health and Family Welfare: Department of Family Welfare, Govt. of India, New Delhi, March 1981.

12. J.L. Buenemann. "Nutrition and Family Planning" WHO Publication pp.65.

Infant Mortality Rate also is a sensitive index of the health of a community. Besides, indicators such as ... rate, age-specific mortality rate, incidence of diseases, or availability of health facilities and manpower have been used in analysing the health problem. Prevalence of various deficiencies among children; children's distribution according to nutritional status by age groups and per capita income help in understanding the problem of nutrition. Family planning performance and acceptance by different methods help in the evaluation of family planning programme.

3.a Data-Base

It is not possible to obtain a complete picture of the health status of Indian children without the help of a network of system of registering nation wide data. Data for this study has been collected from various secondary sources. A brief account of the sources from which data was collected is given below:

"Vital Statistics of India"[1] provided data on birth rate, infant mortality rate and deaths by age and sex at the state level. The share of infant deaths to total deaths at the state level was obtained from 'An report on Sample Registration System'[2]. Data on causes of deaths

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1. "Vital Statistics of India", 1973 Office of the R.G. of India, Ministry of Home Affairs, New Delhi.

2. "A Report on Sample Registration System" (5 Zones) 1970-1975, A Survey: Vital Statistics Division, Registrar General Office, Ministry of Home Affairs, New Delhi.

at national and statelevel was procured from 'Causes of Death, A Survey: Vital Statistics Division"[3]. Pocket Book of Health Statistics in India, year book 1978[4], provided data on paramedical staff, doctors and medical facilities.

The data on nutrition was collected from "National Nutrition Monitoring Bureau Report, Hyderabad"[5](for prevalence of deficiency signs by age groups and Gomes's classification). The data was made available for only 10 states which function and collect information on various aspects of nutrition. Further data on nutritional status of pre-school children by age and income, was collected from the All India Institute of Medical Sciences, Biostatistical Unit", for Integrated Child Development Scheme Project Areas"[6]

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3. "Causes of Death" 1971 and 1974, A Survey: Vital Statistics Division, Office of the Registrar General India, Ministry of Home Affairs, New Delhi.

4. "Pocket Book of Health Statistics of India" 1978 and 1980, Central Bureau of Health Intelligence, Directorate General of Health Services, Govt. of India, New Delhi.

5. "National Nutrition Monitoring Bureau Report" for the year 1978, Indian Council of Medical Research, Hyderabad, 1979.

6. "All India Institute of Medical Sciences". Bio Statistical Unit; "Baseline Survey Report of Rural, Urban, and Tribal Integrated Child Development Scheme Project Areas, 1978.

Data on Family Planning acceptance and performance at the state level was taken from a mimeographed report of Jolly, K.G.[7] from the University of Delhi. "Family Welfare Programme in India, Year Book, 1979"[8] provided yearly data on number of family planning acceptance from 1956 to 1980 and state level data on effectively protected couples by different methods.

Besides the above mentioned sources of data, Census of India, was also made use of for obtaining some data. Social and Cultural Tables[9], provided the required information on Scheduled Caste and Scheduled Tribe population and literacy rate. Share of agricultural workers and female participation in workforce was supplied by economic Tables[10]. General population Tables[11], gave the data on urban population.

3.b Data Problem

The health of the child, or health status of the children in India, though appears a very interesting work, the data on this is not such that one indicator gives us the spacial pattern or the health of the child. Thus various indices had to be used to measure health. Certain types of data needed were not available and so a few

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8. "Family Welfare Programme in India" Year Book, 1979, Govt. of India. Department of Health Welfare, New Delhi.
9. Social and Cultural Tables, Part II-C. (Census of India 1971).
10. General Economic Tables, Part II-B. (Census of India 1972).
11. General Population Tables Part II-A. (Census of India (1971).

indicators had to be grouped together to get one figure or weightages had to be accorded to certain variables to make them comparable. Besides, recording of certain vital events is not complete enough to lend credibility to any estimate of mortality of morbidity. Due to under utilisation of medical services, many deaths especially of infants are not notified and causes of deaths remain vague, due to which certain difficulty in data analysis is felt. Due to the non-availability of data of certain variables at the state level, data were obtained from certain project areas (eg. ICDS) or specific studies.

4. Methodology

The large volume of numerical information gives rise to the need for systematic methods which can be used to organise, present, analyse and interpret the information effectively.

Thus, the empirical method consisted of data collection and processing and the cartographic method consisted of data mapping. For this, both quantitative and qualitative methods have been applied, including statistical and cartographic techniques.

Statistical Methods

Statistical Methods have been primarily used to meet the above needs. Raw data has been processed into simple percentages, rates and ratios for a large number of variables. The data on sterilisations, IUD (uterine intera device) insertions and C.C. (Conventional contraceptive) users has been converted into one single unit of measurement

known as equivalent sterlisation. While converting different methods of family planning into equivalent sterlisation, each case of sterlisation (tubectomy or Vasectomy) has been given the value of one, every three IUD insertions have been equated with one sterlisation and every 12 C.C. users are equated with one case of sterlisation.

The data has been classified (a) Geographically areawise; (b) Chronologically - on the basis of time; (c) qualitatively - according to attributes and (d) quantitatively - in terms of magnitude.

The processed data had been divided into three categories viz. low, medium and high to be presented on the map and to analyse and interpret the regional patterns of distribution. The medium category is so selected to encompass the mean-value.

In order to know the relationship between variables correlations have been worked out.

Correlation, simple regression and stepwise regression co-efficient's methods have been used to explain the interse relationship and the dependence of variables. T-test and F-test have been used to work out the significance of such mutual relationship and degree of dependence of the variables.

Graphic Representation

Visualising the trends and patterns through statistics, the processed data have been presented through diagrams, graphs and maps. Maps have been plotted by bars, graphs,

proportionate circles, squares etc. In order to observe the spatial relationship, certain variables have been superimposed or more than one variable, has been depicted on the same map.

5. Objective of the Study and Research Scheme

The objective of the present study is to perceive the problems of health and nutrition level of the child through various indicators chosen. The objective is further extended to find the extent of family planning acceptance and to study the relationship between acceptance rates and various socio-economic characteristics.

Nature of the problem, its evaluation and methodology has been discussed in brief in the Introductory chapter along with an overview of the literature and formulation of hypothesis.

Chapter II deals with the problem of health measured through various indicators and available health facilities and their spatial distributions. Nutritional status of the child and its importance has been dealt in Chapter III, and chapter IV deals with Family Planning.

The relationship among a few selected variables related to health and family planning have been statistically analysed in Chapter V. A brief summary of the findings and some remarks have been provided in the concluding chapter.

6. Overview

The literature on child health, nutrition and family planning is not such that a clear picture of the

conditions of health and family planning of a region could be obtained. Different indices of health and family planning have been used by various scholars and investigators in an aggregate form in the evaluation of health. A number of studies have appeared focusing on health-infrastructure, the health of the child and mother, nutritional level of child and mother at various stages of child development, factors affecting birth control and consequences of family planning acceptance on child's development. Some of such studies have been illustrated here. However, the literature survey here may not be a critical review, such as some research workers would like, but merely a partial overview intended to highlight some of the problems and issues discussed in the field, which may facilitate further study.

Health

UNICEF has helped in sharpening the world's focus on the child. In its report of 1979[1], it highlights the basic services it provides to meet the need of children throughout the world at reasonable costs. UNICEF plays an important part in identifying the child's needs and propogating policies and schemes for their implementation. UNICEF's Statistical Profile of Children and Youth in India[2] analyses the progress made in the field of health, nutrition and

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1. UNICEF; Report. 1979; United Nations, New York.

2. UNICEF. "Statistical Profile of Children and Youth in India". United Nations Children's fund. SCAR, Nov. 1975, New Delhi.

family planning in the five year plan periods. It provides state level data for different aspects on health, nutrition and family planning.

World Population Growth and Response[3] of the Population Reference Bureau presents an overview of the major population developments in 1965 to 1975 at the world, regional and country level. The report covers the aspects of population changes, policy actions and programmes and development of family planning programmes and their services. The book also provides demographic data at the country level.

World's Children Data Sheet[4] 1979, also published by the Population Reference Bureau, gives demographic, health, education and nutrition information for 150 countries.

Through IFRP[5] (International Fertility Research Program) data from the record units of few selected hospitals

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3. Population Reference Bureau: "World Population Growth and Response"1965-1975 A decade of global action. Population Reference Bureau, Inc. Washington April 1976.

4. Population Reference Bureau: "World's Children Data Sheet" of the Population Reference Bureau, Inc. International Year of the Child, Jan.1979. Washington.

5. "International Fertility Research Programme", 1979, Research Triangle Park North Carolina, USA.

in India is made available for analysis.

World Bank prepared an 'World Atlas of the Child'[6] which contains global maps on the demographic, economic and educational aspects. It also contains the data on the parameters which have been used to prepare maps for the atlas.

David Morley, in his article, 'A time to look at Child Health'[7] brings out the structural imbalances in the distribution of nutrition and health care. He points out that all the resources available in the health sector are 'hogged' by the elite and politically powerful. He strongly emphasises the inequity of distribution of health resources especially in the Third World Countries. Inadequate food is recognised by him as the major health problem. He suggests that if more emphasis is placed on birth interval than on size of the family, the family planning programmes might be more successful.

Sinha[8] gives an historical account of the organisation and impact of 4 national health programmes (the Cholera control programme, the Small pox eradiction programme, the Malaria control programme and the Tuberculosis programme)

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6. World Bank; "World atlas of the child", U.S. Washington.

7. David Morley: "International Year of the Child. A Time to look at Child Health", Children in India, Critical Issues in Human Development, ed. Alfred de Souza, 1979, pp.81-94.

8. U.P. Sinha, "Health Programmes and Childhood Mortality" Demographic and socio Economic Aspects of the Child in India; ed. K. Srinivasan, P.C. Saxena, Tara Kanitkar, Himalaya Publishing House, 1979, pp.275-300.

implemented in India during the last three decades. He also briefly reviews the recommendations of the two important health committees popularly known as "Bhore Committee" (1946) and "Mudaliar Committee" (1961).

Baig[9] deals with the problems of child health at the state level. Poor health conditions of the mothers, poor environmental sanitation and faulty weaning practices are recognised as the major problems of child health. Malnutrition especially among the poorer section is the major cause of ill health. Besides, an analysis of the health services and diseases related to the child health is also made in hey study.

Mitra[10] in the chapter: Nutrition and Protection of Infants, children and mothers in his book, deals at length with the causes related to health of the infants, children and mothers. Maternal malnutrition is considered to be a major cause of infant deaths. The underlying fact is that malnutrition is compounded not by deficits in food intake, vitimins and minerals but by lack of such amenities as potable water, disposal of fecal waste, environmental sanitation and lack of personal hygiene.

Mandal[11] in his study on an interior village of Bihar, higlights the health problems of rural children. He says

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9. Tara Ali Baig: "The Problem of Child Health", Our Children; Publication Division, Ministry of Information and Broadcasting, Govt. of India, 1979, pp.151-171.

10. Asok Mitra: "Nutrition and Protection of Infant Children and Mothers" India's Population Aspects of Quality and Control, Vol.1, A Family Planning Foundation, ICSSR, Book, Abhinav Publication, New Delhi, pp.246-275.

11. B.B. Mandal: "Health Problems of Rural Children" A study in a remote village in Bihar, Social Welfare Dec.1981 pp.15-16.

that the health problem of rural children should be judged in the context of village environment in which they grow up such as insanitation, improper ventilation of houses, absence of safe drinking water facility etc. Their social and economic deprivation poses further problem and children suffer from no fault of theirs.

Ghai[12] in his paper "Alternate Strategies For Improving Health and Nutrition of Children" presented at the National Seminar on International Year of the Child (IYC), New Delhi, lays stress on the need for new and bolder strategies to meet the present health situation in India. He is of the opinion that health education has little meaning for people who do not have enough to eat, cover their body and roof to live under. Chaudhuri[13] in his article 'Feeding and Medical Programme For children, which went wrong" gives an unsuccessful model of a child-feeding and medical care.

Chatterjee's article "Health & Nutrition"[14] (unpublished) gives a detailed account of the nature, extent and causes of ill-health among the pre-school children in India, since

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12. O.P. Ghai: "Alternate Strategies for Improving Health and Nutrition of Children" National Seminar on International Year of the Child (New Delhi April 1979) Report and Recommendations. Organised by Ministry of Social Welfare in Cooperation with UNICEF.

13. S.N. Chaudhuri: "Feeding and Medical Programme for Children" which went wrong Ibid.

14. N. Chatterjee: "Health and Nutrition" Country Report on Child Development in India. Implications for Policy and Training. National Institute of Public Cooperation and Child Development, New Delhi March 1980 (Mimeographed).

they receive less than their share of the nation's food and health services. She documents the manner in which the country's health infrastructure is being addressed. Specific issues have been identified for the improvement of the health of these young children.

Kanitkar[15], Sebastin[16], Alvani[17], Pande[18] and Sadachivaiah[19] deal with the maternal and child health programmes in the country regarding their development, organisation and effectiveness. Some of their major findings are that the health and well-being of a child are closely linked with the health and well-being of the mother and the anti-natal and post-natal care she receives. The facilities of health are lacking especially in the

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15. Tara Kanitkar: "Development of Maternal and Child Health Services in India": Demographic and Socio Economic Aspects of the Child in India, Ed. K. Srinivasan; P.C. Saxena, Tara Kanitkar Himalaya Publishing House, 1979, pp.301-323.

16. D. Sebastion: "Maternal and Child Health Programmes in India" Demographic and Socio Economic Aspects of the Child in India; Ed. K. Srinivasan, P.C. Saxena, Tara Kanitkar, Himalaya Publishing House pp.29-348.

17. Alvani: "Role of Selected Medical Specialists in Child Health Care" Ibid. pp.349-364.

18. G.A. Pande: "Integrated Child Development Services Scheme" Ibid.pp.353-364.

19. K. Sadachivaiah and A.J. Ramesh: " An Overview of the Immunisation Status of the Child" Ibid.pp.365-370.

rural areas. They a re of the opinion that an integrated approach - including nutrition, environmental sanitation, health-education, immunisation and treatment of infectious diseases is needed if health conditions of the children are to be improved.

Yadav[20], Abrol[21] and Sharma[22] in their papers have considered the issues of child health and malnutrition among the pre-school children. They have identified the reasons for unsatisfactory health and nutritional status among the Indian children. The inter related programmes and governmental preventive and curative programmes, has been ascribed for the improvement in the child health.

Analysis of situation of children in India - a country programming exercise[23] gives a state level analysis of the situation of children in India relating to child mortality and morbidity, health indicators, drinking water supply and disabled children. Suggestions for the improvement in the above mentioned indicators are discussed along with state level statistics.

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20. M.S. Yadav: "Child Population Growth in India" Some Facts of Child Development; Pub: National Institute of Public Cooperation and Child Development, 1979 New Delhi pp.1.25.

21. Usha Abrol: "Child Health in India". Ibid. pp.26-61.

22. Bridula Sharma: "Malnutrition Among Pre-School Children" Ibid.pp.62-80.

23. United Nations Children Fund: "Analysis of Situation of Children in India": United Nations Children Fund. Country Programming Exercise, New Delhi, 1980.

Mitra[24] deals at length with the state level analysis of infant mortality along with the major causes of infant deaths. Malnutrition of mother and child both before and after birth; exposure and bad housing, unprotected water and food for the new born; and incompetent assistance, medical or otherwise at and after child birth are recognised as the chief common reasons for mortality.

Ghosh[25] in his article points out the strategy of copying the health services of affluent countries has not been conducive to serving the health needs of the developing countries. By doing so, he argues that they have succeeded only in developing a disease oriented medical technology to serve the urban population. He further emphasises that what the developing countries need is a lesser trained person to solve the problems of the community, most of which are simple and do not need the services of highly trained doctors. He emphasises the need of implementing programmes complimentary to each other. He says nutritional programmes, if implemented in isolation would be ineffective if other programmes such as environmental sanitation and improvements, immunization and health and agricultural policies and health education are not complimentary. To this should be added a good level of curative services. He says that the best results are obtained from a total package of services. What is needed is a network of services, designed to foster

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24. Asok Mitra, "Infant Mortality" "India's Population - Aspects of Quality and Control, A Family Planning Foundation/ICSSR Book, Abhinav Publications, New Delhi, 1979, pp.114-131.

25. Shanti Ghosh "Health Manpower Development" (Mimeograph).

the development of effective low cost delivery system for maternal and child care, nutrition, family planning and other related extension activities in rural areas and slums through supervised auxiliaries village level workers, volunteers and indigenous practitioners.

The paper by Mohan and Mohan[26] justifies the importance of health care for economic development and reduction of population growth. The authors feel that the benefits of our development efforts have not seeped downwards to the poorer half of our population. Thus the paper suggests that health and nutrition of the poorer half is what really needs attention along with all the other programs and is crucial to our approach to economic development. The paper forcefully suggests that health care will have to be provided in a decentralized manner somewhat akin to that of the barefoot doctor approach in China.

Akhtar[27] puts together the studies showing the relationship between natural environment (which consists of such factors as land forms, soils, climate, water, flora and fauna) and human life on scientific lines. The studies prove the influence of environment on health in various geographical regions in India. He points that unless the environmental factors are considered in health planning,

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26. D. Mohan and Mohan d: "Health Care Technology And The Future of Economic Development in India". A paper presented at the Conference on South Asia, University of Wisconsin, Oshkosh, Wisconsin, Nov.15-16, 1974.

27. Naia Akhtar: "Environmental Factors and Health in India" Philippine Geographical Journal, Vol.XXIII, No.3, July-Aug-Sept., 1979.

the eradication and control of different health problems would be rather impossible.

The inequity in the distribution of basic health services and their lack has been pointed out by Chawdhry[28]. He says that in a country where emphasis on child welfare through various five year plans is being made, it is a matter of great concern that 99 per cent of pre-school children grow without proper and integrated services. He further points that after independence, at least five generations of pre-school children have grown without access to the basic services.

Banerji[29] in his paper lays emphasis on the role of ecological, social, cultural, political and economic factors in shaping the health care system of a country. He says that vast sums of public funds are spent in establishing expensive and sophisticated hospitals in cities to serve mainly the priviliged classes. Again a disproportionately large segment of the limited resources that are left for preventive services are spent for urban population. He criticises the existing approaches to the formulation of health strategies in India and gives suggestions for alternative health strategies even within the existing constraints.

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28. D. Paul Chawdhry: "The Rural Child. Whose Responsibility?" Social Welfare - Nov. 1974, Vol. XXI, p.4 to 6.

29. D. Banerji: "Formulating An Alternative Health Care Strategy for Rural Population in India" Oct. 15, 1975, Chairman for the Centre, Social Medicine and Community Health, J.N.U., New Delhi.

Nutrition

Swaminathan[30], Naidu and Rao[31], Verma and Srivastava[32] and Sukhatme[33] in their individual papers deal with the different aspects of the problem of nutritional deficiencies of the child in this country. Some of their conclusions are that the extent of nutritional deficiency in the pre-school age group is such that more than 3 out of 4 children are deficient in calories and protein and show some signs of deficiency. Other shocking finding is that the conditions have not improved during the past two decades. This they say, may be attributed to 'borrowed technology' in the field of health rather than improvement in social and economic conditions. A larger percentage of children show signs of calorie deficiency rather than protein or vitamin deficiency.

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30. M.C. Swaminathan: "An Assessment of Nutrition of the Child". Demographic and Socio-economic Aspects of the Child in India, Ed. K. Srinivasan, P.C. Saxena and Kanitkar. Himalaya Publishing House, 1979, pp.371-382.

31. Nademuni Naidu A., D. Hanumantha Rao: "Efficiency of Various Anthropometric Indices in the Evaluation of Supplementary Feeding Programme". Ibid, 382-388.

32. B.L. Verma, R.N. Srivastava: "Nutritional Anthropometry of Pre-School Children in a Rural Community." Ibid, pp.389-406.

33. P.V. Sukhatme: "Assessment of Present Level of Child Nutrition and Future Prospects" Ibid, pp.407-418.

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Malnutrition has been identified by Rohatgi[34] as the cause of low height and body weight of children along with other environmental factors. Malnutrition is said to motivate people to have large size families, which thus form a vicious spiral, where poor malnourished parents produce malnourished children who in turn will become poor and malnourished parents. An emphasis on proper food for growth of the body and for prevention of diseases and early deaths is recommended.

A survey conducted by Ram Pajudar et.al.[35] in Calangute village of Goa, taking various anthropometric measurements found that, of the total children studied nearly 49 per cent in the Christian households and 50 per cent in the Hindu households were found to be suffering from nutritional deficiency. Radha[36] in her article 'Balanced Diet for Pre-School Children' brings out the successful planning and conducting of feeding programmes in Balwadis. She deals with the present condition of nutritional status of our children; with the method of improving the diets of pre-school children; and with the problems of organising feeding programmes.

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34. K.C. Rohatgi: "Malnutrition The Vicious Circle" Social Welfare, Feb.1978, Vol.XXIV, p.39.

35. Ram Pajudar et.al: "Assessment of the Nutritional Status of Children in a Goa Village by Anthropometric Measurements", Demographic and Socio-economic Aspects of the Child in India, Ed.K. Srinivasan; Himalaya Publishing House, 1979, p.604.

36. V. Radha; "Balanced Diet for Pre-School Children", Social Welfare, Nov.1975 pp.37-39.

Prasad[37] in his article 'Steps to Eradicate Malnutrition' gives an analysis of the certain large programmes of nutrition for infants, pre-school children and school going children, expectant mother and nursing mothers - by the government.

The authors Jethi and Bajaj in their article 'Nutrition Education for Pre-School Children[38] lay emphasis on the point that children in Balwadis and schools should be imparted nutrition education since childhood is the period of habit formation.

UNICEF report[39] reveals that 90 percent of all deaths of very young children in the developing countries are caused by the combined factors of malnutrition, unsafe drinking water, inadequate sanitation and lack of immunization facilities.

In a study conducted by National Nutrition Monitoring Bureau[40] in 24-Parganas in W. Bengal, it was found that 60 per cent of primary school children get no milk or animal proteins regularly. A continuous decline in nutritional items of food is observed by a recent study of the Reserve Bank of India.[41]

Family Planning

The Family Welfare Programme in India, Year Book[42]

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37. D.B. Prasad: "Steps to Eradicate Malnutrition" Social Welfare, Nov.1974, pp.26-27.

38. J. Jethi and Satinder Bajaj "Nutrition Education for for Pre-School Children", Social Welfare, Oct.1977 Vol. XXIV, pp.37-39.

39. A.K. Banerji "Plight of Children in India" Timesof India, 9.2.80.

40. Ibid.

41. Ibid.

42. Ministry of Health and Family Welfare: "Family Welfare Programme in India Year Book, 1979-80, Govt. of India, Ministry of Health & Family Welfare, Dept. of F.W. New Delhi.

given a good account of data related to health and family planning for India at the state level. Besides this, data on vital statistics is also available.

Former Prime Minister Morarji Desai in the inaugral address delivered at the State Health Ministers' Conference on 28th April 1977[43] said that population control alone did not make the people healthy. Instead where population is happy and health, there population control automatically follows. It was further pointed that in matters of health and education we have to begin with the child right from the time when he starts going to school.

Jolly[44] has done a district level analysis on the family planning performance in India. Areas have been identified where the family planning has been successful and also where it needs further improvement. The author tries to see the relationship between acceptance rate and various socio-economic characteristics of the districts. All districts have been classified into 3 categories namely, 'Good', 'Moderate' and 'Poor' according to their performance. The study concludes that social and economic development is the best approach for the wide acceptance of family planning.

Rodrigues[45] in his article has focused on family planning

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43. "The Policy of Family Welfare Programme" June 1977, Social Welfare, Vol.XXIV. pp.28-30.

44. K.C. Jolly: "Family Planning performance in India", Institute of Economic Growth, University of Delhi, Mimeographed, Year-Sept.1978.

45. Gorman Rodrigues: "Family Planning Availability and Contraceptive Practice International Family Planning Perspectives and Digest, Vol.14, Nov.4 1978.

availability and its relationship to current use of efficient contraception among currently married women, using World Fertility Survey data from Colombia, Costa Rica, Korea, Malaysia and Nepal. The results reveal that type of place of residence, education and perceived availability and accessibility all have an important joint effect on contraceptive prevalence. A remarkable finding is that increasing availability and accessibility alone in a country like Nepal, where services are few and distant, might bring about a substantial increase in use of contraception.

Ghosh[46] et.al. undertook a longitudinal study in a cohort of about 100,000 population and tried to determine the fertility pattern of women, outcome of pregnancy, growth and development of normal, low birth weight babies and twins from 0-3 years of age. The perinatal, neonatal and infant mortality rate has also been studied in the cohort of children born.

Berelson and Haveman[47] in their 'On Efficient Allocation of Resources For Fertility Reduction" study have attempted to apply the principle of economic analysis to the problem of resource allocation in order to reduce fertility. Twelve strategies have been identified to reduce fertility in the developing countries. Two important factors

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46. S. Ghosh, Santosh K Bhargava, M. Moriyama: "Longitudinal Study of Survival and Outcome of A Birth Cohort (Nepal) Deptt. of Pediatrics, Safdarjang Hospital, New Delhi.

47. B. Berelson, R. Haveman: "On the Efficient Allocation of Resources for Fertility Reduction", International Family Planning Perspectives, Vol.5, No.4 Dec.1979, Pub. The Alan Guttmacher Institute.

identified to determine the effectiveness of any expenditure in reducing fertility are (1) the social setting in which expenditure is made and (2) the strength of program implementation by the government.

The study done by Pachauri and Jamshedji[48] deals with fertility control practices among women. The results reveal that while 88.8 percent of the couples had not used any method of fertility control prior to the present delivery, only 34.8% did not agree to accept fertility control method after delivery. Female sterlization (17.3%), oral contraceptions (15.7%) and Condoms (14.1%) were found to be the most popular methods of family planning acceptance. Family Planning acceptance was found to be positively correlated with the age and number of living children and inversely with desire for additional children. Young couples accepted oral and conventional contraceptives, while the older couples preferred sterilization. The paper however makes no attempt to evaluate the effect of previous pregnancy outcome on the decision to use contraceptive.

The importance of Maternal Termination of Pregnancy (M.T.P.) in the family welfare programme has been emphasized by Malhotra[49]. It is pointed that Maternal Termination of pregnancy (M.T.P.) should not be equated with the freedom of pregnancy. He argues that it is not a method of

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48. J. Pachauri, Armin Jamshedji: "Fertility Control Practices Among 15,221 Women undergoing Hospital Delivery Scientific Paper of the India Fertility Research Programme, 1980.

49. P. Malhotra, "Maternal Termination of Pregnancy - its importance" Social Welfare, Aug, 1978 pp.26-27.

controlling population explosion or spacing of children, but rather it is a device to safeguard the physical or mental health of the pregnent women or to prevent birth of babies likely to suffer from deformities.

A joing adventure by Pachauri and Jamshedji[50] presents a pooled analysis of data on 15,221 maternity cases at 9 institutions in India. The paper documents the quality of feed-back provided by computerised system of Maternity Care Monitoring (MCM) and illustrates its utilisation. The findings indicate that 52.2% of women in the group are urban residents, 25.9 years of age with 1.3 living child-ren and 6.2 years of formal education. Only about 3.7% of the women had more than 4 living children. Iron deficiency anaemia was found to be the most frequently reported primary antenatal complication. Correlates revealed that the incidence of antenatal complications was highest for older women (40+years). The incidence of iron deficiency anaemia was significantly higher for muliparae (12.1%) than for primiparae (9.6%).

Bhatt and Jamshedji[51] in their joint paper on 'Factors Influencing A Women's Decision To Undergo Sterilization' analyse the socio demographic characteristics, fertility patterns, previous contraceptive experience and reasons for

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50. J. Pachauri, Armin Jamshedji: "Maternity Care Monitoring An Illustration from India", Scientific Paper of the India Fertility Research Programme, 1980.

51. R.V. Bhatt Armin Jamshedji: "Factors Influencing A Women's Decision To Undergo Sterlization: A Comp Study" Scientific Paper of The India Fertility Research Programme, 1980.

adopting sterlization as a method of fertility control by 4948 women who underwent sterlization at camps in Baroda district. Average age of the women undergoing sterlization was 28.7 years, had 2.5 years of formal education and had not used contraception prior to undergoing sterlization. A large percentage (64.2%) of women had 3 to 4 living children. Husbands were the main persons who influence the women to undergo sterlization. Unreliabity, side effects and inconvenience were the reasons given for not accepting other methods of fertility control.

Shah and Palmore[52] used World Fertility Survey data from Pakistan to investigate whether family size preferences are related to contraceptive use. They concluded that there was a consistent relationship that remains significant even when other social, economic and demographic variables are controlled.

Misra, Simmons and Ashraf[53] in their joint article analyse the family planning activities in rural Uttar Pradesh. The authors suggest that consistent gap exists between plans and performance both at the level of interaction with the client population and at the level of organising. They argue that for the future course of action for family planning, three guidelines are of great importance; (1) the strategy chosen for client transaction has to be suited to the client population; (2) the organising strategy has to be suited

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52. N. Shah, James Palmore: "Desired Family Size and Contraceptive Use in Pakistan", International Family Planning Perspectives, Vol.5, Dec.1979.

53. B.D. Misra; Ruth Simmons, Ali Ashraf, George Simmons "Reflections on the Future of Family Planning" Economic and Political Weekly. Vol.XII, No.36 Sept.3, 1977, p.1583-1600.

to the client strategy; and (3) the organising strategy has to be suited to the institutional context within which it is implemented. The paper suggests three future courses of action in family planning - restructuring the external environment; marginal alterations of programme organisation and why to reduce the burden of organising.

The role of auxiliary nurse midwives (A.N.M.) in the motivation of small family also has been emphasised by Reddy[54]. He says that the success of India's family welfare programme depends heavily on the auxiliary nurse midwives, who are on the lowest rung of the hierarchy in the basic health services. He further says that they perform a number of functions ranging from the provision of ante-natal and post-natal services to motivation of women to accept family planning and provision of follow-up-services to the acceptors of different methods of family planning. He supports his argument by giving figures of a follow-up study of persons sterlised at a camp in Bangalore, where 75 per cent of the women who accepted sterlisation reported to have been motivated by A.N.M's. As many as 71 per cent of the women acceptors were visited by ANM's within a week after discharge from the camp, and 80 per cent were visited more than twice by A.N.M's.

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54. P.H.Reddy "Motivation For a Small Family: The Role of Auxiliary Nurse Midwives", Social Welfare, Oct.1977 p.2.11.

To test the hypothesis if family planning services were more acceptable when given along with health services, Sawhney and Srivastave[55] collected data from 5 villages, covering 2500 population of Lucknow district in Uttar Pradesh. They conducted experiment to study (a) the correlates of family planning acceptance in rural areas; and (2) the increase in acceptance if education-cum-motivation strategy is used along with the distribution of medicines for minor ailments. They concluded that education-cum-motivation strategy could accelerate acceptance of the programme services even without the accompaniment of the socio-economic development.

7. Factors associated with child Health, Nutrition and Family Planning

The literature reviewed associates the health status of the Indian child with a number of factors like poverty, health care, poor environment, sanitation, large families, undernutrition etc. An attempt to understand these factors is made.

a. Poverty

The major cause of undernourishment and therefore the poor health of the child in our country is poverty. An appreciable number of people in our country are undernourished and malnourished for want of adequate income. This point has been emphasised in the literature reviewed and can also be seen from the study of Dandekar, V.M. and Rath N, where they estimate that 38 per cent rural and 54 percent

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55. N. Sawhney and Naveen Kumar Srivastava "An Approach to Accelerate Acceptance of the Family Welfare Programme Services in Rural Areas" A Paper presented in Indian Association For the Study of Population, Conference of Child in India, 22-24 March 1979, New Delhi.

urban population consume less than the minimum requirements[1] lack of employment and the means with which to buy food and income disparities, results in the lower deciles of population aspiring only for the basic food that demand the minimum of processing, cooking and transportation costs. Poverty, is actually a syndrome, which includes a vicious circle of malnutrition, poor hygiene, lack of medical care and increased exposure to infection. Thus, although no direct relationship between poverty and health appears, but it seems to affect health in more than one way. Perhaps this is one reason that infant mortality rate in the economically developed countries are much lower than those of economically developed countries.

b. Health Care

Unfavourable environment and infections during the early period of life is an important factor in the health. Unhealthy drinking water, poor environment sanitation and unsatisfactory housing all favour infections. The benefits of preventive and protective public health, to which the poorer sections are more or less equally entitled are discriminatingly bestowed and are far from adequate in villages, but the major constraint of the under-utilisation of the available facilities seems to be peoples' ignorance about the negligence towards the principles of health.

c. Nutrition

Apart from disease and ill health which are the direct causes of mortality, the indirect cause of mortality which

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1. Vridula Sharma: "Malnutrition Among Pre-School Children" Some Facts of Child Development, NIPCCD, New Delhi, 1979 p.4.

greatly accelerate the death among infants and children is malnutrition and more specifically undernutrition. Thus nutritional deficiencies form a big part of health problems among children.

It has been estimated that two-third of the 800 million children now growing in developing countries are expected to encounter sickness or disabling diseases either brought on or aggravated by Protein Calorie Malnutrition[2]. The damaging effects of malnutrition begin to show even before a child is born. In the lower socio-economic group, there is a poor knowledge about the relationship between food, health and nutrition, which is a major factor in the wide-spread prevalance of nutritional disorders. There is widespread ignorance about the utilisation of locally available relatively cheap sources of food to meet children's requirement. It thus becomes difficult to say under what circumstances malnutrition becomes a consuative factor of ill health and disease and vice-versa, but one can never be wrong if one clubs them as associated and mutually reinforcing factors which can be directly related to poverty and income disparities.

6. Mothers Ill Health

Studies reveal that the subsequent health of the child is closely linked with that of the mother. Lack of nutrition during pregnancy is the major problem in the health of a child. Owing to repeated pregnancies, the additional needs

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2. Usha Abrol; "Child Health in India", Some Facets of Child Development Pub. National Institute of Public Cooperation and Child Development, New Delhi, 1979, pp.44

are not met, which results in giving birth to babies with less birth w eight.

e. Large Families

Larger family members mean more mouth to feed with a fixed income, which implies a lesser amount of food available to each member and higher is the rick of malnutrition occuring in the family.

f. Besides these factors associated with child health, biologically, the general level of mortality/fertility, mothers age, birth order and length of interval between births are also contributory factors in the health of a child.

Some of the factors which are observed to affect child health besides those mentioned above are illiteracy and ignorance weaning practices, taboos and prejudices and faulty cooking habits. Though there is no direct evidence to suggest that educated people are all healthy, but still education has been found related to all most all aspects of development. Many aspects of health behaviour are influenced by education. Illeterate mothers generally are not aware of the concept of a balanced diet.

Gradual weaning is essential to maintain the nutritional status of children. The larger the time a child is exposed to new foods the easier is the acceptance. But special foods are very rarely cooked or brought for small children. Faulty cooking habits and taboos and prejudices among food habits in India are conditioned by a wide array of customs, traditions, curturally propotuated concepts of good and bad foods, etc., which is observed to affect the health of the child.

Some of the factors affecting family planning are given below.

Family planning performance is related to different socio-economic characteristics, literacy rate, proportion of urban population, proportion of Hindu population, muslim population and scheduled caste population has a bearing on family planning acceptance. Good performance areas have a high literacy rate, high proportion of Hindu population, high proportion of urban population and low proportion of Muslims and scheduled caste population.

Besides these age of the mother shows a direct correlation with family planning practices, Only upto the age of 35 years, beyond which the number of non-users again increases. Socio-economic status and family planning show a direct relationship. Family planning practices are more prevalent in the higher socio-economic status groups. The number of pregnancies and sibling deaths also has been revealed as a factor of family planning where sibling deaths are more, there family planning acceptance is poor, since they start believing in safety in numbers for the assurance of the survival of a reasonable number of children.

Besides, accessibility to family planning services, and the role played by auxiliary nurse midwives in their motivation on small family size especially in rural areas are contributory factors to family planning.

It would not be wrong if we sum up in the words of Gray's, where he says "Whether the problem be poverty or ignorance, both of which are almost universally implicated as causal factors in malnutrition, the effects of either

are made prone by too many children in the family"[3].

8. Possible Hypothesis

Keeping in view the results of the literature survey, the following hypothesis have been postulated.

The health of the child is a function of the births and deaths in the family, the education-level and occupation of the mother, the socio-economic status of the family and the availability of medical facilities. Hence:

1. Higher the birth rate and death rate, higher would be the child deaths.
2. Higher the level of literacy, lower would be the child deaths.
3. Higher the share of scheduled caste and scheduled tribe children, higher would be the child deaths.
4. Higher the percentage of urban population, lower would be the child deaths.
5. Higher the percentage of workers in agriculture, higher would be the child deaths.
6. Higher the availability of Medical facilities, lower would be the child deaths.

The nutritional level of the child depends on the mothers health, the antinatal care received, the size of the family and the economic status of the family. Keeping these in mind, the following hypothesis are formed:

11 Lower the haemoglobin content of the mother, lower would be the birth weight of the child;

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3. K. Srinivasan; P.H. Reddy, "Nutrition Programme in I.P.P. Area. A preliminary Evaluation Population Centre, India Population Project, Bangalore, India, 1975, p.4.

2. Economically weaker sections have high child population and hence higher level of malnutrition.

Family planning acceptance is a function of child mortality rates, the level of literacy, and the socio-economic status of the family. Hence the following hypothesis:

1. Higher the infant and child mortality rates, higher would be the desire for large number of children and consequently lower would be the family planning.
2. Higher the literacy rate and proportion of urban population, higher would be the family planning acceptance.
3. Higher the percentage of Scheduled Caste and Scheduled Tribe population and agricultural workers, lower is the family planning acceptance.
4. Higher the percentage of female workers, higher is the family planning acceptance.

CHAPTER II

HEALTH

Part I SPATIAL DISTRIBUTION OF HEALTH INDICES

> "When infants die, although medical knowledge knows how to prevent it, the technical dimension of a civilization has most cruelly outdistanced it's humanitarian development"
>
> Alva Myrdal[1]

1. Introduction

It is unfortunate that too many of the decisions over health services in any country are still made in the more developed countries. This is partly historical as the services introduced to Third World Countries were a copy of those in Europe or in U.S. In these countries, children under 15 make up rather less than a quarter of the population, whereas in Third World Countries children make up a half of the population and in 1980 probably four out of five of the children in our world would be living in developing countries[2].

Thus, among homosapiens children constitute the most vulnerable group and hence their health status is of prime importance to any consideration of their development or welfare. But they have been neglected for a long time, particularly in developing countries - neglected because of their needs. But an increasing awareness of the child and its need in the present time is noticed.

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1. Usha Abrol; "Child Health In India; Some Facts of Child Development, DIPCOD New Delhi, p.26.

2. David Morley: IYC. "Time to Look at Child Health" Children In India. Critical Issues in Human Development, ed. by Alfred de Souza, Forward by Jonn Gaun Director, 1979.

A realistic picture of their health status becomes important, since they constitute the labour force of the future. Since their share in India is considerably large, they increase the depency load of the country. What they are today would determine their tomorrow.

This chapter is divided into two parts. Part I deals with the Indices of child health and Part II with the available health facilities and manpower.

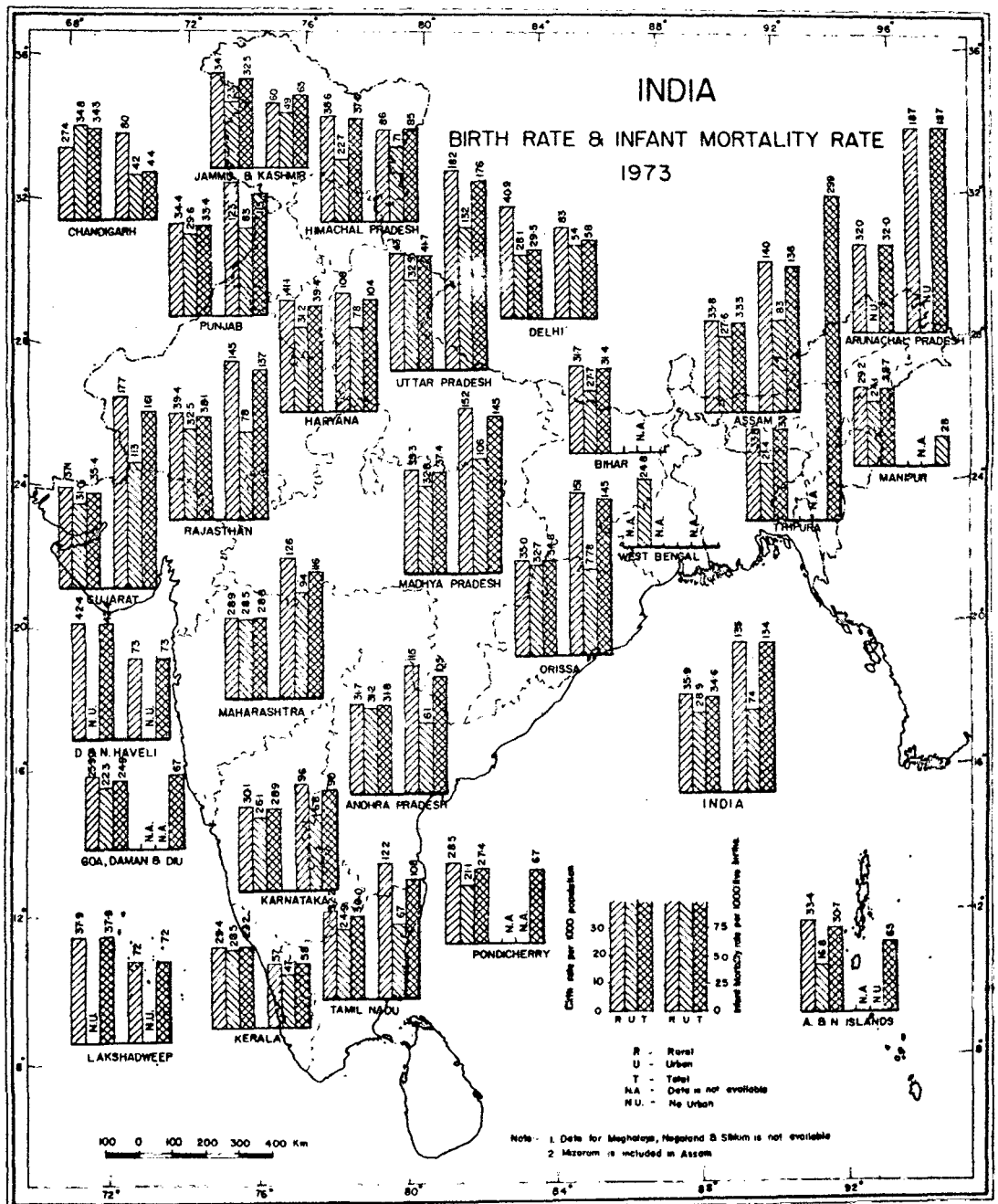
In order to assess the health status of a community, indicators such as birth rate, death rate, incidence of communicable diseases or per capita availability of medical facilities seem quite appropriate. To evaluate the health of children, especially below the school going age, certain indicator as infant mortality by age groups, morbidity or available facilities however seem to be more useful.

2. Patter of Birth Rate Distribution

Birth rate per 1000 population is taken as an indicator of health as infant mortality and birth rate are not independent of each other. One effects the other, so that, if Infant mortality rate is high, birth rate would also be high, or it could be put the other way, if birth rate in an area is high, infant mortility rate would also be generally high though it would depend on the stage of demographic transition. Therefore regional variations in birth rate have been worked out for total rural and urban areas. (Map No.1, Appendix Table No.1)

The distribution pattern is divided into three broad groups keeping the national average and frequency distribution

MAP NO. 1



Based upon Survey of India map with the permission of the Surveyor General of India

The territorial water of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line

The boundary of Meghalaya shown on this map is as interpreted from the North-Eastern Areas (Reorganisation) Act, 1971, but has not to be verified

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in view; First, States and union territories constituting the low concentration where the rates are below the national average; second, States and union territories constituting the medium concentration where rates are close to the national average and third, states and union territories forming the high concentration where rates are above the national average.

(i) Total

The average birth rate for India stands at 34.6 per thousand population and the co-efficient of variation is 13.22 per cent.

Concentration of high birth rate, above 36.5 per thousand population, is observed is five states. They include Himachal Pradesh, Haryana and Rajasthan in the North and West, and Madhya Pradesh and Uttar Pradesh in the central zone.

Six states and one union territory record the concentration of medium birth rate ranging from 36.5 to 32.5 per thousand population. Constituting this group are Assam and Tripura in the north east, Jammu and Kashmir, Chandigarh and Punjab in the north and Orissa.

Concentration of low birth rate (less than 32.5 per thousand population) is observed in 11 regions including the states of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu in the south; Bihar, Maharastra and Manipur and the union territories of Andaman and Nicobar Islands, Delhi, Goa, Daman and Diu and Pondicherry.

(ii) Rural

The average birth rate for India in rural areas is 35.9 per thousand population with a co-efficient of variation of

13.8 per cent. The high concentration, more than 37 per thousand population of Birth Rate, is registered in 6 states and 3 union territories. The states and union territories included in the range of high concentration are Haryana, Himachal Pradesh, Delhi and Uttar Pradesh in the north, Rajasthan, Gujarat and Dadra and Nagar Haveli in the west, Madhya Pradesh in the central zone and Lakshadweep. Among them, the state of Uttar Pradesh and the union territories of Dadra and Nagar Haveli and Delhi show very high concentration. The medium birth rate with a range from 32 to 37 per thousand population, covers the states of Jammu and Kashmir, Punjab, Tamil Nadu, Orissa, Assam and Tripura and the union territories of Andaman and Nicobar Islands. Low birth rate (below 32 per thousand population) is observed in Andhra Pradesh, Karnataka, Kerala, Maharashtra, Bihar, Manipur, Arunachal Pradesh, Chandigarh, Goa, Daman & Diu and Pondicherry.

(iii) Urban

The average urban birth rate for India is 28.9 per thousand population and the co-efficient of variation is 16.57 per cent. Some states follow the pattern similar to the rural birth rate with a few spatial variations. High birth rate, above 30 per 1000 population, is observed in Andhra Pradesh & Orissa in the south eastern belt, Gujarat, Rajasthan, Haryana, Chandigarh, Uttar Pradesh and Madhya Pradesh, moving from west to north and east. Medium birth rate 30 to 26 per thousand population, occurs in Punjab, Delhi, Bihar, Maharastra, Karnataka, Kerala and Assam. Low birth-rate, below 26 per thousand population is observed in the states of Himachal Pradesh, Jammu and Kashmir, Manipur, Tripura,

West Bengal, Tamil Nadu and the union territories of Andaman and Nicobar Islands, Goa, Daman & Diu and Pondicherry.

3. Mortality differentials by Age & Sex

Mortality differentials by age break up and sex are depicted in Map No.2 (Appendix Table No.2). Mortality by sex is a key factor in India's social system indicating the customs and preferential care of male child over the female child. It is observed that child deaths (0-4 years) are very high in our country, which shows that proper care for the children is yet to be planned and implemented. This is the case in most developing countries, where child deaths below 5 years to total deaths is quite high (from 24.7 per cent in Chile, to 47.7 per cent in Albania). In contrast, developed countries, where proper child care is provided, the child deaths below 5 years constitute a very small proportion of the total deaths (1.1 per cent in Sweden to 4.2 per cent in Italy)[3].

(1) Mortality Differentials by Age Cohorts

In India, the percentage of child deaths (0-4) to total deaths varies from 17.2 per cent in Kerala to 39.4 per cent in Madhya Pradesh. The states and union territories having high death-rate above 30 per cent of deaths in 0-4 age group, are Haryana, Punjab, Gujarat, Maharashtra, Uttar Pradesh, Andaman & Nicobar Islands, Chandigarh and Dadra and Nagar Haveli. Bihar, Kerala, Manipur, Tripura exhibit a share

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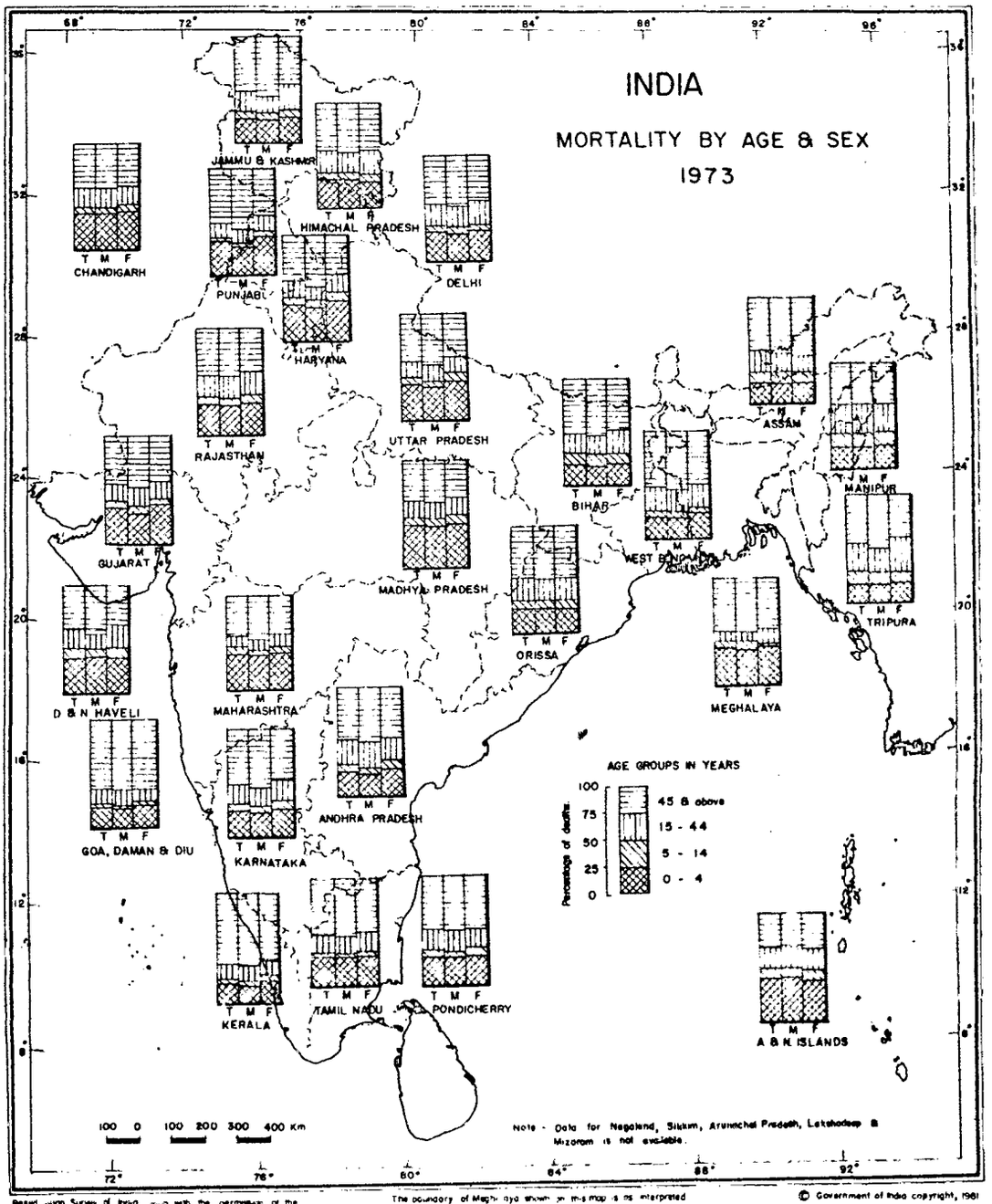
3. M.K. Premi "Demographic Aspects of Child Development" Country Report on Child Development in India. Implications for Policy & Training, NIPCCD, New Delhi, March 1980.

MAP NO. 2



Based upon Survey of India map with the permission of the Surveyor General of India

The territorial water of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line

The boundary of Meghalaya shown in this map is as interpreted from the North Eastern Areas (Reorganisation) Act, 1971, but has yet to be verified

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below 20 per cent deaths in the 0-4 age group. All the other states and union territories (10 States and 3 U.T.s) have values ranging from 20 to 30 per cent.

In the age cohort of 5-14 years, the percentage of deaths ranges from 3.0 to 12.9, being represented by Goa, Daman & Diu and Manipur. Besides Manipur, the states and union territories exhibiting a share of above 8 per cent deaths are Himachal Pradesh, Bihar, Assam, Tripura, Andaman and Nicobar Islands and Dadra and Nagar Haveli. The medium range of 6 to 8 per cent deaths in the 5-14 age group includes the states of Jammu and Kashmir, Haryana, Rajasthan, Madhya Pradesh, Uttar Pradesh, West Bengal, Andhra Pradesh, Karnataka and Meghalaya. The others like Punjab, Chandigarh, Delhi, Maharashtra, Kerala, Tamil Nadu and Pondicherry fall in the range of below 6 per cent deaths.

The adult age group of 15-44 years, shows about 15 to 20 per cent deaths. Above 20 per cent deaths in this age group are noticed in Rajasthan, Himachal Pradesh, Chandigarh, Delhi, Bihar, Assam, Manipur, Tripura, Andhra Pradesh and Andaman and Nicobar Islands. The medium concentration of 15 to 20 per cent deaths is revealed by the states of Haryana, Jammu and Kashmir, Madhya Pradesh, Maharashtra, Orissa, West Bengal, Tamil Nadu, Karnataka and the union territories of Dadra and Nagar Haveli and Pondicherry. The states of Punjab, Uttar Pradesh and Kerala and the union territory of Goa, Daman and Diu constitute the low concentration group (less than 15 per cent deaths).

The old age of 45 and above accounts for generally 40 to 50 per cent deaths. Goa, Daman & Diu and Kerala, account for a very high share of deaths in this age group, 63.6 and 62.4

per cent respectively. In Madhya Pradesh, Manipur, Andaman and Nicobar Islands and Chandigarh, the share is low, between 32 to 40 percent. The rest of the states and union territories have values ranging between 40 to 50 per cent. The low percentage of deaths in the older age groups indicates a higher share of child deaths to total deaths.

(ii) Mortality Differentials by Sex

The second aspect of analysis of Map No.2 is the distribution of deaths in the different age groups by sex. The male and female pattern of distribution of deaths by age, shows an almost identical pattern as observed in the case of total deaths.

On analysing the data, the salient feature worth mentioning is that the percentage of female deaths is mostly higher in the age groups 0-4 and 15-44 years and is lower for ages 45 and above as compared to the corresponding figures for males. For age-group 5-14, the percentages are almost the same for both males and females.

The aforesaid differences can be prominently noticed in Gujarat, Haryana, Delhi, Uttar Pradesh and Andaman and Nicobar Islands in the 0-4 age group where female deaths are about 4 to 6 per cent higher than the corresponding male deaths. In the 5-14 age group such differences in male and female deaths are not noticed. However in the age group of 15-44 years, Jammu and Kashmir, Haryana, Chandigarh, Assam, Meghalaya, Tripura and Dadra and Nagar Haveli show some marked differences in the percentages of deaths.

4. Pattern of Infant Mortality Distribution

Infant Mortality Rate has been found to be an important indicator which reflects not only the prevailing health condition and medical facilities but also indirectly throws light on the economic status of the people, their level of education as well as degree of modernisation. The situation of infant mortality by age reveals that in India, of the total infant deaths, 30 per cent occur under one week of age, 21 per cent take place within one week to one month, 27 per cent from one month to six months and the remaining 22 per cent occur between six months to twelve months of age[4].

(i) Total

The infant mortality rate in India is quite high, 134 per thousand live births. The Coefficient of Variation is 52.95 per cent. High concentration of infant mortality rate of above 135 per thousand live births, is recorded in Assam, Tripura, Gujarat, Rajasthan, Madhya Pradesh, Uttar Pradesh and Orissa. Tripura has an exceptionally high infant mortality rate of 299 per thousand live births. This belt of high infant mortality rate (IMR) extending across north central India would probably include Bihar, West Bengal and the north eastern states for which data are not available. (Map No.1, Appendix Table No.3).

The medium infant mortality rate of 90 to 135 per thousand live births, includes the states of Haryana and Punjab in the north and Andhra Pradesh, Karnataka, Maharashtra and Tamil Nadu in the South.

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4. Vital Statistics of India, 1973, Office of the Registrar General India, Ministry of Home Affairs, New Delhi, pp.23.

The low infant mortality rate, below 80 per thousand live births is noticed in the states of Himachal Pradesh, Jammu & Kashmir, Kerala and Manipur and the union territories of Andaman and Nicobar Islands, Chandigarh, Delhi, Goa, Daman and Diu and Pondicherry. Among these, Manipur exhibits the lowest infant mortality rate of 28 per thousand live births, followed by Chandigarh and Kerala with 44 and 58 per thousand live births respectively.

(ii) Rural

The rural pattern of infant mortality rate follows an almost identical trend to that of the total infant mortality rate. The national average of rural infant mortality rate figures as 136 per thousand live births.

The states of Assam, Tripura, Rajasthan, Gujarat, Madhya Pradesh, Orissa, and Uttar Pradesh constitute the group of high infant mortality rate, 140 per 1000 live birth. Next is the infant mortality rate with a range from 140 to 80 per 1000 live births which includes the states of Punjab, Maharashtra, Andhra Pradesh, Karnataka and Tamil Nadu. The low infant mortality zones are (below 80 per thousand live births) formed by Himachal Pradesh, Jammu and Kashmir, Chandigarh and Delhi, Nagaland, Dadra & Nagar Haveli, Kerala and Lakshadweep.

(iii) Urban

The average infant mortality rate for India in urban areas is 74 per thousand live births and the coefficient of variation is 30.71 per cent. Here again, Gujarat, Madhya Pradesh and Uttar Pradesh have high infant mortality rate of above 100 per thousand live births. Assam, Haryana, Punjab

Rajasthan and Maharashtra form the second group of medium concentration with infant mortality rate of 75 to 100 per thousand live births. The low concentration zone, below 75 per 1000 live births of infant mortality rate consists of 6 states and 2 union territories forming two zones, one in the north consisting of Jammu and Kashmir, Himachal Pradesh, Delhi and Chandigarh, and the second in the South including Andhra Pradesh, Tamil Nadu, Karnataka and Kerala.

5. Infant Mortality Trend

Infant mortality as a sensitive index of the health, refers to the number of infant deaths occuring per thousand live births in one calender year. Thus, the first year of the child is crucial from the survival point of view and is rightly called as the 'Valley of death'.[5]

Table I(a) shows the trend of infant mortality from the turn of the century. A definite decline in infant mortality over a period of time is observed. The decline has been rapid from 1911 to 1971, where the infant mortality declined from 204 per 1000 to 129 per thousand. It is perhaps one of the improvements in health services in 70 years. No significant decline in infant mortality is observed during the period 1970 to 1978, where it has dropped from 129 per 1000 to 125 per 1000. But the decline in infant mortality is about half when compared with the decline in general mortality rate. This would imply that while general mortality has responded to community health measures, the reduction

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5. Usha Abrol: "Child Health In India" Some Aspects of Child Development Pub. By NIPCCD Delhi-11007.

of infant mortality is limited among other reasons by low birth weight indicative of the mothers' low nutritional status.

Rural-Urban differences in infant mortality are presented in Table I-(b) for the years 1970 to 1978. Urban areas have a lower infant mortality rate. High infant mortaility in rural areas is not surprising as rural areas have higher crude birth rate and crude death rate than urban areas. The slower decline of infant mortality in rural areas could be linked among other constraints to the paucity of anti-natal and child care facilities. Infant mortality rates, though have been declining in India, but compared with other neighbouring countries are still very unfavourable.

TABLE I-(a)

Infant Mortality Rates, 1911-78

Period	Infant Mortality	
1911-1915	204	(5 year average)
1916-1920	219	"
1921-1925	174	"
1926-1930	178	"
1931-1935	174	"
1936-1940	161	"
1941-1945	161	"
1946-1950	134	"
1951-1961	146	(Actuarial Report)
1961-1971	129	"
1970	129	SRS
1971	129	"

1972	139	SRS
1973	134	"
1974	126	"
1975	140	"
1976	129	"
1977	129	"
1978	125	"

Source: Survey on Infant And Child Mortality, 1979, A Proliminary Report, Office of the Registrar General, India, Ministry of Home Affairs, New Delhi.

TABLE I(b)

Infant Mortality Rural-Urban Differentials

Year	Rural	Urban
1970	136	90
1971	136	82
1972	150	85
1973	143	89
1974	136	74
1975	151	84
1976	139	80
1977	142	67
1978	136	70

Source: Survey on Infant And Child Mortality, 1979 A Proliminary Report, Office of the Registrar General, India, Ministry of Home Affairs, New Delhi.

6. Causes of Infant and Child Mortality

A high infant and child mortality rate takes us further to the causes of such high incidence of mortality among

children. The causes have been classified into 5 major groups from 'A Survey on the Causes of Death 1974', which are further divided into sub-groups. Taking the total deaths in each age group 0 to 1 year, 1-4 years & 5-14 years as 100 per cent, the percentage of deaths by each cause has been worked out, for the respective age-group. At the state level analysis, the causes of deaths have been classified into 8 groups, in the Survey on the Causes of Death.

(i) All India Pattern

In India, of the total child deaths, as high as 54.81 per cent occur in the 0 to 1 year of age, 23.63 per cent in the 1-4 years age-group and the rest 16.56 per cent in the 5-14 age-cohort (Appendix Table No.4, Map No.3).

In the age group 0 to 1 years, 53.37 per cent of the deaths are due to causes peculiar to infancy. Within this major cause of death, premature births and respiratory infections of the new born, diarrhoea of the new born, and malnutrition are very common. Another 27.83 per cent of deaths in this age group are due to ailments which can be treated or prevented.

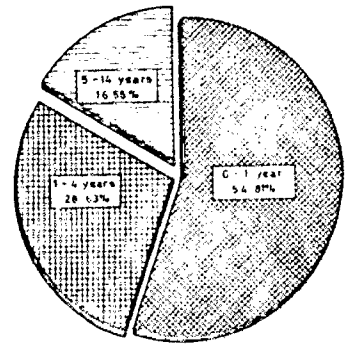
Among the 1 to 4 year olds, nearly 50 per cent of the deaths are such as could be prevented or treated. In this age group also, infections of the respiratory system and fevers take a heavy toll of life among children. 21.61 per cent deaths in this age group are due to infections for which immunisation facilities are available. Measles and typhoid in this age group account for 10.80 per and 6.58 per cent of deaths respectively.

INDIA

CAUSES OF DEATH
1974

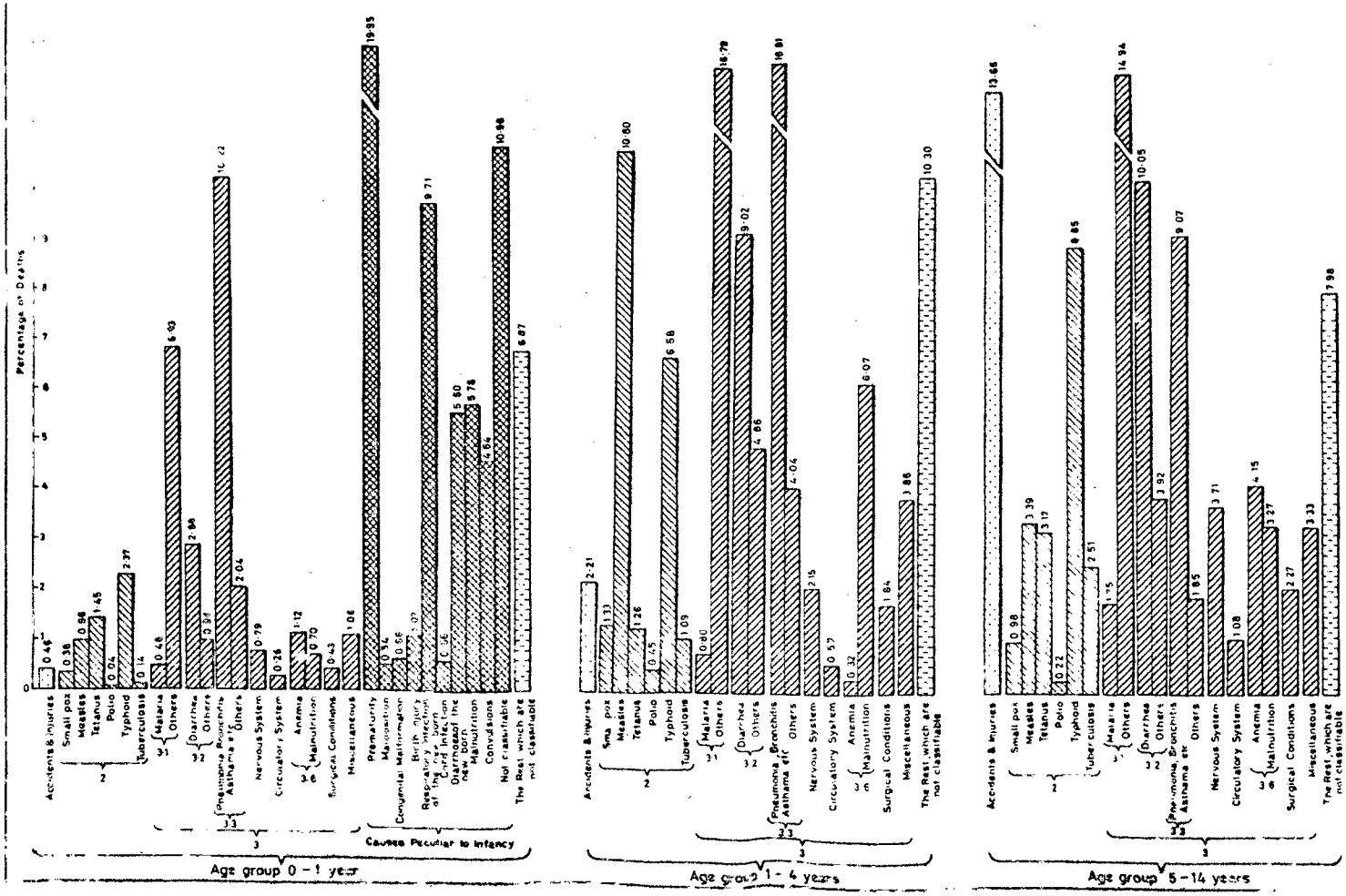
MAP NO. 3

TOTAL CHILD DEATHS BY AGE



REFERENCES

2 Infections for which immunising agents are available.
3 Infections which can be prevented by environmental improvement or treatment
3·1 Fevers
3·2 Digestive Disorders.
3·3 Respiratory System.
3·6 Nutritional



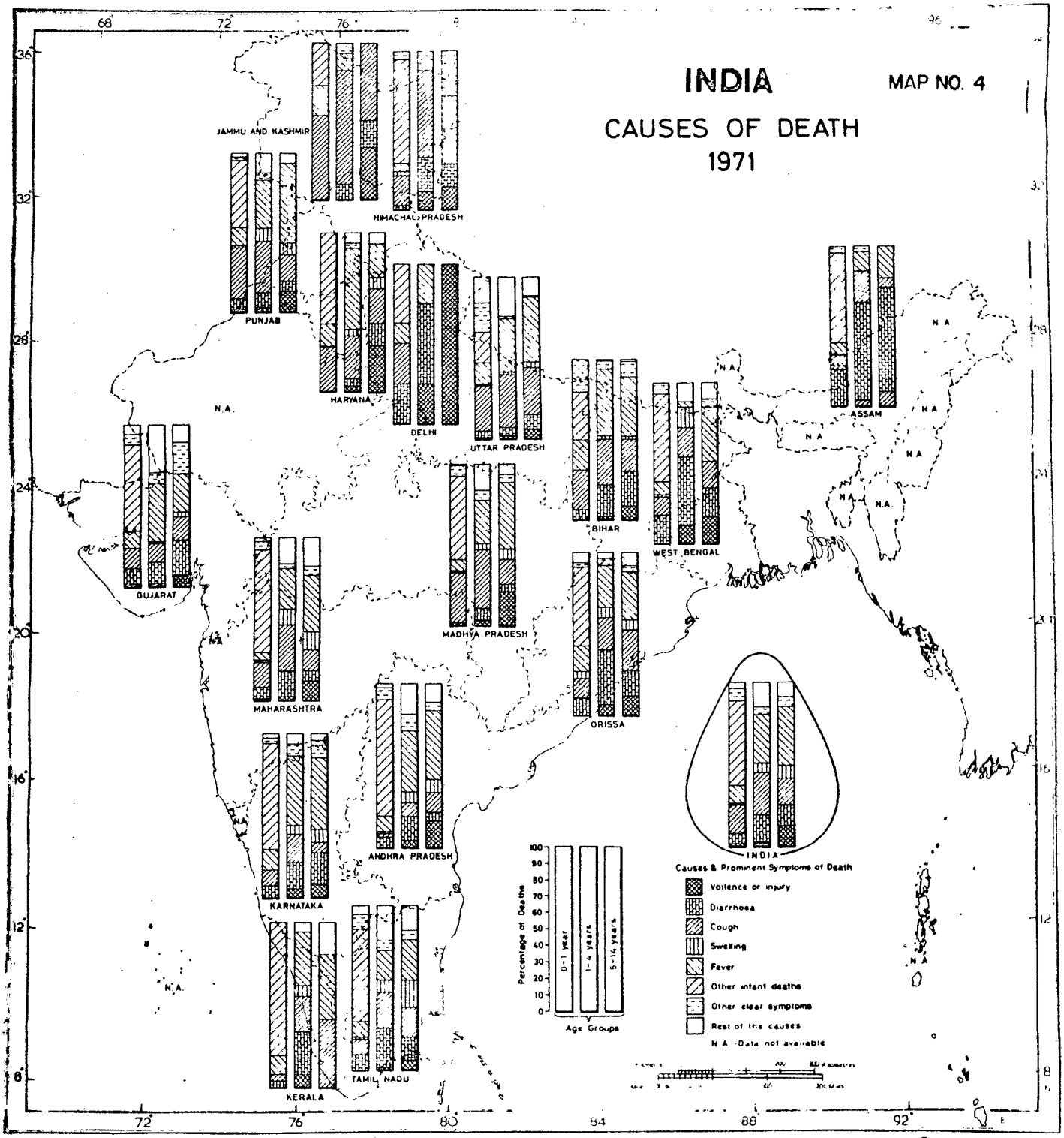
While about one-fifth of the total child deaths reported occured in the 5-14 years, 13.65 per cent deaths due to accidents and injuries, 16.69 per cent due to fevers, 13.97 per cent due to digestive disorders, 10.92 per cent due to infections in the respiratory system infections and 7.42 per cent due to lack of nutrition, were in this age group.

(ii) State Level Pattern

At the state level, almost identical causes of deaths have been reported for the children. The statewise comparison, by eight different causes - in three major age groups viz. 0 to 1 year; 1 to 4 years and 5 to 14 years - has been possible and is represented in Map No.4 (Appendix Table No.5).

In the 0 to 1 year olds, other infant deaths is the most prominent cause of mortality. (This category includes birth injuries, infection of the new born and prematurity etc.) Except for the states of Jammu and Kashmir and Uttar Pradesh, where the share of deaths due to this cause is low, all states and union territories report more than 50 per cent deaths due to it. The share goes to as high as 81.3 per cent in Kerala.

Another major cause of deaths among infants in cough. The 3 northern states of Jammu and Kashmir, Haryana and Punjab account for high share of deaths due to coughs (54.5 per cent, 28.0 per cent and 31.8 per cent respectively). Andhra Pradesh and Kerala on the other hand only account for 2.0 per cent and 3.1 per cent deaths due to cough respectively. In all most all states, deaths due to 'fever', 'other clear symptems' (like tetanus, cerebral haemorrhage, liver problem,


INDIA
MAP NO. 4
CAUSES OF DEATH
1971
JAMMU AND KASHMIR
HIMACHAL PRADESH
PUNJAB
HARYANA
DELHI
UTTAR PRADESH
BIHAR
WEST BENGAL
ASSAM
GUJARAT
MADHYA PRADESH
MAHARASHTRA
ORISSA
ANDHRA PRADESH
KARNATAKA
TAMIL NADU
KERALA
N.A.
INDIA
Percentage of Deaths
0-1 year
1-4 years
5-14 years
Age Groups
Causes & Prominent Symptoms of Death
Violence or injury
Diarrhoea
Cough
Swelling
Fever
Other infant deaths
Other clear symptoms
Rest of the causes
N.A. : Data not available

urinary tract infections) and 'diarrhoea' are the other major causes of infant deaths. Almost an identical trend in the states is observed in the 1 to 4 years old, where fever, cough and diarrhoea constitute the major share.

The figures indicate a heavy toll of life among children due to 'violence or injury' in the age cohort 5 to 14 years. In the union territory of Delhi, hundred per cent deaths in this age are due to 'violence or injury'. In Jammu and Kashmir, the share is 33.3 per cent and in Haryana 28.6 per cent. The state of Kerala is an exception where no deaths have been reported among children due to 'violence or injury'. In most of the states, fever, cough and diarrhoea, still remain to be the prominent causes. Some abruptly high percentages of deaths due to specific causes are noticed in the 5 to 14 year age group. In Assam 63.6 per cent deaths are due to diarrhoea, and in Punjab and Jammu and Kashmir, 50 per cent deaths are due to fevers and coughs respectively.

A Comparision of Birth Rate & Infant Mortality Rate

On comparing the distributional trend of birth rate and infant mortality rate it is observed that some states show a similar trend. The states could be grouped into 9 categories on the basis of their rates. Those having

1. High Birth Rate, High Infant Mortality Rate
2. High Birth Rate, Medium Infant Mortality Rate
3. High Birth Rate, Low infant mortality rate
4. Medium Birth Rate, High Infant Mortality Rate
5. Medium Birth Rate, Medium Infant Mortality Rate
6. Medium Birth Rate, Low Infant Mortality Rate

7. Low Birth Rate, High Infant Mortality Rate
8. Low Birth Rate, Medium Infant Mortality Rate
9. Low Birth Rate, Low Infant Mortality Rate

The above categories thus reveal the following position of states and union territories.

1. High birth rate and high infant mortality rate category includes the states of Madhya Pradesh, Rajasthan and Uttar Pradesh. Haryana shows high concentration of birth rate and medium concentration of infant mortality rate. High concentration of birth rate but low concentration of infant mortality rate is observed in Himachal Pradesh. This might be due to under reporting of infant deaths in the state of Himachal Pradesh.

2. Medium concentration of birth rate and high infant mortality rate is revealed in the states of Gujarat, Orissa, Tripura and Assam. Medium concentration of birth rate and infant mortality rate is exhibited by the state of Punjab and Andhra Pradesh. Jammu and Kashmir and Chandigarh show medium birth rate and low infant mortality rate.

3. Low concentration of birth rate and high infant mortality rate is not observed in any state or union territory. On the other hand low birth rate and medium infant mortality rate is found in Tamil Nadu, Maharashtra and Karnataka. Low birth rate and also low infant mortality rate is observed in Kerala, Manipur, Andaman and Nicobar Islands, Delhi and Pondicherry.

(ii) Rural

The pattern of distribution of birth rate and infant mortality rate in rural areas shows an almost identical trend

to that of total distribution of birth rate and infant mortality rate with a few changes. Gujarat has high birth rate and high infant mortality rate in rural areas. High concentration of birth rate and low infant mortality rate is observed in Dadra and Nagar Haveli, Delhi and Lakshadweep. Tamil Nadu now falls in the medium concentration group of birth rate and infant mortality rate. Andhra Pradesh reveals low birth rate and medium infant mortality rate. Chandigarh shows low birth rate & low infant mortality rate in rural areas.

(iii) Urban

In the urban areas, the spatial pattern of birth rate and infant mortality rate shows variations from the above two patterns as revealed through discussion in the following paragraphs:

High birth rate and high infant mortality rate is observed in Gujarat, Madhya Pradesh and Uttar Pradesh. High birth rate and medium concentration of infant mortality rate is revealed in Haryana and Rajasthan. Andhra Pradesh and Chandigarh have high birth rate but low infant mortality rates.

Medium birth rate and high infant mortality rate combination is not reported in any area. Medium concentration of birth rate & infant mortality rate is constituted by the states of Assam, Maharashtra and Punjab. Karnataka, Kerala & Delhi have medium concentration of birth rate but low infant mortality.

Low rates of birth rate and high rates of infant mortality are not found to exist side by side in any state of

union territory in urban areas. Even low birth rate and medium infant mortality rate are not seen. Low birth rate and low infant mortality rate are however found in Himachal Pradesh, Jammu & Kashmir and Tamil Nadu.

8. Conclusion

An attempt had been made in this section to assess the health status of the child in India, through various health indices. The health indices analysed at the state level have been birth rate, mortality differentials by age and sex and child mortality by causes, on the basis of which, we can broadly make the following comments:

- Infant mortality rates are high but have been falling;
- Infant and child mortality rates are high in north India especially in the rural areas;
- The ratio of deaths in the first week and month to all deaths in the first year is considerably higher;
- Statewise variations in infant mortality rate are found to be very large. Where as Manipur and Kerala have obtained the rates of 28 and 58 respectively, in Tripura and Uttar Pradesh it continues to be 299 and 176 respectively, nearly 3 to 5 times of the level obtained by Kerala and about 6 to 10 times of the level obtained by Manipur.
- Rural areas have almost twice the level of mortality of urban areas;
- Most of the countries in the world reflect the fact in their statistics that infant mortality rate is lower for boys than girls, this being true for India also. High mortality among girls may be attributed to the neglect

of female infants born, and differences in nutritional patterns and cultural practices peculiar to India.

- In the neo-natals, the most frequently mentioned causes of deaths are prematurity, respiratory infections, diarrhoea, and tetanus.
- In the age group of 1-4 years, diarrhoea and respiratory system infections still predominate. Measles and typhoid are other important causes of deaths.

PART II HEALTH INFRASTRUCTURE & MANPOWER

1. Introduction

The health of children could be kept in check a great deal by the measures taken to solve these problems. Availability of health services thus play an important role in the magnitude of child health problems. Though the services are being augmented, due to the rapidly increasing population and thus its growing needs, any significant impact is not observed.

The major obstacle in the way of assessing the availability of health services for children is that there is no exclusive categories of doctors, or hospitals who attend to the problems of child health alone. Although facilities like maternity hospitals, maternity wards in general hospitals, maternity and child welfare centres, paediatrics hospitals or family welfare centres could give a clearer picture of services available which caters to needs of children, such data is not easily made available even at the state level.

2. Method

The infrastructural facilities and manpower available at the state level have been analysed. Two indicators of

manpower have been identified.

1. doctors per thousand population and
2. paramedical staff per thousand population[a].

An index of the available medical facilities[b] has been worked out by assigning weightage to each medical facility depending on the minimum population it serves. Here we assume (on the basis of minimum needs programme-6th five year plan) that one dispensary and one sub-centre each caters to a population of 5,000, a primary health centre to 30,000 and a hospital to 1 lakh population. A dispensary and a sub-centre has been given a weightage of 0.05; primary health centre serves six times the population of a dispensary or Sub-centre and hence gets a weightage of 0.30; and hospital serves 3.3 times more population to primary health centre and so gets a weightage of 1.0. After giving weightages, the number of hospitals, primary health centre, dispensaries and sub-centres were multiplied by their respective weighatages, and the figures thus obtained for each facility [illegible] for each state were added up to get an index of medical facilities available. The number of medical facilities thus obtained, were next converted into per lakh population. Although a limitation to this study is the non-availability of data for rural-urban break up, yet it would be significant

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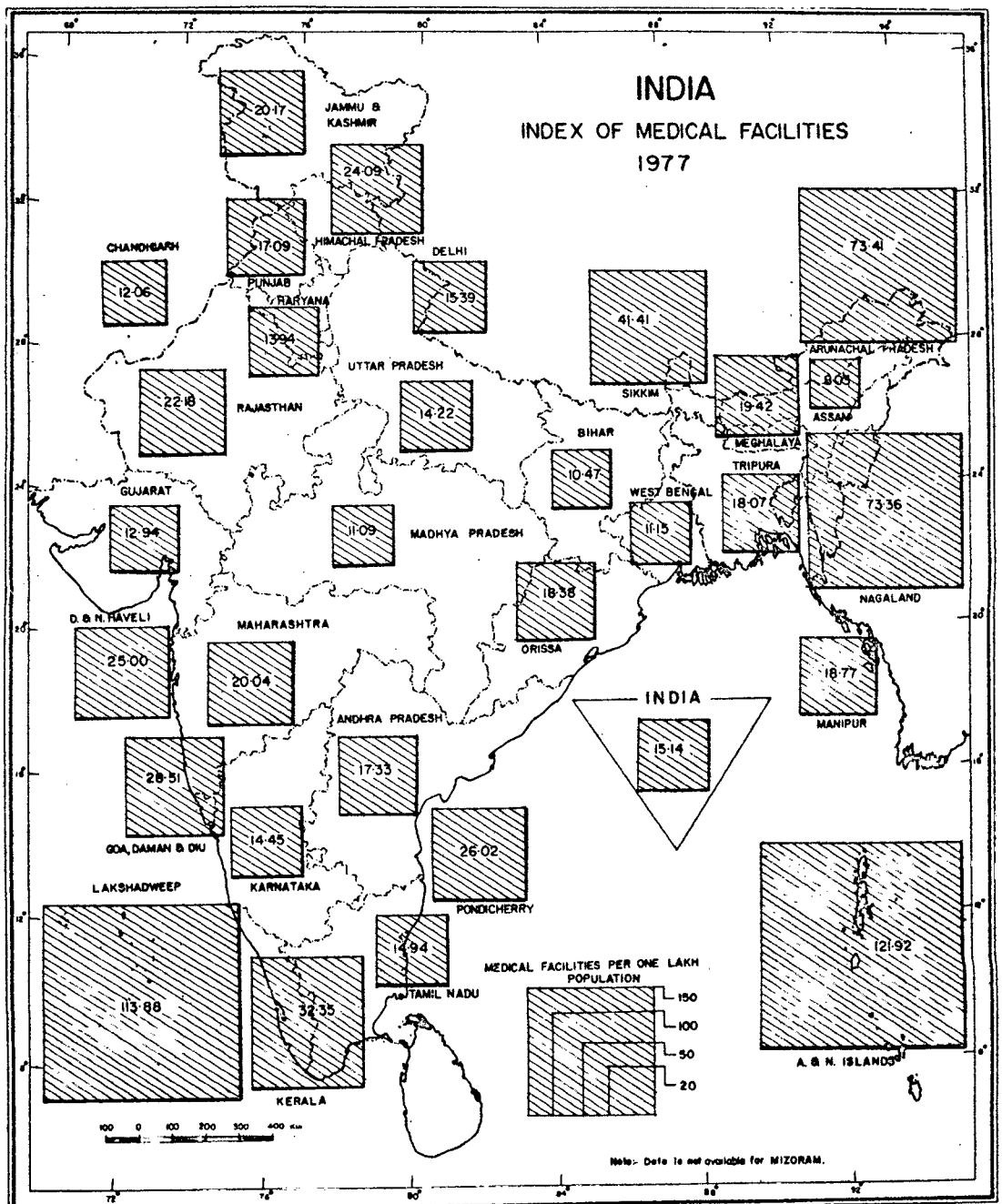
a) Paramedical staff includes (a) Nurses, (b) Midwives, (c) Auxiliary Nurse Midwives (d) Health visitors.

b) Medical facilities include (a) Hospitals, (b) Primary health centres (PHC) (c) dispensaries and (d) Sub-centres.

MAP NO. 5



Based upon Survey of India map with the permission of the Surveyor General of India

The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line.

The boundary of Meghalaya shown on this map is as interpreted from the North-Eastern Areas (Reorganisation) Act, 1971, but has yet to be verified.

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and authentic to analyse the total position at the regional level.

3. Distribution Pattern

i) Medical facilities

In India on an average, there are 15.14 medical facilities available per lakh of population. The Coefficient of Variation is as high as 97 per cent. Due to marked variations in the unequal distribution of medical facilities, the high, medium and low concentration have each been further sub-divided. (Map No.5)

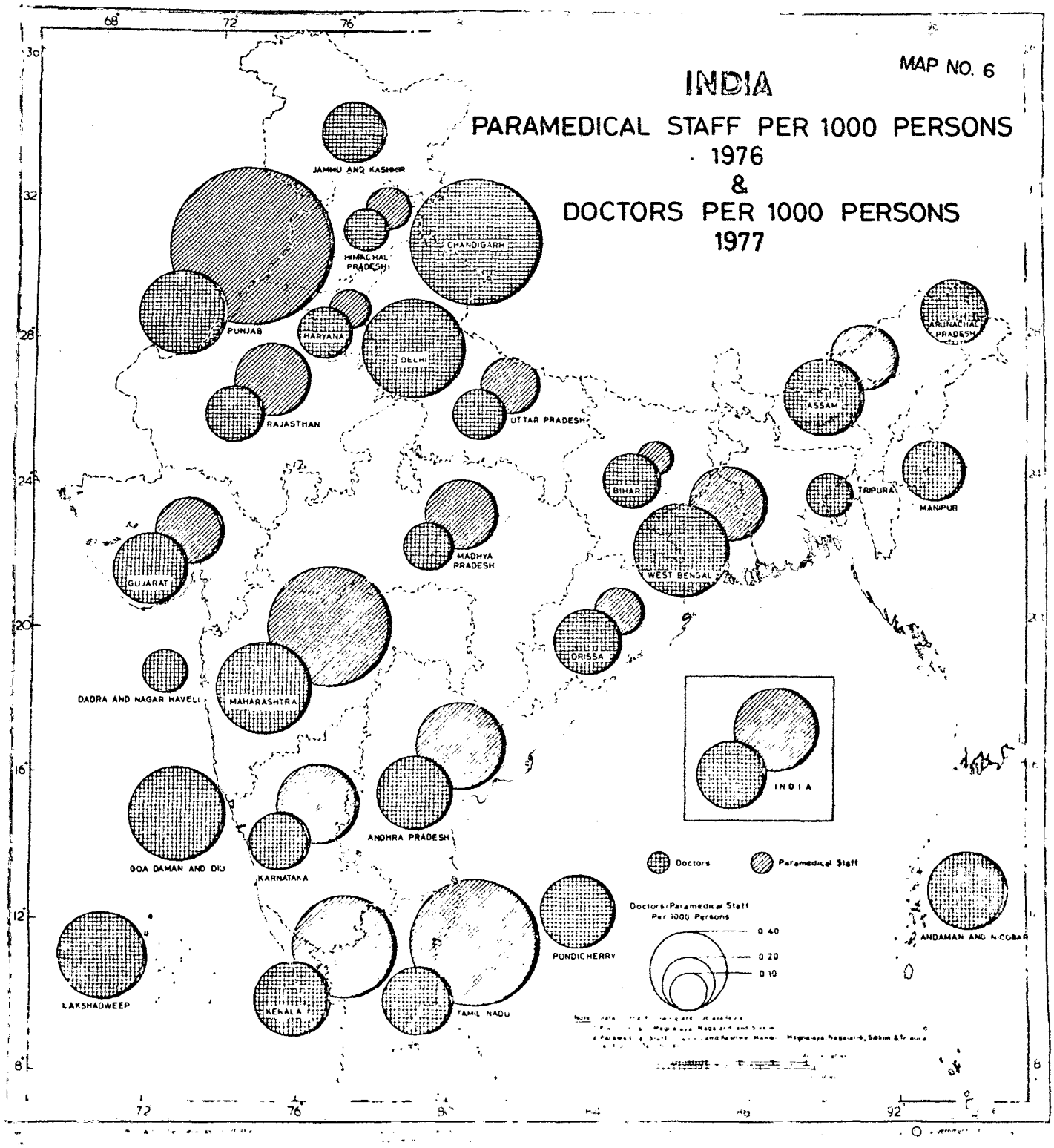
The very high concentration above 100 medical facilities per one lakh of population is represented by Andaman and Nicobar Islands and Lakshadweep. High concentration, 40 and above, is revealed by Nagaland, Sikkim and Arunachal Pradesh.

The medium concentration, 25 to 35 medical facilities per lakh population, is observed in the state of Kerala and the union territories of Dadra and Nagar Haveli, Delhi and Pondicherry.

In the low concentration range of 15 to 25 lie the states of Jammu and Kashmir, Himachal Pradesh, Punjab, Rajasthan, Maharashtra, Manipur, Meghalaya, Tripura and the union territory of Goa, Daman and Diu. Very low concentration, of below 15 medical facilities per lakh population, is exhibited by Gujarat, Haryana, Chandigarh, Madhya Pradesh, Uttar Pradesh, Bihar, West Bengal, Assam and Tamil Nadu.

ii) Doctors

The ratio of doctors per thousand population in India is 0.32. To put it in other words it could be said that for every 100 persons there are 3.2 doctors. The co-efficient of


MAP NO. 6
INDIA
PARAMEDICAL STAFF PER 1000 PERSONS
1976
&
DOCTORS PER 1000 PERSONS
1977
JAMMU AND KASHMIR
HIMACHAL PRADESH
CHANDIGARH
PUNJAB
HARYANA
DELHI
RAJASTHAN
UTTAR PRADESH
ARUNACHAL PRADESH
ASSAM
BIHAR
TRIPURA
MANIPUR
WEST BENGAL
MADHYA PRADESH
GUJARAT
ORISSA
DADRA AND NAGAR HAVELI
MAHARASHTRA
ANDHRA PRADESH
GOA DAMAN AND DIU
KARNATAKA
PONDICHERRY
KERALA
TAMIL NADU
LAKSHADWEEP
ANDAMAN AND N.COBAR
INDIA
Doctors
Paramedical Staff
Doctors/Paramedical Staff Per 1000 Persons
0.40
0.20
0.10
72
76
92

variation, showing the disparity in distribution, indicates value of 79.0 per cent.

The high inconsistency in distribution is observed from the fact (Map No.6 Appendix Table No.6) that while in Chandigarh for every 1000 persons, 1.23 doctors are available, in Himachal Pradesh, Tripura, and Dadra and Nagar Haveli, only 0.14 doctors are available per thousand population.

In the high concentration, above 0.40 doctors per thousand population, are included the states of Punjab, Maharashtra, West Bengal and the union territories of Delhi, Goa, Daman and Diu and Lakshadweep besides Chandigarh. The medium concentration, between 0.25 to 0.40 doctors, is revealed by the states of Andhra Pradesh, Tamil Nadu, Kerala, Orissa, Assam Gujarat, Jammu and Kashmir and Manipur. Arunachal Pradesh and Pondicherry among the union territories also get included in this range of medium concentration. Low concentration, below 0.25 doctors per thousand population is observed in Himachal Pradesh, Haryana, Madhya Pradesh, Uttar Pradesh, Bihar Rajasthan, Karnataka, Tripura and Dadra and Nagar Haveli.

iii) Paramedical Staff

Paramedical staff on the lower rung of the health services, which nevertheless plays an important, role accounts for only 0.46 person per thousand population in India. The Coefficient of Variation is as high as 98 per cent, explaining the discrepancy in the distribution of the paramedical staff. Though data for only 16 states is available, the magnitude of disparity is quite clearly brought out.

In the high concentration range, above 0.60 paramedical staff per 1000 population, Punjab has the highest value of 1.80,

followed by Tamil Nadu (1.03) and Maharashtra (1.00). Kerala has a little lower value (0.73) but is still comparatively high. The medium concentration 0.30 to 0.50 includes Gujarat, Rajasthan, Madhya Pradesh, West Bengal, Andhra Pradesh, Karnataka and Assam. Low concentration, below 0.30 per thousand population of paramedical staff, is exhibited by Haryana, Himachal Pradesh, Uttar Pradesh, Bihar and Orissa among which Himachal Pradesh has the lowest value of 0.11.

Conclusion

Substantial decrease of morbidity and mortality is more likely to be accomplished through an improved system for the distribution of health services than from further advances in medical sciences. Therefore, the necessity of sufficient availability of health services such as hospitals, health centres, doctors and other health personnels can hardly be over emphasised.

The second part of the chapter on Health, dealt with the distributional pattern of health infrastructure and manpower. Infrastructural facilities included hospitals, primary health centres, dispensaries and sub-centres. The number of doctors and paramedical staff available per thousand population in each of the geographical region explained the manpower situation in our country.

It is however highlighted that there are wide imbalances in the availability of health facilities in different regions. Akter in his study points out that the pattern of growth of health facilities is considerably higher than the growth of

population but the uneven distribution of health facilities resulted in the wide disparities in different regions (which is evident from the high C.V. in our analysis)[4]. The data analysis does not reveal that health facilities are in abundance in highly urbanised and developed areas. In highly urbanised and developed union territories of Delhi and Chandigarh reveal only 15.39 and 12.06 health facilities per lakh population.

On the other hand the index of health facilities is the highest in less urbanized and less developed areas like Andaman and Nicobar Islands and Lakshadweep and Nagaland, Sikkim and Arunachal Pradesh in the North eastern region. The highly populated areas of Bihar, Uttar Pradesh and Madhya Pradesh on the other hand have utterly inadequate health facilities.

The availability of health personnel exhibits a reverse picture, where we find that doctors are mainly concentrated in urban centres. This is substantiated from the map where Chandigarh, Delhi, Maharashtra and West Bengal show a high ratio of doctors per 1000 population. Union territories with low population have higher availability of doctor and para-medical staff than the northern or central region. Southern region has adequate number of paramedical staff in terms of population.

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4. Raia Akhtar and Nilofar Inhar "Health Care Delivery in India". (Mimeographed)

CHAPTER III

NUTRITION

"One out of every four persons goes hungry. Not only this, but half of the total population of our children suffers from chronic deficiencies of dietary"(a)

1. Introduction

Children, are the most crucial resource of a country. Nutrition plays a very important role in the physical, mental and emotional development of a child. According to World Health Organization, the optimum requirement is described as the amount of nutrient which will assure an individual the best possible health, functional capacity and resistance to disease.

The nutritional needs of the most vulnerable groups of our population are seldom recognised. Malnutrition is a major problem of public health in India, the hazards of which are serious obstacles to the promotion of physical, and mental health of children. The most important factor associated with malnutrition is poverty. It is estimated by Vijayalakshmi[1] that 50 percent of pre-school children and 30 percent of school age children suffer from moderate to severe forms like marasmus or kwashiorkor. (Marasmus and kwashiorkor relate to protein deficiency in infants in the post weaning period).

Malnutrition has direct effect on the brain and once the brain is impaired the intellect cannot be regenerated

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(a) L.B. Prasad, "Steps to Eradicate Malnutrition", Social Welfare, Nov.1974, p.26.

1. V. Vijaya Lakshmi - "Child Nutrition and Applied Nutrition Programme", A paper presented at the annual conference of Indian Association for the Study of Population, Conference on Child In India, March 1979, New Delhi.

by taking of nutritious foods later. The damage is irreversible. Of the total 70 million Asian Children suffering from Protein Coloric Malnutrition and 90 per cent of children under two years of age-affected by iron-deficiency anemia, India shares largest proportion of these undernourished children. So also 116 million mentally deranged children in India are the maximum in the world.[2]

Although undernutrition is wide spread throughout the Third World, it is still not sufficiently recognised by communities. There is very little understanding of the size of the problem. It is observed that doctors are largely concerned with research investigation and curative treatment of tip of the iceberg of malnutrition represented by children with kwashiorker or marasmus and much too little attention is being paid to the mass of children who suffer from an adequate growth or stunting[3].

Malnutrition was recorded as a mere welfare problem for a long time. But now, one is recognising it as a major obstacle to economic growth and development. The worst victims of malnutrition are infants and young children and it is responsible for a considerable death toll among children.

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2. P.N. Sen Gupta: "Food-Demand Projection and Nutrition" Journal of Science Club, Vol.XXIX, 1975 pp.16-24.

3. David Morley, "A Time To Look At Child Health" Children In India, Ed. Alfred de Souza, Manohar Publications, 1979 pp.87.

The legacy of focusing on malnutrition in children roots in its tragic relevance to a great number of underprivileged families as well as on its detrimental effects on the national economy. Malnutrition indirectly would also play a very significant role. Malnourished people perform badly both physical and intellectually, something which a poor country cannot afford.

The symptoms of malnutrition are usually undernutrition, Protein calorie malnutrition, Vitamin A deficiency, Vitamin B & C deficiency and Iron and Calcium deficiencies. Though these symptoms are not visible, but the day-in and day-out erosion of health it causes can reach epidemic proportions.

Malnutrition has been identified as the worlds number one health problem and is associated with more deaths and disease than occasional famines, but it lacks the drama and spectacular excitment of crisis[4].

The surveys reveal that malnutrition does not strike villages at random nor are individual families hit simply at random. It is rather assumed that, it is possible to identify variations in the social, economic and natural environment that are associated with variations in the level of malnutrition.

2. Approach

The approach to malnutrition here is one of social science and not of medical science. The objective here is

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4. Uridula Sharma: "Malnutrition Among Pre-School Children" Some Aspects of Child development; Pub, Nation Institute of Public Cooperation and Child Development; 1979, New Delhi.

not to explain malnutrition with the highest possible level of significance as it would require a medical and/or nutritional study, looking at, for instance, dietary intake, intestinal parasites, body's energy consumption etc., nor is it an attempt to intrude into the circle of nutritionists. It could rather be regarded as an attempt to draw the mind of the social scientist towards an important aspect of the reality.

Although, people are aware of the evils of malnutrition and also have agreements on the ability to reduce it considerably but the tragic thing is that so far, progress is too little and too slow. Although, the health sector is putting an impressive amount of resources into the preventive measures, it is beyond its financial and manpower resources to engage in economic and health surveys. The economists on the other hand, are mainly interested in people's health in terms of the cost of curing them. This is thus quite different from the value of health to people. The slow progress in eradication of malnutrition thus calls for an interdisciplinary approach, in order to coordinate health services and economic development activities.

3. Methodology

While the value of measuring malnutrition is highly questionable, the method of measuring it is more of a problem. Both mortality and morbidity are likely to underestimate the prevalence of malnutrition because only the extreme cases lead through kwashiorkor or marasmus to death.

An alternative method of quantifying malnutrition is to use one or more anthropometric measures. When a child

does not get a sufficient diet for a long time, he stops to put on weight, his arms become thin and several other components of the body deviate from those of a welfed child. Perhaps the most useful antropometric measure is weight-for-age. Both because it is easy to record and because it discriminates clearly between well-nourished and undernourished children.

Because of the absence of reliable data on the classification of deaths associated with malnutrition, malnutrition as a causative factor in child health is discussed here on the basis of the results of diet surveys on nutrition, its deficiency signs and anthropometric measurements. Nutritional status by family income and size have also been discussed. These surveys have been conducted by the National Nutritional Monitoring Bureau (NNMB), Hyderabad, and All India Institute of Medical Sciences (Bio Statistical Unit), New Delhi.

4. Prevalence of Deficiency Signs

The prevalance of deficiency signs, though does not reveal the intensity of the problem as relevant to child welfare and growth, it does indicate directly something about the existence of malnutrition. The National Nutrition Monitoring Bureau, Hyderabad, examined about 1,110 infants, 4,713 pre-school children (1-5 years), 7,401 children between the ages of 5 & 12 years during the years 1977 and 1978, to assess the presence of nutritional deficiency signs. The survey was conducted in 10 states of India and in each state a total of 400 rural households were covered each year. The statewise prevalance figures of different nutritional deficienc signs by age groups are provided in Tables 2,3 & 4 for infants, pre-school children and children in the age group 5-12 years respectively.

TABLE NO. 2

Percentage Prevalance of Deficiency Signs - Infants

State	Kerala	Tamil Nadu	Karnataka	Andhra Pradesh	Maharashtra	Punjab	Madhya Pradesh	Orri-ssa	West Bengal	Uttar Pradesh
Number	37	116	200	62	180	176	43	33	134	129
NAD	100.0	93.1	91.5	23.6	84.4	92.6	86.1	97.0	100.0	80.4
Oedema	-	-	-	-	-	-	-	3.0	-	-
Emaciation	-	-	4.0	-	3.9	1.1	-	-	-	8.5
Marasmus	-	2.6	1.0	1.6	0.6	4.6	4.7	-	-	-
Two or more signs of PCM	-	-	1.0	1.6	7.2	1.1	-	-	-	-
Total Vitamin 'A' Deficiency	-	-	-	-	-	-	-	-	-	-
Total B-Complex Deficiency	-	0.9	1.0	-	0.6	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-

TABLE NO. 3

Percentage Prevalence of Deficiency Signs - Pre-School Children

State	Kerala	Tamil Nadu	Karnataka	Andhra Pradesh	Maharashtra	Gujarat	Madhya Pradesh	Orissa	West Bengal	Uttar Pradesh
Number	300	531	748	392	615	627	188	235	518	559
NAD	98.7	85.1	72.6	74.2	82.8	85.8	94.8	78.3	87.5	78.7
Oedema	-	-	0.3	1.3	0.7	0.5	-	-	0.4	0.9
Emaciation	-	0.2	5.2	0.5	1.1	1.4	-	-	3.3	3.0
Two or more signs of PCM	-	0.6	3.2	1.0	5.0	0.8	0.5	-	-	0.4
Conj. Xerosis	0.7	1.3	0.3	0.8	-	0.5	1.6	4.3	0.6	2.9
Bitots' spots	-	3.4	2.0	4.1	0.8	1.1	-	1.3	1.5	2.7
Total Vitamin 'A' deficiency	0.7	4.7	2.3	4.9	0.8	1.6	1.6	5.6	2.1	5.6
Angular Stomatitis	0.7	6.6	10.2	13.0	0.8	2.4	0.5	7.2	6.2	2.5
Other B-Complex Deficiency	0.3	-	0.1	0.3	-	-	-	1.3	1.5	0.2
Total B-Complex deficiency	1.0	6.6	10.3	13.3	0.8	2.4	0.5	8.5	7.7	2.7
Caries	-	-	1.1	-	-	1.1	-	1.3	0.6	1.3

TABLE NO. 4

Percentage Prevalence of Deficiency Signs 5 - 12 years

State	Kerala	Tamil Nadu	Karnataka	Andhra Pradesh	Maharashtra	Gujarat	Madhya Pradesh	Orissa	West Bengal	Uttar Pradesh
Number	497	763	1268	722	1031	873	248	380	847	772
NAD	73.6	67.0	61.3	62.6	79.2	64.4	77.8	50.0	73.0	72.7
Oedema	-	-	0.1	-	-	0.1	-	-	-	-
Emaciation	-	-	0.2	-	0.4	0.2	-	1.6	1.7	0.1
Marasmus	-	-	-	-	-	0.1	-	-	-	-
Pre or core signs of PCM	-	-	-	-	-	0.1	3.6	-	-	-
Conj. Xeroris	3.4	3.0	1.3	1.3	0.2	2.1	-	5.5	1.4	7.8
Bitots' spots	1.4	5.6	4.1	5.1	3.3	4.2	7.7	1.6	2.0	4.3
Total Vit.'A' deficiency	4.8	8.6	5.4	6.4	3.5	6.3	7.7	7.1	3.4	12.1
Angular stomatotis	8.7	11.1	19.5	25.9	2.6	7.7	-	23.4	9.5	3.1
Other B-Complex Deficiency	0.4	1.8	-	0.3	-	0.1	-	1.8	4.1	3.1
Total B-Complex Deficiency	9.1	12.9	19.5	26.2	2.6	7.8	-	25.2	13.6	6.2
Caries	10.5	13.8	12.6	7.1	11.8	22.7	9.7	9.7	10.4	4.3

Source: Table 2,3 & 4 "National Nutrition Monitoring Bureau Report" For the year 1978, National Institute of Nutrition. Indian Council of Medical Research Hyderabad.

The clinical deficiency signs most commonly observed are Protein Calorie Malnutrition (PEM), Vitamin A and B group deficiencies.

(i) Deficiency signs Among Infants

Among infants, it is observed that above 85 per cent of them do not show any prevalence of deficiency signs. In the state of Kerala and West Bengal, 100 per cent infants are free from any deficiencies. In Orissa, Andhra Pradesh, Tamil Nadu, Gujarat and Karnataka, the share of infants without deficiencies is 97.0, 93.6, 93.1, 92.6 & 91.5 per cent respectively. Madhya Pradesh, Maharashtra and Uttar Pradesh came next with 86.1, 84.4 and 80.6 per cent respectively. Among the infants protein calorie malnutrition is the most common deficiency. Marasmus and Emaciation are more prevalent diseases due to protein and calorie deficiencies. The share of PCM is as high as 11.7 per cent in Maharashtra, 8.8 per cent in Uttar Pradesh and 6.8 per cent in Gujarat. Vitamin 'A' deficiency does not occur in infants and Vitamin 'B'-Complex' deficiency is observed in only 3 states of Karnataka, Tamil Nadu and Maharashtra and the share is as low as 1.0, 0.9 and 0.6 per cent respectively.

(ii) Deficiency signs Among Preschool Children

Among the pre school children, the share of children with prevalance of deficiency signs increases. In the state of Kerala, 95.7 per cent Children (1-4 years) are free from deficiencies. The lowest share is revealed by Karnataka (72.26 per cent). Vitamin 'A' deficiencies and 'B-Complex' deficiencies become more prevalent in this age group, though Protein Energy Malnutrition still exists, its share goes down.

The signs suggestive of PEM, like Emaciation is high in Karnataka (5.2 per cent), Marasmus in Gujarat (3.4 per cent), and two or more signs of PCM are high in Maharashtra (5.0%). Conjectivitus Xerosis and Bitots' spots suggestive of Vitamin 'A' deficiency are revealed in Uttar Pradesh and Orissa (5.6 per cent each). B-Complex deficiency is quite high in pre-school children, varying between 13.3 per cent in Andhra Pradesh to 0.5 percent in Madhya Pradesh. Caries exists in a few states, but the share is between 0.6 to 1.4 per cent.

(iii) Deficiency signs in Children between 5 to 12 years

Clinical cases of marasmus/emaciation get reduced in this age group. The share of Protein Energy Malnutrition does not exceed 3.6 per cent in any state. The states of Kerala, Tamil Nadu and Andhra Pradesh, however, show no prevalance of PEM among the children of 5 to 12 years. Vitamin 'A' deficiencies and B-Complex deficiencies reach their peak in this age group and show wide variations in all the states. The highest prevalence of Vitamin 'A' deficiency (12.1 per cent) was seen in the state of Uttar Pradesh and the lowest (3.4 per cent) in West Bengal. Maximum prevalence of B-Complex deficiency signs are observed in Andhra Pradesh (26.2 per cent) followed by Orissa (25.2 per cent). The lowest B-Complex deficiency occurs in Maharashtra (2.6%).

Dental caries, which is related to the quality of habitually consumed diet by the population, though cannot be considered as a nutritional deficiency sign is still related with it. Its prevalence was seen in all the states, maximum being in this age group. Uttar Pradesh has the lowest figure

of 4.3 per cent and Gujarat the maximum 22.7 per cent. In the other states prevalence ranges between 7 to 14 per cent.

5. Anthropometric Measurements/Degree of Malnutrition (Gomez's classification)

Gomez's approach could be utilised to assess the quantum of malnutrition. His approach fixes the extent of malnutrition by the deviation from standard weight for age among the pre-school children (1-5 years) as measured by Protein-Calorie Malnutrition (PCM). Accordingly, he classifies a child as (i) normal, (ii) mildly malnourished, (iii) moderately malnourished or (iv) severely malnourished accordingly as his body weight is expressed as percentage of the standard for age which is (a) above 90, (b) between 75 and 90, (c) between 60 and 75 or (d) below 60 respectively. The indicator of malnutrition adopted by him, is known as the percentage point prevalence of the PCM, as the measurement is taken at a point of time. The statewise distribution of pre-school children into four different nutritional grades and their sex-wise distribution is given in Appendix Table No.7.

Gomez's data shows that 80 per cent of the pre-school children in all states combined are suffering from mild to moderate malnutrition, 8.4 per cent show severe malnutrition and only 14.3 per cent are normal i.e. show no signs of protein calorie malnutrition. Another characteristic noticed is that female children show a more healthy growth than males. 20.3 per cent females in pre-school age are normal, while in the case of boys, this share is only 8.7 per cent. Even among the severly malnourished group, the share of males is higher (9.7 per cent) than females (7.0 per cent).

The statewise distribution of 'normal' grade reveals that Kerala has the highest percentage (28.88) followed by

Uttar Pradesh (18.8%) and Andhra Pradesh (15.3%). Gujarat, Madhya Pradesh, Orissa, Tamil Nadu and West Bengal fall in the middle group, where the share of normal children is between 10 to 15 per cent. Karnataka and Maharashtra have the lowest concentration of normal children, 9.9 and 8.9 per cent respectively. The sex break-up reveals a higher percentage of normal pre-school female children. This share is about 44.6 per cent in Kerala, followed by 29.0 per cent in U.P. and 20.6% in Orissa. Among boys, Tamil Nadu shows the highest share of normal preschool children, 13.5 per cent Andhra Pradesh, Kerala and Uttar Pradesh have about 10 to 12.5 per cent normal male pre-school children.

Large percentage of pre-school children show fall in the category of mild malnutrition. Uttar Pradesh, Orissa, Tamil Nadu, Karnataka and Kerala have 40 to 50 per cent of the children in this category. The other states of Andhra Pradesh, Gujarat, Madhya Pradesh, Maharashtra and west Bengal have 37 to 40 per cent pre-school children suffering from mild malnutrition. The percentage of female children showing signs of mild malnutrition is higher than males in all the states.

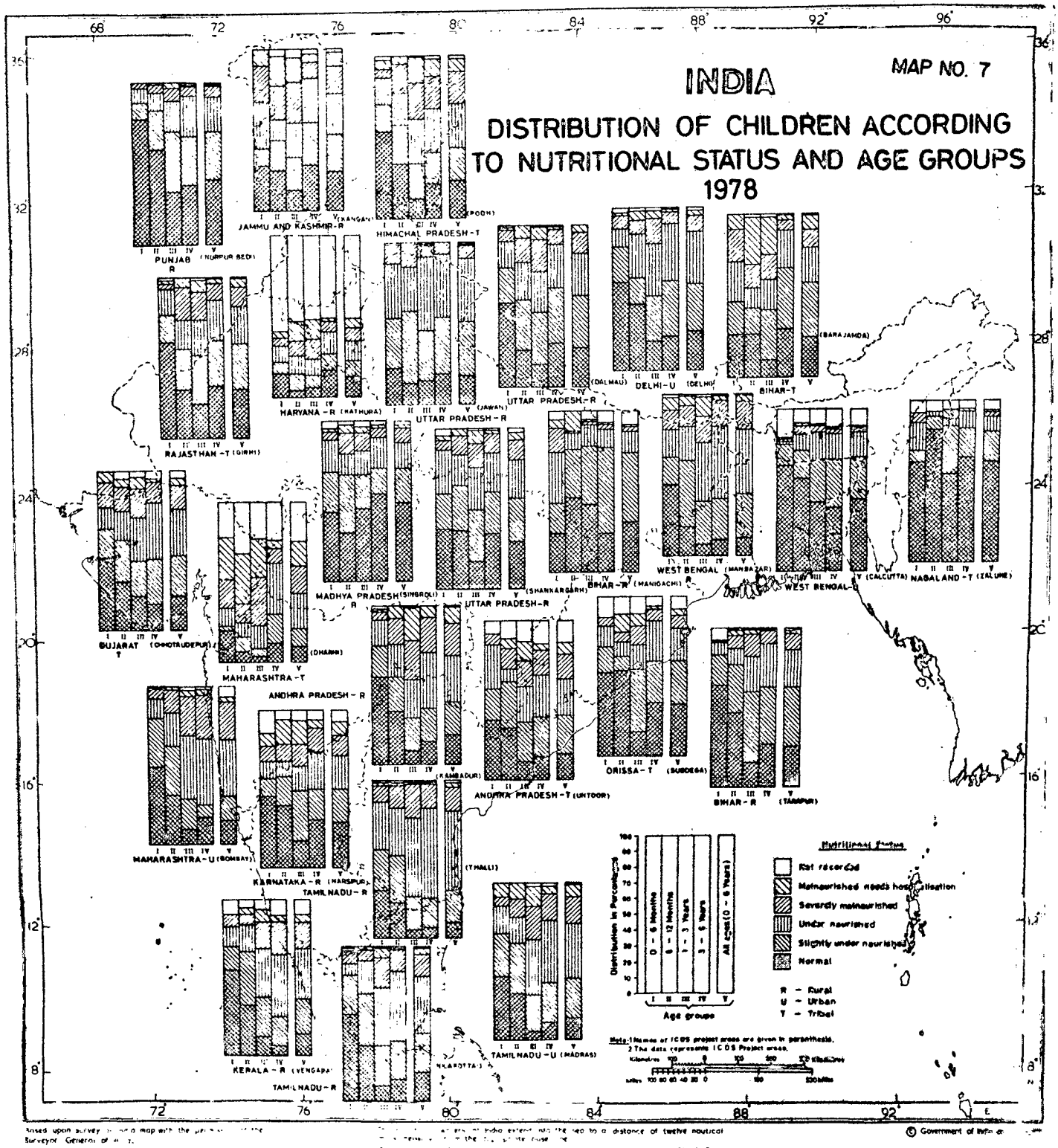
In the grades of 'moderate' and 'severe malnutrition', boys out number girls. Gujarat and Maharashtra have 43.4 percent and 43.1 per cent of children in the 1 to 5 years age respectively, suffering from moderate malnutrition. Andhra Pradesh, Karnataka, Madhya Pradesh, Orissa, Tamil Nadu and West Bengal have 35 to 40 per cent share of children in this group. Kerala and Uttar Pradesh depict 26.7 and 27.8 per cent children respectively in morderate malnutrition.

In the category of 'severe' degree malnutrition, U.P. shows 16.0 per cent share followed by West Bengal (12.7%) and Maharashtra (10.6 per cent). Andhra Pradesh, Gujarat, Karnataka and Orissa have between 5 to 10 per cent of severly malnourished children. Kerala, Tamil Nadu and Uttar Pradesh have a share of less than 5 per cent children showing signs of severe malnutrition. A higher percentage of boys in all the states show signs of severe malnutrition. In West Bengal their share is as high as 20 per cent. The only exception to this is observed in the state of Madhya Pradesh where females show higher percentage (20.6) than males (11.0).

6. The All India Institute of Medical Sciences (Bio Statistical Unit) Surveyed a number of rural, tribal and urban areas, which came under the Integrated Child Development Scheme and collected information on the nutritional status of the children (0-6 years) by different age break-ups and family income. The report though is unpublished, the data was made available and used in analysing the situation. In the ICDS Project, too, the children were grouped into grades of nourishment, namely, (i) normal, (ii) slightly undernourished or Grade I, (iii) under nourished or Grade II, (iv) severely malnourished or Grade III, and (v) severely malnourished needing hospitalisation or Grade IV.

(a) <u>Distribution of Children by nutritional grade and Age Group</u>

The percentage distribution of children according to their nutritional status in the age groups of less than 6 months, 6 to 12 months, 1 to 3 years and 3 to 6 years, for the ICDS Project areas in tribal, rural and urban areas is represented in map No.7 and Table No.8).


MAP NO. 7
INDIA
DISTRIBUTION OF CHILDREN ACCORDING TO NUTRITIONAL STATUS AND AGE GROUPS 1978
PUNJAB R (NURPUR BEDI)
JAMMU AND KASHMIR-R (KANGAN)
HIMACHAL PRADESH-T (POOH)
HARYANA-R (KATHURA)
UTTAR PRADESH-R (JAWAN)
UTTAR PRADESH-R (DALMAU)
DELHI-U (DELHI)
BIHAR-T (BARAJAMDA)
RAJASTHAN-T (GIRHI)
MADHYA PRADESH R (SINGROLI)
UTTAR PRADESH-R (SHANKARGARH)
BIHAR-R (MANIGACHI)
WEST BENGAL R (MANBAZAR)
WEST BENGAL-U (CALCUTTA)
NAGALAND-T (ZALUME)
GUJARAT T (CHHOTAUDEPUR)
MAHARASHTRA-T (DHANNI)
ANDHRA PRADESH-R
ANDHRA PRADESH-T (UNTOOR)
ORISSA-T (SUBDEGA)
BIHAR-R (TARAPUR)
MAHARASHTRA-U (BOMBAY)
KARNATAKA-R (NARSPUR)
TAMILNADU-R (THALLI)
KERALA-R (VENGARA)
TAMILNADU-R
TAMILNADU-U (MADRAS)
Distribution in Percentages
0 - 6 Months
6 - 12 Months
1 - 3 Years
3 - 6 Years
All ages (0 - 6 Years)
Age groups
Nutritional Status
Not recorded
Malnourished needs hospitalisation
Severely malnourished
Under nourished
Slightly under nourished
Normal
R - Rural
U - Urban
T - Tribal
Note: 1 Names of ICDS project areas are given in parenthesis.
2 The data represents ICDS Project areas.
Based upon survey of India map with the permission of the Surveyor General of India.
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1) Tribal Areas

The data reveals that about 50 percent of the children below 1 year of age, are normal or slightly undernourished. With an increase in age the share of normal or slighly undernourished children declines.

In the age group of 0-6 months, Taluke in Nagaland, has 61.1 per cent children, who show no signs of undernourishment. Garhi in Rajasthan, Pooh in Himachal Pradesh and Subdega in Orissa also have a high share of normal children, 60.3, 52.8 and 52.6 per cent respectively in below 6 months of age. In the next age group of 6 to 12 months, though the share of normal children comes down, it is still considerably higher as compared to the successive age groups. By the time, children reach the age of 6 years, about one third of them tend to have normal health. Taluke in Nagaland is the exception, where even in the age cohort of 3-6 years, 65 per cent children are normal.

Nearly 30 to 35 per cent of children in each age group, show signs of undernourishment and severe malnutriton. It is observed that larger percentage of children in the 1-3 years of age shows signs of severe malnutrition, than in the other age groups. Children needing hospitalisation due to malnutrition constitute a small proportion in all tribal areas. However, Dharni in Maharashtra exhibits about 25 to 30 per cent children, in each age group needing hospitalisation. Untoor in Andhra Pradesh and Subdega in Orissa also have about 10 to 15 per cent children needing hospitalization.

11) Rural Areas

The nutritional status of children by age groups in rural areas follows an almost similar pattern as that in tribal areas.

With each subsequent age groups the share of normal children shows a downward trend, with a very low share in the 1-3 years age group, which again increases in the 3-6 years age group. Slightly undernourished and undernourished children show their peak share in the 1-3 years age group, which is marginally reduced in the 3 to 6 years of age. The share of severely malnourished children and severely malnourished children needing hospitalization again is high in the 1-3 years age group.

Among the rural areas, Nurpur in Punjab, Tarapur in Bihar and Nillakottai in Tamil Nadu have a high share of normal children in the 0-6 months age group (78.3%, 63.5% and 56.6% respectively). In the older age groups of 1-3 years and 3-6 years, their share however falls considerably in the age group of 1-3 years and 3 to 6 years, Singroli in Madhya Pradesh has the highest share of normal children (44.8% and 54.7% respectively). The share of slightly undernourished children is higher in the 1 to 3 and 3 to 6 years age group. The share of undernourished children (i.e. grade II) in the 3-6 years age group goes as high as 27.1 per cent in Kangan, 18.5% in Singroli, 43.8% in Nilakottai, 56.8% in Talli and 45.0% in Man Bazar.

Percentage of severely malnourished children is quite high. 21.7 per cent children below 6 months of age show signs of severe malnutrition in Kangan (Jammu & Kashmir). In the 6 to 12 months age group, Kangan again tops with 21.4 per cent children severely malnourished followed by Kambadur (16.7%). In 1 to 3 years age group Kangan has 24.9 per cent, Kambadur 24.2%, Thalli 21.2% and Dalman 20.0 per cent. Kambadur in the 3 to 6 years age group has the maximum percentage of severely

malnourished children. Children needing hospitalization due to malnutrition show wide variations in different age-groups (from 0 per cent to 21.5 per cent). Kambadur, Kangan, Narcipur and Kathura show higher share than other rural areas.

iii) Urban Areas

The trend in urban areas is identical to tribal and rural areas, with very slight differences. The share of normal children is high in the 0-6 months and 6 to 12 months of age, but then shows a sharp decline in the 1-3 years of age. In Calcutta and Delhi, the share is considerably high in the 1-3 and 3-6 years age group. But in Bombay and Madras, it falls as low as 9.2% and 5.4% in the 1-3 years age respectively, which again increases to only 17.2 per cent & 11.1 per cent respectively. 65 to 70% children in the 1 to 3 years & 3 to 6 years age group shows signs of Grade II and Grade III malnutrition. The situation is slightly better in case of Calcutta, where this percentage is about 20 to 25. Delhi comes in between with 40 to 50 per cent children in grade II & grade III of undernutrition. Share of children needing hospitalization due to undernutrition is quite small in urban areas. Madras has the highest percentage of children in this grade of malnutrition (about 8 to 10%).

b. Distribution of Children by per capita monthly income and Nutritional Status

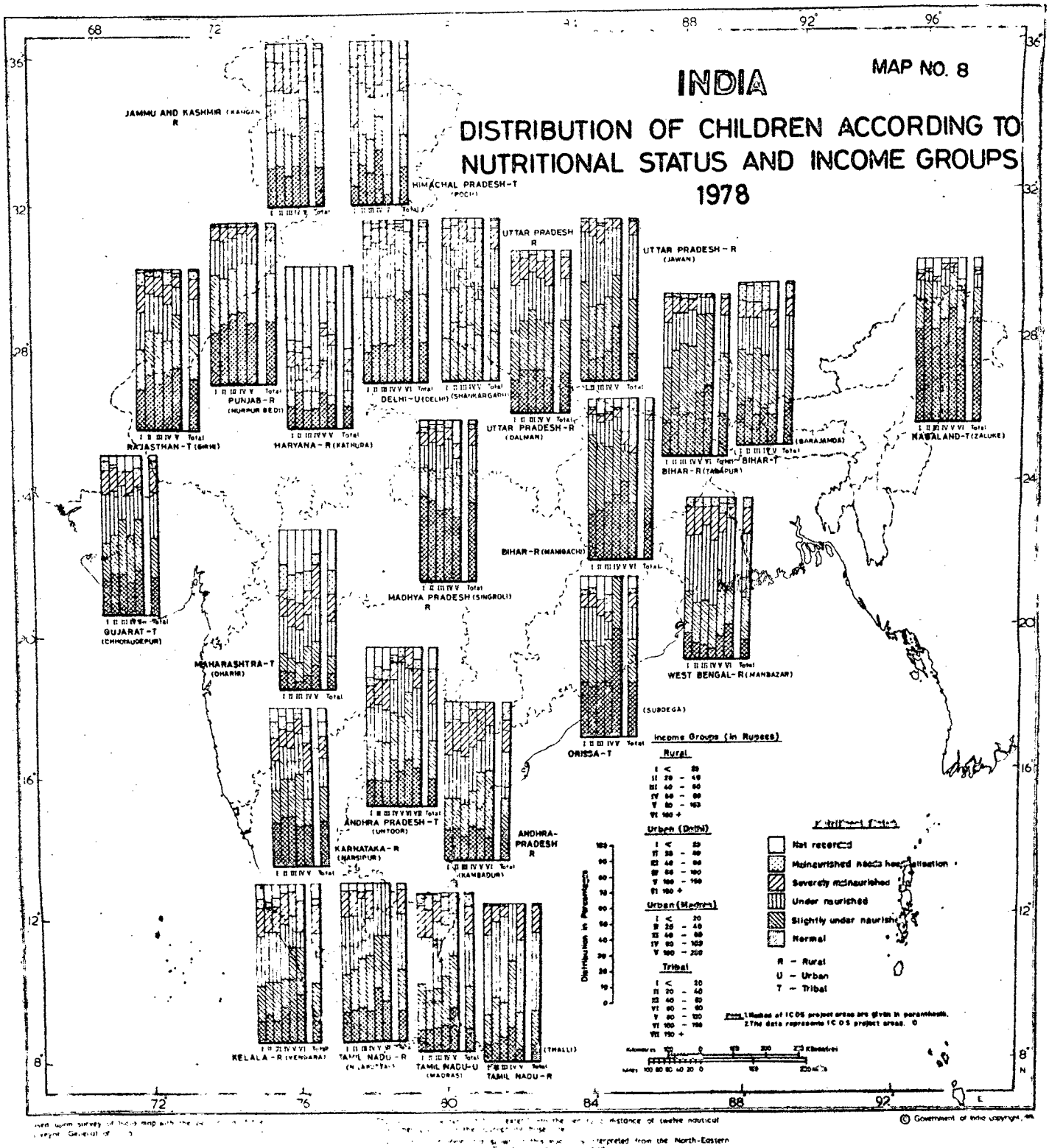
The survey conducted by the All India Institute of Medical Sciences in the ICDS project areas, collected information on income and nutrition an important aspect showing the nutritional status of children by income disparities. Thought the data

collected gives information on the grade of malnutrition in the income group of less than Rs.20, Rs.20-40, Rs.40-60, Rs.60-80, Rs.80-100 and Rs.100+ per month, for our purpose, the income groups have been regrouped into two: (1) per capita monthly income group of below Rs.60, and (2) per capita monthly income group of above Rs.60 (Appendix Table No.9).

1) Tribal Areas

In the tribal areas, Zaluke from the North East shows the highest percentage of normal children in both the income groups of below Rs.60 and above Rs.60 per month (60.76 and 63.56 respectively). Subdega in Orissa from the central belt and Girhi in Rajasthan from the West came next with 32.5 and 30.0 per cent and 28.86 and 35.85 per cent respectively in the less than 60. In the above Rs.60 per capita monthly income, Untoor (A.P.); Barajamda (Bihar) and Chhotaudepur (Gujarat) form the central group. Pooh in Himachal Pradesh and Dharni in Maharashtra are the low concentration areas of normal children. In Dharni, only 8.1 per cent children are normal in less than Rs.60 income group, and 11.4% in above than Rs.60 income group.

The share of slightly undernourished children tends to be higher than the share of normal children in all tribal areas except Zaluke and Subdega. This share varies from 25 to 39 per cent. In the higher income group, the share of slightly undernourished children is lower than in the lower income group. Under nourished children and severely undernourished children together constitute on an average about 30 to 40 per cent in the lower income group and about 25 to 30 per cent in the higher income group. Pooh in Himachal Pradesh, Barajamda in Bihar, Dharni in Maharashtra have higher percentages than the other tribal areas.


INDIA
MAP NO. 8
DISTRIBUTION OF CHILDREN ACCORDING TO NUTRITIONAL STATUS AND INCOME GROUPS
1978
JAMMU AND KASHMIR (KANGAN R)
HIMACHAL PRADESH-T (POOH)
PUNJAB-R (NURPUR BEDI)
RAJASTHAN-T (GHENE)
HARYANA-R (KATHURA)
DELHI-U (DELHI)
UTTAR PRADESH R (SHAHJAHARGARH)
UTTAR PRADESH-R (DALMAU)
UTTAR PRADESH-R (JAWAN)
BIHAR-R (TARAPUR)
BIHAR-T (BARAJAMDA)
NAGALAND-T (ZALUKE)
BIHAR-R (MANBHACH)
MADHYA PRADESH (SINGROLI) R
GUJARAT-T (CHHOTAUDEPUR)
MAHARASHTRA-T (DHARNI)
WEST BENGAL-R (MANBAZAR)
(SUBDEGA)
ORISSA-T
ANDHRA PRADESH-T (UMTOOR)
KARNATAKA-R (NARSIPUR)
ANDHRA-PRADESH R (KAMBADUR)
KERALA-R (VENGANAL)
TAMIL NADU-R (N. ARCOT)
TAMIL NADU-U (MADRAS)
TAMIL NADU-R (THALLI)
Income Groups (in Rupees)
Rural
Urban (Delhi)
Urban (Madras)
Tribal
Distribution in Percentages
Not received
Malnourished needs hospitalisation
Severely malnourished
Under nourished
Slightly under nourished
Normal
R - Rural
U - Urban
T - Tribal
Note: 1.Studies of ICDS project areas are given in parenthesis.
2.The data represents ICDS project areas.
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Children needing hospitalisation due to undernutrition are higher in the income group of less than Rs.60 per month. 16.16 per cent children in Dharni, 10.5 per cent in Barajamda and 8.0 per cent in Pooh need hospitalisation due to undernourishment. In the higher income group of above Rs.60 per month, again Dharni, Barajamda and Pooh reveal high share of 9.45, 9.45 and 7.4 per cent respectively. Zaluke and Subdega have 0.73 per cent and 2.43 per cent children respectively in the lower income group needing hospitalisation, while in the higher income group their share increases to 1.33 and 5.55 per cent respectively.

ii) Rural Areas

In the rural areas, one finds an almost similar pattern to tribal areas where the share of normal children is lower in the lower per capita monthly income group and higher in the higher per capita monthly income group. The highest percentage of normal children in the lower income group is observed in Singroli (Madhya Pradesh) 48.93 per cent, followed by Nurpur (Punjab) 39.06 per cent. Thalli in Tamil Nadu and Man Bazar in West Bengal have the lowest share of 11.76 and 11.16 per cent respectively. In the higher income group, Singroli (M.P.); Nurpur (Punjab); Kanigachi (Bihar) and Kangan (J&K) have about 40 to 43 per cent normal children, which is lower than the share of normal children in Singroli in the lower income group. Thalli and Man Bazar have the lowest share of normal children even in the higher income group.

The variation in slightly undernourished children range from 9.7 per cent in Kathura(Haryana) to 41.96 per cent in Kanigachi (Bihar) in the lower income group. Tarapur in Bihar

has the highest share of slightly undernourished children in the higher income group (45.43 per cent), Kambadur (A.P.); Nurpur (Punjab); Nilakkotai (T.N.); Thalli (T.N.); Jawan (U.P.); and Dalman (U.P.), have above 30 per cent slightly undernourished children. Percentage of undernourished children is high in Man Bazar, Jawan, Nillakottai and Kerala in both the income groups.

The percentage of severely malnourished children is high in Kambadur (A.P.) 20.36 Kangan (J&K) 16.46; Vengara (Kerala) 16.63; and Jawan (U.P.) 19.76 in the low income group. In the higher income group of above Rs.60 per month, Kangan has the highest share (20.3 per cent) followed by Kambadur (18.86) Vengara (18.15) and Shankergarh (16.8). It is observed that in some of the rural areas, like Vengara in Kerala, Singroli in U.P. Nilakkoti & Thalli in Tamil Nadu and Jawan in U.P.; the percentage of children needing hospitalisation due to undernourishment is nil in the higher income group. On the other hand, Manigachi has 10.5 per cent, Kathura 8.83% and Nareipur 7.05% needing to be hospitalised in the same income group. In the lower income group, however all areas show some percentage of children needing to be hospitalised due to undernourishment. The highest share is in Kambadur (11.7 per cent), followed by Kangan (10.1) per cent and the lowest is Manigachi (0.0 per cent).

iii) Urban Areas

In the urban areas, data for only Madras and Delhi is available. Delhi has a higher proportion of normal children in both the income groups. The percentage of severely malnourished children and severely malnourished children needing hospitalisation is higher in Madras than Delhi in both the low

income group and high income group.

A Comparision

On comparing the average values for the three areas tribal, rural and urban, in the different grades of nutrition by income groups, it is observed that in the income group of less than Rs.60 per month, rural areas have a highest percentage of normal children (26.33) followed by tribal areas (23.79) and urban areas (17.28). In the higher income group of above Rs.60 per month, urban areas have the highest share of normal children (57.57%), proceeded by rural areas (31.06%) and tribal areas (23.47 per cent).

The share of slightly undernourished children is almost the same in all areas, with very little differences, the share ranging between 23 and 29 per cent. Undernourished children are observed to be higher in urban areas and tribal areas have a higher share than rural areas. Again not much variation is observed in the share of severely malnourished children in the three areas.

The higher income group of above Rs.60 per month has a lower share of severly undernourished children in rural, tribal and urban areas than in the lower income group of below Rs.60/- per month. Children needing hospitalisation due to undernutrition is again higher in the lower income group, its share being highest in the rural areas followed by urban areas and the tribal areas. In the higher income group, rural areas have higher share of undernourished children needing hospitalisation, urban and tribal areas almost run parallel.

7. Summary and Conclusions

The chapter dealt with the problem of evaluating the nutritional status of children. The method adopted to identify malnutrition

has been the prevalence of deficiency signs and distribution of children by grades of malnutrition. The conclusions drawn are that deficiency signs in infants are not prominent. A very small percentage of infants show signs of protein calorie malnutrition. Among the pre-school children signs of Vitamin 'A' and 'B' complex deficiency start showing and reach their peak in the 5 to 12 years of age. Protein calorie malnutrition is low in the growing age group of 5 to 12 years. Anthropometric measurements (Gomes's classification) showed that a very small percentage of children in the pre-school age group (14.3) are normal and females show a more healthy growth than males. The analysis of nutritional status by age group revealed that children under one year of age are more healthy than in the older age groups. Per capita income when related to nutritional level proved that economically weaker section of population have a higher degree of malnutrition. Before concluding an attempt has been made to understand the determinants and consequences of malnutrition.

Nutritional specialists have given considerable attention to identify the determinants of individual and family nutritional status, generally concluding that they are complex and varied, and that malnutrition is a result of the interaction of a multiplicity of social, economic, and environmental variables. In numerous studies nutritional status has been related to family income and size, parents' educational levels, food prices, the nutritional value of available foods, customs and beliefs, and the availability of health care and sanitary facilities.

Levinson[5] makes a thorough attempt to sort out these different factors and measure their relative importance. Several studies have focused on the income variable alone[6] and have shown that family income is a major determinant of diet quantity. Evidence also indicates that increases in income are generally translated into improved nutritional status. Other research has suggested the detrimental effects of traditional beliefs and customs and of certain common adaptations to modernization (e.g., bottle feeding inplace of breast feeding)[7]. The relationship between infection and Malnutrition has been well established[8] and in some

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5. F. James Levinson, Morinda: "An Economic Analysis of Malnutrition Among Young Children In Rural India". (Cambridge, Mass: Cornell/MIT International Nutrition Policy Series, 1974).

6. FAO Consumer Survey Listing; M.K. Bennetle, "The World's Food" (New York: Harper and Row, 1954) Operation Research Group, "Food Habits Survey - Gujarat and Maharashtra (Conducted for the Protein Food Association of India, 1969).

7. Alan Berg, "Increased Income and Improved Nutrition: A Chipboleth examined, International Development Review, 12:3 (1970).

8. Mitchell & Latham, "Diet and Infection in Relation to Malnutrition in United States", "New York State Journal of Medicine, 70:558 (1970).

   J. Nevin Scrimshaw, "The Effect of the Interactions of Nutrition and Infection in Pre-School Child Malnutrition" (Washington D.C.) National Academy of Sciences National Research Council, 1966).

surveys nutritional status has shown to vary with age, sex and family size[9].

Talking of malnutrition raises the question in one's mind that what does underweight mean to the individual child and to the individual family. Obviously an underweight figure of 40-50% is too high to represent the proportion of deaths that occur up to 5 years, but the underweight population is more likely to be hit by these too early deaths. This is one of the consequences of malnutrition - the chance of survival upto 5 years is statistically, considerably reduced.

Since more than half of the underweight children survive, a second consequences is that, they are often reduced both physically and mentally, compared to their well-fed age mates. Partly, this can be traced back to malnourished mothers during pregnancy. More important fact is that malnourished children are more tired, have less energy to experiment, to move around, to acquire new knowledge. The loss of productive work in a community because of malnutrition in childhood can thus be very significant.

The other social costs attributed to malnutrition are the added burden placed on already overtaxed health services[10]

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9. Levinson, Morinda; Joe D. Grey and Alfredo Aguirre, "Protein-Caloric Malnutrition in Cordelavia, Colombia: Prevalence, Social and Demographic Causal Factors, Journal of Tropical Pediatrics, 15-16 (Sept 1969); Jakobsen, "Economic and Geographical Factors Influencing Child Malnutrition in the Southern Highlands, Tanzania", Geo Journal.

10. J.M. Benoge, "Curative Aspects of Malnutrition and Rehabilitation of the Malnourished Child". (A paper presented at the United Nations Children's Fund (UNICEF) Eastern Mediterranean Region Food and Nutrition Seminar, Beirut, January 26-29, 1970).

and the reduced efficiency of educational systems[11]. There is substantial (although by no means conclusive) evidence indicating that early and severe malnutrition does interfere with later earning, particularly when malnutrition is accompanied by other deprivations as is usually the case. Similarly it has been shown in several countries that malnourished children are more subject to illness and require hospitalization more often and for longer periods than well-nourished youngsters. It is thereby concluded that reducing malnutrition would increase the efficiency and improve resource utilization in health and education. But it is observed that in large number of underdeveloped countries where schooling and medical care is largely reserved for middle and upper class groups, improving nutritional standards is unlikely to contribute much to increasing efficiency or effectiveness of health and education systems.

Finally, several studies argue that malnutrition, by contributing to high rates of child and infant mortality, may be frustrating efforts of countries to limit population growth[12].

In many (although not all) countries, reductions in birth rates have followed the achievements of relatively low rates of infant mortality. One explanation of this phenomenon is

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11. A Picasso de Dyague, "Malnutrition as a limiting factor in the Development of education" (Paper presented at U.N. Protein Advisory Group Meeting, Paris, June 1972.)

12. James P. Austin & P. James Levinson, "Population and Nutrition" (Paper presented at U.N. Protein Advisory Group Meeting, Paris, June 1972).

that families are unlikely to restrict births voluntarily unless they are assured of the survial of a certain number of offspring. The conclusion drawn is that investments in nutrition, which should lead to decreased infant mortality, are also likely to result in reduced rates of population growth.

However, for the individual, underweight does not mean that the future career is sealed, but parallel to the case of mortality malnutrition increases the probability that he will find his life earnings in the lower income brackets.

Even if the society manages to equalise opportunities according to ones abilities, there is hardly anyway of compensating for lack of abilities caused by malnutrition in childhood.

It would not be wrong, if we could conclude our analysis with the words of Asok Mitra[13] that ".. the central fact is that malnutrition is compounded not only by deficits in food intake, vitamins and minerals but by lack of such amenities as potable water; environmental sanitation and personal hygiene; protection from exposure due to lack of housing and clothing; eradication of communicable diseases, worms and intestinal parasites; and immunisation. "The lack of these amenities causes enormous drains on the human body which is reduced to a heavily leaking nutrition bucket which no amount of nutritive foods will fill and sustain to an optimum level ..".

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13. Asok Mitra, "India's Population Aspects of Quality and Control" Vol.I A Family Planning Foundation/ICSSR Book Abhinav Publications, New Delhi 1978, p.263.

Tara Ali Baig[14] while talking of the nutritional level of children suggests that "if every family who had a patch of earth grew pumpkins, spinach and one fruit tree, children's diet could automatically improve".

14. Tara Ali Baig: "Our Children" The Director Publication Division. Ministry of Information and Broadcasting, Govt. of India, Patiala House New Delhi-110001. 1979 pp.167.

CHAPTER IV

FAMILY PLANNING

"There is no real doubt that high infant and pre-school mortality associated with malnutrition of mother and child is a major deterent to the acceptance of Family Planning. No where has family planning been successful where death rates were high. People must feel reasonably certain that atleast one child will survive, but the present pattern of disease and death among young children in many parts of the world carries no assurance for them that this will be the cause".

Scrimshaw[1]

1. Introduction

The inclusion of this chapter on Family Planning in the context of child health would seem quite inappropriate to some after dealing with various indices of child mortality and morbidity and the nutritional level of children in the pre-school age, which explains "out of 100 million children in the 1 to 5 age group, 40 percent show signs of moderate or severe malnutrition. Some 12 to 14 thousand children go blind each year as a result of vitamin A deficiency. Pre-schoolers constitute 17 per cent of the country's population, but account for 40 percent of all death"[2]. However, family

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1. K. Srinivasan, P.H. Reddy: "Nutrition Programme in IPP Area" A preliminary Evaluation, Population Centre, India - Population Project, Bangalore India, 1975, p.3.

2. Tara Ali Baig "The Problem of Child Health" Our Children: Publication Division, Ministry of Information and Broadcasting, Govt. of India, 1979, pp.168.

planning here is not looked at from the point of view of population planners, who are trying to bring down the birth rate to solve the problem of over-population; or from the economists view to deal with the food-problem etc. but as a better aid to maternal and child health. The writer's opinion is to adopt family planning as a means to have healthy children. The World Health Organisation recognises that family planning is a significant element in the health of family, particularly that of mothers and children. Since the health of the child is dependent on the maternal health, which is greatly impaired by the number of pregnancies, births and unwise spacing of births, adoption of family planning measures would help both the unborn child and the mothers. In rural areas, this practice is all the more prevalent due to lack of adequate education regarding proper nourishment of the mother, before, during and after pregnancy.

But let us try and make an attempt in understanding the comprehensive meaning of family planning. In the initial stages, family planning movement was known as the 'Birth Control' movement. Subsequently the programme came to be called the 'Family Planning Programme' and thereafter it was termed as 'Family Welfare and Planning'. However even today in certain quarters it is equated with 'birth control'; in reality, however it connotes much more. It does not only mean limiting the number but also means having babies only when desired. It denotes that one should have only desired babies so that they should not be a burden either to the family or to the society. It means that children should be born because

they are wanted and desired and not because their birth cannot be prevented. It means enrichment of life of children and not improverishment. Hence the acceptance of family planning ensures health of children and their mother, and protects women from enforced and undesirable pregnancies. The comprehensive meaning of family planning would in fact include not only limiting the number of children, to say two or three, but also their spacing which too is of great importance. Thus, the philosophy behind the programme is not only 'stopping of children' but prevention of unwanted pregnancies, spacing between two successive births and finally achieving overall welfare of the family.

WHO in 1971 described family planning as "a way of thinking and living that is adopted voluntarily upon the basis of knowledge, attitudes, and responsible decisions by individuals and couples in order to promote the health and welfare of the family group"[3]. Thus family planning is again looked upon as a measure of improving child's and mother's health and consequently improving the health of the family.

It has been shown by various studies that large family size, high parity, pregnancy at under 18 or over 35 years of age, short intervals between pregnancies, and abrupt weaning are linked to varying degrees of morbidity and mortality for mothers and the child. In addition, there are many situations that are highly likely to impair health if child-bearing is unregulated. Family planning thus constitutes a vital preventive

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3. "Health Education in Health Aspects of Family Planning", World Health Organisation (1971), Technical Report Series No.483, page 5.

measure. The impact of childbearing practices on health can also be looked at from the point of view of positive health, in which well-being refers to the quality of life. When children are born at optimum times, and are wanted, it is more likely that they will be well cared for and their environment will be conducive to normal growth and development; while family members can more easily share an emotionally satisfying relationship that will promote family health, which includes the child.

It is therefore observed that the maternal and child health programme is directly interwoven with that of family planning, and that is why in rural family planning centres auxiliary nurse midwives have been appointed to advise mothers not only on the pre-natal and post natal care, but also guide them about the general protective and preventive measures necessary for the health of children. They also assist mothers and children, to get over the deficiencies of iron, proteins, vitamins and minerals which if neglected result in under-nourishment and malnutrition.

A general hypothesis supported by the protagonists of nutrition is that better nutrition of infants, toddlers and pre-school children may prove in the long run the best contraceptive. As observed, nutritional inadequacy in quality and quantity is related to infantile diseases. Better nutrition means less incidence of sickness. And less incidence of sickness means greater probability of survival and less probability of death. Less infant and child mortality means greater survival of children under the age of one and between one and five years. A healthy infant and child will live, live longer and grow up into a productive

adult. Therefore, more parents would like to have fewer children if there were an assurance that the children would survive infantile ailments, live to adulthood and possibly support their parents.

It is well known that in agrarian and developing societies, many parentslook upon children as a kind of social insurance for their old age. In the absence of social security and old age benefits and under the present conditions of high infant and child mortality, parents tend to have many children so that a few may survive. With an effective decline in the infant mortality rate, this situation will cease to exist. Thus, in order to reduce the infant and child mortality, besides many other factors; one would like to have a fewer number of children and to nourish them well.

Thus the acceptance of family planning or in other words to solve the problem of excessive fertility is quite important. It is evident that the steep rise in the population growth is fast overwhelming the fruits of the Green Revolution. Man does not live by bread and butter alone but by other goods and services as well. The battle against hunger may be won, but the war against poverty lost. So equally important is promoting family planning so that there are no more than two or three babies in every family. Thus the need to educate an average man about the benefits of family planning, i.e. the cost of bringing up children in terms of providing nourishing food, adequate education and proper clothing in the present conditions of high prices and high standards of living, has become imperative.

Rami Chabra has very well said - "the fact remaining that whatever we might want to do for international year of the

child, it will remain more or less an irrelevant exercise until we realise one thing; we must concentrate our energies on allowing only that number of children to be born as we can hope in providing them their birth right of life, care, health and happiness". She feels that a curtailment of, and reduction in the birth rate are an essential pre-requisite for making every child a valuable child. This she says is the primary and most important obligation we owe to our children[4].

In brief the adoption of a small family norm is a sure means of improving child health and nutrition and also maternal health. This is the reason why education and services for family planning are built into maternal and child health programmes. All maternity hospitals, PHC, and sub-centres, and all other types of institutions which provide health care for mothers & children, offer family planning services as an integral part of their programmes.

2. Trends in Family Planning Acceptance and Performance in India from 1956 to 1980

The Statistics of family welfare programme in India since 1956 could be observed from graph No. 1a and 1b. Though the family planning programme was started in early 1950, but data is available only from 1956, and even the number of acceptors (as seen from Appendix Table No.10) was quite small.

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4. K. Sadachivaiah & A.J. Ramesh "An overview of the immunization Status of The Child", p.370 op. cit.

Graph 1(a) shows the temporal variations in the total acceptors[5] of family planning since 1956. The variation are plotted in terms of percentage change in the no. of total acceptors in each consequetive year. From the statistics and graph, it is observed that there has been a constant increase in the number of family planning acceptors from 1956. 1963 and 1965-66 experience an abrupt positive change in no. of family planning acceptors. From 1965-66 onwards though a positive increase in total acceptors is observed, there is a steep fall in the percentage change in acceptors when compared to the previous years. This fall shows a negative change in the total acceptors in 1973-74 and 1974-75. The next two years experience a positive increase of 54.79 & 64.21 per cent respectively in the total acceptors of family planning. 1977-78 again shows a negative change of 63.87 per cent, though the acceptance again picked up towards the end of the decade.

Graph 1(b) shows the percentage change in equivalent sterlisation[6] from 1956 to 1980. From 1956 to 1967-68, a positive increase in the percentage of equivalent sterlisations is observed, though it does not show a constant upward trend. The next three years continuously exhibit a negative change

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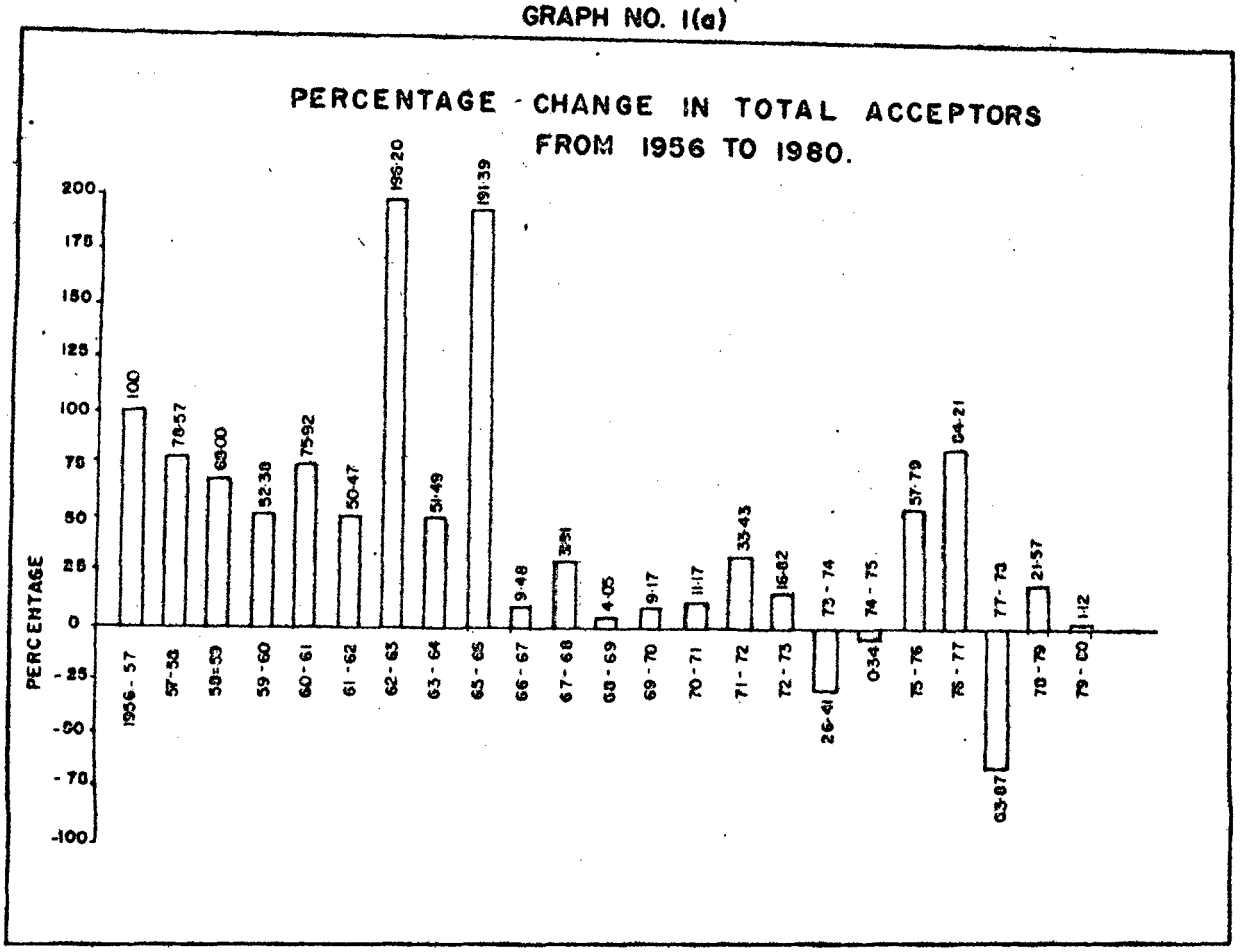
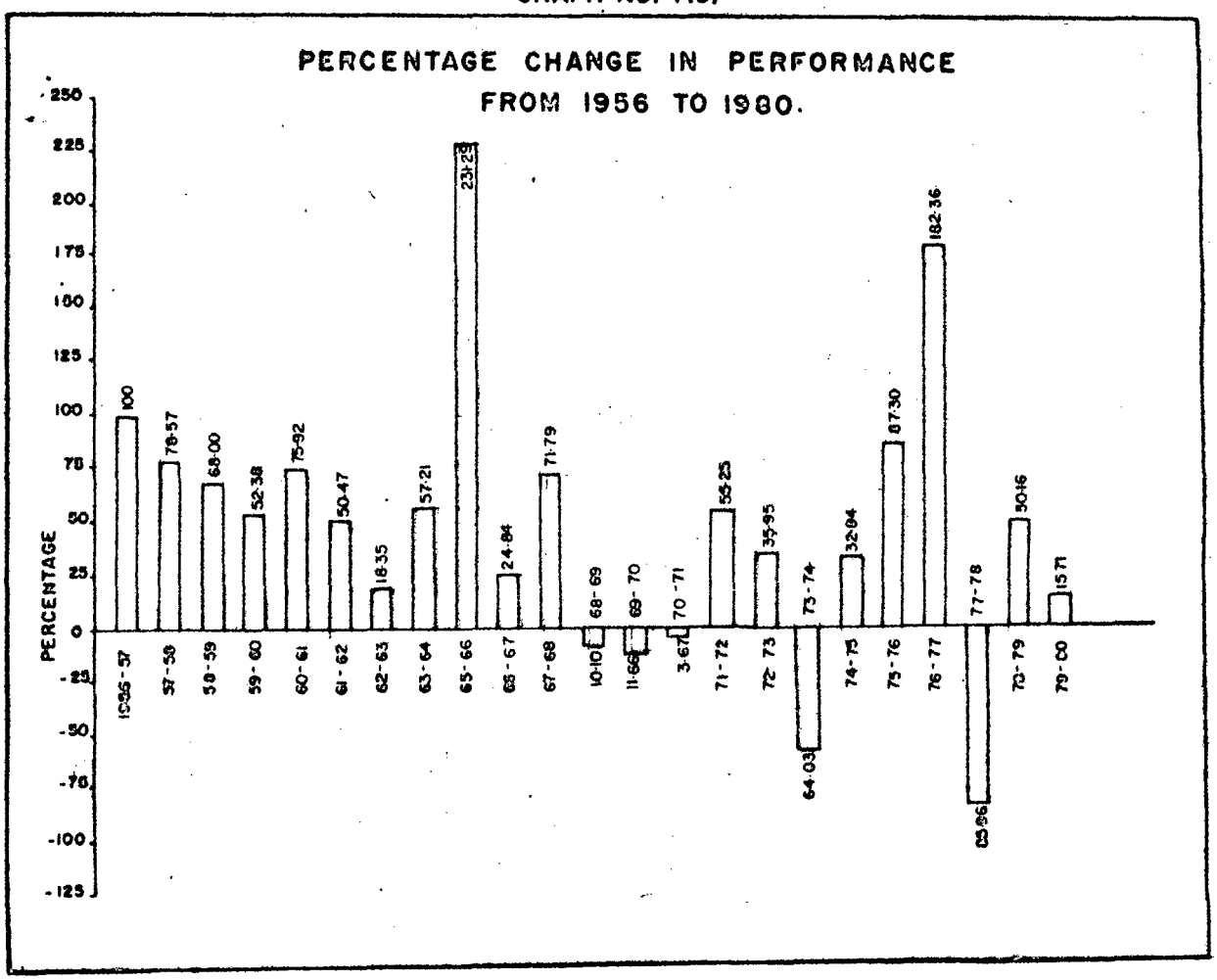
5. Total acceptors includes all methods of family planning - Sterlisations, Intra Uterine Device, Conventional Contraceptive Users.

6. Equivalent sterlisations has been calculated by adding the number of sterlisation, 1/3 the number of IUD, 1/8 the number of equivalent C.C. users and 1/9 the number of equivalent oral pill users.

GRAPH NO. 1(a)


PERCENTAGE CHANGE IN TOTAL ACCEPTORS
FROM 1956 TO 1980.
PERCENTAGE
200
175
150
125
100
75
50
25
0
-25
-50
-75
-100
1956 - 57
57-58
58-59
59-60
60-61
61-62
62-63
63-64
64-65
65-66
66-67
67-68
68-69
69-70
70-71
71-72
72-73
73-74
74-75
75-76
76-77
77-78
78-79
79-80
100
76-57
68-00
32-38
75-92
50-47
196-20
51-49
191-39
9-48
32-51
4-05
9-17
11-17
33-43
16-62
26-41
0-34
57-79
84-21
63-87
21-57
1-12

GRAPH NO. 1(b)


PERCENTAGE CHANGE IN PERFORMANCE
FROM 1956 TO 1980.
PERCENTAGE
250
225
200
175
150
125
100
75
50
25
0
-25
-50
-75
-100
-125
100
76·57
68·00
52·38
75·92
50·47
18·35
57·21
23·29
24·84
71·79
68-69
69-70
70-71
55·25
35·95
64·03
32·84
87·30
182·36
65·96
50·16
15·71
1955-57
57-58
58-59
59-60
60-61
61-62
62-63
63-64
65-66
66-67
67-68
71-72
72-73
73-74
74-75
75-76
76-77
77-78
78-79
79-80

in equivalent sterlisations. The year 1973-74 again experienced a negative change of 64.03 per cent. The performance however shows a high positive change in the subsequent years till a negative change in 1977-78 is observed.

Our analysis might be split in 5 time periods (1) from 1956 to 1965-66; (2) from 1966-67 to 1974-75; (3) 1975-76 to 1976-77; (4) 1977-78 and (5) 1978 onwards.

1. 1956 to 1965-66

Till the mid sixties, the family planning programme was based upon the clinical approach. Since the mid-sixities, the programme has been based upon an extension approach, whereby the field staff is expected to actively contact the population to encourage use by them of contraceptives and their support for the small family norm. The switch to the extension approach was based upon the recognition that the earlier clinic-oriented strategy, whereby contraceptive information and services were made available at the primary health centre, had been ineffective in bringing about large-scale use of contraceptives. The effect of this extension approach is seen in the maximum positive change in total acceptors and also in equivalent sterlisations.

2. 1966-67 to 1974-75

During the period 1966-67 to 1974-75 positive and negative changes in acceptance and performance are observed. The three successive years 1968-69, 1969-70 and 1970-71, though showed a positive change in the number of acceptors but in terms of performance the change was negative. The year 1973-74 experienced a negative change both in terms of acceptance and performance. The negative changes might be due to the

discrepancies between design and implementation, which is a characteristics of all organisations.

3. 1975-76 to 1976-77

Very impressive figures showing high positive changes in family planning acceptors and equivalent sterlisations during 1975-76 and 1976-77 are the results of significant developments having taken place during the emergency in the implementation of family planning programme in all the states.

4. 1977-1978

The acceptance and performance during the year 1977-78 has to be viewed in the context of immense harm done to the family planning programme by harsh measures adopted during the preceding years and wholly voluntary approach been enunciated since April, 1977, under the new policy.

5. From 1978, India's family planning program, with voluntary sterlisation as its centrepiece, appears to be recovering slowly from its almost fatal illness.

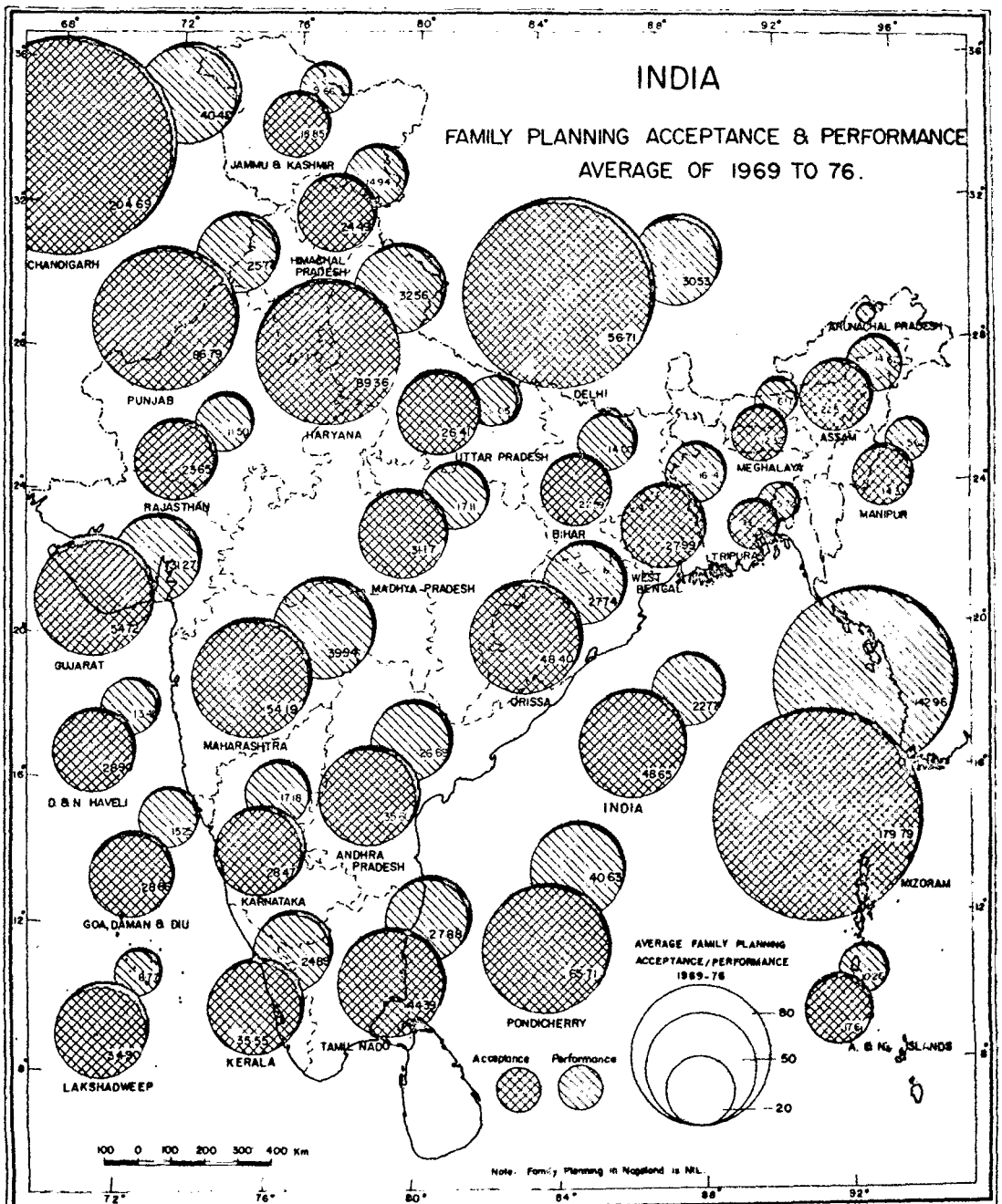
3. Family Planning Acceptance And Performance: State Level Analysis

3(a) Family Planning Acceptance

The family planning acceptance rate has been calculated as an average for the years 1969 to 1976, per thousand currently married couples in the reproductive age group (Map No.9, App. Table No.11).

For India, the average family planning acceptance rate is 47.65 per thousand currently married couples in the reproductive age group. The mean distribution is 4932 with a C.V. 97 percent. Very high acceptance rate of above 150

MAP NO. 9



Based upon Survey of India map with the permission of the Surveyor General of India

The territorial water of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line

The boundary of Meghalaya shown on this map is as interpreted from the North-Eastern Areas (Reorganisation) Act, 1971, but has yet to be verified

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is observed in Chandigarh (204.09), followed by Mizoram (179.79) and Delhi (156.71). High concentration between 90 to 50 per thousand currently married couples in the reproductive age group is revealed by Haryana, Punjab, Pondicherry, Gujarat and Maharashtra.

The medium concentration having acceptance rate of 50 to 25 per thousand currently married couples in the reproductive age group includes the states of Andhra Pradesh, Karnataka, Kerala, Madhya Pradesh, Tamil Nadu, Uttar Pradesh, West Bengal and the Union Territories of Dadra and Nagar Haveli, Goa, Daman & Diu and Lakshadweep.

In the low concentration range of below 25 acceptors per thousand currently married couples, Arunachal Pradesh has the lowest rate of 0.78, followed by Tripura (10.33). Other states and union territories included are Assam, Bihar, Himachal Pradesh, Jammu & Kashmir, Manipur, Meghalaya, Rajasthan and Andaman & Nicobar Islands.

3(b) Family Planning Performance

The data on sterilisation, I.U.D.* and C.C.£ users has been converted into one single unit of measurement known as equivalent sterilisation or family planning performance. While converting different methods of family planning into equivalent

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* I.U.D. is intrauterine Device

£ C.C. is conventional contraceptives.

sterilisations; each case of sterilisation (tubectomy or vasectomy) has been given the value of one, every three intra uterine device insertions have been equated with one sterilisation and every 12 conventional contraceptive users with one case of sterilisation. This index of family planning performance is again measured as per 1000 currently married couples in the reproductive age group (Map No.9) and is taken as an average for the years 1969 to 1976.

The average equivalent sterilisation rate in India for the years 1969 to 1976, has been 22.77, with a mean of 23.56 and C.V. of 105.17 percent.

High concentration of above 30 equivalent sterilisations per 1000 currently married couples in the reproductive age group is registered in 3 states and 4 union territories. Exceptionally high performance rate of 142.96 is observed in Mizoram. Next in the hierarchy are Chandigarh (40.48) and Pondicherry (40.63). Maharashtra, Haryana, Gujarat and Delhi are among the others to get included in this range.

The medium concentration between 18 to 30 equivalent sterilisations per thousand currently married couples in the reproductive age groups is exhibited by Andhra Pradesh, Karnataka, Kerala, Madhya Pradesh, Orissa, Punjab, Tamil Nadu, West Bengal and Goa, Daman & Diu.

Low concentration includes Assam, Bihar, Himachal Pradesh, Jammu and Kashmir, Manipur, Meghalaya, Rajasthan, Tripura, Uttar Pradesh, Andaman & Nicobar Islands, Arunachal Pradesh and Lakshadweep, where the rate is below 18.

4. Effectively protected couples by different methods

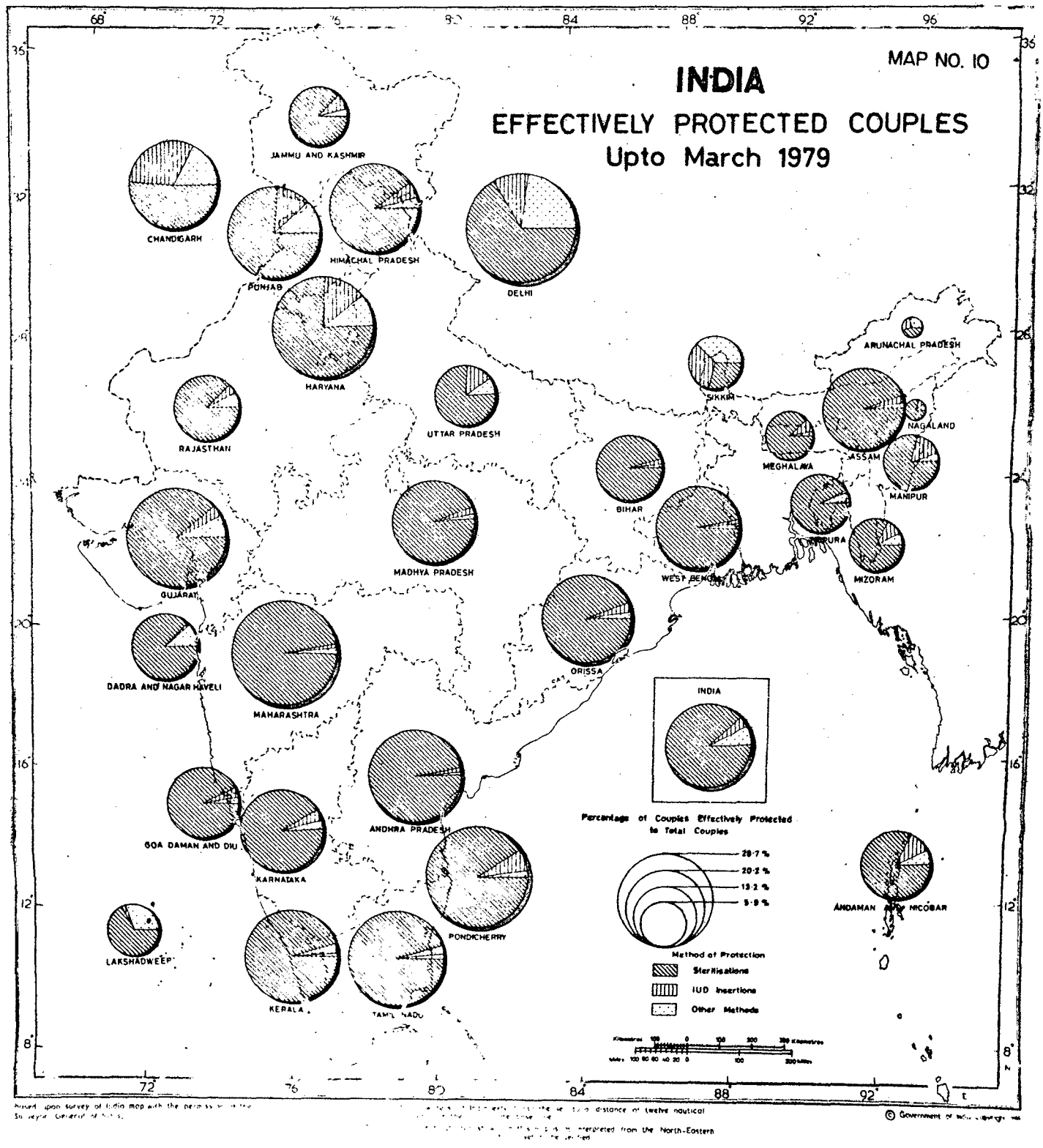
The impact of family welfare programme revealed by Map No.10 shows the percentage of effectively protected couples in the reproductive age group by sterilisations, intra uterine device insertions and other methods for the year 1979. The national average reveals that 22.8 per cent of the total couples in the reproductive age are effectively protected. The mean percentage is 18.80 and the conventional contraceptive 53.42 percent (Appendix Table No.12).

The highest share of effectively protected couples is observed in Delhi (36.6 per cent). Other states and union territories which fall in the high concentration of above 25 per cent effectively protected couples are, Andhra Pradesh, Gujarat, Haryana, Kerala, Maharashtra, Punjab, Tamil Nadu and Pondicherry.

The medium concentration where 20 to 25 per cent of the couples in the reproductive age group are effectively protected, includes the states of Assam, Himachal Pradesh, Karnataka, Madhya Pradesh, Orissa, West Bengal and Union territory of Chandigarh.

The low concentration, where less than 20 per cent of the couples are effectively protected covers the states and union territories of Bihar, Jammu and Kashmir, Meghalaya, Nagaland, Rajasthan, Sikkim, Tripura, Uttar Pradesh, Andaman & Nicobar Islands, Arunachal Pradesh, Dadra & Nagar Haveli, Goa Daman & Diu, Lakshadweep and Mizoram.

Of the three different methods of protection at the national level sterilisation accounts for 80.68 percent, intrauterine device insertions 3.95 per cent and other methods of protection account for 7.46 per cent of the total



Based upon survey of India map with the permission of the Surveyor General of India.

... distance of twelve nautical ...

... interpreted from the North-Eastern ...

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effectively protected couples.

Of the different methods used for effective protection, sterilisations have the maximum contribution. High concentration (above 93 per cent) of the total couples effectively protected in the reproductive age group by sterilisations are in Andhra Pradesh, Assam, Bihar, Kerala, Madhya Pradesh, Maharashtra, Tamil Nadu and West Bengal. In Gujarat, Himachal Pradesh, Jammu and Kashmir, Karnataka, Meghalaya, Nagaland, Orissa, Rajasthan, Tripura, Dadra and Nagar Haveli, Goa, Daman and Diu and Pondicherry, 85 to 95 percent of the effectively protected couples are by sterilisation. Low concentration less than 85 percent exists in Haryana, Manipur, Punjab, Sikkim, Uttar Pradesh, Andaman and Nicobar Islands, Arunachal Pradesh, Chandigarh, Delhi, Lakshadweep and Mizoram.

Intrauterine Device insertions have the maximum share in Sikkim (33.77 percent) followed by Chandigarh (31.02)percent), and Arunachal Pradesh (23.08 percent). Others which have a share of above 6 percent are Haryana, Jammu and Kashmir, Manipur, Meghalaya, Nagaland, Punjab, Uttar Pradesh, Andaman and Nicobar Islands Delhi, Mizoram and Pondicherry. A share of 3 to 6 percent occurs in Gujarat, Himachal Pradesh, Karnataka, Kerala, Orissa, Rajasthan and Goa, Daman and Diu. The lowest share of intra uterine device insertion exists in Dadra and Nagar Haveli (0.70 percent), followed by Tripura (0.98 percent). Less than 3 percent share exists in Andhra Pradesh, Assam, Bihar, Madhya Pradesh, Maharashtra, Tamil Nadu, West Bengal and Lakshadweep.

The share of other methods of effective protection used is high (above 10 percent) in Haryana, Punjab, Sikkim,

Arunachal Pradesh, Chandigarh, Dadra and Nagar Haveli, Delhi and Lakchadweep. 3 to 10 percent of the couples effectively protected by other methods are in Gujarat, Himachal Pradesh, Jammu and Kashmir, Karnataka, Manipur, Nagaland, Rajasthan, Tripura, Uttar Pradesh, Andaman and Nicobar Islands and Mizoram. Other methods in use have the lowest share (0.75 percent) in Andhra Pradesh. Other states and union territories which have a share of less than 3 percent are Assam, Bihar, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Orissa, Tamil Nadu, West Bengal, Goa, Daman and Diu and Pondicherry.

5. Summary and Conclusion

To conclude, family planning acceptance is quite low in India, where only 47.65 couples in the reproductive age group have adopted any method of family planning. The performance rate goes down further to 22.77 per 1000 currently married couples in the reproductive age group. Of the couples effectively protected sterlisation is the most adopted method. The characteristics of sterlisation acceptors reveal that the mean age of acceptance was 30.6 and mean No. of living children was 3.4[7]. For Intra Uterine Device insertion, the mean age of acceptance was 28.2 and mean no. of living children was 2.8[8]. It is observed that the states of Haryana, Punjab, and the union territories of Chandigarh, Delhi, Pondicherry and Mizoram maintain the traditional lead over the other states in terms of family planning.

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7. Family Welfare Programme in India. Year Book 1978-79, Govt. of India, Ministry of Health & Family Welfare, Department of Family Welfare, New Delhi.

8. Ibid.

Mr. J.R.D. Tata who is currently the Chairman of J.P. Foundation in Madras on June 1982 in an answer to the question that why our country failed to restrict the explosive increase in population said 'that family planning called for greater plan allocation for executing family planning measures and for propogating the message of planned parenthood'. He also said that "the magnitude of the threat to the economic growth of the country, is so great that the funds that are set aside for this purpose are far inadequate". He added that the percentage of funds allocated to this vital area in the total plan outlay had actually been going down from plan to plan.

Mr. Tata also pointed to another discouraging factor in the control over population growth. He said that the basis on which the number of parliamentary seats were allocated to the states discriminated against those states which had managed to arrest rise in population. At present, the number of member of Parliament from each state depended upon its population. That meant that a state which had successfully implemented the family planning programme was penalised. This anamoly, he said, needed to be set right"[9].

Another very important point mentioned by Dr. Karan Singh (Union Minister for Health in 1974) was "it has to be reiterated that family planning is not any magic panacea for all the ills of the country, but is one of the many instruments that are to be used in the massive assault on

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9. "Facts for You" A Bimonthly on Economic Affairs, July-Aug.1982, pp.7 Printed and Published by Ramesh Chopra on behalf of M/Y Interprises Pvt. Ltd. 303 Dohil Chambers, 46, Nehru Place, New Delhi-110019.

the citadels of poverty that we have envisaged in the fifth plan. It must become part of our total approach to the socio-economic problems that we face at this crucial juncture in our history. It is not possible any longer to look upon family planning as a programme standing in isolation. It has got to be integrated into the entire complex of health and nutrition programmes and must reach the remotest rural areas and the urban slums where the vast majority of our people reside"[10].

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10. Karan Singh, "P.P. In India, Basic Tenets", Proceedings of the National Symposium on Labour and Population Policies, Ministry of Labour, New Delhi, April 1974.

CHAPTER V

CORRELATES OF CHILD HEALTH AND FAMILY PLANNING

Introduction

In this chapter, an attempt has been made to correlate the variables related to child health and family planning with various socio-economic variables to work out the degree of relationship between two/more than two variables and the extent of dependence between the dependent and a set of independent variables.

The child-health is represented by infant mortality rate, and child death rate between 0-4 age group and 5-14 age group. The family planning is represented by Family Planning Acceptance amongst the currently married couples (average of the period between 1969 to 1976).

The following is the list of variables included for correlation and regression analysis.

S.No.	Variable No.	Title
1.	X_1	Infant mortality per 1000 live births.
2.	X_2	Percentage of deaths in the age 0-4 years to total deaths.
3.	X_3	Percentage of deaths in the age 5-14 years to total deaths.
4.	X_4	Percentage of scheduled caste and scheduled tribe children to total children.
5.	X_5	Percentage of scheduled caste and scheduled tribe population to total population.
6.	X_6	Adult Literacy rate (15 years & above).
7.	X_7	Adult female literacy rate (15 years and above).

8.	X_8	Death rate
9.	X_9	Birth rate
10.	X_{10}	Doctors per 1000 population
11.	X_{11}	Medical facilities per 1000 population
12.	X_{12}	Average family planning acceptance per thousand currently married couples
13.	X_{13}	Percentage of agricultural workers to total workers
14.	X_{14}	Percentage of female workers to total workers
15.	X_{15}	Percentage of urban population to total population
16.	X_{16}	Percentage of maternal deaths to total female deaths
17.	X_{17}	Percentage of Married Children to total children

Of these, X_1, X_2, X_3 and X_{12} have been considered as dependent variables and the rest are treated as independent variables while attempting the regression analysis. The independent variables have been grouped into educational, economic, social and demographic and health variables for analysis and interpretation of simple correlations between the variables. However, for multiple correlation and regression exercises, selection was made out of the significant variables for further interpretation.

PART I

A. CHILD HEALTH - ANALYSIS OF CORRELATION

a. Educational Variables

The educational variables taken here are two fold:

(a) Adult literacy rates (above 15 years of age)

(b) Adult female literacy rates (above 15 years of age).

The following hypothesis are put forward for test. (1) Higher the level of adult literacy, lower would be the infant mortality and also the percentage of deaths in the ages 0-4, and 5-14 years.

(2) Higher the level of adult female literacy, lower would be the infant mortality rate and lower would be the percentage of deaths in the age groups 0-4 and 5-14 years. Literacy of the parents affects the child, because the child is totally dependent on his parents for the care he received.

The relationships worked out show a negative significant correlation of infant mortality rate with both percentage of adult literacy and adult female literacy, where r is -0.402 and -0.416 respectively, significant at 98 per cent level of confidence. When these educational variables were correlated with the second dependent variable i.e. percentage of deaths in the age 0-4 years to total deaths, the relationship was insignificant. The correlation between the percentage of deaths in the age group 5-14 years and adult literacy rate is highly negative (-0.454) significant at 93 per cent level of confidence. With adult female literacy also, the relation is confirmed with r = -0.4179, significant at 95 per cent level of confidence.

Thus the hypothesis holds true at two stages only. When literacy rate is high, infant mortality and deaths in the age 5-14 years are low. But with deaths in the age 0-4 years, the hypothesis gets rejected.

b. Social and Demographic Variables

It includes (1) percentage of Scheduled Caste and Scheduled Tribe children to total children; (2) Percentage of urban population to total population.

Here the following postulation is tested. (1) Higher the percentage of Scheduled Caste and Scheduled Tribe children higher would be; (i) the infant mortality rate, (ii) deaths in the age 0-4 years, and (iii) 5-14 years;
(2) Higher the proportion of urban population to total population, lower would be; (i) the infant mortality rate, (ii) deaths in the age 0-4, and (iii) 5-14 years.

The first hypothesis has been postulated keeping in mind that the death-rate is likely to be high in the socially and economically backward communities. Majority of the backward class in India is also illiterate, lives under poor environmental hygiene and has a poor access to nutritive foods.

The second hypothesis stems from the belief that in the urban areas because of better medical facilities, greater chances of deliveries to be conducted in hospitals and hospital like institutions by trained medical personnels, better anti-natal and post-natal care facilities, relatively high rate of literacy amongst the mothers, reduces the child death rate.

The co-efficient of correlation of infant mortality rate percentage of Scheduled Caste and Scheduled Tribe children to total children, though positive, is quite low and significant only at 90 per cent level of confidence ($r = +0.293$). When deaths in the age 0-4 years are correlated with percentage of Scheduled Caste and Scheduled Tribe children, a very low positive relationships is obtained, which is insignificant. However,

TABLE No. 5

Correlation Coefficients of Infant Mortality Rate with other Socio-Demographic & Economic Variables

Variables	r	't' Value	
X1.4	0.298	1.71	d
X1.6	- 0.402	- 2.49	b
X1.7	- 0.416	- 2.61	b
X1.8	0.653	4.70	a
X1.9	0.330	1.93	d
X1.10	- .4166	- 2.24	a
X1.12	- 0.350	- 2.07	c
X1.13	0.445	2.86	a
X1.15	- 0.401	- 2.48	b

a Significant at 99 percent level of Confidence.
b Significant at 98 percent level of Confidence.
c Significant at 95 percent level of Confidence.
d Significant at 90 percent level of Confidence.

when the same is correlated with deaths in the 5-14 age group, the coefficient of correlation is observed to be positive, where r = 0.423, significant at 95 per cent level of confidence. Thus though the infant mortality rate is high in Scheduled Caste & Scheduled Tribe children deaths among children in the age 0-4 years are not high. But in 5-14 years i.e. in the growing age, the percentage of deaths again shows an increase.

The correlation of urban population with infant mortality rate; deaths in the age 0-4 and 5-14 years gives significant results. The correlation coefficient is significant with all three variables selected, with r -0.401, -0.375, and -0.4302 significant at 98 per cent, 90 per cent and 95 per cent level of confidence respectively, proving the hypothesis that child death is lower in urban areas.

c. Economic Variables

Only one economic variable has been selected i.e., percentage of agricultural workers to total workers. Relating to the nature of the variable the hypothesis put forward is: (i) Higher the percentage of agricultural workers to total workers, higher would be (i) the infant mortality rate (ii) deaths in the age 0-4, and (iii) deaths in 5-14 years of age.

The analysis reveals that a high positive correlation exists between infant mortality rate and agricultural workers, of the order of 0.445, significant at 99 per cent level of confidence. The relationship shows that infant mortality rate is high in rural areas where 75 per cent workers are engaged in agricultural activities.

TABLE NO. 6

Correlation Coefficients of Percentage of Child deaths in the age 0 to 4 years to total deaths (X_2) with other Variables

S.No.	Variables	r	't' Value	
1	$X_{2.4}$	0.1480	0.7346	c
2	X2.6	- 0.05	- 0.245	
3	X2.7	- 0.0409		
4	X2.9	0.444	2.43	c
5	X2.10	.0965	.4749	c
6	X2.12	0.3428	1.78	d
7	X2.13	- .2297	- 1.15	
8	X2.15	0.375	1.98	d

c Significant at 95 percent level of Confidence.
d Significant at 90 perSent level of Confidence.

Agricultural workers show a positive significant correlation with deaths in the age-group 5-14 years, and negative insignificant correlation with deaths in the age group 0-4 years. The correlation coefficient is low positive, with r = 0.3707, significant at 90 per cent level of confidence, with child deaths in the age 5-14 years. The negative insignificant correlation with deaths in the age 0-4 years explains that children in this age group are not affected by the rural setting. Thus the hypothesis is proved at two stages and could therefore be said that infant mortality rate and deaths in the age 5-14 years are high in rural areas but not in the age 0-4 years.

4. Health Variables

Three types of health variables have been included

(1) Birth rate;

(2) Doctor Population ratio, and

(3) Average family planning acceptance per thousand currently married couples.

The following typothesis are putforth regarding the health variables;

(1) Higher the birth rate, higher would be the death rate among children;

(2) Higher the availability of doctors per unit of population (indicating better health care facilities), lower would be the death rate and infant mortality rates;

(3) Higher the infant and child mortality rates, higher would be the desire for larger number of children and consequently lower would be the family planning acceptance.

With birth rate, infant mortality rate and child death rate show a positive correlation, significant at 99 per cent and

90 per cent level of confidence respectively implying that when birth rate is high, child deaths are also high. The correlation coefficient of birth rate with infant mortality rate is +0.330, significant at 90 per cent level of confidence. The birth rate when correlated with deaths in the age 0-4 years, shows a high correlation coefficient of 0.444, significant at 98 per cent level of confidence. With child deaths in the age 5-14 years, the correlation coefficient is again positive (r = 0.3557) and significant at 80 per cent level of confidence.

Doctor population ratio shows a relationship with infant mortality rate proving that where doctor population ratio is high, infant mortality rate is low, the correlation coefficient being -0.4166, significant at 95 per cent level of confidence. The relationship of doctors and deaths in the age 0-4 years is positive, but insignificant. With deaths in the age 5-14 years, the relationship is again negative, with a correlation coefficient of-0.4453, significant at 95 percent level of confidence.

Average family planning acceptance per thousand currently married couples and infant mortality correlation proves that infant mortality rate is low where family planning acceptance is high. The coefficient of correlation is -0.350 which is significant at 95 per cent level of confidence. On the contrary, average family planning acceptance when correlated with percentage of deaths in the age 0-4 years, reveals a positive correlation of the value of 0.3423 significant at 90 per cent level of confidence. But when related with deaths in the age 5-14 years, the correlation coefficient is again negative

TABLE NO. 7

Correlation Coefficients of Percentage of Child deaths in the age 5 to 14 years to total deaths (X3) with other variables

S.No.	Variables	r	't' Value	
1.	X3.4	0.4243	2.29	c
2.	X3.6	- 0.454	- 2.49	b
3.	X3.7	- 0.4179	- 2.25	c
4.	X3.9	0.3557	1.86	d
5.	X3.10	- .4453	- 2.43	b
6.	X3.12	- 0.3919	- 2.08	c
7.	X3.13	0.3707	1.95	d
8.	X3.15	- .4302	- 2.33	c

b Significant at 98 percent level of Confidence.
c Significant at 95 percent level of Confidence.
d Significant at 90 percent level of Confidence.

(-0.319) which is significant at 95 per cent level o
The situation could be explained so and when infant mortality rate is high, family planning acceptance is low because parents want to make sure that at least a few of their children survive to look after them. Parents generally adopt family planning measures after having say 2 or 3 children and wait to see their survival because of which a significant correlation is not obtained with deaths in the age group of 0-4 years.

The analysis shows that child health is dependent on the above mentioned socio-economic and demographic variables. Infant mortality rate and deaths in the age group 5-14 years show direct correlations. But deaths in the age group 0-4 years do not show their dependency on these variables which means that there are other factors beside these which control child health. Various studies have shown that premature births, low birth weight, mothers health at the time of pregnancy etc. all have an important part in determining the health status or the morbidity and mortality rates. Besides in this early age group, the environmental factors, feeding habits, the type of food given to children, child care, the number of children in the family etc. combined together, determine the health of the child. Once the child gains resistance and passes this crucial stage, the socio-economic factors again dominate in his health status.

B. Multiple Correlation and Regression Analysis

After computing the simple correlation coefficients, multiple correlations have been worked out which represent the coefficient of multiple linear correlation between X_1 to X_3 on the one hand and X_4 to X_{17} on the other hand. In order to know

the average relationship between these variables, regression analysis has been attempted.

The regression equation takes the form of: $X_{1.23} = a_{1.23} + b_{12.3} X_2 + b_{13.2} X_3$ where X_1 is the explained variable and X_2 and X_3 are the explanatory variables; 'a' is the intercept and $b_{12.3}$ and $b_{13.2}$ are the regression coefficients[a]. To know whether the regression coefficients are significant, 't' test[b] has been applied. 'F' test[c] was applied to know the level of significance of the coefficient of multiple correlation.

A number of regression equations were attempted but only a few were significant and have been explained here. These regression equations are given in table No.8.

The regression of infant mortality rate on percentage of agricultural workers to total workers (X_{13}) and birth rate (X_9) explains the maximum, where the multiple correlation

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(a) The regression coefficient is calculated in the following way:

$$b_{12.3} = \frac{\sigma 1}{\sigma 2} \times r_{12} - \frac{r_{13} - r_{23}}{1-r_{23}^2}$$

$$b_{13.2} = \frac{\sigma 1}{\sigma 3} \times r_{13} - \frac{r_{12} - r_{23}}{1 - r_{23}^2}$$

(b) $$t = r \sqrt{\frac{n-2}{1-r^2}}$$

(c) $$F = \frac{R^2}{1 - R^2} \times \frac{N - p - 1}{p}$$

Where N = number of observations; p = number of variables used in the measurement of multiple correlation.

TABLE NO: 8

REGRESSION EQUATIONS

Sl. No.		R	R^2	F Test
1.	$X_{1.9\ 13} = -78.83 + \underset{(2.90)}{3.16}X_9 + \underset{(2.14)}{1.27}X_{13}$	.492	.243	3.70**
2.	$X_{1.10\ 15} = 2641.06 - \underset{(2.90)}{251.23}X_{10} - \underset{(2.14)}{102.43}X_{15}$	.486	.237	3.58**
3.	$X_{1.10\ 12} = 8.45 - \underset{(2.90)}{98.38}X_{10} - \underset{(1.83)}{2.26}X_{12}$	.478	.229	3.52**
4.	$X_{2.10\ 13} = 4.31 + \underset{(1.92)}{12.10}X_{10} + \underset{(1.71)}{14.31}X_{13}$	.501	.250	3.72**
5.	$X_{2.9\ 15} = 167.39 + \underset{(2.42)}{.682}X_9 + \underset{(1.98)}{7.15}X_{15}$	.604	.366	6.63*
6.	$X_{2.9\ 12} = 6.13 + \underset{(2.42)}{.563}X_9 + \underset{(1.78)}{.44}X_{12}$	.510	.261	4.06**
7.	$X_{3.6\ 10} = 17.97 - \underset{(2.49)}{.178}X_6 + \underset{(1.78)}{10.55}X_{10}$	.931	.867	75.09*
8.	$X_{3.10\ 7} = 14.50 - \underset{(1.78)}{9.52}X_{10} - \underset{(2.24)}{.154}X_7$	.885	.783	41.66*
9.	$X_{3.10\ 15} = 101.29 - \underset{(1.78)}{6.21}X_{10} - \underset{(2.33)}{3.82}X_{15}$	.757	.574	12.32*
10.	$X_{3.13\ 10} = 4.72 + \underset{(1.98)}{.098}X_{13} - \underset{(1.79)}{9.54}X_{10}$	.847	.717	29.26*
11.	$X_{3.9\ 10} = 101 + \underset{(1.86)}{.275}X_9 - \underset{(2.34)}{5.95}X_{10}$	.654	.429	8.66*
12.	$X_{3.9\ 15} = 52.39 + \underset{(1.86)}{.132}X_9 - \underset{(2.39)}{.206}X_{15}$	.494	.244	3.72**

* Significant at 99 per cent level of Confidence.
** Significant at 95 per cent level of Confidence.

Figures in parenthesis are 't' values of regression co-efficients.

coefficient (R) is .492 explaining 24.3 per cent of the total effect and is significant at 95 per cent level of confidence. Both these factors are hindrances in bringing down the infant mortality rate. The regression coefficients are 3.16 and 1.27 respectively for X_9 and X_{13}, meaning that one unit change in infant mortality rate is brought by 3.16 and 1.27 units of these variables respectively.

Infant mortality rate depends on urban population to total population (X_{15}) and doctor population ratio (X_{10}) to the extent of 23.7 per cent. The regression coefficients are 102.43 and 251.23 respectively. Thus, one unit change in infant mortality rate is brought out by 251 and 102 units of doctors and urban population respectively.

The third regression equation of infant mortality rate is with doctor population ratio (X_{10}) and family planning acceptance (X_{12}). The multiple correlation coefficient of infant mortality with these variables is .478, explaining 22.9 per cent of the effect, significant at 95 per cent level of confidence. The regression coefficients for the two variables are 98.39 and 2.26 respectively.

X_2 i.e. deaths in the age 0-4 years, when related with available doctors (X_{10}) and agricultural workers (X_{13} equation 4), the multiple correlation coefficient is.501, explaining 25.02 per cent of the variations in X_2. The regression coefficients are 12.10 and 4.31 respectively for X_{10} and X_{13} respectively.

Birth rate (X_9) and urban population (X_{15}) and birth rate and family planning (X_{12}), when correlated with X_2 independently (equations 4 and 5), have a multiple correlation coefficient of .604 and .510, explaining 36.6 and 26.1 per cent of the

total effect respectively, both being significant at 99 per cent level of confidence. This shows that when birth rate is kept constant, urbanisation plays a more important part in reducing deaths in the a ge 0-4 years, as we find that R^2 gets reduced when family planning acceptance is correlated with birth rate.

A strong multiple correlation coefficient of .931 explaining 86.7 per cent of the effect is observed with adult literacy (X_6) and doctors per thousand population (X_{10}) on child deaths in the age 5-14 years (X_3). The regression coefficients are .1789 and 5.95 respectively.

Doctors available per thousand population (X_{10}) and female literacy (X_7) together have a multiple correlation coefficient of .885 with X_3, explaining 78.77 per cent of the variations, significant at 99 per cent level of confidence. When in place of female literacy, urban population is introduced together with doctors per 1000 population, the correlation coefficient reduces (equation 9). The multiple correlation coefficient is .757, significant at 99 per cent level of confidence. The regression coefficients are 6.21 and 3.82 respectively for X_{10} and X_{15}, thereby bringing a change in X_3 by 6.21 and 3.82 units of these variables.

A strong multiple correlation coefficient of .8472 is observed when X_3 is correlated with X_{13} i.e. agricultural workers and doctor population ratio (X_{10}); explaining 71.79 per cent of the variations. .098 unit change in agricultural workers increases the deaths in the age group 5-14, by one unit. But one unit decrease in X_3 is brought out by 9.54 units change in doctor population ratio.

When X_9 (birth rate) and X_{10} (doctors per thousand population) are related with X_3 (percentage deaths in the age group 5-14 years), the correlation coefficient is .654 explaining 42.96 per cent of the variations in X_3. However, when urban population (X_{15}) is introduced with birth rate (X_9) to observe the effect on X_3, R reduces to .494 explaining only 24.49 per cent of the total variation, being significant at 95 per cent level of confidence.

Thus we observe, that reducing birth rate and agricultural workers or promoting family planning acceptance alone do not bring down the number of child deaths. These when accompanied by an increase in the number of doctors available, urban population and literacy rates, help in reducing the child deaths at different stages.

PART-II FAMILY PLANNING - ANALYSIS OF CORRELATION

This part deals with the correlates of family planning acceptance. The variables included to measure the inter-relationship between important variables of family planning are as follows:-

(a) Educational Variables
  (1) Literacy rates among adults (aged 15 years and above) (X_6)
  (2) Adult female literacy rates (X_7)

(b) Economic Variables
  (3) Percentage of agricultural workers to total workers (X_{13})
  (4) Percentage of female workers to total workers (X_{14})

(c) Social Variables
  (5) Percentage of Scheduled Caste and Scheduled Tribe population to total population (X_8)

(6) Percentage of urban population to total population (X_{15})

(d) Health Variables

(7) Death Rate (X_8)

(8) Infant Mortality Rate (X_1)

(9) Doctor population ratio (X_{10})

The dependent variable is average family planning acceptance per 1000 currently married couples (X_{12}).

(a) To test the validity of the educational variables, the following hypothesis have been postulated.

(1) Higher the percentage of adult literates, higher would be the family planning acceptance;

(2) Higher the percentage of adult female literates, higher would be the family planning acceptance.

From table 9, it is clear that a significant positive correlation exists between family planning acceptance and the literacy rates. A high positive correlation of 0.562 significant at 99 per cent level of confidence is observed with adult literacy rate. The correlation of family planning acceptance has a higher coefficient with adult female literacy rate than with the general adult literacy rate thereby showing that though literacy is an important factor in explaining family planning acceptance, adult female literacy plays a more vital role. The coefficient of correlation with adult female literacy rate is calculated to be 0.620, significant at 99 per cent level of confidence.

(b) Regarding the economic variables the hypothesis putforward are:

TABLE NO. 9

Correlation Coefficients of Family Planning acceptance (X12) with other variables

S.No.	Variables	r	't' Value	
1.	X12.1	- 0.350	2.25	b
2.	X12.5	- .302	1.87	d
3.	X12.6	- .562	4.41	a
4.	X12.7	- .620	5.22	a
5.	X12.8	0.467	3.32	a
6.	X12.10	- 0.433	2.98	a
7.	X12.11	- 0.268	1.62	
8.	X12.13	- 0.614	5.13	a
9.	X12.14	- 0.413	2.80	a
10.	X12.15	- 0.844	11.10	a

a Significant at 99 percent level of Confidence.
b Significant at 98 percent level of Confidence.
d Significant at 90 percent level of Confidence.

(3) Higher the percentage of agricultural workers to total workers, lower would be the family planning acceptance by currently married couples.

(4) Higher the percentage of female workers to total workers, higher would be the family planning acceptance.

The results prove that a negative correlation is established with agricultural workforce and female workers. The coefficient of correlation being -0.614 and -0.413, significant at 99 per cent, and 98 per cent level of confidence respectively. The negative correlation between family planning acceptance and agricultural workforce denotes that family planning acceptance in rural areas is less effective as more than 80 per cent of the work force belongs to those area. Thus the hypothesis that family planning acceptance should be high where female workers are high, gets rejected. This might be due to the nature of the data, where among the female workers majority of them would be employed in the agricultural sector and hence family planning acceptance is low. But by bringing more female in workforce that is educating them and bringing them out of the houses, would actually lead to higher acceptance of family planning by them.

(c) With social and demographic variables the hypothesis tested is that

(5) Higher the percentage of Scheduled Caste and Scheduled Tribe population to total population, lower would be the family planning acceptance;

(6) Higher the percentage of urban population to total population, higher would be the family planning acceptance.

Family Planning acceptance is observed to be low in Scheduled Caste and Scheduled tribe population. The correlation coefficient of family planning acceptance and percentage of

scheduled caste and scheduled tribe population to total population is negative, but low. The value of r is -0.3012, significant at 90 per cent level of confidence.

A strong positive correlation of 0.844 is observed between family planning acceptance by the currently married couples and urban population, significant at 99 per cent level of confidence. This indicates that family planning acceptance is a phenomenon of urbanisation.

(6) Two hypothesis have been made with health variables.

(7) Higher the infant mortality rate, lower would be the family planning acceptance.

(8) Higher the doctor population ratio and medical facilities, higher would be the family planning acceptance.

There exists a negative correlation between family planning acceptance and infant mortality rate of the order of -0.350, significant at 95 per cent level of confidence, implying that, higher the infant mortality rate lower is the family planning acceptance. With doctor population ratio and medical facilities per 1000 population negative correlation of -0.443 and -.268 significant at 99 and 90 per cent level of confidence is observed which proves the hypothesis wrong. It shows that family planning acceptance is not related with doctors or medical familities available, but on some other factors.

Besides the aforesaid correlations we observe that positive correlation of family planning is observed with death rate (r = 0.467 significant at 99 per cent level of confidence) which almost brings a naive. It is perhaps due to the late acceptance of family planning methods by the older couples, who have already given birth to two or more children. That is why

its effect is not visible on both birth rate and death rate.

Regression Analysis

(X_{12}) Average Family Planning Acceptance of currently Married couples.

A number of independent variables like (1) percentage of child population to total population; (2) literate children as percentage to total children aged 5-14; (3) adult female literacy rate; (4) birth rate; (5) death rate; (6) infant mortality rate; (7) population doctor ratio; (8) medical facilities per 1000 population; (9) percentage of agricultural workers to total workers; (10) percentage of female workers to total workers; (11) percentage of urban population to total population (12) percentage of married female children to total married females and (13) maternal mortality as percentage to total female deaths have been introduced in regression equation to find out the determinants of family planning acceptance of currently married couples which is taken as the deppndent variable.

The significant result is obtained at 5th step (Table No.10) with the variables like percentage of urban population (X_{15}), maternal mortality (X_{16}), birth rate (X_9), married female children (X_{17}) and female workers (X_{14}). The multiple correlation coefficient (R) is 0.926 which explains 85.75 per cent of the total effect and is significant at 99 per cent level of confidence. Though the intercept (-74.535) and the standard error of estimates (18.346 adjusted for d.f.) are greater, the standard error of individual regression coefficients are nearer to zero making the equation liable to be put for any hypothesis with approval.

TABLE NO: 10

REGRESSION EQUATION : FAMILY PLANNING (X_{12})

Step No.	Dependent Variable	Independent variables	Intercept	Reg.Coefficient	Computed 't' value	$\bar{R}$	$\bar{R}^2$	F-Test (adjusted for D.F)
1.	X_{12}	X_{15}	0.587	1.755	8.179	0.844	0.7123	66.89*
2.	X_{12}	X_{15}		1.838	9.398			
		X_{16}	21.283	- 0.994	- 2.707	0.875	0.765	44.95*
3.	X_{12}	X_{15}		1.904	10.622			
		X_{16}		- 1.028	- 3.082			
		X_9	-47.443	+ 2.082	2.569	0.899	0.808	38.626*
4.	X_{12}	X_{15}		1.911	11.853			
		X_{16}		- 0.340	- 0.853			
		X_9		3.280	3.313			
		X_{17}	-91.745	- 4.498	- 2.624	0.920	0.846	37.513*
5.	X_{12}	X_{15}		1.829	11.320			
		X_{16}		- 2.232	- 0.600			
		X_9		3.010	3.588			
		X_{17}		- 4.367	- 2.654			
		X_{14}	-74.935	- 0.462	- 1.759	0.926	0.857	33.247*

$$X_{19} = -74.935 + \underset{(11.320)^{**}}{1.829X_{15}} - \underset{(-0.600)}{2.232X_{16}} + \underset{(3.586)^{*}}{3.010X_9} - \underset{(-2.654)^{*}}{4.367X_{17}} - \underset{(-1.759)^{*}}{0.462X_{14}} \qquad R^2=0.857 \quad \text{F-Test}=33.247^{*}$$

* Significant at 99 per cent level of confidence.
° Level of significence 0.01
°° Level of significance 0.02.

The major contributory factors towards the family planning acceptance are birth rate and the urban population with a regression coefficient of 3.010 and 1.829 respectively meaning thereby that a unit change in family planning is brought out by 1.83 units change in urban population and 3.01 unit change in birth rate. On the other hand, the major hinderances in family planning acceptance are the maternal mortality, the female child marriages and the female workers. One unit change in the family planning acceptance is brought down by 0.23, 4.37 and 0.46 units of these variables respectively.

Thus, a close examination of the attributes of family planning acceptance reveals that high birth rate associated with urban awareness leads to the acceptance of family planning. On the contrary, married female children (which stay in rural India) usually do not accept the family planning methods.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

1. Summary and Conclusion

Children are the future citizens of a nation and hence the foundation of society. The state of their health, education and course of training determines the course of future of a nation. Considering the importance of the child in the future of mankind, the United Nations declared 1979 as the International Year of the Child to focus attention on the children of the world and child-welfare. In India, where 42 per cent of the population is child population, efforts are being made both by national and international organisations[x] to improve the quality of life of the children. However, the efforts are like a drop in the Ocean.

An analysis of child-health and Family Planning programmes in India in the proceeding sections has highlighted a few points. Birth rates are quite high in India (34.6 per thousand population), being higher in rural (35.9 per thousand population) than urban areas (28.9 per thousand population). Although the death rate is not very high, child deaths are very high.

Even though, infant mortality rate came down from 204 per thousand live births in 1911 - 1915, to 125 per thousand in 1970, it is still very high. Infant mortality rate in rural

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[x] Some of the international agencies extending help are the world health organisation, Food association organisation, UNICEF, Red Cross, Meals for millions association etc. The national agencies involved are, Department of Social Welfare, Education Rural Development, Health and Family Planning, the Indian Council for Child Welfare, Central Social Welfare Board etc.)

areas continues to be much higher than in urban areas, whereas infant mortality rate in urban areas is 70 per thousand births, that for rural areas is 136, which is almost double. Similarly, mortality among female children is more than among the male children. This clearly shows where the emphasis should lie in the improvement of child health.

This high rate of mortality is also reflected in the high percentage of deaths among young children of age 0-4 years age group, which is 27.5 per cent deaths to total deaths in the country. We should also take into account differentials in infant mortality rates among various states. Infant mortality is exceptionally high in some states: 209 in Tripura, 176 in Uttar Pradesh, 161 in Gujarat, 145 in Madhya Pradesh and Orissa, as against 58 in Kerala and 65 in Jammu and Kashmir.

The major causes of infant deaths in India have been identified as pre-mature births and respiratory infections of the new born. In the 1-4 years age group, infections and fevers take a heavy toll of life. In the 5 to 14 age group, besides fevers, respiratory system and digestive system disorders are more predominent.

Health facilities, reveal high disparity among the various states in India. It is observed that states with high population show a low share of health facilities than states with low population. Medical facilities per lakh population are low in the highly populated states of Uttar Pradesh (14.29), West Bengal (11.15), Madhya Pradesh (11.09) and exceptionally high in less populated areas like Andaman and Nicobar Islands (121.92), Lakshadweep (113.88), and Arunachal Pradesh (73.41).

Doctors per thousand population are highest in Chandigarh and Delhi (1.23 and 0.71 respectively). Himachal Pradesh, Haryana, Madhya Pradesh, Uttar Pradesh and Dadra and Nagar Haveli have very low figures (less than 0.18 doctors per thousand population). The southern states, Karnataka, Kerala, Tamil Nadu, Andhara Pradesh have higher para-medical staff per thousand population than northern or central region, the only exception being Punjab, where the paramedical staff per thousand population is at par with the southern states.

The nutritional level of pre-school children shows a very small share of normal children. More than 70 per cent of the children in the 1-5 years of age show signs of mild to moderate malnutrition. Another nutritional characteristic noted among the pre-school children is that female show a more healthy growth than male.

Looking at the deficiency signs among children in different age groups, it is observed that protein and calories are sufficient among children in the 0-1 years age group. This may be because children are breastfed in this age which provides the major protein supply. With increase in age, the deficiency of protein-calorie tends to be dominant. Vitamin 'A' and B-complex deficiencies are quite high in the growing age group of 5-12 years. ICDS[x] revealed that nutritional level of the child showed deterioration with increase in age.

The argument that increased income generally ensures better health may not be true in very low income families, because social needs are perceived to be more important than health needs in this income group. The ICDS survey of nutritional status by per capita monthly income confirms this phenomenon. The survey

x Integrated Child Development Scheme Surveys.

reveals that the degree of malnutrition decrease with an increase in the per capita income upto Rs.60/-. However, the families earning more than Rs.60/- per month showed some signs of improvement in the nutritional status.

The analysis of the data related to family planning acceptance and family planning performance reveals that Maharashtra and Gujarat have obtained a high level of family planning acceptance. But, the entire northern and southern India shows a low acceptance of family planning. Family planning performance shows a positive relationship with family planning acceptance.

The level of family planning in India indicates that of the total couples in the reproductive age group, three fourth of the couples still remain to be protected by any method. Delhi and Pondicherry have 36.9 and 35.1 per cent of the couples in reproductive age group effectively protected, which is the maximum. Among other states and union territories Maharashtra, Gujarat, Haryana and Punjab are the ones which show considerably good percentage of couples effectively protected. Of different methods of effective protection, sterlisation is the most widely accepted, followed by intra uterine device insertions.

The correlation analysis of health and family planning indicators with various socio-economic variables reveals that infant mortality has positive correlation with scheduled caste and scheduled tribe children, birth rate, death rate, population doctor ratio, and agricultural workers and negative correlation with literacy rate (total and female) family planning acceptance and urban population. Family planning acceptance is negatively related with scheduled caste and scheduled tribe population, literacy rates, agricultural workers and urban population. Regression analysis reveals that infant mortality rate has the

maximum dependence on birth rate and agricultural workers. Family Planning acceptance shows the maximum dependence on birth rate, urban population, married children, maternal deaths and agricultural workers.

2. Recommendations

Despite the efforts made during different plan periods and the various programmes launched (Appendix II) for the health of the child and the mother, it is observed that the health of the child has still not made a breakthrough which is clear from the high infant mortality and low nutritional level of the children in India (refer Chapter II and III).

There is an urgent need to improve the rural health facilities catering to child health. The need to do so arises from the glaring difference in the urban-rural infant mortality rate (rural infant mortality rate is 136 per thousand live births and urban has 70 per thousand live birth).

The majority of the child deaths are due to three or four major causes, mainly complications in pregnancy and birth, low birth weight of the infant, and diseases such as diarrhoea and respiratory disorders. Efforts should be made to prevent these diseases and find out the best medical treatment even at the cost of further funds to be made available for research in that direction.

Health care should be provided in a decentralized manner. The doctors trained in urban universities and used to an urban way of life cannot be expected to live most of their lives in

villages. Men and women from the rural areas will have to be trained to solve the day to day health problems. The services can be supplemented by mobile health care units and regular visits by doctors for consultation. The midwives can be provided with simple aids to help in child birth and prevent complications. They can also be trained to help young mothers in the care of their children and be made responsible for all innoculations and vaccinations. Mobile health care units would also have to be increased in number and should be equipped with sophisticated tools. Thus the need is not of highly trained doctors but of general physicians trained in day to day medical care and preventive medicine.

Poor health, particularly gastrointestinal infections among children, can lower nutritional status and precipitate malnutrition by reducing appetites and provoking direct loss of nutrients. Consequently direct measures to improve community health standards among nutritionally vulnerable groups could significantly reduce the incidence of malnutrition.

Though several programmes to supplement the nutritional level of children and mothers have been introduced by the State, no nutritional programme could be effective unless it is accompained by universal immunisation programme and improved facilities for the mothers. In addition, the general health and hygiene measures like better sanitation and sewerage disposal, supply of clean potable water are preliminary but important requisites of good health care system to be attended to.

There is a dire need to protect the health interests of the children through proper birth spacing and small family size. Though much attention is being given to the propogation of small-family norm, the figures of the rate of family planning

acceptance among the currently married couples are not encouraging. A system of adult-education programme specifically oriented to provide knowledge regarding family planning programme and family planning methods needs to be developed and propagated in the rural areas, amongst the illiterate folks, for the old and the young generations to make family planning a universal norm. So that the few children born are cared meticulously and their quality of life is upgraded.

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A P P E N D I C E S

I. TABLES

II. NUTRITION PROGRAMMES

TABLE NO: 1

BIRTH RATE
1973

S.No.	State/U.T.	Birth Rate (per 1000 population)		
		R	U	T
(1)	(2)	(3)	(4)	(5)
.	India	35.9	28.9	34.6
1.	Andhra Pradesh	31.7	31.2	31.8
2.	Assam	33.8	27.6	33.3
3.	Bihar	31.7	27.7	31.4
4.	Gujarat	37.1	31.0	35.4
5.	Haryana	41.1	31.2	39.4
6.	Himachal Pradesh	38.6	22.7	37.6
7.	Jammu & Kashmir	34.7	23.7	32.5
8.	Karnataka	30.1	26.1	28.9
9.	Kerala	29.4	28.5	29.2
10.	Madhya Pradesh	38.3	32.8	37.4
11.	Maharashtra	28.9	28.5	28.8
12.	Manipur	29.2	24.1	28.7
13.	Meghalaya	N.A.	N.A.	N.A.
14.	Nagaland	N.A.	N.A.	N.A.
15.	Orissa	39.0	32.7	34.8
16.	Punjab	34.4	29.6	33.4
17.	Rajasthan	39.4	32.5	38.1
18.	Sikkim	N.A.	N.A.	N.A.

TABLE NO. 1 Contd...

(1)	(2)	(3)	(4)	(5)
19.	Tamil Nadu	32.2	24.9	30.0
20.	Tripura	33.8	21.4	32.6
21.	Uttar Pradesh	43.0	32.9	41.7
22.	West Bengal	N.A.	24.8	N.A.
23.	Andman & Nicobar Islands	33.4	16.8	30.7
24.	Arunachal Pradesh	32.0	N.U.	32.0
25.	Chandigarh	27.4	34.8	34.3
26.	Dadra & Nagar Haveli	42.4	N.U.	42.4
27.	Delhi	40.9	28.1	29.5
28.	Goa Daman & Diu.	25.9	22.3	24.9
29.	Lakshadweep	37.9	N.U.	37.9
30.	Mizoram	N.A.	N.A.	N.A.
31.	Pondicherry	28.5	21.1	27.4

Source: "Vital Statistics of India". The Registrar General of India, Ministry of Home Affairs, New Delhi, 1973.

TABLE NO. 2

MORTALITY BY AGE AND SEX

1973

S.No.	State /U.T.		Percentage of deaths in the age			
			0-4 years	5-14 years	15-44 years	45+ years
(1)	(2)		(3)	(4)	(5)	(6)
1.	Andhra Pradesh	T	23.4	6.5	20.8	49.3
		M	22.4	6.3	20.4	50.9
		F	24.6	6.7	21.3	47.4
2.	Assam	T	20.4	9.2	20.1	50.3
		M	20.2	9.3	18.0	52.5
		F	20.7	9.0	22.7	47.6
3.	Bihar	T	19.5	9.3	20.9	50.3
		M	18.3	9.3	19.7	52.7
		F	20.9	9.4	22.4	47.3
4.	Gujarat	T	34.1	5.8	15.7	44.4
		M	30.9	5.7	15.3	48.1
		F	38.1	6.1	16.0	39.8
5.	Haryana	T	35.7	7.5	15.0	41.8
		M	33.4	7.8	13.3	45.5
		F	38.4	7.3	16.9	37.4
6.	Himachal Pradesh	T	26.2	8.0	20.7	45.1
		M	26.8	7.9	19.6	45.7
		F	25.6	8.1	21.9	44.4
7.	Jammu & Kashmir	T	24.6	6.7	13.6	50.1
		M	23.5	6.2	15.3	55.0
		F	25.9	7.4	22.5	44.2
8.	Karnataka	T	25.2	6.6	17.7	50.5
		M	23.7	6.2	16.5	53.6
		F	27.1	7.1	19.1	46.7
9.	Kerala	T	17.2	5.9	14.5	62.4
		M	15.5	5.3	14.6	64.6
		F	19.4	6.6	14.4	59.6
10.	Madhya Pradesh	T	39.4	7.5	15.7	37.4
		M	38.1	7.6	14.7	39.6
		F	40.8	7.4	16.9	34.9

Table No. 2 Contd...

(1)	(2)		(3)	(4)	(5)	(6)
11.	Maharashtra	T	32.9	6.0	15.2	45.9
		M	30.6	5.7	14.9	48.8
		F	35.6	6.4	15.7	42.3
12.	Manipur	T	19.6	12.9	28.2	39.3
		M	19.1	13.5	28.1	39.3
		F	20.3	12.1	28.4	39.2
13.	Meghalaya	T	29.4	6.1	15.6	49.0
		M	28.1	8.2	13.1	50.6
		F	31.2	3.0	19.1	46.7
14.	Nagaland	T	N.A.	N.A.	N.A.	N. A.
		M	N.A.	N.A.	N.A.	N.A.
		F	N.A.	N.A.	N.A.	N.A.
15.	Orissa	T	23.7	8.5	18.0	49.8
		M	23.9	8.4	17.1	50.6
		F	23.5	8.6	18.9	49.0
16.	Punjab	T	32.0	4.2	11.5	52.3
		M	27.8	3.9	10.9	57.4
		F	37.3	4.7	12.3	45.7
17.	Rajasthan	T	28.2	7.3	20.3	44.2
		M	27.4	7.0	18.9	46.7
		F	29.3	7.7	22.1	40.9
18.	Sikkim	T	N.A.	N.A.	N.A.	N.A.
		M	N.A.	N.A.	N.A.	N.A.
		F	N.A.	N.A.	N.A.	N.A.
19.	Tamil Nadu	T	27.2	5.9	17.2	49.7
		M	26.3	5.6	16.6	51.5
		F	28.1	6.2	18.0	47.7
20.	Tripura	T	17.8	12.1	24.6	45.5
		M	17.1	12.2	20.8	49.9
		F	18.7	12.1	29.3	39.9
21.	U.P.	T	33.0	6.8	14.6	45.6
		M	30.6	6.7	13.7	49.0
		F	36.2	6.9	15.9	41.0
22.	West Bengal	T	21.3	6.8	19.4	52.5
		M	20.1	6.6	18.2	55.1
		F	22.8	7.1	20.9	49.2

Table No. 2 Contd..

(1)	(2)		(3)	(4)	(5)	(6)
23.	Andaman & Nicobar Islands	T	38.5	8.9	20.3	32.3
		M	40.5	8.9	19.5	31.1
		F	36.4	8.9	21.2	33.5
24.	Arunachal Pradesh	T	N.A.	N.A.	N.A.	N.A.
		M	N.A.	N.A.	N.A.	N.A.
		F	N.A.	N.A.	N.A.	N.A.
25.	Chandigarh	T	34.8	5.4	22.9	36.9
		M	34.5	5.0	21.2	38.7
		F	35.3	5.6	25.3	34.4
26.	Dadra & Nagar Haveli	T	33.6	9.1	16.8	40.5
		M	34.0	7.6	14.4	44.0
		F	33.1	10.9	19.7	36.3
27.	Delhi	T	28.3	5.9	20.4	45.4
		M	26.7	5.9	20.0	47.4
		F	30.7	5.8	20.9	42.6
28.	Goa, Daman & Diu	T	21.1	3.0	12.3	63.6
		M	19.9	2.7	13.4	64.0
		F	22.5	3.3	11.1	63.1
29.	Lakshadweep	T	N.A.	N.A.	N.A.	N.A.
		M	N.A.	N.A.	N.A.	N.A.
		F	N.A.	N.A.	N.A.	N.A.
30.	Mizoram	T	N.A.	N.A.	N.A.	N.A.
		M	N.A.	N.A.	N.A.	N.A.
		F	N.A.	N.A.	N.A.	N.A.
31.	Pondicherry	T	27.8	6.0	17.6	48.5
		M	27.8	5.0	17.4	49.8
		F	28.0	7.1	17.9	47.0

Source: "Vital Statistics of India" 1973
Registrar General of India, New Delhi.

TABLE NO: 3

INFANT MORTALITY RATE

1975

S.No.	State/U.T.	Infant Mortality Rate(per 1000 Live Births)		
		R	U	T
(1)	(2)	(3)	(4)	(5)
	India	136.	74	134
1.	Andhra Pradesh	115	61	105
2.	Assam	140	83	136
3.	Bihar	-	NA	-
4.	Gujarat	177	113	161
5.	Haryana	108	78	104
6.	Himachal Pradesh	86	71	85
7.	Jammu & Kashmir	60	49	65
8.	Karnataka	96	68	90
9.	Kerala	57	47	58
10.	Madhya Pradesh	152	106	145
11.	Maharashtra	126	94	116
12.	Manipur	NA	NA	28
13.	Meghalaya	-	NA	-
14.	Nagaland	48	NA	NA
15.	Orissa	151	70	145
16.	Punjab	125	83	115
17.	Rajasthan	145	78	137
18.	Sikkim	NA	NA	NA

TABLE NO. 3 Contd....

(1)	(2)	(3)	(4)	(5)
19.	Tamil Nadu	122	67	108
20.	Tripura	NA	NA	299
21.	Utter Pradesh	182	132	176
22.	West Bengal	NA	NA	-
23.	Andeman & Nicobar Islends	NA	NA	65
24.	Arunachal Pradesh	187	NA	NA
25.	Chandigarh	80	42	44
26.	Dadra & Nagar Haveli	73	NU	73
27.	Delhi	83	54	58
28.	Goa Daman & Diu.	NA	NA	67
29.	Lakshadweep	72	NU	72
30.	Mizoram	NA	NA	NA
31.	Pondicherry	NA	NA	67

Source: A Report on S.R.S. (5-Zones) 1970-75, A Survey : Vital Statistics Division, Registrar General Office, New Delhi.

TABLE NO: 4

CAUSES OF DEATH - 1974

I N D I A

Code No.	Cause and/or Prominent Symptoms	Percentage to total death in the age 0 - 1	Percentage to total death in age 1- 4	Percentage to Total death in the age 5 - 14
(1)	(2)	(3)	(4)	(5)
1.	Accidents and Injuries	0.46	2.21	13.65
2.	Deaths due to injections or illness for which specific immunising agents are available			
	a) Small pox	0.36	1.33	0.98
	b) Measles	0.96	10.80	3.39
	c) Tettanus	1.45	1.26	3.17
	d) Polio	0.04	0.45	0.22
	e) Typhoid	2.37	6.58	8.85
	f) Tuberculosis	0.14	1.09	2.51
3.	Deaths due to injections or illness which can be prevented by general environment improvement or treatment.			
	Fevers			
3.1	a) Malaria	0.46	0.82	1.75
	b) Others (Influanza and N.C.)	6.93	16.79	14.94
3.2	Digestive disorders			
	a) Diarrheo (Dysentry, Iastrointestinis, Cholera, foodpoisoning)	2.88	9.02	-
	b) Others	0.96	4.86	3.92
3.3	a) Respiratory System Infections(Pheumonia, Bronchitis Asthama etc)	10.22	16.91	9.07
	b) Others	2.04	4.04	1.85

Table 4 - Contd.....

(1)	(2)	(3)	(4)	(5)
3.4	Nervous System Infection (Menigits and others)	0.79	2.15	3.71
3.5	Circulatory System (Congestive heart disease, heart attack)	0.26	0.57	1.08
3.6	Nutritional			
	a) Anemia	1.12	0.32	4.15
	b) Malnutrition	0.70	6.07	3.27
3.7	Surgical Conditions (acoute abdomen, obstructed hernia)	0.43	1.84	2.12
3.8	Miscellaneous (Diabetis, Cancer, Liver, Diseases)	1.06	3.86	3.33
4.	Causes Peculiar to Infancy			
	a) Prematurity	19.95	-	-
	b) Malposition	0.54	-	-
	c) Congenital Malformation	0.66	-	-
	d) Birth Injury	1.07	-	-
	e) Respiratory Injection of the new born	9.71	-	-
	f) Cord Infection	0.66	-	-
	g) Diarrhoea of the new born	3.60	-	-
	h) Malnutrition	5.78	-	-
	i) Convulsions	4.64	-	-
	j) N.C.	10.96	-	-
5.	The Rest which are N.C.	6.87	10.30	7.98
	Percentage of death in each age group to total deaths.	54.81	28.63	16.56

N.C. = Not Classifiable.

Source: Causes of Death 1974.
A Survey,
Vital Statistics Division, Office of the Registrer General, India
Ministry of Home Affairs, New Delhi.

TABLE NO: 5

PERCENTAGE DISTRIBUTION OF DEATHS BY AGE AND CAUSE 1971

Code No.	Cause and/or Prominent Symptoms	Age Groups in Years		
		0-1	1-4	5-14
		Total	Total	Total
(1)	(2)	(3)	(4)	(5)
INDIA				
1.	Violence or injury	0.3	2.6	12.0
2.	Diarrhoea	7.4	16.1	12.1
3.	Cough	17.6	25.0	15.9
4.	Swelling	0.6	6.0	8.3
5.	Fever	10.4	29.6	35.5
6.	Other infant deaths	52.1	-	-
7.	Other clear symptoms	7.4	4.3	5.9
8.	The rest	4.2	16.4	10.3
	Total	100.00	100.00	100.00
ANDHRA PRADESH				
1.	Violence or injury	-	4.8	17.2
2.	Diarrhoea	7.0	15.2	4.6
3.	Cough	2.0	9.5	12.6
4.	Swelling	1.0	8.6	8.1
5.	Fever	9.9	30.5	41.4
6.	Other infant deaths	70.1	-	-
7.	Other clear symptoms	7.0	8.6	4.6
8.	The rest	3.0	22.8	11.5
	Total	100.00	100.00	100.00
ASSAM				
1.	Violence or injury	-	3.9	9.1
2.	Diarrhoea	23.1	61.5	63.6
3.	Cough	9.2	19.2	4.6
4.	Swelling	-	-	-
5.	Fever	7.7	11.5	22.7
6.	Other infant deaths	56.9	-	-
7.	Other clear symptoms	3.1	3.9	-
8.	The rest	-	-	-
	Total	100.00	100.00	100.00

Table 5 - Contd..

(1)	(2)	(3)	(4)	(5)
BIHAR				
1.	Violence or injury	-	2.8	9.0
2.	Diarrhoea	7.0	19.8	21.4
3.	Cough	24.2	27.4	20.2
4.	Swelling	-	2.8	2.2
5.	Fever	17.2	41.5	36.0
6.	Other infant deaths	29.9	-	-
7.	Other clear symptoms	21.7	4.7	9.0
8.	The rest	-	1.0	2.2
	Total	100.00	100.00	100.00
GUJARAT				
1.	Violence or injury	0.4	2.1	7.2
2.	Diarrhoea	11.3	13.4	21.4
3.	Cough	12.9	12.0	14.3
4.	Swelling	-	0.7	3.6
5.	Fever	10.0	35.2	23.2
6.	Other infant deaths	53.4	-	-
7.	Other clear symptoms	6.4	7.0	19.6
8.	The rest	5.6	29.6	10.7
	Total	100.00	100.00	100.00
HARYANA				
1.	Violence or injury	-	3.9	28.6
2.	Diarrhoea	-	3.9	14.3
3.	Cough	28.0	26.9	21.4
4.	Swelling	-	3.8	7.2
5.	Fever	14.0	30.0	21.4
6.	Other infant deaths	58.0	-	-
7.	Other clear symptoms	-	3.8	-
8.	The rest	-	7.7	7.1
	Total	100.00	100.00	100.00
HIMACHAL PRADESH				
1.	Violence or injury	-	11.1	14.3
2.	Diarrhoea	2.6	22.2	14.3
3.	Cough	17.9	22.2	-
4.	Swelling	2.6	-	-
5.	Fever	5.1	33.4	42.8
6.	Other infant deaths	66.7	-	-
7.	Other clear symptoms	5.1	11.1	28.6
8.	The rest	-	-	-
	Total	100.00	100.00	100.00

Table 5 - Contd...

(1)	(2)	(3)	(4)	(5)
JAMMU AND KASHMIR				
1.	Violence or injury	-	-	33.3
2.	Diarrhoea	-	11.1	16.7
3.	Cough	54.5	72.2	50.0
4.	Swelling	-	-	-
5.	Fever	18.2	11.1	-
6.	Other infant deaths	27.3	-	-
7.	Other infant deaths	27.3	-	-
8.	The rest	-	-	-
	Total	100.00	100.00	100.00
K E R A L A				
1.	Violence or injury	-	6.7	-
2.	Diarrhoea	3.1	26.7	-
3.	Cough	3.1	20.0	40.0
4.	Swelling	-	6.7	-
5.	Fever	12.5	33.3	40.0
6.	Other infant deaths	81.3	-	-
7.	Other clear symptoms	-	-	-
8.	The rest	-	6.6	20.0
	Total	100.00	100.00	100.00
MADHYA PRADESH				
1.	Violence or injury	-	3.6	21.0
2.	Diarrhoea	1.8	7.1	4.4
3.	Cough	30.9	36.9	15.8
4.	Swelling	0.3	3.6	7.9
5.	Fever	6.5	27.0	39.5
6.	Other infant deaths	53.9	-	-
7.	Other clear symptoms	5.7	5.5	5.3
8.	The rest	0.9	16.3	6.1
	Total	100.00	100.00	100.00
M A H A R A S H T R A				
1.	Violence or injury	0.3	2.2	12.4
2.	Diarrhoea	7.8	19.9	6.5
3.	Cough	19.6	28.2	13.1
4.	Swelling	0.9	9.3	11.8
5.	Fever	4.2	25.3	35.3
6.	Other infant deaths	64.4	-	-
7.	Other clear symptoms	4.9	3.2	4.6
8.	The rest	1.9	19.9	16.3
	Total	100.00	100.00	100.00

Table 5 - Contd...

(1)	(2)	(3)	(4)	(5)
	KARNATAKA			
1.	Violence or injury	-	5.1	8.1
2.	Diarrhoea	7.1	15.2	18.9
3.	Cough	9.1	17.7	5.4
4.	Swelling	-	6.3	8.1
5.	Fever	12.1	41.8	43.3
6.	Other infant deaths	65.7	-	-
7.	Other clear symptoms	3.0	6.3	10.8
8.	The rest	3.0	7.6	5.4
	Total	100.00	100.00	100.00
	ORISSA			
1.	Violence or injury	-	6.5	12.1
2.	Diarrhoea	10.8	30.4	15.2
3.	Cough	11.8	19.6	24.2
4.	Swelling	3.9	6.5	6.1
5.	Fever	16.7	28.3	30.3
6.	Other infant deaths	48.0	-	-
7.	Other clear symptoms	2.9	4.4	3.0
8.	The rest	5.9	4.3	9.1
	Total	100.00	100.00	100.00
	PUNJAB			
1.	Violence or injury	0.3	1.6	12.1
2.	Diarrhoea	7.5	11.5	6.9
3.	Cough	31.8	32.0	15.5
4.	Swelling	1.0	8.2	6.9
5.	Fever	12.5	30.3	50.0
6.	Other infant deaths	40.7	-	-
7.	Other clear symptoms	2.9	3.3	-
8.	The rest	3.3	15.1	8.6
	Total	100.00	100.0	100.0
	TAMIL NADU			
1.	Violence or injury	0.2	2.7	6.2
2.	Diarrhoea	9.7	23.9	13.2
3.	Cough	9.7	19.6	17.8
4.	Swelling	0.5	7.3	16.3
5.	Fever	9.4	18.3	23.3
6.	Other infant deaths	56.7	-	-
7.	Other clear symptoms	8.5	5.6	6.2
8.	The rest	5.3	22.6	17.0
	Total	100.00	100.00	100.00

Table 5 Contd.....

(1)	(2)	(3)	(4)	(5)
UTTAR PRADESH				
1.	Violence or injury	0.7	1.0	5.5
2.	Diarrhoea	4.1	6.3	9.9
3.	Cough	28.2	33.3	28.6
4.	Swelling	0.4	0.5	4.4
5.	Fever	13.3	33.3	39.5
6.	Other infant deaths	19.4	-	-
7.	Other clear symptoms	19.0	1.4	1.1
8.	The rest	14.9	24.2	11.0
	Total	100.00	100.00	100.00
WEST BENGAL				
1.	Violence or injury	-	12.1	16.7
2.	Diarrhoea	17.7	42.4	16.7
3.	Cough	11.3	18.2	16.7
4.	Swelling	1.6	12.1	-
5.	Fever	8.1	3.1	33.3
6.	Other infant deaths	54.8	.7	-
7.	Other clear symptoms	6.5	-	5.5
8.	The rest	-	12.1	11.1
	Total	100.00	100.00	100.00
UNION TERRITORY				
D E L H I				
1.	Violence or injury	-	25.0	100.00
2.	Diarrhoea	25.0	50.0	-
3.	Cough	25.0	-	-
4.	Swelling	-	-	-
5.	Fever	12.5	-	-
6.	Other infant deaths	37.5	-	-
7.	Other clear symptoms	-	-	-
8.	The rest	-	25.0	-
	Total	100.00	100.00	100.00

Note: Data for Manipur, Meghalaya, Nagaland, Rajasthan, Sikkim, Tripura and other union territories is not available.

Source: "Causes of Death" 1971 Vital Statistics Division, Office of the Registrar General India, New Delhi.

TABLE NO: 6

HEALTH FACILITIES

S.No.	State/U.T.	Medical Facilities per 1 lakh population 1977	Doctors per one Thousand population 1977	Paramedical Staff per Thousand population 1976
(1)	(2)	(3)	(4)	(5)
1.	Andhra Pradesh	17.33	0.37	0.50
2.	Assam	8.03	0.40	0.30
3.	Bihar	10.47	0.22	0.15
4.	Gujarat	12.94	0.38	0.31
5.	Haryana	13.94	0.18	0.18
6.	Himachal Pradesh	24.09	0.14	0.11
7.	Jammu & Kashmir	20.17	0.27	N.A.
8.	Karnataka	14.45	0.22	0.43
9.	Kerala	32.35	0.38	0.73
10.	Madhya Pradesh	11.09	0.15	0.35
11.	Maharashtra	20.04	0.59	1.00
12.	Manipur	18.77	0.26	N.A.
13.	Meghalaya	19.42	N.A.	N.A.
14.	Nagaland	73.36	N.A.	N.A.
15.	Orissa	18.38	0.28	0.16
16.	Punjab	17.09	0.50	1.80
17.	Rajasthan	22.18	0.23	0.37

TABLE NO. 6 Contd...

(1)	(2)	(3)	(4)	(5)
18.	Sikkim	41.41	N.A.	N.A.
19.	Tamil Nadu	14.93	0.29	1.03
20.	Tripura	18.07	0.14	N.A.
21.	Uttar Pradesh	14.22	0.20	0.21
22.	West Bengal	11.15	0.59	0.39
23.	Andaman & Nicobar Islands	121.92	0.43	N.A.
24.	Arunachal Pradesh	73.41	0.30	N.A.
25.	Chandigarh	12.06	1.23	N.A.
26.	Dadra Nagar Haveli	25.00	0.14	N.A.
27.	Delhi	15.39	0.71	N.A.
28.	Goa, Daman & Diu.	28.51	0.59	N.A.
29.	Lakshadweep	113.88	0.50	N.A.
30.	Mizoram	-	N.A.	N.A.
31.	Pondicherry	26.02	0.38	N.A.
32.	India	15.14	0.32	0.46

Source: "Pocket Book of Health Statistics of India", 1978. Central Bureau of Health Intelligence, Directorate General of Health Services, Govt. of India, New Delhi.

TABLE NO.7

PERCENTAGE DISTRIBUTION OF PRESCHOOL CHILDREN (1-5 YEARS) ACCORDING TO GRADE OF MALNUTRITION (GOMEZ'S CLASSIFICATION) 1978

S.No	State		Grade of Malnutrition			
			Normal ⩾ 90	Mild 75-90	Moderate 60-75	Severe < 60
(1)	(2)		(3)	(4)	(5)	(6)
1.	Andhra Pradesh	M	12.2	36.0	38.6	13.2
		F	18.5	43.6	31.3	6.7
		C	15.3	39.8	35.0	10.0
2.	Gujarat	M	6.1	33.3	51.3	9.3
		F	14.0	41.3	35.6	9.2
		C	10.1	37.3	43.4	9.3
3.	Karnataka	M	3.7	42.9	45.9	7.5
		F	16.1	45.0	32.7	6.2
		C	9.9	44.0	39.3	6.8
4.	Kerala	M	11.8	42.1	39.5	6.6
		F	44.6	39.9	13.5	2.0
		C	28.0	41.0	26.7	4.3
5.	Madhya Pradesh	M	8.8	33.0	47.3	11.0
		F	14.4	41.2	23.7	20.6
		C	11.7	37.2	35.1	16.0
6.	Maharashtra	M	6.4	35.2	45.3	13.2
		F	11.8	39.9	40.6	7.6
		C	8.9	37.4	43.1	10.6
7.	Orissa	M	9.8	45.9	37.6	6.8
		F	20.6	51.0	22.6	5.9
		C	14.5	48.1	31.1	6.4
8.	Tamil Nadu	M	13.5	38.8	42.4	5.3
		F	16.4	52.8	27.2	3.6
		C	14.9	45.4	35.2	4.5
9.	Uttar Pradesh	M	10.6	56.9	28.3	9.7
		F	29.0	50.4	13.2	2.4
		C	10.8	54.0	23.8	3.4
10.	West Bengal	M	4.4	31.6	44.0	20.0
		F	17.2	47.4	29.5	6.0
		C	11.0	40.0	36.5	12.7

Source: National Nutrition Monitoring Bureau Report for the Year 1978 (National Institute of Nutrition, Hyderabad, 1979) pp. 34-35.

M = Males, F = Females, C = Combined.

TABLE NO. 8

PERCENTAGE DISTRIBUTION OF CHILDREN ACCORDING TO THEIR NUTRITIONAL STATUS IN EACH AGE GROUP 1978

Tribal Project Areas (State)	Age Group	PERCENTAGE OF CHILDREN IN Normal	Slightly under nourished Grade I	Undernourished Grade II	Severely Malnourished Grade III	Severely Malnourished needs Hospitalization Grade IV	N.R
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Untoor (A.P.)	0-6 months	38.3	20.0	26.7	6.7		8.3
	6-12months	32.9	29.3	7.3	13.3	6.1	11.0
	1-3 years	11.6	24.6	22.7	15.9	11.9	13.4
	3-6 years	14.8	24.0	26.2	15.9	4.1	15.0
	All	17.1	24.4	23.4	15.0	6.4	13.7
Barajamda (Bihar)	0-6 months	27.0	20.3	24.3	18.9	9.5	0.0
	6-12months	26.6	16.3	12.2	14.2	28.6	2.0
	1-3 years	11.3	30.5	17.2	15.0	23.8	2.1
	3-6 years	29.5	37.0	22.9	7.2	2.5	0.8
	Total	24.6	33.1	21.0	10.5	9.7	1.2
Chhotaudepur (Gujarat)	0-6 months	45.9	18.0	13.1	16.4	6.6	-
	6-12months	30.9	25.5	18.2	14.6	5.4	5.4
	1-3 years	21.5	22.6	27.1	17.7	7.2	3.9
	3-6 years	17.2	27.8	34.6	13.0	2.1	5.3
	Total	22.4	25.2	29.0	14.8	4.3	4.4
Pooh (H.P.)	0-6 months	52.8	16.7	16.7	5.6	5.6	2.8
	6-12months	33.3	24.4	20.0	17.8	4.4	
	1-3 years	12.4	20.4	28.3	22.1	15.9	0.9
	3-6 years	20.6	19.1	30.9	21.1	6.2	2.1
	Total	22.7	19.8	27.6	19.6	8.8	1.5

Contd..

TABLE NO. 8 Contd....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dharni (Maharashtra)	0-6 months	20.2	2.0	11.1	17.2	26.3	23.2
	6-12months	6.8	9.4	8.5	12.0	30.8	32.5
	1-3 years	3.5	4.4	13.5	29.9	24.3	24.3
	3-6 years	11.9	17.1	32.2	9.4	4.5	25.0
	Total	9.5	11.1	22.1	16.6	15.3	25.4
Zaluke (Nagaland)	0-6 months	61.1	6.9	16.7	6.9	-	8.3
	6-12months	81.7	8.5	2.8	-	-	7.0
	1-3 years	54.4	28.5	5.3	3.2	1.8	6.8
	3-6 years	65.0	17.5	10.0	1.1	0.5	5.9
	Total	62.6	19.4	8.4	2.2	0.8	6.5
Subdega (Orissa)	0-6 months	52.6	15.8	13.2	5.3	-	13.2
	6-12months	54.3	8.6	8.6	5.7	11.4	11.4
	1-3 years	15.8	38.9	14.7	11.6	7.4	11.6
	3-6 years	33.9	26.4	25.1	7.0	1.8	5.7
	Total	33.2	26.8	20.0	7.8	3.8	8.4
Garhi (Rajasthan)	0-6 months	60.3	16.7	16.7	3.8	1.3	1.3
	6-12months	30.6	26.4	18.2	19.8	5.0	-
	1-3 years	22.2	30.4	21.9	16.7	7.4	1.4
	3-6 years	32.6	28.4	25.1	10.4	2.4	1.1
	Total	31.0	28.0	22.9	12.9	4.2	1.1
RURAL PROJECT AREA (State)							
Kambadur (A.P.)	0-6 months	55.9	18.6	15.9	4.8	2.1	2.8
	6-12months	33.9	22.8	19.9	16.7	8.3	-
	1-3 years	9.1	20.6	23.9	24.2	21.5	0.7
	3-6 years	15.3	20.7	34.7	21.4	7.6	0.2
	Total	19.0	20.6	28.6	20.2	11.1	0.6
Tarapur (Bihar)	0-6 months	63.5	18.9	8.1	1.4	-	8.1
	6-12months	47.4	30.3	9.5	8.4	3.2	1.1
	1-3 years	15.4	44.3	22.1	14.4	4.0	1.1
	3-6 years	26.8	36.0	26.6	8.8	0.7	1.1
	Total	25.9	37.3	23.1	10.3	2.0	1.4
Monigachi (Bihar)	0-6 months	23.6	18.7	30.6	14.6	4.9	7.6
	6-12months	46.4	30.0	7.9	2.1	0.7	12.9
	1-3 years	42.2	35.9	12.5	1.7	0.4	7.3
	3-6 years	23.9	53.8	11.1	2.5	0.6	8.0
	Total	31.1	43.1	12.9	3.3	0.9	8.7

TABLE NO. 8 Contd...

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Kathura (Haryana)	0-6 months	14.9	6.9	10.3	4.6	3.4	59.8
	6-12months	4.4	10.6	10.6	8.8	12.4	53.1
	1-3 years	6.4	9.5	10.2	12.0	10.5	51.4
	3-6 years	17.0	9.9	13.4	5.6	2.6	51.6
	Total	12.7	9.6	12.0	7.7	5.8	52.2
Kangan (J & K)	0-6 months	27.7	10.8	28.9	21.7	10.8	-
	6-12months	25.2	18.4	12.6	21.4	18.4	3.9
	1-3 years	13.8	19.7	22.4	24.9	14.5	3.5
	3-6 years	28.4	26.6	27.1	9.8	5.0	3.0
	Total	23.7	22.6	24.5	16.5	9.7	3.0
Narsipur (Karnataka)	0-6 months	45.2	10.5	10.5	9.7	8.1	16.1
	6-12months	38.9	18.5	9.9	11.5	15.3	6.4
	1-3 years	17.6	30.1	16.5	13.9	15.2	6.7
	3-6 years	30.0	18.5	23.9	14.7	5.1	7.8
	Total	27.9	21.4	19.8	13.9	9.1	7.9
Vengara (Kerala)	0-6 months	54.6	15.5	13.2	8.0	-	8.6
	6-12months	33.0	33.5	17.2	17.4	4.2	4.7
	1-3 years	12.7	25.0	31.2	17.1	7.1	6.1
	3-6 years	6.5	18.7	38.5	20.7	3.6	11.8
	Total	15.0	22.0	32.0	17.2	4.8	9.0
Singroli (M.P.)	0-6 months	42.7	24.8	19.7	5.1	1.7	6.0
	6-12months	29.5	36.4	13.6	12.5	4.5	3.4
	1-3 years	44.8	21.1	15.2	11.4	3.9	3.6
	3-6 years	54.7	15.9	18.5	6.1	1.5	3.4
	Total	48.7	19.8	17.2	8.1	2.5	3.7
Nurpur (Punjab)	0-6 months	78.3	10.1	8.7	2.9	-	-
	6-12months	58.5	24.4	11.0	4.9	1.2	-
	1-3 years	32.5	37.0	18.8	8.1	3.6	-
	3-6 years	36.8	29.7	25.3	7.3	0.6	0.4
	Total	40.3	30.2	20.6	7.0	1.6	0.2
Nilakottai (T.N.)	0-6 months	56.6	24.8	7.1	8.0	2.7	0.9
	6-12months	37.0	32.8	21.0	6.7	2.5	-
	1-3 years	10.8	26.0	36.6	9.3	6.9	0.4
	3-6 years	14.9	25.3	43.8	13.9	1.7	0.4
	Total	18.8	26.2	36.2	14.7	3.7	0.4
Thalli (T.N.)	0-6 months	30.5	25.7	29.9	10.5	2.9	0.9
	6-12months	22.9	29.7	30.5	13.6	2.5	0.8
	1-3 years	9.8	21.2	50.1	21.2	1.2	0.6
	3-6 years	7.2	19.4	56.7	15.5	0.7	0.4
	Total	10.3	21.4	50.1	16.4	1.2	0.6

TABLE NO. 8 Contd....

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Shankargarh (U.P.)	0-6 months	38.1	22.2	27.0	6.3	3.2	3.2
	6-12months	37.2	27.9	18.6	11.6	4.7	-
	1-3 years	18.4	31.4	25.6	14.9	9.2	1.0
	3-6 years	34.8	25.5	24.0	12.4	2.3	1.0
	Total	30.4	27.1	24.4	12.4	4.6	1.1
Jawan (U.P.)	0-6 months	22.5	30.4	33.3	12.7	-	12.0
	6-12months	13.5	44.1	27.1	15.2	-	-
	1-3 years	15.3	29.7	44.7	8.2	1.4	0.6
	3-6 years	19.1	34.8	38.5	7.0	-	0.5
	Total	17.9	33.2	39.4	8.4	0.5	0.6
Dalman (U.P.)	0-6 months	52.3	21.5	15.9	7.5	1.9	0.9
	6-12months	22.7	30.5	22.7	14.8	9.4	-
	1-3 years	13.9	31.7	25.4	20.0	8.4	0.6
	3-6 years	27.0	33.7	27.1	9.4	2.5	0.4
	Total	24.2	32.0	25.5	13.0	4.9	0.4
Man Dazar (W.B.)	0-6 months	44.2	16.9	16.9	11.7	7.8	2.6
	6-12months	18.6	40.2	21.6	13.4	5.2	1.0
	1-3 years	6.5	27.4	36.3	16.4	12.2	1.2
	3-6 years	10.2	25.5	45.0	16.3	2.4	0.7
	Total	11.4	26.5	39.8	15.9	5.4	1.0
URBAN PROJECT AREA (State)							
Bombay (Maharashtra)	0-6 months	49.6	30.7	11.8	5.5	2.4	-
	6-12months	30.8	30.8	24.4	15.4	2.6	0.6
	1-3 years	9.2	19.2	40.2	25.2	2.1	0.2
	3-6 years	17.2	7.2	41.5	28.0	2.6	0.3
	Total	14.5	14.5	36.4	23.4	2.4	0.3
Madras (T.N.)	0-6 months	41.5	26.7	17.8	5.0	8.9	-
	6-12months	30.0	32.0	16.0	12.0	10.0	-
	1-3 years	5.4	23.6	35.1	20.9	12.5	0.5
	3-6 years	11.1	26.3	38.7	17.0	4.9	1.9
	Total	13.2	26.6	33.8	17.0	8.1	1.1
Calcutta (W.B.)	0-6 months	66.4	12.6	1.7	0.8	0.8	17.6
	6-12months	58.4	16.9	10.4	5.2	1.3	7.8
	1-3 years	43.2	26.1	17.2	3.8	0.7	9.1
	3-6 years	40.5	28.2	15.8	2.9	0.4	12.4
	Total	44.5	25.6	14.8	3.0	0.6	11.6
Delhi	0-6 months	54.2	21.9	11.5	8.3	2.1	2.1
	6-12months	40.6	15.6	27.1	8.3	6.3	2.1
	1-3 years	18.3	28.7	32.5	15.2	4.8	0.5
	3-6 years	20.8	33.7	34.6	7.2	2.4	1.2
	Total	24.2	29.4	31.6	10.2	3.4	1.2

Source: All India Institute of Medical Sciences, Biostatistical Unit. Baseline Survey Report of Rural Urban and Tribal Project Area, 1978. (Mimeographed)

(I.C.D.S. Project).

TABLE NO: 9

PERCENTAGE DISTRIBUTION OF CHILDREN BY PER CAPITA MONTHLY INCOME GROUP AND NUTRITIONAL STATUS - 1978

RURAL PROJECT AREA (State)	Per Capita Monthly Income (in Rs.)	PERCENTAGE OF CHILDREN IN					
		Normal	Slightly under nourished	Undernourished	Severely Malnourished	Severely Malnourished needs Hospitelization	N.H.
			Gr.I	Gr.II	Gr.III	Gr.IV	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Kambadur (A.P.)	00-60	17.86	20.50	28.73	20.36	11.70	0.63
	60+	18.60	33.90	25.50	18.86	2.60	0.43
	Total	19.00	20.60	28.60	20.20	11.10	0.60
Terapur (Bihar)	00-60	24.60	37.60	23.23	11.00	2.10	1.36
	60+	35.93	45.43	13.76	3.30	1.23	1.03
	Total	25.90	37.30	23.10	10.30	2.00	1.40
Manigachi (Bihar)	00-60	31.16	41.96	14.20	3.33	0.90	8.40
	60+	40.70	29.60	4.20	4.96	10.50	9.90
	Total	31.10	43.10	12.90	3.30	0.90	8.70
Kathura (Haryana)	00-60	15.60	9.70	12.03	8.06	5.70	52.10
	60+	15.96	11.96	18.36	4.63	8.83	40.20
	Total	12.70	9.60	12.00	7.70	5.80	52.20
Kangan (J.& K)	00-60	22.70	23.43	24.60	16.46	10.10	2.93
	60+	40.40	14.75	18.75	20.30	2.90	2.90
	Total	23.70	22.60	24.50	16.90	9.70	3.00
Narsipur (Karnataka)	00-60	29.56	22.90	20.26	12.50	7.56	7.20
	60+	25.00	24.75	21.80	13.95	7.05	7.40
	Total	27.90	21.40	19.80	13.90	9.10	7.90
Vengara (Kerala)	00-60	14.33	22.86	32.13	16.63	5.16	8.83
	60+	30.95	9.40	27.20	16.15	-	4.35
	Total	15.00	22.00	32.00	7.20	4.80	9.00
Singroli (M.P.)	00-60	48.93	18.56	17.50	8.06	3.03	3.90
	60+	42.50	26.10	14.60	7.80	-	9.10
	Total	48.70	19.80	17.20	8.10	2.50	3.70

TABLE NO. 9 Contd...

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Nurpur (Punjab)	00-60	39.06	30.43	21.30	7.46	1.53	0.26
	60+	42.45	33.85	17.30	4.90	3.20	-
	Total	40.30	30.20	20.80	7.00	1.60	0.20
Nilakottai (T.N.)	00-60	19.16	27.23	37.36	11.90	4.16	0.16
	60+	25.60	36.80	30.40	5.63	-	1.53
	Total	18.80	26.20	36.20	14.70	3.70	0.40
Thalli (T.N.)	00-60	11.70	19.93	51.10	11.90	1.13	0.86
	60+	14.55	32.95	40.95	11.55	-	-
	Total	10.30	21.40	50.10	16.40	1.20	0.60
Shankergarh (U.P.)	00-60	31.30	29.16	23.00	11.73	3.26	1.43
	60+	31.20	22.40	23.50	16.80	-	-
	Total	30.40	27.10	24.40	12.40	4.60	1.10
Jawan (U.P.)	00-60	17.96	34.03	37.83	19.76	0.76	0.66
	60+	26.45	32.55	35.10	5.60	-	0.25
	Total	17.90	33.20	39.40	8.40	0.50	0.60
Dalman (U.P.)	00-60	23.83	32.66	25.46	12.96	4.73	0.36
	60+	23.20	32.70	24.70	13.80	5.10	0.40
	Total	24.20	32.00	25.50	13.00	4.90	0.40
Man Bazar (M.P.)	00-60	11.16	26.60	40.93	14.93	5.43	0.90
	60+	13.70	28.40	39.20	13.30	4.96	1.50
	Total	11.40	26.50	39.80	15.90	5.40	1.00
TRIBAL PROJECT AREA (State)							
Untoor (A.P.)	00-60	15.66	23.43	23.03	16.20	6.46	15.23
	60+	24.92	32.75	24.15	10.32	4.22	4.12
	Total	17.10	24.40	23.40	15.00	6.40	13.70
Barajamda (Bihar)	00-60	23.56	34.13	39.16	10.16	10.50	0.70
	60+	19.90	30.30	13.75	13.65	9.45	10.10
	Total	24.60	33.10	21.00	10.50	9.70	1.20
Chhotaudepur (Gujarat)	00-60	23.40	28.36	26.86	12.66	2.60	6.06
	60+	23.35	31665	22.50	14.15	3.35	5.00
	Total	22.40	25.20	29.00	14.80	4.30	4.40
Pooh (H.P.)	00-60	17.85	20.46	24.56	24.73	8.00	4.50
	60+	19.35	16.05	38.90	18.30	7.40	-
	Total	22.70	19.90	27.60	19.60	8.80	1.60

TABLE NO. 9 Contd...

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dharni (Maharashtra)	00-60	8.10	11.00	21.73	16.60	16.16	26.36
	60+	11.40	16.55	23.90	18.30	9.45	20.35
	Total	9.50	11.10	22.10	16.60	15.30	25.40
Zaluke (Nagaland)	00-60	60.76	18.30	9.80	2.30	0.33	8.06
	60+	63.56	22.13	5.30	1.25	1.33	5.60
	Total	62.60	19.40	8.40	2.20	0.80	6.50
Subdega (Orissa)	00-60	32.50	26.40	20.40	8.43	2.43	9.80
	60+	50.00	30.55	5.55	2.80	5.55	5.55
	Total	33.20	26.80	20.00	7.80	3.80	8.40
Girhi (Rajasthan)	00-60	28.86	28.20	23.30	13.93	4.53	1.13
	60+	35.85	28.40	20.10	9.55	4.45	1.95
	Total	31.00	28.00	22.90	12.90	4.20	1.10
URBAN PROJECT AREA (State)							
Bombay (Maharashtra)	00-60	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	60+	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Total	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Madras (T.N.)	00-60	13.00	26.33	35.60	17.03	7.26	0.76
	60+	21.45	32.10	29.65	11.05	5.15	0.75
	Total	13.20	26.60	33.80	17.00	8.40	1.00
Calcutta (W.B.)	00-60	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	60+	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Total	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Delhi	00-60	21.56	31.10	31.20	10.50	4.70	0.90
	60+	53.65	24.00	31.60	5.85	2.60	3.36
	Total	24.20	29.40	31.50	10.20	3.40	1.20

SOURCE : All India Institute of Medical Sciences, Biostatistical Unit. Baseline Survey Report of Rural Urban and Tribal Project Areas - 1978.

(I.C.D.S. Project)

TABLE NO: 10

FAMILY PLANNING ACCEPTORS - ALL INDIA

Year	Total number of acceptors (in '000)	Equivalent Sterlisations (in'000)	Percentage Change in acceptors	Percentage change in equivalent sterlisations
1956	7	7	-	-
1957	14	14	100.00	100.00
1958	25	25	78.57	78.57
1959	42	42	68.00	68.00
1960	64	64	52.38	52.38
1961	105	105	75.92	75.92
1962	158	158	50.47	50.47
1963	468	187	196.20	18.35
1964	709	294	51.49	57.21
March 1965 to March 1966	2,066	974	191.39	231.29
1966-67	2,262	1,216	9.48	24.84
1967-68	2,984	2,089	31.91	71.71
1968-69	3,105	1,878	4.05	- 10.10
1969-70	3,390	1,659	9.17	- 11.66
1970-71	3,769	1,598	11.17	- 3.67
1971-72	5,029	2,481	83.43	55.25
1972-73	5,875	3,373	16.82	35.95
1973-74	4,323	1,233	- 26.41	- 64.03
1974-75	4,309	1,638	- 0.34	32.84
1975-76	6,804	3,068	57.79	87.30
1976-77	12,534	8,663	84.21	182.36
1977-78	4,528	1,242	- 63.87	- 85.96
1978-79	5,505	1,865	21.57	50.16
1979-80*	5,443	2,158	1.12	15.71

* Figure is provisional

Source: "Family Welfare Programme in India", Year Book 1979, Government of India, Department of Health Welfare, New Delhi.

TABLE NO. 11

FAMILY PLANNING ACCEPTANCE AND PERFORMANCE

(Average of 1969 to 1976

S.No.	State/U.T.	Av.F.P. Acceptance per 1000 couples in the reproductive age group	Av. F.P. Performance per 1000 Couples in the reproductive age group
(1)	(2)	(3)	(4)
	India	47.65	22.77
1.	Andhra Pradesh	35.60	26.69
2.	Assam	22.51	14.62
3.	Bihar	22.59	14.00
4.	Gujarat	54.72	31.27
5.	Haryana	89.36	32.56
6.	Himachal Pradesh	24.97	14.94
7.	Jammu & Kashmir	18.85	9.66
8.	Karnataka	28.47	17.18
9.	Kerala	35.55	24.89
10.	Madhya Pradesh	31.17	17.11
11.	Maharashtra	54.19	39.94
12.	Manipur	14.33	5.62
13.	Meghalaya	12.32	6.17
14.	Nagaland	NIL	NIL
15.	Orissa	48.40	27.74
16.	Punjab	86.79	25.77
17.	Rajasthan	23.67	11.50
18.	Sikkim	N.A.	N.A.

Table No. 11 Contd...

(1)	(2)	(3)	(4)
19.	Tamil Nadu	44.39	27.88
20.	Tripura	10.33	5.72
21.	Uttar Pradesh	26.41	11.05
22.	West Bengal	27.99	16.14
23.	Andaman & Nicobar Islands	17.61	10.26
24.	Arunachal Pradesh	0.78	0.45
25.	Chandigarh	204.69	40.48
26.	Dadra & Nagar Haveli	28.90	13.47
27.	Delhi	156.71	30.53
28.	Goa Daman & Diu.	28.86	15.25
29.	Lakshadweep	34.90	8.77
30.	Mizoram	179.79	142.96
31.	Pondicherry	65.71	40.63

SOURCE : K.C. Jolly, "Family Planning Performance in India", Sept. 1978. University of Delhi, (Mimeographed)

TABLE NO: 12

COUPLES EFFECTIVELY PROTECTED BY METHODS UPTO MARCH 1979

S.No.	States/U.Ts.	Percentage of Couples effectively protected to total couples in the reproductive age group (15-44 Yrs)	Percent effectively protected by		
			Sterilisations (a)	I.U.D. insertions (b)	Other Methods (c)
(1)	(2)	(3)	(4)	(5)	(6)
1.	Andhra Pradesh	26.5	25.9	0.4	0.2
2.	Assam	20.2	19.2	0.6	0.4
3.	Bihar	12.5	12.0	0.3	0.2
4.	Gujarat	31.1	27.7	1.2	2.2
5.	Haryana	31.8	24.3	4.2	3.3
6.	Himachal Pradesh	24.0	21.8	1.4	0.8
7.	Jammu & Kashmir	10.2	8.9	0.9	0.4
8.	Karnataka	22.0	20.3	1.0	0.7
9.	Kerala	28.8	27.5	1.0	0.3
10.	Madhya Pradesh	21.4	20.5	0.5	0.4
11.	Maharashtra	34.9	33.8	0.4	0.7
12.	Manipur	8.6	6.8	1.4	0.4
13.	Meghalaya	6.9	6.1	0.6	0.2
14.	Nagaland	1.0	0.8	0.1	0.1
15.	Orissa	24.8	23.4	0.8	0.6
16.	Punjab	25.9	19.8	3.1	3.0
17.	Rajasthan	13.2	11.7	0.6	0.9

(xxix)

TABLE NO: 12 Contd...

(1)	(2)	(3)	(4)	(5)	(6)
18.	Sikkim	7.7	2.2	2.6	2.9
19.	Tamil Nadu	28.7	27.4	0.8	0.5
20.	Tripura	10.2	9.5	0.1	0.6
21.	Uttar Pradesh	11.9	9.2	1.7	1.0
22.	West Bengal	21.4	20.7	0.3	0.4
23.	Andman & Nicobar Islands	14.8	12.3	1.5	1.0
24.	Arunachal Pradesh	1.3	0.6	0.3	0.4
25.	Chandigarh	24.5	12.7	7.6	4.2
26.	Dadra & Nagar Haveli	14.2	12.6	0.1	1.6
27.	Delhi	36.9	24.6	3.9	8.4
28.	Goa Daman & Diu.	16.1	15.0	0.7	0.4
29.	Lakshadweep	8.3	5.6	0.2	2.5
30.	Mizoram	8.2	6.8	0.8	0.6
31.	Pondicherry	35.1	32.0	2.4	0.7
	India	22.8	20.2	0.9	1.7

Note : Number of Couples effectively protected is arrived at by multiplying the couples currently protected by the factor use effectiveness of the method. The use-effectiveness for sterlisation, I.U.D., equivelent conventional contraceptive users and equivelent Oral Pill users is taken as 100 per cent, 95 per cent, 50 per cent and 100 per cent respectively.

Sources: "Family Welfare Programme in India", Year Book, 1979, Govt. of India, Department of Health Welfare, New Delhi.

TABLE NO. 13

CHILD DEATHS, 1973

S.No.	State/U.T.	Infant Mortality Rate per 1000 live births	Percentage of deaths in the age 0 to 4 yrs. to total deaths	Percentage of deaths in the age 5 to 14 yrs. to total deaths
1.	Andhra Pradesh	105.0	23.4	6.5
2.	Assam	136.0	20.4	9.2
3.	Bihar	126.0	19.5	9.3
4.	Gujarat	161.0	34.1	5.8
5.	Haryana	104.0	35.7	7.5
6.	Himachal Pradesh	85.0	26.2	8.0
7.	Jammu & Kashmir	65.0	24.6	6.7
8.	Karnataka	90.0	25.2	6.6
9.	Kerala	58.0	17.2	5.9
10.	Madhya Pradesh	145.0	39.4	7.5
11.	Maharashtra	116.0	32.9	6.0
12.	Manipur	28.0	19.6	12.9
13.	Meghalaya	N.A.	29.4	6.1
14.	Nagaland	N.A.	N.A.	-
15.	Orissa	145.0	23.7	8.5
16.	Punjab	115.0	32.0	4.2
17.	Rajasthan	137.0	28.2	7.3
18.	Sikkim	N.A.	N.A.	N.A
19.	Tamil Nadu	108.0	27.2	5.9
20.	Tripura	299.0	17.8	12.1
21.	Uttar Pradesh	176.0	33.0	6.8
22.	West Bengal	126.0	21.3	6.8
23.	Andaman & Nicobar Islands	65.0	38.5	8.9
24.	Arunachal Pradesh	N.A.	N.A.	N.A
25.	Chandigarh	44.0	34.8	5.4
26.	Dadra & Nager Haveli	126.0	33.6	9.1
27.	Delhi	58.0	28.3	5.9
28.	Goa Daman and Diu.	67.0	21.1	3.0
29.	Lakshadweep	N.A.	N.A.	N.A
30.	Mizoram	N.A.	N.A.	N.A
31.	Pondicherry	67.0	27.9	6.0

SOURCE : "Vital Statistics of India", 1973, Office of the Registrar General,, India, Ministry of Home Affairs, New Delhi.

TABLE NO: 14

SOCIO ECONOMIC VARIABLES

1971

Sl. No.	State/U.T.	Wage of SC & ST Children to Total Children	Wage of SC & ST pop. to Total pop.	Adult Literacy rate (15yrs &above)	Adult Female Literacy rate (15yrs. &above)	Wage of Agrl. Workers to Total Workers	Wage of Urban pop. to Total pop.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Andhra Pradesh	17.15	17.08	28.30	16.2	70.11	19.31
2.	Assam	17.21	17.27	35.60	20.6	66.42	8.87
3.	Bihar	23.08	22.86	23.50	8.9	82.26	10.00
4.	Gujarat	21.93	20.83	42.00	26.8	65.60	28.08
5.	Haryana	20.09	18.39	29.70	14.6	65.29	17.66
6.	Himachal Pradesh	26.25	26.33	32.00	18.3	74.82	6.99
7.	Jammu & Kashmir	8.25	8.26	21.10	8.9	67.83	18.59
8.	Karnataka	14.05	13.93	35.90	21.1	66.71	24.31
9.	Kerala	9.39	9.56	69.2	59.4	48.50	16.23
10.	Madhya Pradesh	32.99	33.23	26.60	11.2	79.42	16.09
11.	Maharashtra	12.67	11.86	44.90	26.9	64.67	31.17
12.	Manipur	34.09	32.72	38.30	19.6	70.65	13.19
13.	Meghalaya	84.09	80.00	37.70	29.2	78.03	14.95
14.	Nagaland	93.14	88.61	N.A.	20.8	N.A.	9.95
15.	Orissa	38.86	38.20	31.00	13.9	77.45	8.41
16.	Punjab	27.36	24.71	35.20	24.2	62.67	23.73
17.	Rajasthan	27.25	27.95	22.00	8.7	74.23	17.63

Table No. 14 Contd...

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
18.	Sikkim	N.A.	N.A.	N.A.	11.9	N.A.	9.37
19.	Tamil Nadu	19.28	18.52	42.90	25.6	61.71	30.26
20.	Tripura	41.49	41.34	37.60	22.3	74.37	10.43
21.	Uttar Pradesh	21.37	21.22	24.50	10.4	77.38	14.02
22.	West Bengal	26.89	25.26	40.50	24.8	58.43	24.75
23.	Andaman & Nocobar Islands	18.07	15.72	50.50	32.8	18.46	22.77
24.	Arunachal Pradesh	83.90	79.09	N.A.	3.8	N.A.	3.71
25.	Chandigarh	13.88	11.30	70.60	61.3	4.40	90.55
26.	Dadra & Nagar Haveli	89.74	88.69	16.40	7.4	89.41	N.U.
27.	Delhi	18.39	15.64	64.60	52.2	3.86	89.70
28.	Goa, Daman & Diu	3.16	2.82	50.30	36.0	38.98	26.44
29.	Lakshadweep	N.A.	92.86	N.A.	93.7	N.A.	N.U.
30.	Mizoram	95.30	15.46	N.A.	58.4	N.A.	N.A.
31.	Pondicherry	15.32	95.63	50.30	34.1	44.66	42.04

Source: Column 3 and 4. Social and Cultural Table Part II-C Census of India, 1971

5,6 and 8. General Population Tables, Part II-Census of India, 1971

7. General Economic Tables, Part II-D, Census of India, 1971.

APPENDIX - II

Nutritional Programmes

To improve the health status of the child, the major emphasis has been to improve the nutritional status of the mother and child. It is thought that mothers play an important role in the family. So besides improving the nutritional status, changing the food habits, what the mother cooks, and how and when, in a large way influences the childs nutrition and consequently his health.

Thus various programmes have been implemented to combat this problem which focus attention on the pre-school children, pregnant and lactating mo-thers. Government and non-government agencies are both working simultaneously to reduce child mortality and morbidity. Various Special nutrition programmes, Applied nutrition programmes, Integrated Child Development Service Schemes, Balawadi nutrition programme, mid-day Meal Programme, pro-phylaxus against Vitamin 'A' deficiency and production of nutrition food are working individually and together with the help of various international and national agencies. Besides maternal and child health services are being provided to raise the health standards.

Most of these nutrition programmes are short term measures, to supplement the diets of pre-school children and pregnant and lactating women. Some of these programmes also aim at increasing the food production and consumption through education cum-demonstration techniques.

The special nutrition programme has been started since 1970. The aim is to bring down mortality and morbidity due to undernutrition, and to prevent the marginal cases of malnutrition.

Beneficiaries are selected on the basis of poor nutritional status and low income, and food supplement is provided for 300 days during the year.

Balwadis Nutrition programme, is another of the supplementary programme, which is run by voluntary agencies, but financed by the department of social welfare. Here again food supplement of 300 calories and 10 gram protein per day is given to children aged 3 to 5 years who attend balawadis.

Mid-day-meal programme is run by the department of Education where children are given an incentive to remain in school by supplementing them by food.

The Integrated Child Development Service Scheme (ICDS), is also a kind of supplementary feeding programme. The programme aims at an integrated delivery of a package of health, nutrition and educational services to children below six years of age and pregnant and lactating mothers. It is a major effort on the part of the government of India to improve the health of this vulnerable group of the society. In 1975-76 only 33 experimental projects were sanctioned, but realising the importance of these services, 67 more centres were sanctioned in 1977, bringing the total to a hundred. Besides providing supplementary feeding, immunization, health check up, referral services and nutrition and health education are also included.

In order to prevent blindness due to vitamin 'A' deficiency, (which affects about 10 to 15 per cent of the pre-school children annually) the department of Health and Family Welfare administered a National Vitamin 'A' Prophylaxus programme, in 1973, with the objective of preventing blindness.

Although these programmes appear very impressive, they do have

deficiencies in the implementation of the programme. The targets laid are generally never met. The important problem centres around the recipients of the supplements. It is seen that the food supplement does not reach the vulnerable group. Lactating and pregnant women are generally absent from the feeding centres, which leads to the failure of the programme. Another problem encountered is that those registered for the special nutrition programme may not be from the target group. The food is at times taken home by the children which is then shared by the other family members. Food supplements provided to children in the mid-day meal programme or the balwadis nutrition programme is generally seen to be a substitute rather than supplement of the childs home diet.

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