

DEVELOPMENT OF A SYSTEM OF CONTINUING EDUCATION FOR REPRODUCTIVE HEALTH CARE

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ABSTRACT

The need and importance of continuing education for the health professionals have been long recognized. The knowledge once gained and the skill once learnt do not retain for ever; these decline with progress of time causing a retention gap. With the development of new knowledge and conception and of advanced technology this gap is further widened, and this tends to render a person less efficient and effective. Therefore, the medical and health personnel are to constantly update their knowledge and improve their skill. Continuing education is meant to provide means of equipping the medical and health personnel through systematic learning in their current and future jobs with the objective of increasing the efficiency of the individual as well as the organization. Continuing education should be organized as a system because it requires a comprehensive approach, and it involves a diversity of issues and decision in different sectors and a great deal of support, expertise and resources that can seldom be provided by a single institution in any country.

Different dimensions of a system of continuing education are discussed in the context of newly emerged concept of integrated comprehensive reproductive health care, which is to be achieved through primary health care approach.

The need and importance of continuing education for the health professionals have been long recognized^{1,2}. The 27th World Health Assembly in 1974 called upon the Member States “to consider as a matter of urgency:

1. The development of national systems of continuing education for health professionals, based on national and local health needs and demands, integrated with health-care and educational systems, with full utilization of the resources of universities and schools of health personnel;

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2. The promotion of systems approach in educational planning for continuing education and the periodic assessment of the quality of performance of health personnel in developing preventive and curative health care”.

A major challenge for continuing education of health personnel was posed in 1977-78, when all Member States accepted the goal of Health for All (HFA) by the year 2000 AD through primary health care approach^{2,3}. Countries embarked on various types of continuing education with little to varying degrees of success. In recent years increasing emphasis is being placed on the newly emerged concept of integrated, comprehensive and holistic approach for Reproductive Health. The goal of Reproductive Health for All has been set, and this is to be achieved through primary health care (PHC) approach^{4,5}. This would obviously present a greater challenge to the continuing education systems. For properly comprehending the dimensions of various aspects and issues, and for better conceptual clarity and appreciation, a step by step development of the theme(s) would be helpful.

Firstly, it would be important to discuss different aspects of Health For All (HFA) to be achieved through Primary Health Care approach. What type of programme activities were initiated, and what knowledge and skill had to be acquired? What was the health services infrastructure and what manpower was deployed and what had been the achievements so far?^{3,6,7}

Then, it would be important to discuss different dimensions of Reproductive Health (RH). How is it defined, and what are its components? What types of changes in approach, main focus, emphasis and thrust are needed? What is meant by comprehensive, integrated and holistic approach?^{8,9} What is the scope and what changes and emphasis have been adopted in India in its Reproductive and Child Health (RCH) programme?^{10,11}

Obviously, it would be important to be acquainted with what is the current health services infrastructure and manpower deployment and their assigned responsibilities. The health personnel have to be reoriented to the changed concept of RH and RCH, and the new knowledge and skills are to be acquired. It is to be determined what types of education and training programmes are to be organized, by whom and for what categories of staff. What role the non-government organisations (NGOs) and private sector can play? How to establish linkages and how to integrate all the efforts by various groups?

Keeping these in view, there would be short presentations on HFA and PH Care, and then on definition and dimensions of Reproductive Health Care and some aspects of RCH programme in India. This will be followed by discussions on various dimensions of a System of Continuing Education Programme.

HEALTH FOR ALL THROUGH PRIMARY HEALTH CARE APPROACH

Primary Health Care had been defined as an “essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination”. In the International Conference on Primary Health Care, jointly organised by the WHO and UNICEF in Alma Ata, USSR, in September, 1978, it had been further stated that at least the following should be included in Primary Health Care^{3,12}

1. Education of the people concerning prevailing health problems and methods of preventing and controlling them.
2. Promotion of food supply and proper nutrition
3. Adequate supply of safe water and basic sanitation
4. Maternal and child health care and family planning
5. Immunisation against the major infectious diseases.
6. Prevention and control of locally endemic diseases
7. Appropriate treatment of common diseases and injuries
8. Provision of essential drugs

The WHO had also suggested that the following supportive activities should be undertaken for the success of Primary Health Care:

- a) Involvement of people and community participation;
- b) Intra-sectoral and inter-sectoral collaboration;
- c) Development of effective referral support;
- d) Development and mobilisation of financial resources;
- e) Involvement of managerial processes;
- f) Health manpower development;
- g) Medical and health system research, including development of innovative approaches; and
- h) Development and application of appropriate technology for health care.

Primary health care is the first level of contact of the individuals, the family and the community with the national health system bringing health care as

close as possible to where people live and work. It constitutes the first element of the process of continuing health care, and this should get full support from the rest of the health system.

Primary health care has to become a part of socio-economic development, and it demands coordinated efforts of all sectors such as agriculture, animal husbandry, food industry, education, housing, public works, communication and others. It would require individual and community self-reliance and participation and should be sustained by an integrated, functional and mutually supportive referral system.

The Government of India was signatory to the Alma Ata Declaration and had also signed the South East Asian Health Charter with the WHO for achieving the goal of Health for All (HFA) by 2000 AD. In order to achieve this goal of HFA through Primary Health Care approach^{3,7,12}, it was necessary that all the categories of personnel working in the field of health and other related organisations became knowledgeable about the newer developments and acquire competence for doing their job effectively. Obviously, it would need appropriate Continuing Education Programmes.

To achieve the objectives of Health for All various programmes in the field of health and family welfare had been undertaken by the Govt. of India. These included expanded maternal and child health care and family planning programmes; immunization against major infectious diseases; national programmes for eradication of endemic diseases such as malaria, tuberculosis, leprosy, filaria, goitre and blindness. Later on, to provide emphasis and thrust some special programmes such as Child Survival and Safe Motherhood (CSSM) were initiated, and Family Welfare Programme was strengthened and large scale immunization of children was carried out under Universal Immunization Programme (UIP). Programmes were also organised for control of diarrhoeal diseases and acute respiratory infections (ARI) among children. For meeting these needs there has been extensive expansion of health services infrastructure.

As a result of all these significant improvement has occurred in various health parameters as may be noted from Table-1, although these are not up to the desired/targeted levels.

TABLE-1
CURRENT ACHIEVEMENT IN VARIOUS ASPECTS OF HEALTH AND FAMILY
WELFARE PARAMETERS

YEARS						
Sl. No	Parameters	1951-61	1981	1991-94	1998-99	Goals Set by 2000 AD
1.	Crude Birth Rate	41.7	37.2	28.7 (SRS 1993)	26.4 (SRS 1998)	21
2.	Crude Death Rate	25.0	-	-	10.4 (SRS 1998)	9.0
3	Maternal Mortality rate	-	>5	4.37	-	Below 2
4.	Infant Mortality Rate	146	110	74 (SRS 1993)	72 (SRS 1998)	Below 60
5.	Couple Protection Rate (%)	10.4 (1970-71)	22.8	45 (1994)	44 (1999)	Below 60
6.	Total Fertility Rate	6.0	4.5	3.6 (SRS 1993)	3.3 (SRS 1998)	2.2 (correspond NRR-1)
7.	Life Expectancy at birth (years)	41.3	50.5	58.6 (1971-81)	62 (1986-91)	64

DIMENSIONS OF REPRODUCTIVE HEALTH AND REPRODUCTIVE HEALTH CARE

The importance of various components of reproductive health (RH) had been gaining increasing but fragmented attention in different countries over the years, and an integrated comprehensive concept of RH has emerged and gradually evolved only in recent years. Reproductive health is central to general health and is affected by other aspects of health, particularly the health status during infancy, childhood and adolescence, the life style, nutrition and environment. It also affects general health, and health beyond reproductive years both in women and men. It is also being realised that the problems and their remedial measures related to most of the components of reproductive health are very much interrelated and intertwined^{4,5,8,9}

According to the WHO, health is a state of complete physical, mental and social well being that is essential for productive life, and not merely the absence of disease or infirmity. Health development and health maintenance depend upon the quality of health care, which involves self-care, and the care by the family, the community and the health care systems. Health care is a much wider concept, which includes preventive, promotive and rehabilitative aspects in addition to the curative aspects which the “medical care” is usually concerned with.

Definition of Reproductive Health

As defined by the WHO and adopted in the International Conference on Population and Development (ICPD, Cairo), Programme of Action, "Reproductive health is a state of complete physical, mental and social well being and not merely the absence of disease or infirmity in all the matters relating to the reproductive system and its functions and processes. Reproductive health, therefore, implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so. Implicit in this last condition are the rights of men and women to be informed of and to have access to safe, effective, affordable and acceptable methods of family planning of their choice, as well as other methods of their choice for regulation of fertility which are not against the law, and the right of access to appropriate health care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant. In line with the above definition of reproductive health, reproductive health care is defined as the constellation of methods, techniques and services that contribute to reproductive health and well-being by preventing and solving reproductive health problems. It also includes sexual health, the purpose of which is enhancement of life and personal relations, and not merely counselling and care, related to reproduction and sexually transmitted diseases"⁸.

In the light of the above statements regarding interrelated and integrated nature of different components of reproductive health and that related to preventive and promotive aspects of health care, the above WHO definitions of reproductive health and reproductive health care need further elaboration⁹. This is clarified below. Maternal health is directly related to the state of women's health which in turn is related to the status of women in the family and the community at large and their development. Both women's health and maternal health are largely influenced by the status of their health during infancy, childhood and adolescent period. This has also been emphasized in other WHO documents^{4,5}. Children and adolescents of today would develop into adults of tomorrow, entering into reproductive phase of life. Maternal health is also closely related to child survival. The fear of or actual death of the child produces a desire for a large number of children, and early death of a child curtails the period of lactation, thus hastening exposure to pregnancy. High fertility reduces child survival, and the direct correlation of higher infant mortality rate with higher fertility is well known. Thus high fertility and high maternal mortality and morbidity are linked with high infant and child mortality creating a vicious circle⁹. Child survival is very important, but that is not enough. Survival alone is no guarantee for fulfillment of physical and mental potentials with which they are born¹³. Child needs integrated development throughout. Subsequently, the

adolescent period, which denotes the transition between childhood and adulthood, is also very important. At this time the adolescents face the problems of growing up and the foundation for human sexuality is laid. Human sexuality comprises the knowledge, beliefs, attitudes, values and behaviours of individuals regarding sex. Therefore, a comprehensive concept of reproductive health should encompass all these aspects mentioned above, and its care needs an integrated approach⁹. Lack of proper conceptual clarity leads to misconception. An example is the title of the project “Reproductive and Child Health (RCH) programme,” launched by the Government of India. Child health care is very much a part of integrated comprehensive reproductive health care, as has been illustrated above and also described earlier.

Components of Reproductive Health and Reproductive Health Care

The different components of comprehensive reproductive health care are encompassed within the following eight areas⁹:

- Women's health, safe motherhood (including safe and humane management of unwanted pregnancy and abortion), and women's development.
- Child survival, child health, and child development.
- Adolescence, sexuality development, adolescence education and adolescent's health care.
- Effective family planning ensuring free reproductive choice, gender equality and greater male participation.
- Prevention, detection and management of reproductive tract infections, sexually transmitted disease (STDs) and AIDS and the cancer of the reproductive system.
- Prevention and detection and management of genetic and genetical-environmental disorders.
- Reproductive health care of elderly persons.

Obviously all the above components of reproductive health care may not be organised overnight, but these can be developed in an incremental fashion. Depending on the urgency of the prevailing problems and the availability of resources, some of these components would need priority attention and emphasis. Probably, the minimum essential requirements may be spelt out. However, the degree of developments that have already occurred in this field would vary from country to country and from states (provinces) to states within the country. Therefore, it would not be wise to restrict or bind all to the minimum essentials. But it would be important to outline the comprehensive programme. Then depending upon the local needs and demands, these can be adapted and developed appropriately, keeping the higher goals in view for the future.

The author had been very actively engaged in the study of different aspects of Reproductive Biology, Reproductive Endocrinology, Reproductive Medicine and Reproductive Health Care over the past 45 years. He had also the opportunity of closely watching the evolution of RH concept by the WHO over the years. In one comprehensive document entitled “Dimensions of reproductive health: opportunities and challenges” prepared by this author, the problems on each of these components and their remedial measures have been discussed in detail⁹. The then Director of HRP, WHO, Geneva complemented the author and wrote, “It is a very comprehensive document in this field and a valuable contribution to the ongoing discussion on this subject.” This article has also been extensively used as a background document by members of the National Sub-committee and its various Working Groups for determining the Research Needs in Reproductive Health. Furthermore, no one talks about Reproductive Health needs of men. They can also play a very important role in achieving and maintaining the reproductive health of the family. This author has also developed another valuable document titled, “ Dimensions of reproductive health in men”, the first of its kind¹⁴. The policy makers, programme administrators, trainers and researchers should go through the above mentioned documents to develop proper conceptual frame and perceptions. Conceptual clarity is very important, otherwise proper direction and appropriate thrust in action programmes may be lacking.

In India, various programmes related to reproductive health were in progress, viz. Child Survival and Safe Motherhood, and Family Planning Programmes. Following ICPD in 1994 in Cairo, India has adopted Reproductive and Child Health approach in collaboration with the World Bank. It is noted that there are significant lacunae in basic conceptualization of Reproductive Health and consequently, in programme planning and implementation. As for example, in the World Bank document, “India’s Family Welfare Programme: Toward a Reproductive and Child Health Approach”¹⁰, it is stated, “this report encompasses child health, in addition to reproductive health, because child health is an integral part of India’s Family Welfare Programme.” (page 2 para 2). This statement is based on misconception; child health is very much an important component of comprehensive reproductive health care as explained earlier. In the document on Reproductive and Child Health Programme (GOI)¹¹ it is stated, “The RCH programme will build on the success of UIP and CSSM programme. In a nutshell, RCH will cover the services offered under CSSM and the Family Welfare Programmes as well as two new interventions, namely management of reproductive tract infections and adolescent reproductive health.” This would obviously be a truncated version of R.H. care, without imbibing the real spirit of an integrated, holistic concept. However, in a small paragraph titled, “ Life-Cycle Approach” in the same document, a more comprehensive concept

emerges. But unfortunately, these concept and approach do not adequately percolate into the RCH programme outline or in the Guidelines for Training Programme under RCH Programme of GOI. Further, in this document gender sensitive approach has been mentioned; but this needs to be properly explained and elaborated for conveying the appropriate messages. It needs to be emphasised that the females are being discriminated and disadvantaged right from the intra-uterine life and through infancy, childhood, adolescence and adult life. They do not have any decision-making role. In spite of the fact that the women contribute most for the welfare of the family and the community at large, they suffer the most. There is a need for urgent remedy. Women are the best change agents for development. Their development should be given priority attention and they must be empowered. The possible ways and means by which this can be achieved have been discussed in detail by this author elsewhere⁹. Dr. Nasif Sadik, Executive Director of UNFPA and Under Secretary-General, U.N., under whose chairperson-ship the famous International Conference on Population and Development (ICPD, Cairo) was organised, had been repeatedly emphasizing at different fora (including several in Delhi) that without women's overall development, safe motherhood and the goals of reproductive health cannot be achieved¹⁵. But unfortunately, this thrust is lacking in our programme.

SYSTEM OF CONTINUING EDUCATION

Continuing education is meant to provide means of equipping the medical and health personnel through systematic learning in their current and future jobs with the objective of increasing the efficiency of the individual as well as the organization. It is an essential element for personal and organizational development, and it has to be a well-planned programme for systematic learning in the job^{1,2,16,17}.

Since continuing education provides the health personnel opportunities for learning new techniques, approaches and attitudes for effective maintenance of standards of health care delivery, and since it serves as an essential part of the process of introducing any changes in the method of health work, it is considered as an important part of the management system or managerial process^{23,24}.

Why Continuing Education

Basic education and training in professional institutions in the field of medical and health care do not equip the persons adequately for the type of work they would be expected to do in practical life in the field. Furthermore, the knowledge once gained and skills once learnt do not retain forever; these decline with the progress of time causing a "knowledge and skill retention gap." In addition, there is development of new knowledge and of advanced technology,

which produces a “widening gap.” This tends to render a person less efficient and effective. For responding properly to the changes in advancing technology for maintenance and promotion of health, to new pattern of diseases, disability, etc. and to new social policies and expectations and to new programmes for better health care, the medical and health personnel are to constantly update their knowledge and improve their skills. New competencies in diverse areas are to be developed at different levels to enable them to function effectively. Therefore, the concept of life-long education is being increasingly accepted as an indispensable supplement to basic education.

Health care system must ensure that their personnel are kept abreast not only of current knowledge and technology in their areas of competence, but also of newly emerging concepts, programmes and approaches, and develop new competencies. This is essential not only to ensure a high standard of work performance, but also to maintain a high level of motivation in the health personnel.

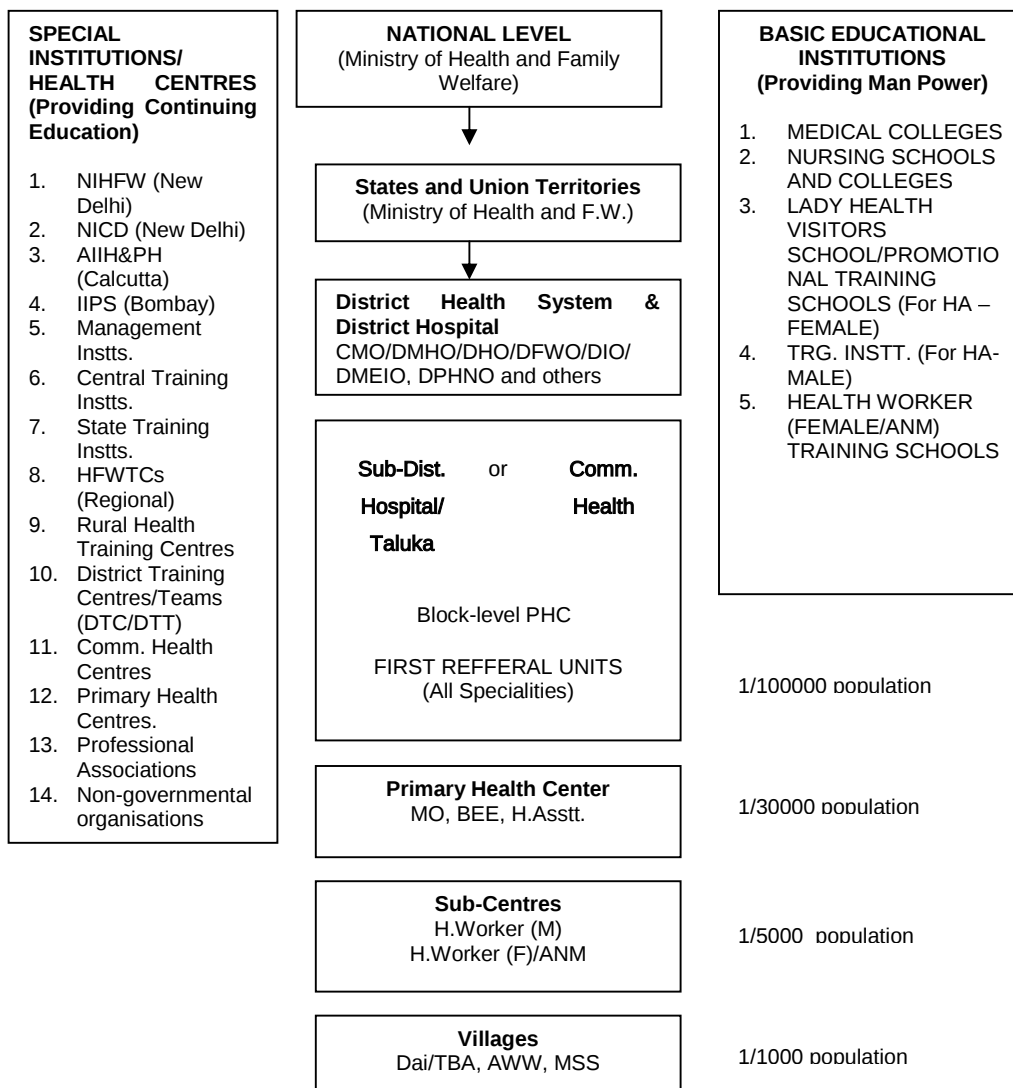
For Whom the Continuing Education is Needed?

Each one of the health personnel at different levels of health care system should get the opportunity for continuing education in a phased manner. A sequential and progressively higher achievement should be aimed in the system of continuing education. A continuous rather than a sporadic process can benefit both the individual and the health system as a whole. The quick exposures through workshops, seminars, orientation training, crash courses, etc. create awareness and knowledge, but later on longer educational programmes on-the-job become useful for imbibing skills. There should be proper coordination at all levels for organizing sequential and progressive educational system for all health personnel.

Since continuing education is a means for improving work performance of health personnel, the system should be closely related to health care delivery system as a whole and health manpower training system in particular¹⁷ (Table 2). The programmes of such systems should be based on identified real community problems and needs, the tasks to be performed, and the methods, techniques and equipment to be used for effective maintenance of standards of health care delivery. Supportive supervision of health personnel at all levels should be an important vehicle for continuing education.

Within the health sector, a number of non-governmental agencies are also functioning and catering to the health care needs of a large proportion of population. Their functionaries would also need continuing education.

TABLE -2
HEALTH CARE SYSTEM AND HEALTH MANPOWER TRAINING SYSTEM IN INDIA



N.B: In urban areas, slum population would need priority attention in reproductive health care. Available health functionaries in government and non-government sectors would need continuing education.

To make the continuing education system properly effective, the key trainers themselves should be trained in educational technology; all others imparting education at different levels should also be well oriented to the basic principles of educational technology¹⁸.

Role and Scope of Educational Technology :

The persons concerned with continuing education should be knowledgeable about the job functions of the health personnel deployed at different levels. The training curricula must be relevant to the job functions of each category of personnel, and appropriate to the local problems related to reproductive health care as well as to the socio-economic and cultural setting of the people. The content of the curricula and the way the information is presented, are most important for trainees' acquisition in a course, and ultimately in the application of their skill in serving the beneficiaries. Therefore, the quality and effectiveness of training would suffer in the absence of professional trainers who may lack experience, skill and teaching abilities in the form of lesson planning, curriculum development, using new teaching/learning methodologies and field experience. Furthermore, if there is a lack in their knowledge and technical expertise in Reproductive Health Care, training exercises would not be fruitful.

In view of the above, the importance of development of need-based curricula and of the need for education and training of trainers in educational technology for improving their capabilities and effectiveness can hardly be over emphasised.

Training in Educational Technology may cover the following major areas¹⁸:

- I. *Designing an Instructional System* - This would include :
 - a. Methods of identifying training needs;
 - b. Task analysis;
 - c. Formulation of educational objectives in behavioural terms;
 - d. Selection and sequencing of contents; and
 - e. Preparation of a plan of evaluation based on objectives.
- II. *Approaches to Learning* - This will include :
 - a. Learning process;
 - b. Learning environment;
 - c. Methods of learning –such as

- i. Lecture-discussions,
- ii. Small group-discussions,
- iii. Demonstration for skill development
- iv. Field work,
- v. Role play,
- vi. Case study method,
- vii. Modular approach, and
- viii. Use of manuals and teaching guides

III. *Selection and Effective Use of Learning Materials and Aids* - for class room and field training

IV. *Instructional Planning*- This will include :

- a. Steps in preparation of a lesson plan;
- b. Use of check list for evaluation of lesson plan, and
- c. Formulation of instructional plan- which may be concept oriented, skill oriented and/or attitude oriented.

V. *Planning, Implementation and Evaluation of a Training Course*

The Health Care System functions generally at three/four different levels¹⁹: (a) the community level, (b) the intermediate levels, (c) the third level or the 'district level' and (d) the higher or more central levels. At the community level, it addresses the main health problems in the community providing promotive, preventive, curative and rehabilitative services. The intermediate levels of the health system provide supervision and support for the health team at the community level as well as provide other services as required. Another important function of this level is provision of continuing education for community level health workers through supportive supervision and formally organised programmes. At the third or district level all the activities at all lower levels are planned, organised, supervised, coordinated, monitored and evaluated jointly with personnel from intermediate levels. The higher or more central levels provide more complex secondary and tertiary cares, and technical and administrative support to the district level health personnel. Health manpower development system is concerned with planning, production and management of health manpower.

Health Services Organisation and Infrastructure in India :

The country is divided into 27 major states and 5 smaller union territories. The states are divided into administrative districts. Each district is divided into sub-districts and talukas, under which, community development blocks (CDBs) are situated.

Over the past four decades, health services infrastructure (Table 2) and health care facilities have been expanded considerably as noted below.

Facilities at village level (1/1000 population)

At village level the available health functionaries are one trained dai or traditional birth attendant (TBA) and one Angan Wari worker. In addition, functionaries of some voluntary agencies may be available, such as Mahila Swasta Sangh (MSS).

Facilities at Sub-Centre Level (1/5000 population)

This is the most peripheral health institutional facility, manned by one male and one female health workers.

Facilities at PHC level (1/30,000 population)

Each PHC will have one Medical Officer (MO), one block extension educator (BEE), two health assistants (HAs) – one male and one female, and health workers and other supporting staff.

Facilities at community health center (CHC) (1/100,000 population)

The CHCs have been established by upgrading sub-district/taluka hospitals and some of the block level PHCs. For strengthening preventive and promotive aspects of health care, a new non-medical post, called community health officer (CHO) has been provided at each CHC. This centre will have all relevant specialities and will serve as the first referral unit (FRU).

Facilities at district level (1/200,000 population)

District health organisation will have two components i.e., district health organisation and district hospital. These will be appropriately strengthened to cater to the needs of the expanding rural health and reproductive health care programmes on a decentralised basis. Not only the planning, implementation and monitoring of these programmes and the training of peripheral level health personnel will be carried out at the district level, all the referral services from the periphery i.e, PHCs, CHCs/taluka hospitals, will be attended to at the district level.

The primary contact care will be provided by the health functionaries at the village level and by the multi-purpose workers at the sub-center level. The cases needing further help will be dealt with at the PHC, and those needing referral support by the specialists would be referred to the CHC. The secondary and tertiary referral support will be provided at the district hospitals and medical colleges/ specialized hospitals respectively.

Priority Needs at District Levels

The peripheral health workers, who are directly concerned with providing primary health care to the community, do not get chances for updating their knowledge and skills and they work almost in isolation. Obviously, they have a priority need for continuing education on a regular basis. It is noted from the above that district level of national health system along with the intermediate level health personnel is responsible for providing supervision and support to the community level health workers. Several World Health Assemblies have recognized the crucial role of the district level of national health systems in ensuring universal access to primary care, and the need for maximum self-reliance in district health systems. The emphasis on continuing education for district health personnel is justified, as the need to decentralize development activities to district levels has been stressed²⁰. These levels are near enough to the communities to respond sensitively to their practical problems and needs, and they are equally near to the central administrative level to translate government policies to practice. This is also in line with the policy of the Government of India for decentralization of Planning and Implementation of various programmes to the district level.

What is a System and Why a System Approach is Needed?^{1,17,19}

When different interrelated disciplines, organisations and/or sectors are linked together to achieve a common objective through well coordinated convergent efforts it may be called a system. If we apply this definition to the existing situation in the developing countries in the region including India, the health system may be quite narrow, as the desired linkages have not been properly established. Ideally, which every country should strive for, the health system should consider linking together all the disciplines, organisations and sectors, currently existing and also others, which have potential and are essential for the promotion of RHFA through primary health care approach.

It has been pointed out that “a National System of Continuing Education is required which ensures that all categories of health personnel are given the opportunity to continue learning throughout their careers.” Continuing education should be organised as a system because it requires a comprehensive approach, and it involves a diversity of issues and decisions in different sectors and a great deal of support, expertise and resources that can seldom be provided by a single institution in any country.

Who Should be Responsible for Continuing Education?

The responsibility for providing and acquiring competency-based continuing education should be shared by the individuals, the health care system(s), the educational institution/system, professional bodies, other related sectors, NGOs, etc.

Health services organisation in a country extends from the national level to the sub-centres/health posts, the latter being the most peripheral health facility of the government. The village level health functionaries form the interface between the people and the governmental set-up. It would be important to be knowledgeable about the pattern of manpower deployment at different levels and about the nature of their job functions with particular reference to reproductive health care.

Furthermore, within health sector, besides the national health system, a number of non-governmental agencies are functioning and catering to the medical/health care needs of a large proportion of population. These agencies include : voluntary organisations, professional bodies, and private practitioners of modern and traditional/indigenous systems of medicine. Unfortunately, very little or no systematic efforts have been made for establishing proper linkages and coordination with these non-governmental agencies. There is an urgent need for evolving processes to effectively link their efforts and activities with the national health care delivery system for ensuring coverage of all sections of population through primary health care approach.

It would also be important to realize that the activities of some other development sectors influence health development directly or indirectly. At present, extension workers and functionaries of these sectors/departments are operating in the field without any linkages or coordination among themselves. There is a need for including the workers and functionaries of other relevant sectors also for continuing education in reproductive health care.

Manpower Training Systems – These include two distinct groups of organisations – one group is mainly or solely concerned with basic professional

education and training of medical and paramedical persons. In this group are included the medical colleges, nursing schools and colleges, midwife training schools and other paramedical training centres. Other group comprises the institutions and centres providing mainly the in-service training and other forms of continuing education in health and family welfare, and these are functioning at different levels¹⁷ (Table 2).

Other potential institutions/organisations etc. which can contribute very significantly to the continuing education in reproductive health care may include the following: supervisory health personnel at different levels, district and other major hospitals; parent professional education and training centres such as medical colleges, nursing schools and colleges, and other professional training centres; and various professional associations¹⁷.

Current Status of Continuing Education and Recent New Developments

What is the current status of development of systems of continuing education, with specific reference to Health for All (HFA) by 2000 AD through primary health care, in different countries of this region is not known. Over the past one-decade or more there has been a spurt of such activities which were largely piecemeal responses to the needs perceived by individuals, professional groups or organisations. These were mainly a wide range of refresher/retraining workshops, seminars, conferences, post-graduate courses, etc. sponsored either by different vertical programmes in the Ministry of Health or by private professional organisations or by universities/schools for health professionals. The ad-hoc nature of these activities may only serve certain limited purposes. But these do not fulfill the basic objectives of providing systematic, sequential and progressive learning opportunities on a continuing basis to health professionals at all levels¹⁸.

As mentioned earlier, in recent years increasing emphasis is being placed on integrated, comprehensive reproductive health care with a holistic approach. The different components of Reproductive Health had been gaining varied and fragmented attention in different countries over the years. With increasing realisation that the problems and the remedial measures of each of these components are very much inter-related and inter-dependant, and isolated interventions would not be effective, an integrated holistic concept has emerged. According to the WHO^{4,6,8}. Reproductive Health is the key to brighter future. This has also been endorsed recently at the International Conference on Population and Development, Cairo,²¹ and the goal of achieving reproductive Health for All (RHFA) has been set⁸. The major components of reproductive health care include: maternal health, child health and adolescent health care; effective family planning ensuring gender equity and free reproductive choice; prevention and

control of RTIs,/STDs and AIDS; prevention and management of infertility and other reproductive disorders; and reproductive health care of elderly persons. Proper integration would involve linkages between services and programmes, coordination between departments and sectors, and collaboration among partners of service providers. Therefore, it would need changes in attitude, and in the organisation and management of reproductive health care programmes. Obviously, such comprehensive services cannot be organised overnight; these need to be developed in an incremental fashion. The nature and scope of development would naturally vary from country to country. However, one of the important pre-requisites for successful implementation of this programme would be to adequately reorient, retrain and equip the health personnel at different levels for meeting these changes. Hence the challenge is to the continuing education system. This will also tax the health care systems for financial and manpower constraints.

The status of development of a continuing education system for health personnel in India is well reflected in the following statement in the GOI document titled, "In-service Training Under Family Welfare Programme at District Level"²². It is stated, " Health infrastructure was vastly expanded in the Sixth and Seventh Five year plans to provide Primary Health Care services in the country. The effort to provide a large health manpower over a short period resulted in dilution of their training. The unipurpose workers brought under the Multipurpose Worker Scheme also could not develop the requisite skills needed for Family Welfare services. Moreover the vertical training programmes like training under CSSM Programme, Technical Training in Family Planning, Training under Area Projects, Continuing Education under Rural Health Scheme, Crash Training under Post Partum Programme and other institutional trainings have been conducted in isolation. This system has not resulted in the development of required competency in the workers in all components of the Family Welfare Programme. Some of the workers have not undergone any in-service training while others have been retrained several times. Further, different courses address similar issues resulting in avoidable overlap." For various reasons mentioned above and enumerated in that document, changes in the focus and approach have been suggested and extensive training programmes for different categories of health personnel have been formulated or planned. Although these training programmes seem reasonably well conceived, the basic concept of continuing education (CE) and application of a systems approach to CE is completely missing.

How to Develop and Sustain Effective Systems of Continuing Education

The objective of continuing education is to maintain efficiency and motivation of health personnel at different levels for effectively meeting the national and local health needs and demands. All the countries have agreed to achieve the goals of HFA, and now of RHFA through primary health care approach. The basic principles, the strategies and the essential components of HFA, PHC and RHFA, and the supporting activities required for their effective implementation need to be constantly borne in mind. For the development of any system for effective and sustained functioning it is to be based on sound management principles. This also holds true for the systems of continuing education. The sequential steps of the relevant managerial processes are enumerated below^{23,24}.

1. Situation analysis and identification of priority needs and problems
2. Formulation of a policy and allocation of funds
3. Setting of goals and objectives
4. Selecting the strategies to achieve the goals and objectives
5. To consider the approaches to be adopted to give practical shape to the strategies.
6. To identify the programmes and activities to be organised; and for each activity the tasks need to be performed at different levels and assignment of tasks to different categories of personnel.
7. Broad programming /preparing plan of action
8. Budgeting
9. Detailed programming/implementation planning
10. Implementation and monitoring
11. Evaluation and feedback
12. Corrective measures and revamping

The organizational structures, patterns and methodology for Continuing Education Systems would vary from country to country. A systematic approach to development and maintenance of continuing education systems for health personnel should incorporate the following²⁵:

- i. It should be recognized as one of the priorities in the efforts to achieve the goal of Reproductive Health For All (RHFA).
- ii. Framing a specific policy on continuing education would ensure financial, administrative and logistic support on a regular and continuing basis.
- iii. To form a well-defined and responsible Coordinating Body/Committee for proper development and coordination among different units/sectors etc.
- iv. There should be a close collaboration between the Health Care Delivery System and Health Manpower Training System.

- v. To adopt a multi-disciplinary and participatory approach, involving also the learners and various community groups, both in government and private sectors.
- vi. Proper training of teachers, trainers and supervisors; the subject areas should also include educational technology.
- vii. Effective utilization of the supervisory process for updating knowledge and skill, and proper guidance of health personnel in improving job performance.
- viii. To use a variety of educational methods including distant-learning, self-learning, on-the-job learning methods etc.
- ix. To have a built-in assessment and evaluation system.
- x. To provide great flexibility to adapt to local/specific situations.
- xi. Undertaking 'action research' on various relevant issues would enhance the application and effectiveness of the continuing education programme²⁶.
- xii. In addition, there should be mechanisms for external evaluation of the impact of training programme on the quality of health care. This would be useful in taking necessary corrective measures²⁷.

CONCLUSION

Continuing education is meant to provide means of equipping the medical and health personnel through systematic learning in their current and future jobs with the objective of increasing the efficiency of the individual as well as the organization. The knowledge once gained and the skills once developed do not retain forever. With the progress of time there is a 'retention gap' and with the development of new concepts, knowledge and advancement of technology, there is a 'widening gap'. Therefore, the concept of life-long education is being increasingly accepted as an indispensable supplement to basic education.

Each one of the health personnel at different levels of health care system should get an opportunity for continuing education in a phased manner. Health care system must ensure that their personnel are kept abreast not only of current knowledge and technology in their areas of competence, but also of newly emerging concepts, programmes and approaches and develop new competencies. Continuing education should be organized as a system because it requires a comprehensive approach and it involves a diversity of issues and decisions in different sectors and a great deal of support, expertise and resources that can seldom be provided by a single institution in any country. The responsibility for providing and acquiring competency-based continuing education should be shared by the individuals, the health care system(s), the educational institution/system, professional bodies, other related sectors and NGOs.

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HEALTH FINANCING IN INDIA : PRIORITIES, ISSUES, INTER-STATE VARIATIONS AND CHALLENGES

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ABSTRACT

In this paper, the author discusses the health-financing scenario in India. According to him, India spends only 1.5 per cent of GDP on health as against the recommended 5 per cent by W.H.O. for equity and universal coverage. He opines that (i) States have a high share (89%) of funding their health care activities as against 9 per cent by the centre and 2.8 per cent by the Union Territories; (ii) Increasing proportion of health expenditure on salaries (60%-90%) and a markedly reduced (29%-5%) proportion on non-salary components is reflected in low-level of utilization of health services; (iii) Committed involvement by others in selected crucial areas is lacking; (iv) Health financing seems to be directed towards the urban sector with maximum outlays to curative care; (v) There are high inter-State variations in health expenditure and health status; (vi) Higher share of SDF on public health does not guarantee a better health status; (vii) Health services sectors urgently and legitimately need additional resources; (viii) There is a need to set up technical committees and research cells to sensitize policy makers, academicians and others; and (ix) Health Financing and Management must be considered together to address issues of equity, efficiency and effectiveness in health care services.

Development of the Public Health and Medical Services in India in the past twenty years has witnessed a tremendous expansion and radical changes. Many health and health related programmes have been launched at the national and State levels. The country has achieved substantial progress in terms of availability and standards of health care services by way of public health care interventions.

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However, there are wide variations in the level of health development within and between the major States, which is evident in comparing the life expectancy at birth across the States.

The WHO in its Alma Ata Declaration had recommended that public health care expenditures should be at least 5 per cent of GDP if equity and universal coverage are to be realised. Most socialist countries spend 3.5 per cent while OECD countries spend over 6 per cent of GDP on health care. In India 1.5 per cent of GDP is spent on health and family welfare (excluding water supply and sanitation, nutrition, etc.) which includes health expenditure by municipal bodies. At the State level, departments of health (excluding family welfare and water supply) are spending around 5 per cent of the total government expenditure, plan and non-plan on revenue account on medical and public health programme². While health sector's share in the major States is around 3 per cent of the total plan outlay. CSSR-ICMR has recommended that a minimum of 6 per cent should be spent on health services in India. However, the Central Council of Health and Family Welfare in 1989 had recommended seven per cent of the total plan funds for health sector.

Health care is in need of additional resources due to increasing need and expectation of the user while increasing the efficiency and effectiveness of the existing resources. In 1989, the Planning Commission constituted a working group on health financing and management for better utilisation of funds in the eighth Five-Year plan⁴. The working group observed that (i) the efficiency of health services in India is low; (ii) there is a need for careful scrutiny of existing allocation of resources; and (iii) health services sector legitimately needs additional resources which must be planned in a scientific manner.

The present paper is an attempt to review the current status of health financing in India, the inter-state variations in health financing and health status and identify an alternate sources of finance. It also attempts to highlight the future research areas and target recommendations to overcome some of the intricacies and complexities of the issue.

Current Status of Health Financing-Issues

The review of the present situation reveals multiple sources of financing of health care in India. The Central Government assists the States in the delivery of health care by giving 100 per cent financial support to family welfare, maternal and child health, immunisation and some of the national health programmes. However, the main financial responsibility for the health services rests with the States. Another source of health financing is from voluntary organisations and professional bodies. In urban areas, the municipal corporations and

municipalities are manning a network of health care services. There are urban-based schemes such as ESIS and CGHS. Large government establishments like defence, railways and organised public and private sector institutions have their own separate financing of health care. It is very difficult to estimate the aggregate expenditure because of numerous sources of health financing which is complex and intricate. The plan investments on health and family welfare sector have increased considerably over the successive plan periods. In the first Five Year plan, investment was of Rs. 98 crore, which increased to Rs. 6,700 crore in the seventh Five Year plan and Rs. 14,075 crore in the eighth Five Year plan respectively.

Besides, it is very difficult to estimate the aggregate expenditure on health care in the country because of numerous sources of health financing. One available estimate (IIMA study, 1987) indicates that contribution of public sector expenditure is about 37 per cent and the rest came from private sector. Break up of these estimates are Central Government 7.82 per cent, State Government 22.72 per cent, local bodies 6.55 per cent, household sector 59.62 per cent and private non-house-hold sector 3.29 per cent.

A serious problem in sectoral allocation of public health spending has been the large and increasing proportion of expenditure on salaries (60 % to 90%) and a markedly reduced (29% to 5%) proportion on non-salary components like medicines, equipment, fuel, etc. This has led to a waste of resources because the health personnel in place cannot work effectively without other supportive expenditure.

It is equally difficult to indicate the pattern of funding in curative and preventive care since they are often provided in an integrated manner. Besides, Indian economy is a mixed economy where private sector is contributing in financing health care. In addition, there are insurance schemes, ESIS and CGHS, which are subsidised facilities. There is mediclaim insurance scheme for reimbursement of expenses for policy holders. Besides, there are high inter-state variations in health expenditure and health status.

Thus, there is a clear need to examine in detail the (i) health expenditure by the Central and State Governments; (ii) their real (price adjusted) growth; (iii) temporal variations both in per capita and as share real / nominal GDP or SDP; (iv) distribution of finance between rural and urban and by nature of health care activities like preventive, curative and (v) the nature of relationship between health status and health expenditure.

Health Expenditure by the States

Analysis of the health expenditure by the States, relating to two points of time 1985-'86 and 1989-'90, conducted both at the nominal and adjusted figures (using appropriate price deflators) showed two distinct patterns⁵. The non-plan expenditure is devoted largely to medical care viz. highest was 86 per cent for Kerala and the lowest was 50 per cent for Rajasthan in 1985-'86. The maximum allocation of plan expenditure goes to water supply and sanitation followed by family welfare. This is true for both the years and for all the States.

The growth pattern of health expenditure by the States revealed an interesting trend. Out of 16 States, ten (Andhra Pradesh, Asam, Bihar, Kerala, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal) have registered a faster growth in their health expenditures than their State Domestic Product (SDP) and a few major States (Haryana, Karnataka, Madhya Pradesh, Maharashtra and Gujarat) had a negative growth in their health budget, though all of them are developed both economically as well as by the level of their health status. The highest growth in the health budget during this period was seen in Uttar Pradesh – a State with low health status. Thus, allocative efficiency of budgetary resources in U.P. needs close scrutiny.

Per Capita Health Expenditure

The analysis suggests high inter-state variations in allocation of per capita resources to health care. The per capita non-plan expenditure is the highest for medical activities (average at Rs.11 for all the States) and the lowest for family welfare (Rs.0.44). States with maximum per capita expenditure are Himachal Pradesh (Rs.39), Punjab (Rs.26.88) and Kerala (Rs.22.80). While, the lowest expenditure is found in Bihar (Rs.9.67). This is also true when plan and non-plan expenditures are combined together.

Share of Expenditure in SDP

This was computed on the basis of combined plan and non-plan expenditure allocated to all the four major heads. The ranking of the States' health share in SDP was also done. The rising share of real expenditure on health in low income States like U.P., Bihar and Orissa suggests growing commitment of these States to improve their health status. This, however, may also be a reflection of higher recurring cost of health care.

Distribution of Health Expenditure by Nature of Health Care Activities in Rural and Urban Areas

At the State level, health-financing data lack information about the types of services provided by the public health care institutions and their budgetary allocations. Public hospitals often provide integrated curative, preventive and rehabilitative services in rural and urban areas but the resources allocated to each of these activities at the dis-aggregated level are not readily available. Lack of this information leads to an imbalance in the provision of curative and preventive services by the States. In the absence of budgetary details, a recent study provides this information in a summary form³.

In 1990-'91, curative expenditure received the highest priority (59.19%) followed by preventive health care (27.14%). The remaining expenditure was accounted for the administration and miscellaneous heads. Similar pattern was followed over the entire time span between 1974-'75 and 1990-'91.

Curative health care receives maximum (more than 5% in two third of the total States) in non-plan expenditure. The Indian Systems of Medicine (ISM) draws maximum expenditure in Rajasthan (10.2%) followed by Madhya Pradesh (8.5%) and Kerala (7.8%). Preventive health care (a centrally sponsored programme and particularly in case of family welfare) receives lesser than 25 per cent in all the States except Gujarat.

Rural and urban Distribution of Health Expenditure

The average percentage distribution of health care expenditure is only 34 per cent in the rural as compared to 66 per cent in the urban sectors. Thus, the relationship between share of resources devoted to rural health sector and the share of rural population may not be in line with the objective of achieving Health For All.

Variations in Health Expenditure and Health Status by the States

To find out whether per-capita expenditure on health care truly affects the health status of a population, a Health Development Index (HDI) was constructed comprising two sets of health indicators. The first set (HDI-1) comprised three mortality indicators viz. Infant Mortality Rate, Neonatal Mortality Rate and Post- Natal Morality Rate as a reason of health deprivation of the States and the second set (HDI-2) was constituted by the life expectancy at birth and per-capita real SDP for 15 States.

The study of ranking of HDI values and health care expenditure revealed that HDI ranking of States changes with change in health status or health deprivation indicators. U.P., Orissa and Bihar are the worst performing States in respect of parameters. Life expectancy is seemingly better correlated with per capita health expenditure.

In conclusion, it may be said that (i) there is a very high inter-state variation in health expenditure. Magnitude of health expenditure has a positive relationship with health status especially life expectancy; (ii) health financing seems to be directed towards; the urban sector with maximum outlays to curative care; (iii) the allocative efficiency of; State health budget needs indepth scrutiny. In U.P., total health resources have increased without a corresponding increase in its ranking of health status; (iv) higher share of SDP on public health does not necessarily guarantee a better health status; (v) there is a need to scrutinize the cost effectiveness of increasing budgetary allocation to curative sector. An optimal mix of curative and preventive services may be appropriate in States with high degree of health deprivation viz. U.P., Rajasthan, Bihar, etc.; and (vi) there is a need to evolve a better health development index.

Sustainability of the Centrally Sponsored Schemes

The sustainability of the centrally sponsored schemes is sadly lacking. For certain crucial disease programmes viz., tuberculosis, AIDS, blindness, etc., the central government provides special assistance to the States.

Although the center intervenes in selected important and crucial areas, the level of involvement programme-wise, for effective utilisation of funds is lacking. Once the plan period is over, allocations, especially for non-salary components shrink and the programme suffers. Besides, sustainability of programmes is dependent on allocation made by the States, as health is a State subject. Foreign assistance for disease control programmes given to the States is either not transferred to the earmarked programme or delayed and after transfer to the non-plan, the assets are allowed to wither as in the case of vehicles and other inputs. This causes considerable embarrassment to the government and erodes its credibility at international fora.

The working group on Health Financing and Management for the eighth Five-Year plan (1989) has given guidelines and recommendations on (i) Additional Resource Mobilisation and (ii) Issues in Health Financing which are as follows⁴:

(i) Additional Resource Mobilisation

The group recommended that health care is in need of additional resources due to increasing need and expectation of the users. As the governmental expenditure has practically remained static, it is felt that private contributions including the household sector should be channelised properly for significant improvements. To augment the existing inputs, alternate sources of finance may be considered viz. special tax in government general reserve, social security payments by employees and employers, health insurance payment by the user and community financing, etc. Private sectors' role in investment and services may be explored viz. selective handing over of government institutions to private organisations, contract services for immunisation and public health, rural health care and free hospital beds. Efforts should be made to compliment private and public investments in health sector. To enhance equity, co-operatives may be encouraged in homogeneous communities based on their contributions and their ability to pay. Financing of health infrastructure through community organisations and user charges for provision of primary health care needs to be tapped. Scope of health insurance may be extended from the urban based formal sector to the rural areas by community sponsored insurance or evolving risk sharing schemes through community participation.

(ii) Issues in Health Financing

The group recommended that health planning should be decentralised with less budget heads and more delegation of financial powers. There should be proper distribution between plan and non-plan allocation. Part of plan outlay needs to be converted into non-plan outlay for funding increased maintenance liabilities. Alternate community financing schemes must address equity of access while mobilising community participation for raising finances. For making health care financing a shared responsibility and economic support a collective commitment, effective co-ordination between different sectors viz. health, education, agriculture, industry, housing, environment and sanitation should be developed and encouraged.

The government should develop clear policies, structure and mechanism to co-ordinate, collate and optimise the use of financial resources i.e., community, voluntary organisations, private and public institutions for promoting primary health care. The total plan outlay for family welfare and health programmes is inadequate and needs to be raised substantially. Higher allocations should be considered. Employers in the organised sector should contribute more to health financing of their employees. Health insurance, which is coming up in urban areas should be extended to rural population without any government subsidy.

The research areas identified and recommended by the group include: (i) evaluation of health financing effect on primary health care; (ii) provision of health care to different income groups; and (iii) economics of health planning.

There is an urgent need to set up a technical committee or advisory group on health economics and financing, comprising policy makers, economists, public health specialists and academicians to address the following areas of concern:

- i. To outline research areas and develop necessary infrastructure for research on health and related issues.
- ii. To provide updated and comprehensive information on individual researchers and institutions.
- iii. To organise seminars and workshops to disseminate health data analysis and sensitise policy makers, academicians and other concerned personnel.
- iv. To promote health economics and financing as an important research area of academic excellence for colleges and institutions.

It is proposed that research cells may be set-up to review selected literature on health financing and related issues. Regional repositories of selected journals and publications may be established for use by researchers. National or international agencies would need to be tapped for raising necessary finances for all these activities.

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CAMPAIGN ON ORAL RE-HYDRATION THERAPY – AWARENESS AMONG MOTHERS

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ABSTRACT

The study revealed that 59.4 per cent of mothers were aware of Oral Re-hydration Salt (ORS) and the average degree of awareness among mothers about Oral Re-hydration Therapy (ORT) was 46.6 per cent. Messages about ORS (preparation, frequency and storage of prepared solution) were understood better by the mothers as compared to Oral Re-hydration Therapy. The study further revealed that dehydration symptoms and identification of critical conditions in diarrhoea case management did not have much impact. Certain variables like age, education of the mother and ORS depot facility have shown positive influence.

Diarrhoea is contributing to the mortality and morbidity among children particularly in developing countries. An estimated one thousand million episodes occur each year among children under five years of age in the world and these diarrhoeal episodes result in approximately 4-5 million deaths each year in developing countries out of which 7,00,000 deaths are from India. About 80 per cent of these deaths occur in children during the first two years of age. Andhra Pradesh is endemic for diarrhoeal diseases, with peak incidence during monsoon season mostly due to contamination of drinking water sources. An estimated 22 per cent of deaths of children below 5 years of age is due to diarrhoeal diseases¹.

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In view of the alarming figures of diarrhoeal deaths among children in the State and also the low utilisation of ORS packets, the department of family welfare, Government of Andhra Pradesh, conducted an oral re-hydration therapy campaign from June 24 to 29, 1996 in the State. The objective of the programme was to increase the use of ORS packets by increasing the knowledge of mothers about diarrhoea (Prevention, symptoms, treatment and consequences). This study has assessed the effectiveness of the campaign in terms of its degree of awareness of mothers about oral rehydration therapy (ORT), use of ORS and factors that influenced the effectiveness of the campaign.

Studies on the effects of health campaigns particularly on ORT are not many in India. However, feedback on the effects of ORT among children, promotion and knowledge of ORS is available. A nation-wide study on diarrhoea in rural India (UNICEF 1990) has similarities with the present one. National Institute of Nutrition (NIN) has paid considerable attention to ORT as a part of its studies related to nutrition and diarrhoea³. In order to gauge the extent of knowledge and use of ORS, National Family Health Survey (NFHS 1992) included a series of questions regarding knowledge and use of ORS and RHS (Recommended Home Solution)⁴. UNICEF (1989-1992) has conducted a diarrhoea household case management survey in South-East Asian region to measure the proportion of mothers or caretakers who had used ORT during a recent episode of diarrhoea in children below five years⁵.

METHODOLOGY

Utilisation of Oral Re-Hydration Salts (ORS) is found to be not much satisfactory in Andhra Pradesh. To educate the mothers/caretakers about the diarrhoea case management in general and use of ORS in particular, the Department of Family Welfare (DFW), Government of Andhra Pradesh (GOAP) conducted a campaign on oral re-hydration therapy from 24th June 1996 to 29th June 1996 in the State. This study was conducted to assess the effectiveness of the campaign and measure the degree of awareness of mothers about ORT. The present article is a part of the above study report. This study was conducted in six districts of the State, each, representing a particular region.

AREA : The State was categorised into six regions viz. North Coastal Andhra, South Coastal Andhra, North Telangana, South Telangana, Rayalaseema and Hyderabad. One district from each region was selected. From each district four PHCs and from each PHC three villages were selected. Twenty one mothers were interviewed from each village. In Hyderabad district urban slums were selected ignoring the elite groups as it was felt that the slum dwellers were the most deprived group having a low education level coupled with

unhygienic surroundings and more number of children. The slums are a deprived human settlement, which are demographically, environmentally and economically vulnerable⁶. The other study identifies the slum as a residential area inhabited primarily by poor often demoralised families and characterised by substandard sanitary conditions and overcrowding⁷.

SAMPLE: The sample consisted of mothers having children below five years of age. This was so because diarrhoea is most dangerous among the children of this age. The mother is the primary health care provider at family level and is expected to have knowledge about diarrhoea and its consequences. A total of 1,500 mothers from six districts were covered, about 250 mothers from each district.

Data Collection and Analysis: The campaign was conducted continuously for one week and the data were collected immediately from the next day of the campaign. The idea was to elicit the feedback before the campaign mood was waned. Base-line study could not be conducted since evaluation of the campaign was decided at a later stage. However, the interview schedule had a few questions, which helped to understand the effects of the campaign. The findings / observations do not represent the impact of the campaign precisely but provide an idea about the effectiveness of the campaign and the understanding of mothers about diarrhoeal case management through ORT in general.

The study has measured the knowledge of mothers in two ways: (i) Mere awareness of ORS, and (ii) The actual degree of awareness of ORT. To find the difference between these two aspects, in the first attempt, the sample respondents were asked to mention whether they know about ORS or not. The mothers were also asked to specify whether it is before the campaign or during the campaign they received information about ORT. The response was quite satisfactory especially about ORS. These two questions helped to understand about the knowledge of mother about ORT. In the second attempt, the study has actually measured their degree of awareness of ORT, using quantitative techniques as given below.

Selection of items / questions: Questions, which focussed on ORT and designed to know their actual knowledge levels were selected from the questionnaire and graded. The questions chosen were six in number as given below:

- | | | | |
|------|------------------------------|-----|--------------------------------|
| i. | Symptoms of dehydration, | ii. | Places where ORS is available, |
| iii. | Preparation of ORS, | iv. | Frequency of feeding of ORS, |
| v. | Storage of prepared ORS, and | vi. | When to approach a doctor. |

Range / Scores: Each question was given a score with reference to the correct answer obtained. Therefore, a question, which had only a single right answer got a score of 1, and a question which had a probability of having more than one correct answer, got a score correspondingly. In case of a question having one or more responses which were relatively more appropriate than the other, the more appropriate answer was given higher weightage. Thus, each question differed in range depending up on the number of correct answers.

- Q.1. The first question was regarding the symptoms of de-hydration. Six symptoms were mentioned in the questionnaire. It was deemed that all alternatives were right since all in part were de-hydration symptoms. This question, therefore, carried a maximum of six marks and a range of 0-6.
- Q.2. One packet of ORS was to be mixed in 1 litre of water. This answer got 1 mark while mothers who mentioned using boiled and cooled water got 2 marks as this answer was more appropriate than the other. The other wrong/irrelevant answers got no score and the range for this question was 0-2.
- Q.3. Frequency of giving of ORS solution had a range of 0-1, the right answers being 1 glass of ORS per motion or as much as the child could drink both getting equal weightage.
- Q.4. ORS cannot be stored for more than 24 hours. This response got a score of 1, while all other responses got '0' and the range was 0-1.
- Q.5. ORS availability could be from more than one source. This question almost always elicited a multiple response. Each answer including the response "others" (except one, which said available in all shops) was given a score of 1. The range was 0-7.
- Q.6. A mother who understood the use of ORS properly would go to the doctor if ORS failed to control diarrhoea. Hence this response was given a score of 1 ignoring other responses and the range was 0-1.

Based on the above criteria the mothers were given scores (marks) for all the six questions. The scores were converted into percentages to make the weightage equal to all the questions after considering the nature of the response as explained earlier.

Thus the values for all the questions were obtained separately and the total percentage of these six questions were added and the total mean value was obtained as given below.

If the total degree of awareness of ORT was denoted by 'V' and its different components were V1, V2, V3V6, the average degree of awareness was $V = (V1 + V2 + V3 + V4 + V5 + V6)/6$. The different aspects, which contribute to the 'V' (total degree of awareness about ORT) were:

V1 = Dehydration symptoms

V2 = ORS preparation

V3 = ORS frequency of feeding

V4 = Storage of ORS

V5 = Availability of ORS

V6 = Identification of critical condition even after use of ORS.

The average degree of awareness for 890* mothers (who claimed to have known about ORS) was obtained. To see how far the mean values were homogeneous, the standard deviation was computed and with the help of coefficient of variation the comparisons between different aspects were drawn.

Distribution of Scores/Marks: To observe the nature of distribution of scores a measure has been defined as given below. No particular scientific/statistical method was adopted in developing this measure. After obtaining the results initially a three-point scale (low, medium and high) was drawn with a uniform range to observe the nature of distribution of scores. The distribution revealed that a majority of mothers had low marks. Hence the scores were further distributed using the following measures mainly to understand the level of understanding in general.

Very low	0 - 14.99
Low	15 - 34.99
Medium	35 - 54.99
High	55 - 74.99
Very high	75 and above

*The total number of mothers who know about ORS was 891. However, one mother who claimed to be having knowledge about ORS had a total score of "0" as she gave incorrect responses to all the 6 questions. This person was not considered and calculations were carried out for 890 mothers only.

FINDINGS

Frequency Distribution of Responses

A brief explanation of basic results is given in this part mainly to provide an idea about the responses at frequency level before proceeding to the measurement of awareness of mothers about ORT.

Knowledge about ORS

The brand name ORS is not widely known but depending on the region they are known in different terminology. 59.4 per cent of the sample respondents mentioned that they knew / heard about ORS out of which 75.3 per cent stated that they came to know ORS only during the campaign and 12 per cent before the campaign.

Sources of Information

Inter-personal communication particularly the doctor was ranked the highest (55.4%) among various sources of information for ORS followed by television (31.7%) and anganwadi workers (26.9%).

Knowledge about ORT

Dehydration Symptoms : About half of the sample respondents (44.6%) stated sunken eyes as a symptom of dehydration while other responses like depressed anterior fontanel (29.8%), low activity (33.5%) and refuse to take food or water (28.8%) are distributed almost uniformly. Though loss of elasticity of skin is an important aspect which was known to less than one sixth of mothers (15.3%).

ORS Preparation : About three fourths of the sample respondents (71.48%) seemed to know the preparation of solution correctly, although a few mothers (8.5%) failed to mention about using boiled and cooled water for use. In one district (Anantapur) about half of the mothers (46.2%) said that one spoon of powder should be mixed in one glass of water. Investigators in Anantapur district noticed a pattern in a particular village/PHC and cross-checked the information with the concerned officials. It was found that health staff themselves imparted such knowledge. Low supply of ORS packets and the fear of inability to cope with the demand were mentioned as reasons by the staff.

Storage , Availability and Frequency of Feeding of ORS: Many mothers seem to know how often ORS should be given (around 66%). Most of the sample mothers

(71.3%) knew that the solution should be used within 24 hours of its preparation. Nearly half (47.1%) of the mothers knew that ORS packets are available in primary health centres and in government hospitals.

Extent of use of ORS: When asked whether the child had actually suffered from diarrhoea in the last 15 days, a majority (73.9%) of mothers gave negative response. About a fourth (24.9%) said they had. Among this group, a majority (69.3%), have not used ORS and relatively a small percentage (29.1%) said yes. 11.5 per cent of this segment (who have used ORS) have collected the packets during the campaign. 78.5 per cent felt the effect of ORS to be good in managing diarrhoea among children.

Knowledge about Critical Condition: A majority of mothers did not seem to have correct information about the critical stage in diarrhoea among children. However, they had a general understanding of the condition being severe and only 10.6 per cent could give the correct response.

Quantitative Measurement of Degree of Awareness

The average degree of awareness of mothers about ORT was observed to be 46.6 per cent (Table 1). However, the standard deviation (22.1%) indicates its low homogeneity and necessitates further distribution.

TABLE-1
DEGREE OF AWARENESS OF ORT

Sl. No	Cases	Mean	Standard variation	of	Coefficient of variation
1	890	46.6	22.1		47.55%

When measured on a five-point scale from very low to very high, the distribution of degree of awareness of ORT among the mothers with children below 5 years of age reveals that majority of the mothers were in low and medium categories (Table 2).

TABLE-2
DISTRIBUTION OF DEGREE OF AWARENESS ON A FIVE-POINT SCALE

Sl. No	Scale	No. of Cases	Mean	Standard deviation	Coefficient of variation
1	Very low	89	9.7	8.7	89.6
2	Low	423	36.5	14.2	38.9
3	Medium	287	62.5	9.7	15.5
4	High	85	76.3	9.5	12.4
5	Very high	6	88.4	7.5	8.4

Regarding the awareness of different components of ORT, the mean values show that messages about ORS have reached the mothers more effectively (Table 3) than the common knowledge about identification of dehydration symptoms and critical condition and ORS availability.

TABLE -3
DEGREE OF AWARENESS OF DIFFERENT COMPONENTS OF ORT

Sl. No	Scale	Cases	Mean	Standard deviation	Coefficient of variation
1	Dehydration symptoms	890	28.7	21.6	75.3
2	ORS preparation	890	63.6	46.2	72.6
3	ORS frequency	890	65.6	47.4	72.3
4	ORS storage	890	71.3	45.2	63.3
5	ORS availability	890	22.6	15.0	66.3
6	Identification of critical condition.	890	27.6	44.7	161.9

District-wise distribution of averages has revealed some unusual observations (Table 4). While Prakasam district scored the highest average followed by Nalgonda and Vizianagaram. Hyderabad stood the lowest followed by Anantapur district. The averages of Vizianagaram and Adilabad are almost equal in second position.

TABLE-4
DEGREE OF AWARENESS OF MOTHERS ABOUT ORT - DISTRICT VARIATIONS

Sl. No	Scale	Cases	Mean	Standard of variation	Coefficient of variation
1.	Nalgonda	120	53.4	23.6	44.3
2.	Adilabad	153	51.1	24.1	47.1
3.	Anantapur	155	39.2	18.2	46.4
4.	Hyderabad	201	36.2	20.4	56.3
5.	Vizianagaram	124	51.3	19.1	37.2
6.	Prakasam	137	55.0	19.4	35.3

DISCUSSION

Knowledge about ORS Vs ORT

The findings revealed that messages related to ORS had better impact than the others, however, if 59.4 per cent of mothers were just aware of ORS, the probability of having correct knowledge about different aspects of ORT among them may not be very high. Efforts to educate the mothers regarding symptoms

of de-hydration and the methods of re-hydration through home made solutions were observed to be not much in the past whereas information regarding ORS was disseminated frequently. Second reason could be the limitation in fixing scores for answers particularly in the case of dehydration symptoms and knowledge about sources of ORS.

District Variations

The low scores and high variation in case of Hyderabad may need another look here. One would expect the urban slums especially in Hyderabad to show higher levels of awareness but the findings are not supporting this observation may be due to reasons discussed below:

The NFHS (1992) observed urban mothers to have more knowledge about ORS than the rural ⁸. More number of mothers from Hyderabad mentioned to have known about ORS at first level (frequency) analysis. But assessment at a deeper level reveals the knowledge to be superficial. During campaign also it was observed that ORS was less popular among some of the elites in Hyderabad. The basic results (frequency distribution) have also disclosed the following observations.

Interpersonal communication (particularly the anganwadi worker as a source of information) scored high in the present study, which shows ORS as more popular in rural areas. Television as a source of information, was mentioned by more mothers from Hyderabad and this has not shown any association with degree of awareness.

Majority of the sample mothers were from old city of Hyderabad where muslim population is high and the knowledge about ORS depot was also observed to be very low. This was quite convincing as these women usually did not go out and the possibility of knowing about ORS depot was less.

Another common observation in urban slums was people had access to many private doctors and knowledge of ORS again depended on the level of interest doctors showed in prescribing ORS as a treatment for diarrhoea. It was also observed in the study that doctor was mentioned as the 1st, 2nd and 3rd preference for treatment of diarrhoea by a majority, including Hyderabad.

Another similar observation was that a significant number of mothers from Anantapur claimed to have known about ORS but the low degree of awareness shows that the messages had not penetrated deeply in this district. It is understood from field observations that in Anantapur the health staff members had educated the public about ORS dosage as one spoon in one glass. This is further confirmed from the study in Anantapur by UNICEF(1990) which said all

front-line workers had seen the ORS pack and they prescribed it to their diarrhoea patients². Usually the whole pack was given to the mother and she was either asked to dissolve the whole pack in a litre of warm water or to dissolve 1 tea spoon full powder in a glass of water.

During discussions with the mothers in Hyderabad slums, it was observed that past knowledge about SSS (Sugar-Salt Solution) promoted by television is interfering with the present ORT knowledge. However, the high percentage of variability in case of these two districts also shows that the marks were not uniformly distributed which could be again because of other socio-economic factors.

Influence of Variables

Certain aspects which were expected to show relationship with other questions and influence of few variables on the responses are taken up here for discussion. The discussion is based on the values both at frequency and advanced analysis.

Frequency Distributions

Extent of use of ORS: To know whether the children recently suffered from diarrhoea were given ORS or not was checked with another one, i.e. "Extent of use of ORS". A reasonably high percentage (61.5%) said that they have used ORS, thus giving strength to the idea of conducting an ORT campaign during rainy season.

Distance: It was generally observed that villages close to district headquarters would have more benefit from any development programme. Similarly, in the present study, distance was also expected to show some relationship with certain aspects like knowledge about ORS, sources of information, depot facility, place where ORS is available, etc.

Distance was categorised as "50 km and below", "51 -100", "more than 100km". The assumption was that villages, which were closer to district headquarters might have more exposure to newspaper, doordarshan, private channels, etc. and the remote places to interpersonal communication. However, the study did not show any such association. To know whether the ORS depots were opened in all places irrespective of distance, an attempt was made and it was observed that the samples' knowledge about depot facility gradually reduced along with increase in distance. However, in case of distance Vs ORS knowledge, the expected difference is more visible between 1-3 and 2-3 categories only.

When tried to examine the association between distance and the places where ORS was available, the mother within 50km of range from the district headquarters had mentioned about ORS depots and the number had gradually decreased along with the increase in distance. Similarly, number of mothers who knew ANM as a source were also more in the first category. DWACRA groups as a source was mentioned more by mothers in 2nd and 3rd categories showing the strength of these groups in rural areas. However, the total figure of this source is insignificant. On the whole, the figures do not give much scope to think that distance has any association in true sense. Another limitation of the study with respect to distance was it did not collect details about the transport facility to sample villages and also number of radio and television sets and newspaper circulation.

Caste, Age, Education, etc.: Caste, age, education and type of family of the samples have shown some relationship with the knowledge about ORS. The influence of education was relatively higher than the others. The number of mothers who knew about ORS increased along with an increase in education and caste-wise also same trend was observed from SC to OC though the difference was very marginal. Age-wise, young mothers scored slightly higher than the other two groups. This is not very surprising as diarrhoea causes more concern to the young mothers. Mothers from joint families seemed to have slightly more knowledge than the ones from nuclear families.

Quantitative Measurement

It may be recalled here that some difference was observed between knowing ORS packets and the actual degree of awareness of ORT. The same pattern was observed in case of influence of certain variables on the degree of awareness of ORT. Mothers with infants obviously who belong to younger age group scored high marks. Education as usual had proved to be an important factor. Certain aspects like ORS depot facility, knowledge from more number of sources and mothers who had double advantage of knowing about ORS before and during the campaign have shown positive influence on the awareness levels. Another important aspect, which may contribute to the degree of awareness is communication of messages. The degree of awareness has increased along with the increase in number of sources of information about ORT.

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PROFILE OF VOLUNTARY BLOOD DONORS

R. Majumdar* and S. K. Ganguli**

ABSTRACT

The health profile of 1044 voluntary blood donors at blood bank, Talegaon general hospital, district Pune, Maharashtra, is analysed in this paper. Some prospective donors were rejected due to various factors like, anaemia (105), high blood pressure (10) and low body weight(1).

The study revealed that (i) maximum number of donors 340/1044(32.56%) were in blood group o+ve; (ii) only 16/1044 (2.77%) donors showed Hbs Ag positivity; (iii) VDRL reactivity was shown by 1.3 per cent of donors; (iv) 19 donors (1.97%) showed antibodies to HIV-1 and (v) the HIV+ve persons were found to be all males.

Licensing of blood banks in India (as amended) is covered under the Drugs and Cosmetics Rules 1992 of the Ministry of Health and Family Welfare, Government of India. This stipulates mandatory testing of each sample of blood donor for presence of malaria parasite, Hbs Ag, antibodies to HIV-1 and VDRL and Hb per cent prior to transfusion. Blood banks are supposed to take blood from voluntary donors exclusively since 1998.

Talegaon general hospital runs a blood bank since 1989. It runs a blood bank on no-profit and no-loss basis and caters to the needs of all the hospitals and nursing homes of Maval taluka of Pune district, Maharashtra. The blood bank solely depends on voluntary blood donors.

The rationale of the study was to analyse the health profile of the voluntary blood donors. The theme of World Health Day on 7 April 2000 was 'Safe Blood Starts With Me'. The nutrition and life-styles of donor are very

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important for the quality of blood. In their joint statement on the eve of World Health Day by the Director General, World Health Organization and the Secretary General, International Federation of Red Cross and Red Crescent Societies urged the people everywhere to safeguard their health. In their statements they stressed good nutrition, a clean healthy lifestyle, proper prevention and early treatment of disease as vital issues in contributing to healthy blood. Therefore, the authors emphasize the importance of managing blood properly at the individual as well as at the global levels¹.

Blood saves life but it should be safe to the recipient. Safe blood is blood that does not contain any viruses, parasites, drugs, alcohol, chemical substance, or other extraneous factors that might cause harm, danger or disease to the recipient. People who donate blood should be in good health and should not suffer or have suffered from any serious illnesses.

It is known that the professional blood donors and replacement blood donors are unable to supply a good quality blood mainly in the small township and rural set up. Therefore, the study attempts to find out the health profile of exclusively voluntary blood donors with the following objectives:

- i. To screen donated blood to avoid transfusion of transmitted infections;
- ii. To encourage voluntary donors to donate blood;
- iii. To gauge the prevalence of transfusion related diseases; and
- iv. To educate the physicians, health- workers and the community at large.

METHODOLOGY

The blood donation camps were organised periodically with the help of voluntary organisations/youth clubs in the small townships/villages at Maval taluka, district Pune. Once a date and venue were fixed for a blood donation camp, two or three medico-social workers were sent to the locality three days in advance to propagate information about blood donation in the community. They convey that blood can safely be donated by a healthy adult between the age of 18 and 60 years and three or four times a year. After each withdrawal of blood, body takes 36 hours to reconstitute the fluid volume and 21 days for the blood cell count to return to a normal level. Blood donors are key players in medical and surgical treatment. They draw a list of potential blood donors.

On the day of blood donation camp, potential blood donors were given a donor's questionnaire, which the medico-social workers help them to fill up. A few simple questions like history of fever, jaundice, diabetes in the last three years and extra-marital exposure of the donors were asked before collecting blood. A brief clinical examination of the donor was carried out and his/her blood pressure was also recorded. Ten prospective donors were rejected due to their high B.P.

(140/190 mm of Hg). One candidate was rejected as his body weight was below 45 kgs. They were assured that there are no ill effects of blood transfusion. Pre-donation counselling was done. After donation of blood all donors were given a cup of coffee/tea and biscuit. Some donors came to blood bank directly to donate blood. Haemoglobin was estimated by Sahli's method. 105 prospective donors were rejected due to their Hb per cent, which was below 12.5 gms. A thick blood smear was prepared and stained by LEISHMAN to check presence of malaria parasite under microscope.

Hbs Ag E/A plus marketed in India by Ranbaxy India, manufactured by Labsystems, Helsinki, Finland were used to detect Hbs Ag. Anti-HIV was screened by ELISA Kits obtained from Labsystems, Helsinki, Finland. A VDRL test was carried out with Trepostat-kit manufactured by Ranbaxy according to directions.

A total of 1044 blood donors were screened between June 1995 and June 1999. The blood bank remained closed for nine months from September 1996 due to technical problem.

FINDINGS

Age and Sex Distribution : There were 1044 blood donors, 962 (92.14%) males and 82 (7.86%) females. The donors from rural areas were almost three and a half times more than the urban area (Rural –802 and Urban – 242). Maximum number of donors 492/1044 (47%) were in the age group of 20 to 29 years.

TABLE-1
DISTRIBUTION OF BLOOD DONORS AS PER AGE GROUP, SEX AND RURAL/URBAN

AGE GROUP (YEARS)	MALE		FEMALE		TOTAL
	URBAN	RURAL	URBAN	RURAL	
15-19	48 (32.65)	84 (57.15)	10 (6.80)	5 (3.40)	147 (100)
20-24	64 (22.69)	199 (70.58)	5 (1.72)	14 (4.96)	282 (100)
25-29	32 (15.25)	170 (80.95)	3 (1.42)	5 (2.38)	210 (100)
30-34	18 (11.25)	129 (80.62)	7 (4.37)	6 (3.76)	150 (100)
35-39	10 (10.30)	77 (79.38)	5 (5.15)	5 (5.15)	97 (100)
40-44	13 (14.60)	64 (71.91)	5 (5.62)	7 (7.86)	89 (100)
45-49	10 (29.41)	22 (64.71)	1 (2.94)	1 (2.94)	34 (100)
50+	8 (32.0)	14 (56.0)	3 (12.0)	0 (0)	25 (100)
TOTAL	203 (19.44)	759 (72.70)	39 (3.75)	33 (4.11)	1044 (100)

(*Figures in parentheses indicate percentages)

Haemoglobin Status Among Donors :

The donors who showed Hb per cent below 12.5 gm per cent (by Sahli's method) were not accepted. The majority of donors 756/1044 (83%) were between 13-15 gm per cent.

Blood Group Distribution :

Maximum number of donors showed O+ve blood group 340/1044(32.56%); next prevalent blood group among donors was B+ve (30.55%) and the lowest was Ab-ve (0.47%).

TABLE-2

DISTRIBUTION OF THE DONORS SEX-WISE AS PER BLOOD GROUP

SEX	A			B			C			AB			TOTAL
	Rh+ve	Rh-ve	Total	Rh+ve	Rh-ve	Total	Rh+ve	Rh-ve	Total	Rh+ve	Rh-ve	Total	
MALE	247	10	257	295	9	304	310	9	319	77	5	82	962
Percentage	25.68	1.03	26.71	30.66	0.93	31.6	32.22	0.93	33.16	8	0.53	8.53	100
FEMALE	20	1	21	24	0	24	30	2	32	5	0	5	82
Percentage	24.39	12.19	36.58	29.26	0	29.26	36.58	2.43	37.01	6.09	0	6.09	100
TOTAL	267	11	278	319	9	328	340	11	351	82	5	87	1044
Percentage	25.57	1.05	25.62	30.55	0.86	31.41	32.56	1.05	33.61	7.85	0.47	8.32	100

Hbs Ag (Australia Antigen) Among Blood Donors :

Table 3 shows Hbs Ag status among blood donors. 15 male and 1 female, 16/1044 showed Hbs Ag +ve. The difference was not statistically significant.

TABLE-3
Hbs/Ag STATUS AMONG BLOOD DONORS

SEX	HbsAg+VE	HbsAg-VE	TOTAL
MALE	15 (1.55)	947 (98.45)	962 (100)
FEMALE	1 (1.22)	81 (98.78)	82 (100)
TOTAL	16 (2.77)	1028 (97.23)	1044 (100)

(Figures in parentheses indicate percentages)

$$\chi^2 = .05 \quad df = 1 \quad P > 0.05$$

VDRL Positivity: Only 10 males out of 962 screened had showed VDRL positivity (1.03%) and no females had VDRL positivity.

HIV Positivity Among Donors

Year-wise number of persons tested for HIV infection by ELISA test with positivity is shown in Table 4. A total of 1044 donors were tested and 1.82 per cent had positive result. The cases tested were less in 1997 as the blood bank was closed for sometime. All HIV positive persons were males.

TABLE-4
YEAR-WISE MALE HIV POSITIVITY (ELISA)

YEAR	NUMBER TESTED	NUMBER POSITIVE
1995	121	3 (2.47)
1996	310	7 (2.25)
1997	33	2 (6.06)
1998	366	4 (1.09)
1999	214	3 (1.40)
Total	1044	19 (1.82)

(Figures in parentheses indicate percentages)

Age group-wise HIV positivity was shown in Table 5. 18 out of 19 positive cases were in the age group of 15 to 39 years.

Prevalance of Malaria: All donors were tested for presence of malaria parasite by examination of blood. The presence of malaria parasites was found in no case.

TABLE-5
PREVALENCE OF HIV POSITIVITY – (ELISA TEST) AMONG MALE DONORS
IN DIFFERENT AGE GROUPS

AGE GROUP (YEARS)	NUMBER OF DONORS	HIV POSITIVE	
		NO	PERCENTAGE
15-19	132	2	1.51
20-24	263	3	1.14
25-29	202	10	4.95
30-34	147	1	0.68
35-39	87	2	2.29
40-44	77	0	0
45-49	32	1	3.12
50 +	22	0	0
Total	962	19	1.97

DISCUSSION

In this study the male donors were more (92%) as compared to female donors (8%). Similar observations were also made by the Association of Voluntary Blood Donors, West Bengal, in which, male donors were more (89%) as compared to female donors (11%)². Seventy six per cent of donors were in the age group of 15 to 34 years. In West Bengal study it was found that 82 per cent of donors were in the age group of 18 to 35 years.²

One hundred and five prospective donors were rejected whose Hb per cent was below 12.5 gm. Per cent. In a study conducted in Mumbai also it was concluded that iron balance of the blood donor population is precarious and therefore blood donor population from the lower socio-economic strata should receive iron supplement even after a single donation.³

In this study it was found that blood group O+ve was maximum (32.5%) while B group was high (33.33%) in West Bengal.²

Only 16 donors were Hbs Ag positive in the present study. A.J. Elavia & D.D. Banker⁴ in their study in Mumbai found Hbs Ag to be present in 2.02 per cent of voluntary blood donors. Isolated survey in India⁵⁻⁹ have shown that 2-11 per cent of population were Hbs Ag carriers. M. Irshad et al¹⁰ in their study in north India found Hepatitis surface antigen positivity in 2.6 per cent among voluntary blood donors, 3.6 per cent in commercial sex workers, 5 per cent in truck drivers, 12 per cent in professional blood donors, and 1.4 per cent in health care workers. Ambika Nanu et al¹¹ in their study in Delhi found Hbs Ag rates below 2.5 per cent in voluntary blood donors from 1989 to 1996.

In the present study VDRL reactivity was 1.03 per cent which is higher as compared to the findings of another study conducted among north Indian voluntary and replacement blood donors. The VDRL reactivity increased from 0.23 per cent to 0.5 per cent between 1989 and 1995.¹¹

Only 19 voluntary blood donors had shown HIV-1 positivity out of 1044 tested (1.82%). While the other study observed antibodies to HIV increased from 0.04 per cent to 0.5 per cent between 1989 and 1995 in north Indian voluntary and replacement blood donors.

CONCLUSION

Blood saves life. But it can also transmit a number of diseases. The cost of mandatory tests currently carried out is about rupees four hundred only. If additional tests such as anti-HIV, anti HBc and possibly HIV antigen are introduced, it will definitely reduce post transfusion infection but the cost will escalate.

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SEXUAL BEHAVIOUR IN A RURAL COMMUNITY OF DELHI

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ABSTRACT

The present study examines the sexual behaviour of people in the age group of 15-50 years in a sub-urban population of Delhi. Out of a total of 928 subjects interviewed, more than half of them were females. As many as 86.4 per cent of subjects reported sexual exposure of one kind or the other. Out of these 4.9 per cent reported extra or pre-marital relation during the last one year. Such relations were reported more by males than by females. Among the 763 married subjects, 5 per cent of males and 1.8 per cent of the females acknowledged sexual exposure before marriage. This difference between males and females was significant. Nearly one fourth of the sexually exposed reported the use of condoms. The reported frequency of sexual activity was lesser than two per week in nearly half of the population surveyed. Males admitted indulging in masturbation almost seven times more than that of females.

Human behaviour plays an important role in the transmission of infectious diseases. Since 1979, critical health concern in relation to sexual behaviour has arisen. There has been an increase in sexually transmitted diseases and human immuno-deficiency virus^{1,2}.

Sexually transmitted diseases are defined by the World Health Organisation as a group of communicable diseases transferred predominantly by sexual contacts³. These are major problems of very serious proportion in terms of health, economic and social consequences. Better understanding of the patterns and practices of human sexual behaviour is therefore important to reduce STD morbidity and mortality.

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The social factors associated with the rising incidence of diseases are display of sex through advertisements, periodicals, films and television. With the increased mobility of population between rural and urban areas, the rural areas are fast getting urbanized. Also, the increased affluence together with alcohol consumption and greater leisure time at their disposal expose the rural population to greater risks of STD⁴.

In order to understand the natural history of these diseases, the knowledge of sexual behaviour and practices is essential. The relevant variables affecting the pattern of sexual behaviour are age at first inter-course, source of sexual knowledge, pre-marital, marital and post-marital relationships, stability of monogamous relationships, use of condom, etc.

A growing number of sexual behaviour surveys are being conducted in the West^{5,6}. Since culture plays a predominant role in shaping sexual behavior, it was thought worthwhile to study the sexual behaviour of the population in rural situations. Most of the research studies so far were restricted to clinic attenders⁷⁻¹⁰. Therefore, the present investigation was designed as a baseline study on the sexual behaviour and practices of rural population. This study will help in the establishment of norms for safer sex and promotion of innovative programmes to generate behavioural changes among the rural population.

METHODOLOGY

Place and time of survey

The present survey was conducted between October, 1992 and May, 1995 among a sub-urban population of Krishangarh village (Delhi) with approximately 3,000 inhabitants. This village is situated at the outskirts of the metropolitan capital city of Delhi. The age and sex distribution of the population were similar to the country's overall population.

Sample and Survey Methods

Various Western studies indicated that individuals within 16-30 years of age group have the highest risks of STD^{11,12,13} infection. The target group was all the residents of village in the age group of 15-50 years. A house to house survey was conducted and only 928 out of the total of 978 could be interviewed. In spite of the two repeated visits, eighteen residents refused to participate in the study. Subjects were informed of the purpose of the survey prior to their participation in the study. The pre-tested interview schedule was used to collect data. The schedule had questions in relation to socio-economic characteristics, sexual exposure and practices, use of condom, history of masturbation, etc. The

participants were interviewed by trained social workers of either sex. Privacy and confidentiality were maintained. Care was taken to ensure male to male and female to female interviews. Time was set aside at the end of the interview so that any question of concern, which may have arisen during the interview could be discussed. The average length of the interview was about 45 minutes with each of the sample respondents.

FINDINGS

The study was conducted over a period of two and a half years from October, 1992 to May, 1995. During this period, a total of 928 persons in the age group of 15-50 years were interviewed in a domicillary set up. Around 802 of the respondents (86.4%) reported to have sexually exposed. As a reflection of relatively early age at marriage, 96.7 per cent of females were sexually exposed against only 73.1 per cent of males (Table 1). Also because of the same reason, nearly one third of (33.8%) male subjects were unmarried against only 3.4 per cent of the females. Meanwhile, nearly one fourth (24.8%) of the unmarried males and 11.1 per cent of the females reported to be sexually exposed. This difference was significant. Similarly, significant statistical difference was observed in relation to income and education separately with sexual exposure (Table 1).

TABLE-1
SEXUAL EXPOSURE OF THE STUDY GROUP IN RELATION TO INCOME AND EDUCATION

	Male		Female		Combined	
	Total (%)	Exposure (%)	Total (%)	Exposure (%)	Total (%)	Exposure (%)
All subjects	405(43.6)	296(73.1)	523 (56.4)	506(96.7)	928 (100.0)	802(86.4)
Married	268(36.2)	260 (100.0)	505(76.0)	505(100.0)	703(100.0)	703(100.0)
Unmarried(a)	137(33.8)	34 (24.8)	18(3.4)	2(11.1)	155(16.7)	36(23.2)
Income(b)NA	5	3	0	0	5	3
Income Available	400	293 (73.3)	523	506(96.7)	923	799(86.6)
Rs<1000	48 (12.0)	38 (79.2)	79(15.1)	77(97.5)	127(13.8)	115(90.6)
1000-1999	182 (45.5)	145 (79.7)	247(47.2)	244(98.8)	429(46.5)	389(90.7)
2000-2999	72 (18.0)	51 (70.8)	116(22.2)	109(94.0)	188(20.4)	160(85.1)
3000-4999	54 (13.5)	33(61.1)	60(11.5)	57(95.0)	114(12.4)	90(78.9)
5000 +	44 (11.0)	26 (59.1)	21(4.0)	19(90.5)	65(7.0)	45(69.2)
Education©	405 (43.6)	296(73.1)C	523(56.4)	506(96.7)c	928(100.0)	802(86.4)c
Illiterate	40 (9.9)	35(87.5)	240(45.9)	239(99.6)	280(30.2)	274(97.9)
Literate	10 (2.5)	9(90.0)	4(0.8)	4(100.0)	14(1.5)	13(92.9)
Primary	34 (8.4)	29(89.3)	76(14.5)	74(97.4)	110(11.9)	103(93.6)
Middle	81 (20.0)	58 (71.6)	81(15.5)	76(93.8)	162(17.5)	134(82.7)
High School	203 (50.1)	135(66.5)	113(21.6)	105(92.9)	316(34.1)	240(75.9)
College	37 (9.1)	30 (81.1)	9(1.7)	8(88.9)	46(5.0)	38(82.6)

(Figures in parentheses indicate percentages)

- a) Significantly higher percentage of males sexually exposed as compared to the females
- b) Significantly ($P<0.01$) related with income level
- c) Significantly ($P<0.02$) related with education level (apparently least in the high schools followed by middle educated).

Table 2 reports the age at which the first sexual activity occurred in both the cases. The mean age at first sex (among those who had initiated sexual relations) was 17.91 + 3.03 years. It was 19.57 + 3.15 years in males and 16.95 + 2.49 years in case of females.

TABLE -2
AGE AT FIRST SEXUAL EXPOSURE IN RELATION TO PRESENT AGE IN YEARS, INCOME AND EDUCATION

Sexual Exposure	Mean age and SD at first sexual exposure					
	Male		Female		Combined	
Subjects	Age + SD	No. of Respondents	Age + SD	No. of Respondents	Age + SD	No. of Respondents
All subjects	19.57+3.15	296	16.95+2.49	506	17.91+3.03	802
Present Age (in years)						
<20	15.87+1.93	16	16.20+1.70	40	15.98+1.75	56
20-25	19.23+1.85	77	17.22+2.44	148	17.91+2.45	228
25-30	20.23+2.87	75	17.15+2.47	143	18.22+3.00	218
30-35	20.06+3.44	48	17.08+2.32	86	18.15+3.11	134
35-40	19.69+3.73	35	17.02+2.63	51	18.10+3.37	86
40 +	19.67+3.95	45	15.71+3.19	38	17.86+4.11	83

Masturbation ever-in-life was admitted almost seven times more by males (34.3%) than by females (4.6%), (Table 3). It was insignificant ($P>0.05$) in different age groups.

Out of 928 subjects, three were widows. As mentioned in Table 1, 155 were unmarried. Thus a total of 770 were with their spouses at the time of investigation. Out of these 39 (5.06%) did not wish to disclose their frequency of sexual activity. Twenty five of these were males and fourteen were females.

TABLE-3
EVER MASTURBATED (ALL SUBJECTS)

Ever masturbated	Male		Female		Combined	
	Total(%)	Ever Masturbated (%)	Total 9%)	Ever Masturbated(%)	Total (%)	Ever Masturbated (%)
All subjects	405(43.6)	139(34.3)	523(56.4)	24 (4.6)	928(100.0)	163 (17.6)
Age						
15-19	78(19.3)	31(39.7)	53(10.1)	1(1.9)	131(14.1)	32(24.4)
20-24	114(28.1)	43(37.7)	150(28.7)	6(4.0)	264(28.4)	49(18.6)
25-29	81(20.0)	32(39.5)	145(27.7)	11(7.6)	226(24.4)	43(19.0)
30-34	50(12.3)	13(26.0)	86(16.4)	4(4.7)	136(14.7)	17(12.5)
35-39	37(9.1)	11(29.7)	51(9.8)	2(3.9)	88(9.5)	13(14.8)
40+	45 (11.1)	09(20.0)	38(7.3)	0(0.0)	83(8.9)	9(10.8)

(Masturbation was insignificant ($P>0.05$) in different age groups.)

Nearly half (50.6%) reported a frequency of sexual activity lesser than two per week on an average. A total of 18.9 per cent reported a frequency of 6 times or more per week, which amounts to almost everyday. Frequency of sexual activity was significantly related to age ($P<0.001$), sex ($P<0.05$) and education ($P<0.01$). It was not significantly ($P>0.05$) related to income (Table 4).

TABLE-4
FREQUENCY OF SEXUAL ACTIVITY PER WEEK AMONG THOSE MARRIED

Frequency	0 – 2	>2 – 4	> 4 – 6	>6 +	Total
All subjects	370(50.6)	194(26.5)	29(4.0)	138(18.9)	731*(100)
Age (1)					
15-19	9(20.9)	12(27.9)	0(0)	22(51.2)	43(5.9)
20-24	63(32.1)	36(28.6)	8(4.1)	69(35.2)	196(26.8)
25-29	93(44.5)	77(36.8)	8(3.8)	31(14.8)	209(28.6)
30-34	84(65.6)	27(21.1)	6(4.7)	11(8.6)	128(17.5)
35-39	59(82.7)	11(13.8)	5(2.7)	6(6.3)	80(10.9)
40+	62(82.7)	11(14.7)	2(2.7)	0(0)	75(10.3)
Sex (2)					
Male	112(46.1)	65(26.7)	17(7.0)	49(20.2)	243(33.2)
Female	238(52.9)	129(26.4)	12(2.5)	89(18.2)	488(66.8)
Education (3)					
Illiterate	154(59.2)	68(26.2)	8(3.1)	30(11.5)	260(35.6)
Literate	8(61.5)	3(23.1)	0(0)	2(15.4)	13(1.8)
Primary	43(45.3)	26(27.4)	7(7.4)	19(20.0)	95(13.0)
Middle	55(44.4)	30(24.2)	7(5.6)	32(25.8)	124(17.0)
High School	98(47.6)	60(29.1)	6(2.9)	42(20.4)	106(28.2)
College	12(36.4)	7(21.2)	1(3.0)	13(39.4)	33(4.9)

(1) Significantly ($P<0.001$) related with age

(2) Significantly ($P<0.05$) related with sex

(3) Significantly ($P<0.01$) related with education

*Total married at the time of investigation were 700 out of which 39 did not report on frequency of sexual activity.

Use of condom was asked from those who reported to be sexually exposed. Nearly one fourth (24.4%) reported the use of condoms. This is significantly higher in males (30.1%) than the females (21.1%). Use of condom was significantly ($P<0.01$) related to age and when there was consensus between the partners. Similarly, use of condom and level of education were significantly related to males ($P<0.01$) (Table 5).

TABLE-5
USE OF CONDOM (ALL EXPOSED SUBJECTS :
MARRIED AND UNMARRIED STUDY GROUPS)

All Subjects	Male		Female		Combined	
	Total	Using Condom	Total	Using Condom	Total	Using Condom
Total sexually exposed	296(73.1)	89(30.1)	506(96.7)	107(21.1)	802(86.4)	196(24.4)
Age 15-19	16(5.4)	0(0)	40(7.9)	2(5.0)	56(7.0)	2(3.6)
20-24	77(26.0)	20(26.0)	148(29.2)	33(22.3)	225(28.1)	53(23.6)
25-29	75(25.3)	27(36.0)	143(28.3)	35(24.5)	218(27.2)	62(28.4)
30-34	48(16.2)	17(35.4)	86(16.4)	18(20.9)	134(16.7)	35(26.1)
35-39	35(11.8)	12(34.3)	51(9.8)	12(23.5)	86(10.7)	24(27.9)
40+	45(15.2)	13(28.9)	38(7.3)	7(18.4)	83(10.3)	20(24.1)
Income (2) <1000	38(13.0)	6(15.8)	77(15.2)	8(10.4)	115(14.4)	14(12.2)
1000-1999	145(49.5)	44(30.3)	244(48.2)	54(22.0)	389(48.7)	98(25.2)
2000-2999	51(17.4)	14(27.5)	109(21.5)	24(22.0)	160(20.0)	38(23.5)
3000-4999	33(11.3)	13(39.4)	57(11.3)	16(28.1)	90(11.3)	29(32.2)
5000 +	26(8.9)	12(46.2)	19(3.8)	5(26.3)	45(5.6)	17(37.8)
Education (3) Illiterate	35(11.8)	6(17.1)	238(47.2)	33(13.3)	274(34.2)	39(14.2)
Literate	9(3.0)	1(11.1)	4(0.8)	2(50.0)	13(1.6)	3(23.1)
Primary	29(9.8)	6(20.7)	74(14.6)	22(29.7)	103(12.8)	28(27.2)
Middle	38(19.6)	16(27.6)	76(15.0)	23(30.3)	134(16.7)	39(29.1)
High School	135(45.6)	40(29.6)	105(20.8)	23(21.9)	240(29.9)	68(26.3)
College	30(10.1)	20(66.7)	8(1.6)	4(50.0)	38(4.7)	24(63.2)

(Figures in parentheses indicate percentage)

1. Use of condom significantly ($P<0.01$) related with age only when males and females combined.
2. Significantly ($P>0.01$) related neither in males nor in females but when both are combined.
3. Significantly ($P<0.01$) in males.

A total of 39 (4.9%) subjects admitted to have a recent pre or extra-marital relation (PEMR) during the last one year. This was reported significantly more by the males (10.5%) than by the females (1.6%). There is however, no apparent association of PEMR either with level of income or education of the subjects.

DISCUSSION

Little research has been done on the sexual behaviour in a rural community of India. It is extremely difficult to assess the validity of survey findings on sexual behaviour, especially in a society, where it is considered a taboo. To a certain extent, confidence in the veracity of the responses will only increase when more studies of this nature are conducted. Statistical significance can arise even for a very small difference, when 'n' is large. In the absence of a trend, such significance can not lead to any meaningful conclusion.

It was observed that a large majority (71.7%) of the subjects had their first sexual experience before the age of 20 years. This has an important bearing in the increase in sexually transmitted diseases. It is inconsistent with the findings of another study¹⁴.

This study shows that 96.7 per cent of the females had been sexually exposed as compared to only 73.1 per cent of males. Hale RW et al (1993) observed in Hawaii in a college campus that 84.9 per cent of females and 83.4 per cent of males indicated of having engaged in sexual activity¹³.

Two important findings emerge from the study. Firstly, nearly 10 per cent of the males practiced infidelity and secondly, 5 per cent of the males had pre-marital sexual exposure. Females had a relatively much lower rate of pre or extra marital relation (1.8%). This is very less as compared to the patients in a STD clinic (74.7%)¹⁴. Sex outside marriage, in the context of females, is viewed differently because of religion and various other cultural factors. Females faithfully carry out a monogamous relationship after marriage unlike their partners. This accounts for the low percentages of PEMR in the case of females observed in this study.

Masturbation is being advocated as a method of "Safer Sex" in the prevention of AIDS. But there are various misconceptions in this regard. Responses to the question of masturbation should be interpreted with caution, as such items are considered to be highly sensitive, particularly, in case of the rural females. They generally consider it as a deviation from normal sexual practices. Nearly 34.3 per cent of the males and 4.6 per cent of the females reported to have had masturbated.

As seen in Table 3, the percentage of those admitting to masturbation declines in males as the age increases. This probably is an artifact due to the shy reporting by older males and by all the females. Regarding the subjects, reporting on the frequency of sexual activity, almost 50.6 per cent had less than two per week as compared to 18.9 per cent who had it more than six times or more per week. The percentage for such frequent sexual activity is 51.2 per cent in the case of married subjects of the age group of 15-19 years, which steeply and significantly declines as the age increases. This, thus represents the age group where major impetus for intervention is needed if STD control is to be made a reality. The frequencies of sexual activity reported by males are not significantly different from those reported by females. It is not significantly associated with income but is significantly associated with education. More of illiterates and less educated reported to have less frequency of sex than the more educated.

Only a quarter (24.4%) of those indulging in pre or extra-marital relationship (PEMR) reported the use of condom. The use of condom was significantly higher in case of males (30.1%) than the females (21%). Similar findings of 24 per cent in men and 12 per cent in women from Zaire were reported by Bertrand JT et al. (1991)¹⁵. This is so as the female is usually a passive partner and can suggest but not insist on the condom use by the male. The level of condom use in India is particularly low, though this may be a reflection of both the problems of availability and knowledge of their prophylactic effects as noted by Jeya Singh et al. (1986)¹⁶. This suggests that there is still some scope for condom usage campaign to reduce the incidence of HIV infection. It appears that the condoms are still used primarily to prevent conception. It seems appropriate to study the knowledge about their use in the context of prevention of STD and AIDS. Though the association of using condom is significant with age when the data for the two sexes are pooled together, no significant association was observed separately in either sex. The same is true for association with the level of income. With education, however, the association is significant in each sex, a trend of increasing use of condom in subjects with better education is visible.

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THE TRENDS OF CONTRACEPTIVES USE AND THEIR DIFFERENTIALS IN BANGLADESH

M.A. Maleque*

ABSTRACT

Using the Bangladesh Demographic and Health Survey 1996-97 data, the present study attempts to find out the trends of contraceptives use and their differentials in Bangladesh. Data reveal that most important factors responsible for differentials are rural and urban residence, religion, mass media facility, wife's education and income. Data further reveal that among the methods being used, oral pills, injectables and periodic abstinence are found to be popular and their use is increasing day by day in Bangladesh.

Government of Bangladesh had declared the population problem as number one in 1978, because success of family planning programme until then was dismal and negligible. Considering the importance of fertility control, the government and international agencies have adopted multi-dimensional projects for increasing awareness, knowledge and practice of contraceptives among the population of Bangladesh since 1980s. Undoubtedly, during late '90s it was found that contraceptive prevalence rate in Bangladesh had increased substantially and fertility has declined significantly. This study attempts to examine the trends of contraceptives use and their differentials in Bangladesh.

REVIEW OF LITERATURE

"The population of Bangladesh was estimated at 128 million with a density of 855 per square kilometer in 1999. The Muslims constitute 88 per cent, the Hindus about 10.5 per cent and others about 1.5 per cent. About 78 per cent of the total population live in rural areas¹. During 1990, more than fifty per cent of the population of Bangladesh lived with an income, which was below the poverty line. Almost all the demographic rates are decreasing since 1980s.

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Population growth rate = 1.46,
CBR= 19.87,
CDR= 4.84
GFR=102,
TFR= 2.98,
NNR= 1.31,
IMR= 57,
Neo-natal mortality rate=3.0,
Contraceptive prevalence rate=51.8.
Source: Bangladesh Bureau of Statistics¹.

The gap between menarche and age at first marriage in Bangladesh is increasing over time and it has shown that 50 per cent of adolescents aged 15-19 and 73 per cent of women aged 20-24 are married in Bangladesh. Among the women aged 40-44, about 93 per cent were ever married in their 20-24 years of age, which clearly indicates an increase in age at marriage². With regard to fertility and contraceptive use, female education was found to be significant^{3,4}.

METHODOLOGY

The Bangladesh Demographic and Health Survey (BDHS)-1996'-97 data collected by the National Institute of Population Research and Training (NIPORT) have been used in the study⁵. In total, 9,127 ever-married women in the age group of 10-49 years were interviewed in 1996-97 by Mitra, et al. Macro International Inc. of Calverton, Maryland, USA, provided technical assistance and USAID, Bangladesh, provided the financial assistance. Stratified random sampling by proportional allocation had been used for sampling. The country area was divided into three distinct groups, viz., (i) metropolitan sampling area; (ii) municipalities; and (iii) the rural area. In total 1,449 and 7678 eligible women residing in rural and urban areas respectively were interviewed. Data were analyzed by using SPSS programming of computer.

FINDINGS AND DISCUSSION

It is clear from data that education in rural and urban areas and between male and females differ widely in Bangladesh. About 55 per cent of the women are illiterate. Only 4.3 per cent of respondents are professionals/service holders and others are house-wives/ agricultural workers/students. Since husbands are the prime earning members, women are mostly confined to their household chores. Economic and birth control decisions are taken mainly by men in Bangladesh.

TABLE-1
TRENDS IN EVER USE AND CURRENT USE OF CONTRACEPTIVES IN BANGLADESH 1975-97

Methods	1975 Ever Current	1983 Ever Current	1985 Ever Current	1989 Ever Current	1991 Ever Current	1994 Ever Current	1996-97 ever Current
Any method	3.6 7.7	33.4 9.1	32.5 25.3	45.0 30.8	59.0 39.9	63.1 44.6	69.2 49.2
Pill	5.0 2.7	14.1 3.3	14.3 5.1	22.0 9.6	34.1 13.9	44.0 17.4	48.9 20.8
IUD	0.9 0.5	2.2 1.0	2.7 1.4	4.0 1.4	6.2 1.8	7.3 2.2	6.9 1.8
Injectables	U U	1.2 0.2	1.3 0.5	2.0 0.6	6.6 2.6	11.0 4.5	15.7 6.2
Condoms	4.8 0.7	7.1 1.5	5.7 1.8	6.0 1.8	13.4 2.5	13.9 3.0	15.0 3.9
Female sterilization	0.3 0.6	5.8 6.2	7.4 7.9	9.0 8.5	8.0 9.1	7.9 8.1	7.6 7.5
Male sterilization	0.4 0.5	1.4 1.2	1.6 1.5	1.1 1.2	1.4 1.2	1.4 1.1	1.2 1.1
Periodic Assistance	4.5 0.9	11 2.4	7.8 3.8	13.0 4.0	21.5 4.7	16.5 4.8	16.7 5.0
Withdrawal	2.6 0.5	5.3 4.8	2.9 0.9	2.9 0.9	7.0 1.8	10.1 2.5	9.5 1.9

(*Figures are in percentages)

In an urban area of Bangladesh, education of wives was found to be the strongest factor for use of contraceptives, followed by son preference, religion, exposure to mass-media / communication and work status of women. Bertand et al in 1981, in a study on low income population in Colombia found that employment status, family income, age, number of living children, number of pregnancies and years of residence were significantly related with contraceptive use. In addition to Colombian findings, sex of living children, distance of availability of contraceptives, age at marriage, family income and agriculture land holding were found to influence the contraceptives use in Bangladesh^{6,7}. Rural Srilankan and Kenyan data also supported similar findings with little variations⁸. Tendency of late marriage among males and females were observed in the recent studies^{1,2,4}.

An increasing trend of current use and ever use of contraceptives was observed in Bangladesh (Table 1). In the next few years, there may be an annual increase of about 3 to 5 per cent of contraceptive users in Bangladesh. Use of temporary methods like oral pills and injectables have increased and expected to continue in near future. Though condom is well known and economical, its increase was only marginal from 1975 to 1997. In case of male sterilisation, female sterilisation, IUD and traditional methods, the trend was not encouraging. To regulate fertility control in Bangladesh, efforts may be made by the government to educate the people about the importance and adoption of contraceptives.

TABLE-2
REASONS FOR NOT USING CONTRACEPTIVES BY THE WIVES

Reasons for not using	% of non-users
Want child	25.7
Health problem	11.8
Objection/Opposed	7.7
Not a risk/Don't feel	54.8
All non-user	100.0

The reasons for not practicing contraceptives are numerous (Table 2). The main reasons for not practicing contraceptives were not at risk / don't feel (54.8%) and 'want child' (25.7%) at the time of interview. About 20 per cent of wives were not using contraceptives due to 'objections' and 'health problems.'

The residential and educational differences were found statistically significant with the adoption of contraceptives (Table 3). Residential status of the women plays a very strong role in using contraceptives as compared to their education. Males having good education and residing in urban areas were the major users of condoms. In the rural areas, females used contraceptives like

their counterparts residing in urban areas. On the other hand, very negligible portions of illiterate and rural males practice any forms of contraception. Urbanisation in Bangladesh is increasing due to migration from rural to urban areas. Education and consciousness are also increasing in Bangladesh at the same time. The forecast is that with an increase in education among males and females, a targeted fertility rate and contraception rate can be achieved in Bangladesh by 2010.

TABLE-3
CURRENT USE OF MODERN CONTRACEPTIVES BY RESIDENCE AND
EDUCATION

	Modern Method	Pill	IU-D	Injectable	Condom	F.Sterili-sation	Periodic Abstinence	Withdr-awal
<u>Residence</u>								
Urban	48.4	20.6	1.7	6.3	2.7	7.6	5.0	3.7
Rural	36.7	22.2	2.8	5.7	13.2	7.9	5.0	1.7
<u>Education</u>								
Nil	32.4	18.3	1.3	7.0	1.6	9.7	4.3	1.0
Educated	18.3	24.2	2.6	6.2	8.2	4.2	6.5	3.0
All	41.7	20.8	1.8	6.2	3.9	7.6	5.0	1.9

Bangladesh is an agro-based and poverty driven country. Education, occupation and religion were found to be the main differentials of contraception. The electricity, mass media, sanitation and educational facilities were also related to income and urbanization (Table 4).

It can further be seen from Table 4 that with an increase in age and education, the use of contraceptives increases (3% and 17% respectively) while comparing the age difference between less than 30 and above 30 and education between 0 – 9 and 10+. Likewise the increase of contraceptives use was observed in case of non-agricultural people and non-Islamic community. Similar trend was observed with reference to mass media facilities, electricity usage and sanitation. A very interesting finding was that with the increase in married life, the level of adoption of contraceptives also increases.

TABLE-4
IMPORTANT DIFFERENTIALS OF CONTRACEPTIVE USE IN BANGLADESH

Factor1 Age	% use	Factor2 Wife's education	% use	Factor3 Husband's education	% use	Factor4 Husband's occupation	% use	Factor5 No. of living child	% use	Factor6 Religion	% use	Factor7 Mass media	% use	Factor8 Electricity	% use	Factor9 Sanitation	% use	Factor10 Marriage life	% use
<30 30+	40 43	0-9 10+	38 55	0-9 10+	36 46	Agriculture No agriculture	36 45	0-3 4+	42 40	Muslim Other	36 46	Yes No	47 36	Yes No	46 37		48 34	<10 year 10+ year	37 43
All	41.7	All	41.7	All	41.7	All	41.7	All	41.7										

CONCLUSION

Very interesting finding of the study is that those having sufficient income/facilities to look after their offsprings use contraceptives for birth spacing/control. The fertility decline in Bangladesh is mainly due to this group. The poor people fail to understand the benefit of education, which leads to failure of fertility control. Also, son preference and poverty are other important factors, which don't allow fertility control. Most of the poor people and agricultural families think that children are good assets for economic security, though economic profit is found negligible in marginal agriculture families. Trend of increase in CPR (contraceptive prevalence rate) is uniform. In 1980, CPR was about 10 per cent. The total fertility rate was 5.5 per woman. This study shows that over the last 20 years, CPR has increased about four times (10 to 40) and TFR has decreased by 50 per cent (5.5 to 2.9). About half of the eligible women remained out side the contraception domain. Admittedly, there has been a phenomenal change in the attitude of people towards the use of contraceptives with the increase in education, women's work status, motivational activities and economic compulsions. Now basic education is compulsory for all in Bangladesh. The work status of women is changing. Hence, with the increase in awareness and communication networks, contraceptive users may increase by 3 to 5 per cent per year in Bangladesh in near future.

RECOMMENDATIONS

Based on the findings of this study, it is recommended that women's education specially in rural areas needs to be improved. Women's employment should also be promoted. Higher education and employment among women may lead to higher age at marriage. These efforts will contribute to increase in use of contraceptives and decline in fertility level in the country. Special efforts should be made to increase accessibility of spacing methods of contraception like oral pills and injectables to the couples. However, promotional activities may be carried out to increase males' participation in the family planning programme.

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**STUDY OF TRADITIONAL VERTICAL SQUATTING PARTURITION
POSTURE TO PROMOTE SAFER CHILDBIRTH AND PERINATAL
PERIOD IN FAMILY HEALTH PRACTICE ONTO THE NEXT
MILLENNIUM: AN EXPERIENCE (1993-1998), SHIRDI***

Anil R. Junnarkar and Prabodh U. Joshi*****

ABSTRACT

The study revealed that (i) the length of labour is reduced significantly, preventing hazards of prolonged labour for both, mother and newborn baby, (ii) surgical intervention like caesarean section was needed only when there was an absolute indication, (iii) eighty women had relative indications for CS, however, none of them required the CS, nor any intravaginal intervention, (iv) there was only one case of Asphyxia Neonatorum born to a Primi, out of total of 1045 babies including twin. Apgar score at one minute in the majority of newborn babies was over 8, (v) there was no maternal and perinatal death and (vi) there was no case of birth trauma to newborn babies, nor PPH in the mother.

Thus, the family practice at primary health care level should include this simple but scientifically sound and culturally acceptable procedure to safeguard health of the parturient mother and the new born child. It would promote natural childbirth and would be most effective. This will go a long way in reducing maternal and perinatal mortality/morbidity associated with labour in the next millennium in the community.

WHO/UNICEF declaration from Alma Ata (1978) has made all of us to commit to the cherished goal, "Health For All By 2000 A.D." But in spite of the commitment, the maternal mortality/morbidity and the perinatal mortality/morbidity associated with childbirth remain quite high in the third world

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countries. If the pregnancy related issues are also taken into account, then the overall maternal mortality would be still higher.

Maternal mortality rate in India ranges from 4 to 6 per 1000 live births, in accordance with urban/rural distribution of the population. The perinatal mortality rate is 53.1 in rural areas and 34.5 in urban areas. The contribution of factors leading to the maternal mortality associated with the actual childbirth is 7-8 per cent or more. If due allowance is given to the possibility of under-reporting, commonest among them is the prolonged labour and the related issues. In regard to perinatal mortality, intra-uterine hypoxia/birth asphyxia; and birth trauma are contributory to the tune of 30 per cent and 20 per cent respectively.

Home delivery is a rule in rural India. Since 60-75 per cent of the population lives in rural areas, here the problem is more acute. The curative or the interventive obstetrical services to save lives in childbirth in emergency are less developed in rural areas. Availability of specialized services in the rural areas is still a distant possibility.

Family physician or the general practitioner is the only hope and solace in the rural areas, who works within the constraints and limitations of available facilities. Question is how best we can equip the family physician or the primary physician to tackle the problems related to childbirth.

In rural areas childbirth is treated as a natural event. At times women conduct their own deliveries, or may be with the help of traditional birth attendants, or PHC level staff. The childbirth may not be smooth and safe and modern precautions like giving enema, evacuation of bladder or asepsis may not be observed.

In the rural areas of Marathwada region of Maharashtra, it was observed that women traditionally deliver in vertical squatting parturition posture (1985-1988)¹. 'Review of literature revealed that pelvic diameters become widen in vertical posture and the length of labour is shortened. It is more pronounced in primiparous women. It has also been claimed that there are distinct advantages of this vertical parturition posture to both, the mother; and foetus or the newborn baby². However, there are conflicting reports from various trials of vertical parturition posture. The studies carried out are randomized control trials. There is almost a unanimity in regard to reduction in duration of labour, specially the second stage of labour. As regards outcome and complications following labour in vertical posture, there are contradictory reports and controversial opinions.^{3,4,5,6,7,8,9}

Reasons for this confusing scenario could be many, for example (i) small

sized samples, (ii) short-term studies and (iii) matching all the related variables was perhaps not possible. To draw conclusions on the validity of vertical labour posture from such studies would be difficult. Therefore, it was thought that there is a case for giving a fair trial to the traditional vertical squatting parturition posture (TVSPP) in labour, using an appropriate technology.¹⁰

OBJECTIVES

1. To study the duration of labour, stagewise, in traditional vertical squatting parturition posture (TVSPP).
2. To study the outcome of labour in TVSPP.
3. To study intervention/prophylactic measures, needed/employed.
4. To study the benefits or otherwise, of TVSPP in special situations.

MATERIALS AND METHOD

The study is a service cum research project. The study was carried out at a Family Physician's Maternity Home, which serves rural community in and around Shirdi, Ahmednagar District-423107, India.

This is an ongoing, prospective, observational and clinical study. This part was carried out from January 1993 to December 1998. The study is non-randomized, with an inbuilt control in regard to age, parity and prophylactic measures. Ante-natal care is always encouraged and women are booked for labour with informed consent. The labour is conducted in traditional vertical squatting parturition posture, using an appropriate technology in the form of a parturition chair cum table¹⁰ specially designed and pre-tested in a pilot study.

In all 1017 women, having viable full term pregnancy at admission were included in the study. The emergency admissions, having intra-uterine death of the foetus, were excluded. Those with absolute indications for caesarean section on account of malpresentations and abnormalities were considered, but for obvious reasons not covered for studies of duration of labour; complications of vaginal labour for the mother or the newborn. Only one woman, who was sero-reactive had to be transferred to nearby medical college hospital in the entire study.

The squatting posture is defined as an anatomical body frame in a dynamic muscle joint action adopted for labour wherein the women sits on the seat or close to the ground (not in this study) with thighs flexed, abducted while bearing down effort, the heels are raised, resting the toes firmly on the cushion of the seat. The parturient woman leans forward with support while actually bearing down and the perineal support is provided by the in-built cushion of the seat; or

by the birth attendant, without obstructing the progress of the labour.

Beginning of the first stage of labour is 'self reported' and hence vague, arbitrary. Beginning of the second stage of labour is from the full dilatation of the cervix. The third stage is from the delivery of the baby, till the expulsion of the placenta.

Evaluation of performance of labour in TVSPP leading to vaginal delivery was carried out with reference to duration of labour (stage-wise); mortality if any, morbidity in the mother and the newborn baby, prophylactic measures and rate of interventions needed.

FINDINGS AND DISCUSSION

TABLE-1
PARITY/AGE ANALYSIS OF WOMEN DELIVERED IN TVSPP

Age in years					
Parity	Below 25	25 to 30	Above 30	Total	Percentage
Primiparous	403	13	5	421	41.1
Multiparous	367	91	38	596	58.9
Total	770	204	43	1017	100
Percentage	75.71	20.05	4.13	100	C.S.23 women

In the present study a sizeable number of women were young primipare. They were vulnerable to mortality/morbidity, so also the newborn babies delivered by them(Table 1).

TABLE-2
MEAN DURATION OF LABOUR, STAGE WISE IN TRADITIONAL VERTICAL SQUATTING PARTURITION POSTURE

Parity	No. of Women	Duration in dorsal Posture*		Duration in TVSPP: Study Group			
		First stage Hours	Second stage Minutes	First stage Hours	z Value	Second stage Minutes	Z Value
Primiparous	421	16	60	11.37(sd±2.1)	46.3	34.17(sd±7.07)	74.8
Multiparous	596	8 TO 10	30 TO 60	7.44(sd±2.32)	16.43	24.30(sd±8)	63.3

Labour in TVSPP significantly shorter Z = 1.96 (Cut off Value)

*Indian Norm: Source Clinical Obstetrics - A.L. Mudaliar, M.K. Menon, Orient Longmans (1978), Chennai.

There is a reduction in the length of labour viz. first two stages taken together, to the extent of about 29 per cent in primiparous women and to the extent of about 25 per cent in multiparous women (Table 2).

The third stage of labour was conducted in conventional dorsal supine posture, which ranged from 5 to 10 minutes and was uneventful in all who delivered in TVSPP per vaginum.

Caesarean Section

Out of the total of 1040 women, 23 needed caesarean section as an intervention. The caesarean section rate is 2.21 per cent. This is comparable with CS rate of USA 21 per cent¹², UK-16 per cent¹³ and teaching hospital from Guntur, Andhra Pradesh, India 16 per cent¹⁴ (Table 3).

Out of all those who required CS in the present study, little over 50 per cent were primiparous women.

TABLE-3
BREAKUP AS PER ABSOLUTE INDICATIONS FOR CAESAREAN SECTION

Indications		No. of Women
1.	Eclampsia	01
2.	Cephalopelvic Disproportion (CPD)	13
3.	Bad Obstetric History	01
4.	Transverse Lie	05
5.	Deep Transverse Arrest	01
6.	Premature Rupture Membrane (PRM) with Foetal Distress	01
7.	Uterine hypofunction (Previous 2 CS)	01
Out of 1040 women Total		23 (2.21%)

13 women out of 23, who underwent CS, had CPD, which should not come as a surprise. It is a sad reflection on the malnutrition (including rickets) suffered by the female child during her childhood leading to poor growth and development of the women, resulting into inadequate pelvis, obstetrically.

On the positive side, there were 80 women out of a total of 1017 women, who had relative indication for caesarean section, but who successfully delivered per vaginum in the traditional vertical squatting parturition posture. None of them needed CS, is a big achievement due to TVSPP. None of them needed intravaginal low forceps delivery either (Table 4).

TABLE-4
ANALYSIS OF WOMEN AS PER RELATIVE INDICATION FOR C.S., BUT
DELIVERED PER VAGINUM IN TVSPP

a) Severe Preecclampsia	03
b) Borderline CPD with Short stature	08
c) Overweight (over 70 Kg)	09
d) Postmaturity of Pregn.	07
e) Elderly Primiparous	04
f) Previous LSCS for unknown reasons	15
g) Primiparae breech Presentation	02
h) Twin	05
i) Premature rupture of Membranes with threatened Foetal Distress	25
j) Uterine hypofunction	02
Out of 1040 women	Total 80 i.e. 80 (6.92%)

It is paradoxical to have women in almost equal numbers having marginal CPD and overweight. Half of the women may have suffered from childhood malnutrition and the other half from over-nutrition. All these 17 women had uneventful vaginal delivery in TVSPP.

In the present study one woman who had previous CS scar and uterine hypo-function required CS again. In the rest 15 multi-parous women who had undergone LSCS in the past, but normal vaginal delivery in the present study in TVSPP, proved that "Once a CS, always a CS," is a myth. Thus, prevention rate for repeat CS, or the rate of vaginal delivery works out to be 93.75 per cent.

Similarly, the study of TVSPP has shown that, in case of women having PRM in 25 women with a possibility of foetal distress, can deliver per vaginum without any problem. The apgar score of the newborn babies was normal.

In all the rest of the women who had relative indication for CS, outcome of vaginal delivery was normal, including twin births. Apgar score of all the newborn babies was normal, clearly indicative of role of TVSPP in safer childbirth in all the women, who were at higher risk.

Apgar Score of Newborn Babies

As such labour length was reduced significantly in both primiparous women and the multiparous women, who delivered in TVSPP. However, to look for possibility of any foetal distress in the posture, apgar score was assessed and was recorded. Apgar score at one minute, is an indicator of neonatal prognosis.

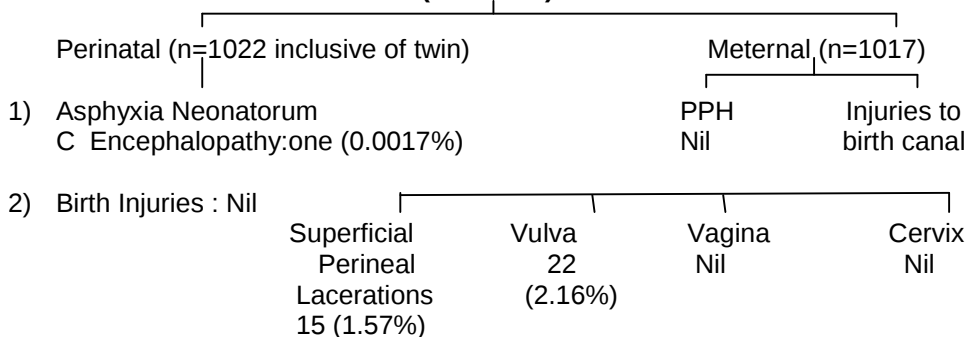
TABLE-5
APGAR SCORE IN NEWBORN BABIES, DELIVERED IN TVSPP PER VAGINUM

Score	Below 6	6-8	Above 8	Total
No. of Babies	01	324	697	1022
Percentage	0.001	31.56	68.33	(including twin)

Except one baby, the apgar score was normal in all the babies. Over two third of the newborn babies had apgar score of over 8. This reflects favourably on the immediate status at birth of the newborn babies and also their prognosis in the neonatal period (Table 5).

Thus, the TVSPP as far as foetal life or the life after birth is concerned, gives a better chance of survival or quality of life in the absence of any other adverse factors. This shows that the childbirth is not only made safer in TVSPP, but it assures a good healthy future for the baby.

**COMPLICATIONS OBSERVED FOLLOWING LABOURS IN TVSPP
(CHART 1)**



In the present study, very few perineal superficial injuries were observed, which were non serious and healed quickly. There were no maternal and perinatal deaths. Neonatal death was only one.

The unfortunate newborn baby who died of encephalopathy following asphyxia at birth after seven days was a singleton baby born to a primiparous woman who came late in labour for admission. The apgar score at birth of this child was below 6, indicative of bad prognosis in the influence of traditional vertical squatting parturition posture on the length of labour, irrespective of use of prophylactic/therapeutic measures.

Influence of TVSPP on the Length of Labour Irrespective of Use of Prophylactic Measures

In the present study, it is noteworthy that the conventional standard practice of giving routine episiotomy to primiparous women was observed even though they were due to deliver in TVSPP. Out of the total of 421 primiparous women 341 (81%) were given episiotomy and/or oxytocin. Thirty six women were given oxytocin as a therapeutic measures. Seven women were given both oxytocin/episiotomy. Eighty primiparous women were without any prophylaxis.

Similarly, in case of multiparous women, there was no question of giving oxytocin , but 20 women needed episiotomy. Thus 576 multiparous women were without any prophylaxis.

To rule out the possibility of the influence of these iatrogenic factors, in the reduction of labour length, mean duration of labour, stage-wise in TVSPP, was studied in the women who did not need any prophylaxis (Table 6).

TABLE-6
MEAN DURATION OF LABOUR, STAGE-WISE IN TVSPP WITHOUT ANY
PROPHYLAXIS TO WOMEN

Parity	No. of Women	Duration in dorsal Posture *		Duration in TVSPP: Study Group			
		First stage Hours	Second stage minutes	First stage Hours	Z Value	Second stage Minutes	Z Value
Primiparous	80	16	60	11.75(SD±1.85)	20.2	30.44(SD±5.21)	50.96
Multiparous	576	8 – 10	30 to 60	7.13		25.53	

Labour in TVSPP, Significantly in primiparae

*Indian Norm Source: Clinical Obstetrics – A.L. Mudaliar, M.K. Menon Orient Longmans (1978) Chennai.

Table 6 clearly highlights that even without any kind of prophylaxis or therapeutic measures, length of labour is significantly reduced in TVSPP. Apgar score born to all these women was normal, This observation should help us in deciding future policy on the use of episiotomy. It is felt that there is a scope in reducing the rate of episiotomy¹⁶.

Other Possible Benefits of Tvsp.

In the present study, 113 newborn babies were born with umbilical cord around the neck. It is hypothesized that in view of this abnormality the foetus is prone to hypoxia while in utero; and when the delivery takes place in conventional dorsal posture. However, in TVSPP the cord compression would be minimized and optimum blood supply to the foetus would be maintained.

TABLE-7
ANALYSIS OF WOMEN WHO DELIVERED PERVAGINUM IN TVSPP, HAVING
UMBILICAL CORD AROUND NECK OF THE NEW BORN BABIES
(SINGLETON)

Parity	No.of women	Mean Duration of Labour		Mean Apgar Score
		First Stage Hours	Second stage minutes	
Primiparous	25	13.42 S.D $\pm$ 1.75	42 S.D. $\pm$ 5.06	8
Multiparous	88	09.05 S.D. $\pm$ 2.38	31 S.D. $\pm$ 8.7	8

Retrospective analysis of the labours in which these babies were delivered shows that labour in women is longer but shorter than the conventional dorsal posture, and are uneventful for both mothers and the babies, as seen from the apgar score at birth (Table 7).

Women with Pre-Existing Heart Disease

As such recumbent posture is recommended for the women with heart disease. But the labour could get complicated on account of number of other risk factors.

TABLE-8
WOMEN WITH HEART DISEASE DELIVERED IN TRADITIONAL VERTICAL
SQUATTING PARTURITION POSTURE

No	Age	Parity	Wt. of mother in Kg.	Prophylaxis	Labour : Stage-wise			Birth wt. of Baby in Kg.	Apgar score
					First Hrs	Second Minutes	Third Minutes		
1	45	Nineth	45	Lasix	08	25	10	2.8	10
2	21	Primi	50	Episiotomy	12	30	20	2.7	10
3	25	Primi	80	Nil	12	30	10	4.0	8

From Table 8 it is seen that besides the pre-existing heart disease, there are other risk factors operating in relation to pregnancy and labour. They are primiparity, grand multiparity, advance age, overweight mother and heavier baby in primi. All these factors singly or in combination could have influenced the labour adversely. Still the labours in TVSPP were uneventful with successful outcome for both mothers and the newborn babies.

From this limited but representative and real life clinical experience one may conclude that the traditional vertical squatting parturition posture does help to have normal vaginal delivery, despite risk factors, with due monitoring and careful management in case of women with heart disease.

CONCLUSION

- 1) Duration of labour is reduced significantly by the Indian traditional vertical squatting parturition posture as compared to the conventional dorsal supine, horizontal labour posture.
- 2) Forceps or vaccum extraction delivery is not needed when delivery is conducted in traditional vertical squatting parturition posture; eliminating the possibility of hazards associated with intravaginal, interventive procedures.
- 3) In majority of labours, natural normal vaginal delivery is possible in traditional vertical squatting parturition posture, bringing down the rate of caesarean section, as compared to the conventional labour posture.
- 4) Local complications following vertical squatting parturition posture are minimal, nonserious, amenable to treatment in comparison to the conventional horizontal posture.
- 5) There is scope for reducing episiotomy rates, if traditional vertical squatting parturition posture is adopted, adapted and updated in normal pregnancies leading to normal deliveries.
- 6) Maternal mortality was prevented, perinatal mortality was nil, and neonatal mortality was least in the present study of traditional vertical squatting parturition posture.
- 7) Childbirth positively was made safer, by traditional vertical squatting parturition posture.
- 8) Family physician can conduct full term normal deliveries, in traditional vertical squatting parturition posture safely, using an appropriate technology, which is acceptable and affordable.

- 9) Traditional vertical squatting parturition posture is useful in special clinical situations viz. Umbilical cord around the neck of the foetus and pre-existing heart disease of the mother.
- 10) Good modern ante-natal care along with preparation, by way of traditional yoga exercise in preconception, post conception and pre-labour periods is to be encouraged before universal adoption of traditional vertical squatting parturition posture.

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AN EVALUATION OF PULSE POLIO IMMUNISATION COVERAGE IN AN URBAN AREA

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ABSTRACT

The study revealed that (i) the knowledge regarding routine immunisation among the sample respondents was low; (ii) educated respondents responded better as compared to illiterates; (iii) the various sources of information for people regarding PPI were mass media followed by nurses, ANMs, doctors and others and (iv) the coverage of routine immunisation against the preventable diseases among under-fives in the study area was good.

Global campaign for eradication of poliomyelitis is now in its final phase. Mass immunisation campaign is now an established strategy towards this end¹ along with maintenance of high levels of routine immunisation. India has been carrying out pulse polio immunisation campaigns since 1995-96 and so far there had been four such campaigns. They were quite successful. Despite this, India accounted for 68 per cent of global cases in 1998 and declined in 1999².

PPI campaigns claimed to have covered a very large eligible population (85%)³ and even 100 per cent in some places. But this seems to be an overestimation. Under the intensified pulse polio immunisation during 1999-2000, high-risk areas were identified. They include migrants and slum dwellers. House-to-house surveys were carried out to immunise the children who missed the earlier rounds. Efforts were made to give wide publicity to the campaign through various media.

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OBJECTIVES

1. To assess the coverage of pulse polio immunisation among under-fives;
2. To find out the reasons for default if any;
3. To assess the coverage of routine immunisation against the vaccine preventable diseases among under-fives;
4. To find out the common sources of information for guardians regarding PPI; and
5. To assess the knowledge of guardians regarding PPI, routine immunisation and poliomyelitis.

MATERIALS AND METHOD

The study was conducted in a small town, Talegaon (D) with an approximate population of 18,000, from December 20,1999 to January 4, 2000, following the PPI campaign on December 19, 1999.

One area of Talegaon was chosen, comprising booths, which were all managed by a single agency, i.e. the general hospital. The rest of the town was covered by the primary health centre.

A house-to-house survey was carried out in this area with the help of medicos, social workers and third year students. Information was gathered using an interview schedule regarding age, sex and education of informants, age and sex of under-fives and their immunisation status and knowledge level of guardians regarding the PPI, routine immunisation and poliomyelitis.

FINDINGS

The survey covered a total population of 5,839 which included 778 under-fives (13.32%). Information was gathered from 526 informants, 403 females (77%) and 123 males (23%). Majority of these informants, 272 (51%) were in the age group of 20-30 years. Three hundred sixty five were mothers of the under-fives. 103 were fathers and 38 were other relatives. Two hundred forty two (46%) of these under-fives were from slums and 284 (54%) were from economically better households (non-slum dwellers).

It can be seen from Table 1 that among the informants, 165 (31.3%) were illiterates and 170 (32.2%) had only primary education. Only 36.3 per cent were educated above the primary school level.

TABLE-1
EDUCATION OF INFORMANTS

Education	Male	Female	Total
Nil	26 (4.9)	139 (26.4)	165
Primary	51 (9.6)	119 (22.6)	170
Secondary	15 (2.9)	70 (13.2)	85
Higher than Secondary	31 (5.9)	75 (14.3)	106
Total	123	403	526

(Figures in parentheses indicate percentages)

Table 2 gives the age and sex distribution of under-fives. Fifty five per cent were males and 44.3 per cent were females. Twenty eight per cent were in the above four years of age group while the least number was in the age group of 1-2 years.

TABLE-2
AGE AND SEX DISTRIBUTION OF UNDER-FIVES

Age	Male	Female	Total
0	79 (10.15)	52 (6.7)	131
1	67 (8.6)	55 (7.1)	122
2	75 (9.6)	60 (7.7)	135
3	89 (11.4)	83 (10.7)	172
4+	123 (15.8)	95 (12.2)	218
Total	433(55.71)	345(44.3)	778

(Figures in parentheses indicate percentages)

Table 3 shows the coverage of PPI. There were 64 under-fives who had missed their November dose while the number went up to 87(11.2%) in December. There was no significant difference between males and females but the number of females missing their dose was more.

TABLE-3
COVERAGE OF PPI AMONG UNDER-FIVES

	November 1999			December 1999		
	M	F	Total	M	F	Total
Yes	412 (58.2)	296 (41.8)	708 (91.7)	375 (53.9)	318 (46.1)	691
No	31 (42.4)	33 (51.5)	64 (8.3)	41 (47.1)	46 (52.9)	87 (11.2)
Total	443	329	772	414	364	778

(Figures in parentheses indicate percentages)

Out of the 87 who had missed their dose, 20 under-fives belonged to the better economical group and 31 belonged to the households with an illiterate informant. There was a difference in the reasons given by the two groups i.e. slums and non-slum residents. Slum dwellers (including construction workers) quoted not being aware of it as the chief reason while the other group had either forgotten or was out of station.

It was found that all the slum dwellers 125 (24%) did not have any knowledge regarding Pulse Polio Immunisation while all the non-slum dwellers 119 (22.2%) had complete knowledge (Table 4). Two hundred sixty seven (50.7%) did not have any knowledge of the disease while only 43 (8.2%) knew about the disease and its transmission.

TABLE-4
KNOWLEDGE ABOUT PULSE POLIO IMMUNISATION

Scoring	Male	Female	Total
0	33	92	125 (24)
1	40	75	115 (22.3)
2	30	60	90 (17.2)
3	24	48	72 (14.3)
4	46	73	119 (22.2)
Total	173	348	521

(Figures in parentheses indicate percentages)

It was encouraging to find that 632 (83%) had received complete routine immunisation as shown in Table 5 while 82 (10.87) were not immunised at all.

TABLE-5
COVERAGE OF ROUTINE IMMUNISATION

Routine Imm.	Male	Female	Total
Complete	361 (47.21)	200 (35.2)	632 (83)
Partial	28 (3.7)	27 (3.5)	50 (7.2)
Nil	31 (4.1)	49 (6.4)	82 (10.8)
Total	420	345	765

(Figures in parentheses indicate percentages)

The number of girls having missed their immunisation was more (6.4%) as against boys (4.1%). Out of the 770 under-fives, 527 (60.4%) had their immunisation cards with them.

Knowledge regarding routine immunisation was very low. Only 56 (10.6%) were aware of the schedule and all of them were non-slum residents. Only 13 of these (2.4%) knew about the diseases. The various sources of information for the people regarding PPI were mass media(78.3%), nurses/ANMs (68.4%), doctors(41.2%), and others (26.6%). Most of them had received information from more than one source(Table 6).

TABLE-6
SOURCES OF INFORMATION REGARDING PPI

Mass Media	412 (78.3)
Nurses/ANMs	360 (68.4)
Doctors	217 (41.2)
Others	140 (26.6)

(Figures in parentheses indicate percentages)

DISCUSSION

The number of under-fives missing their PPI dose went up from 64 in November to 87 (11.2%) in December. This occurred in areas close to a large hospital and in a district where the coverage was declared to be approximately 97 per cent (Personal Communication). Reported PPI coverage tends to be much higher when compared with actual coverage revealed through research studies. There is a tendency to report impressive coverage of 100 per cent to please the authorities².

Coverage of 86.67 per cent was reported in December 1995 and 87.67 per cent in January1996⁴ whereas in this study the coverage declined from November to December 1999. One reason could be that people are getting fed up with the repeated campaigns. A few educated mothers did ask why they had to overdose their children.

In another study, coverage of 67 per cent was reported in both doses⁵. No difference was observed between slum and non-slum dwellers whereas in this study, a significant difference was observed between the two. The reasons given for missing the dose were different among the slum and non-slum residents. Most of the slum residents said they were not aware of it while the others gave the commonest reasons as having forgotten or gone out of station.

Education did seem to be an important factor. Significantly more number of mothers whose children had missed the dose were illiterates. The influence of literacy of parents, specially of mothers on the immunisation coverage was reported⁶.

Awareness level of people regarding the age of immunisation was 80 per cent, PPI days was 65.6 per cent and number of PPI doses was 67.7 per cent. Awareness of PPI doses additional was 62.8 per cent⁷ whereas in this study only 22.2 per cent had complete knowledge about all these and 24 per cent did not have any knowledge.

In this study, 83 per cent of the eligible under-fives were completely immunised which is higher than the other study which shows 36 per cent were fully immunised, 46 per cent partially and 17.9 per cent not immunised at all. Only 23.5 per cent had their immunisation cards⁸. The increase in coverage may be due to changes in the attitude of people towards immunisation or the publicity campaign undertaken through various media may have helped the people to understand the importance of immunisation.

Knowledge regarding the schedule and diseases protected by routine immunisation was only 10 per cent. Many of the slum dwellers know anything. With an increase coverage of routine immunisation over the years⁷, knowledge regarding these vaccines of the people was expected to increase, but in this study it was not so.

It was found in this study that mass media were the commonest sources of information for people regarding PPI. This was in agreement with the findings of other studies^{7,9}. The commonest reason for non-immunisation was lack of knowledge among the slum dwellers. Slum dwellers are identified as high-risk groups. Lack of awareness among this population and unimmunised under-fives in this group at this stage may be a great drawback in our eradication efforts. So, it is important that we may earnestly concentrate our efforts in these areas to achieve cent per cent success in this endeavour.

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