

COMMUNITY PARTICIPATION IN PRIMARY HEALTH CARE

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ABSTRACT

Active community participation is one of the most important supportive activities for successful implementation of primary health care for achieving the goals of Health for All by the Year 2000 AD. In this paper, the nature, the various aspects and dimensions of community participation, and its role and scope in successful implementation of different components of primary health care have been described. The concepts and general principles as evolved from a wide range of experiences available from within and outside the country have been systematically analyzed and organized. The steps needed for operationalising community participatory processes have been indicated. Some of the successful experiences in involving the community participation in the country have also been briefly presented to bring out the lessons learnt from them. It is sincerely hoped that this document will be useful to the health personnel at different levels and others concerned in this field for proper understanding and practical application of dynamic community participatory processes for successful implementation of primary health care.

INTRODUCTION

According to the national goal, a minimum level of health that would permit every citizen to lead an economically productive and socially useful life is to be achieved by 2000 AD through primary health care approach. For this purpose at least eight essential components of primary health care are to be implemented. These are: (1) Education of the people about prevailing health problems and the 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) Immunization against major infectious diseases; (6) Prevention and control of locally endemic diseases; (7) Appropriate treatment of common diseases and injuries; and (8) Provision of essential drugs. For successful implementation of these components, organization of the following eight

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types of supportive activities will be very important:

- a. Community involvement and participation
- b. Intra- and inter-sect oral coordination
- c. Development of effective referral support
- d. Development and mobilization of resources
- e. Involvement of managerial processes
- f. Health manpower development
- g. Medical and Health Services Research including innovative approaches
- h. Development and application of appropriate technology.

It may be noted that among the supportive activities, community participation is at the head of the list, and for the success in implementation of primary health care active involvement and participation of the people or the community would be crucial.

In view of the above, all persons concerned and/or involved in the delivery of health services through primary health care approach should have clear understanding of the nature, various aspects and dimensions of community participation and the role and scope of community participation in primary health care. This document has been prepared to help all concerned in proper comprehension of the overall concept and the underlying principles, and in constantly applying these in their day-to-day activities in this field.

COMMUNITY PARTICIPATION

Definition of Community Participation

A community may vary from a small cluster of families with common needs and interests to larger groups joined together by occupation, class, caste and religion in a geographic unit as in a village or urban neighborhood. The community structure can both be formal and non-formal. In the non-formal groups rigid structuring is not found.

There are various views about the definition of community participation and it may be difficult to find any agreement among these. Nevertheless, one comprehensive and widely acceptable definition may be as follows:

"Community participation is an educational and empowering process in which the people, in partnership with those who are able to assist them, identify the problems and the needs and increasingly assume responsibilities themselves to plan, manage, control and assess the collective actions that are proved necessary."

Ideally, true or active participation means that the people should be knowledgeable about their own health problems and they should identify the needs for their solution or reduction, draw out plans of actions according to the priority and

the resources available; organise and implement the programmes, and monitor and control their progress; periodically evaluate for getting the feedback, and do the reprogramming. However, under poor social and economic conditions, it may be hard to expect spontaneous participation from the people. People have to be mobilized and encouraged to take greater interest and responsibilities for the maintenance of their own health. Initially, the involvement may be passive, and this has to be gradually and progressively made more active participation.

Dimensions of Community Participation

From the available experiences it is observed that the community may be involved in a variety of ways as noted below:

- a. The services may be organized on a community basis with wide and easy access of the people to the services provided, b The community may contribute to the operation and maintenance of services.
- c The community may participate in planning and managing the services.
- d. The community may make inputs into overall policies, strategies, and work plan of the programme.
- e. The community may help in overcoming factionalism and interest conflicts in the community and promote emergence of a cohesive group capable of engaging in cooperative efforts for the benefit of all.

Observed Patterns of Effective Community Participation

1. *Strong national commitment with high degree of decentralization:*

The presence of a strong national commitment to meeting the people's needs, with high degree of decentralization of the planning, management and operational decisions to regional and community levels, ensures strong community involvement, as is observed in many socialist countries. In the absence of such an over-riding national commitment, genuine community involvement can be generally found only in small scale programmes, in specific locations, guided by highly dedicated individuals with charismatic leadership quality.

2. *Mobilization of community resources:* Substantial financial and human resources can be mobilized from the community; some of these, such as the enthusiasm and the energy of the youth and women for community action, otherwise may be found unused.

The community may contribute in the form of providing accommodation, building and lands for functioning of health centers; or it may provide voluntary labor.

Communities with institutional structures such as a local body or council, a cooperative etc., can mobilize resources for the community purpose more easily than those relying on individual and voluntary contributions.

In some voluntary projects small regular contributions by rural families have served as a kind of Group Insurance Schemes and have covered up to 50 per cent of the total cost of primary health care in the community. Such an approach may bring out a radical improvement in the quality and coverage of health care of rural people.

3 *Strong local participatory institutions and inter-sectoral activities:* Community participation may be seen in various dimensions in situations where local organizations have wider developmental responsibilities, rather than one or more aspects of health care alone - though special local communities or groups may be formed for health related activities under the aegis of the parent organisation.

Many small scale non-governmental programmes might have started with health focus, but soon expanded the scope of activities into agricultural production, basic education, basic minimum needs, women's programme etc. This not only brings to focus the water-relationship between health and other basic needs but also underlines the importance of undertaking integrated development programmes for generating and sustaining interests for community participation and action.

4. *Problems of multiplying impacts of small scale projects:* In many developing countries the non-governmental organizations (NGOs) have played an important role in initiating or introducing participatory processes and in establishing institutions in the context of their own health care and rural development programme. However, their impacts are usually limited because of the absence of favorable political and economic structures that would support vigorous national efforts to pursue the primary health care strategy in conjunction with the basic-needs-oriented national developmental policy.

For such successful developments, the role of dedicated and able leadership becomes invariably crucial. But they also experience the problems of how to transfer the lessons of their successful experience to the large scale public programmes and how to multiply the impact.

Nevertheless, these small scale programmes have succeeded in making national and international impact by bringing an increasing awareness and by demonstrating the potentialities of the community-based primary health care approach.

Obstacles to Community Participation

In the initiation and organization of community participation and in the maintenance of sustained interest, a variety of obstacles may be encountered as enumerated below:

1 *Diverse interests and priorities due to social stratification:* There is often lack of group cohesion and similarity of interests and perceptions to behave as a homogenous group or community. There is highly uneven access of the people to

productive resources in the community such as land, water, capital etc. Furthermore, the traditional social stratification and separation based on caste, ethnic origin, religion, sex, etc. often act as barriers.

The political and economic institutions and practices reinforce the existing privilege groups or create new privilege groups. Even the selection of health workers from the community may pose a serious problem, if the innovation calls for democratic participation by all people.

The interests, priorities and perceptions of the problems of different interest groups in a village may not be similar and may cause serious conflicts. Because of highly unequal social and economic relationships among the people, creation of community spirit, articulation of community aspirations and people's participation in planning and management of community programmes can progress falteringly and in limited ways.

Even in the cases of available successful examples of community participation where barriers have not been removed by broad national policy framing, the community participation may merely mean giving vocal support to the local influential and getting a small share of the services and benefits by the weakest and neediest.

2 Resistance to decentralization and distribution of benefits: In spite of the accepted general principles of primary health care and community participation, the traditional bureaucratic machinery often stand in the way of their translation into concrete actions. There is unwillingness to decentralize the administrative structure and to make the government programme and personnel accountable to the people. As a result, real community participation does not take any root, and the benefits of the health care programmes are not properly distributed and remain accessible only to the privileged few.

3 Failure to reorient entire health services to primary health care approach: The desired reorientation and reorganization of health care delivery system have not yet occurred and all facilities are concentrated in urban areas. This dichotomy in health services structure might suggest, however wrongly, that the barefoot doctors' and self-help are for the villagers, while the hospitals and medical specialists are for the town-dwellers. Obviously, in such an approach there is a reluctance for establishing equity, which is one of the basic principles for achieving health for all through primary health care approach.

Under such circumstances, the community level activities may not be provided with adequate support in the form of supervision, training, essential supplies and effective referral arrangements. This would naturally dampen community enthusiasm and discredit the primary health care approach.

4 Difficulty in mobilizing uninvolved populations: In the absence of any local participatory institutions within the existing political and economic systems,

there is no proper scope for active community roles in any local development programme. Since in such a situation initiation of community participation only to health care will be a pioneering effort with all its inherent constraints, it would be a slow and difficult process. For sustaining momentum and motivation, the organizers must make efforts to extend community participation beyond health care to other spheres of development particularly that would satisfy the basic needs of the people.

5. Problems of maintaining sustained efforts: The problems of maintaining active community involvement beyond the first stage of curiosity and enthusiasm are also widely recognized. If the health system takes adequate steps for decentralization of the authority and relies on decision-making and control by the community, this will not be a problem, since exercise of real power will encourage responsibility. On the other hand, if the participation is not accompanied by true responsibility and authority, the community will lose interest.

Mechanisms and Steps for Operationalising Participatory Approach

Having become familiar with various aspects of community participation, it would be appropriate to know how to operationalise the participatory approach in the delivery of primary health care. It will be difficult to deal with it here thread-bare. However, this subject has been discussed here in terms of broad operational steps as outlined below:

1. Studying the structure and status of health system and the community setting.
2. Sensitizing and reorienting health personnel and functionaries.
3. Sensitizing and orienting the community.
4. Setting the goals and objectives for participatory approach.
5. Mobilization and utilization of resources.
6. Developing a system for implementation, monitoring and evaluation.

Studying the structure and status of health system and the community setting: A situational analysis of the health status, health system infrastructure and the community setting would involve the following:

- a. Knowledge of health problems and natural and infrastructural constraints etc. related to the delivery of health care - through visits, meeting local people and peripheral workers.
- b. Studying the various structures and groups within the community such as social, cultural, political and organisational groups - through direct meetings, informal dialogues etc. One would find the channels of local leaders, opinion leaders, knowledgeable persons and village officials very useful.
- c. Thorough analysis of the health status, disease patterns and the health care needs of the community - with the help of check-lists, clinic registers, *ad hoc* surveys etc.

- d. Survey of the community resources and existing institutions and initiatives towards their health improvement.

Sensitizing and reorienting health personnel and functionaries: This step would consist of providing both simple knowledge about the philosophy and various dimensions of community participation, and also practical orientation by associating these functionaries with any on-going participatory efforts in the field. The operational steps would consist of:

- a. Sensitizing the health functionaries about the need, rationale, scope and dimensions of community participation for primary health care;
- b. Guiding them on how to work with the individuals and community organizations, particularly with weaker sections and disadvantaged groups; they are to work as 'link workers' between the community and the authorities;
- c. Ensuring that they become aware and take note of the health care needs of all the groups in the community;
- d. Familiarizing them with other development projects and their functionaries, and with the community institutions existing or to be developed and activated.
- e. Orienting them with the procedures of implementation and monitoring the community efforts contributing towards primary health care.

Sensitizing and orienting the community: The steps for sensitizing the community for promoting primary health care would consist of:

- a. Developing a clear understanding of the philosophy and methodology of the participatory approach - narrating the success stories and the benefits of the community through partnership, co-working, sharing and developing self-reliance in primary health care.
- b. Contacting, meeting, organizing, explaining, informing, discussing the health problems and the needs of the community and the available likely solutions for these problems.

Setting the goals and objectives for participatory approach: The goals for participation should be clearly defined. The objectives of the joint initiatives of community and health functionaries for operationalising the community participation contributing towards primary health care would be:

- a. General as well as specific and well defined, quantifiable and precisely worked out; and to begin with,
- b. The initiative for setting the objectives may come out primarily from the

health functionaries through formal and informal meetings of village health committees and other community institutions.

Mobilization and utilization of resources: Efforts are to be made for resource generation from the community and its proper utilization for the promotion of primary health care. Community resources may be in terms of time, local technology including skills, physical labor, money and material which may be lying idle or under-utilized, because of lack of initiatives to harness these.

Developing a System for Implementation, Monitoring and Evaluation

Structure for participatory programme: All community participation programmes for the delivery of health care need a projectised structure to operationalise the efforts. This participatory structure invariably would be of three or four tiers, depending upon the context of delivery of health care. These are:

- a. A community level structure of the project
- b. Project organization structure
- c. PHC and District level structure

For developing local level participatory structure there may be three alternatives: (a) to make use of the existing community institutions; (b) to create new institutions; or (c) to have a combination of existing and newly created institutions. These participatory structures may be village health committees, school health clubs, women's health groups, youth health mandals etc.

The choice of the organizational structure for implementation of the participatory efforts will depend upon how the existing structure is functioning. This structure may have three components: (a) community level workers; (b) supervisory and monitoring structure of the implementing agency; and (c) the overall guiding and controlling structure at the project level.

There may be a need of another tier at PHC and District level. There will be further extension of the organization structure by creating specific project related committee at the PHC and the District level. This however, will depend on the overall administrative structure in the district.

Mechanism of implementation: The mechanism may differ from project to project making it adaptable to the local situations, perspectives and conditions. The following measures may be considered important:

- a. It should have flexibility.
- b. Implementation of participatory efforts should have strong working linkages with the complimentary and supportive services and resources in the area.
- c. It should have 'inbuilt capacity' to respond to collective as well as individual needs of the members of the community.

- d. Special safeguards may be required to be provided in the mechanism to respond to the weaker and deprived sections of the community.
- e. There should be good and free communication system.
- f. It should be simple enough to be understood and operative by community members.

Phasing of project-based participatory efforts: The following distinct phases may be considered:

- a. Community awareness phase.
- b. Phase of integrating the programme efforts with the existing health system and also beyond the Government set-up.
- c. Integrating the community participation efforts/project with other development agencies including NGOs.
- d. Termination phase.

It is necessary to point out that these are not sequential phases in the participatory efforts. It can be observed that sometimes the third phase can precede the second phase, and the phase one and two can go simultaneously, and so on.

The community participation efforts in health care must minimise its association, sooner or later, with the agency or health functionaries through which it has been started. From a review of the participatory projects or efforts, it is noticed that very rarely the projects have planned for such termination phase. The result is that most of the participatory projects seem to continue indefinitely, being tagged with a single 'charismatic' individual or agency, inspite of the recognition that such a continuation argues against the very concept of community participation.

Monitoring and assessment: The ways and means of continuously assessing or evaluating the progress of the participatory project need to be devised right from the beginning, although the very nature of participatory projects make assessment/evaluation difficult.

The problem of evaluation or assessment of these projects arises from the fact that participatory process itself is a learning process. Maximization of this participatory learning can be achieved only when the community itself is involved in monitoring and evaluating their own efforts. However, some indicators may be required to be developed from the beginning for meaningful follow up.

Rationale and Advantages of Community Participation in Primary Health Care

1. A group of people belonging to the same entity and having a common perception of collective needs and priorities, and the ability to assume

responsibilities for decisions made within the community can play an important role in community participation.

2. Experience from within the country as well as from different parts of the world has clearly demonstrated that community participation can make significant contributions to bringing about general developments and to health development in particular.

3. It increases understanding of the user-perspective in the management of health. The members of the community, who are chosen by the community and are appropriately trained, act as frontline workers being in direct contact with the beneficiaries. It also renders the services more accessible and acceptable to the people.

4. It promotes and strengthens self-reliance in matters of delivery of health services. The community may be able to mobilize human, financial and material resources to supplement the extra-community resources being provided by the governmental or non-governmental agencies. This minimizes the sole dependence of the community on professional and bureaucratic structures. Participation also develops a sense of responsibility for the health care programme.

5. Since the indigenous knowledge and local resources are utilised, it can bring down the cost of health care.

6. For the organisation of the preventive and promotive aspects of primary health care, the people in the community are the main actors.

7. Various non-health sectors contribute significantly to health development. The integration and coordination of different sectoral activities necessary for making an adequate and sustained impact on health can be brought about only at the community level through community actions and organisation. Community participation in health serves as a catalyst for further developmental efforts.

ROLE AND SCOPE OF COMMUNITY PARTICIPATION IN PRIMARY HEALTH CARE

Educating People About Health Matters

Appropriate educational programmes are to be organized for different groups of people. Health education to the community should be a prime function of the health workers and village level functionaries. In this endeavor, functionaries of other sectors such as social and women's welfare, education, agriculture and animal husbandry, panchayats and voluntary agencies like 'mahila mandals' and youth clubs can contribute very significantly. Health education in schools and adult education sessions should incorporate various health problems. The members of the community, both individually and collectively can play a very important role in the promotion of these activities.

Promoting Food Supply and Proper Nutrition

The poor nutritional status of the people particularly of the pregnant and nursing mothers, and the infants and children can be substantially improved by organizing and conducting nutrition education programmes in the community and in the schools; by encouraging people to make kitchen gardens and community gardens, and by educating the people on food hygiene. Steps also need to be taken to encourage growing locally more foods such as cereals, pulses, vegetables, fruits, milk, fish and poultry products through cooperative and other efforts so as to make these easily accessible and affordable to the people. Simultaneously, the purchasing capacity of the families might be improved through a variety of income generating schemes. In addition, for the moderately and severely malnourished groups, special nutrition programmes are to be organized.

In these endeavors, functionaries from other sectors such as agriculture, animal husbandry, irrigation, banks and cooperatives, social and women's welfare, panchayat, voluntary organizations and other community groups can play a very significant role.

Supply of Safe Water and Basic Sanitation Measures

Systematic approach should be made to survey and identify resources of safe water and to carry out analysis of water. Arrangements should be made for regular purification of water through chlorination etc., before using for drinking and other household purposes. People at all levels, including village leaders, women and school children should be educated on continuous basis about the importance of proper maintenance of water and the use of safe water. Observation of personal hygienic practices should be emphasised.

It would be important to organise the people and resources for constructing household and community latrines, and making arrangements for collection and disposal of human and animal wastes. Proper and imaginative disposal of waste water is also very important. Construction of composting facilities, soakage pits and the use of some of the waste resources in kitchen gardens would be helpful. Proper educational programmes on all these aspects for the children, youths and adults and the mothers should be organised in a systematic manner.

In these programmes cooperation of the workers of other sectors such as Irrigation, Engineering Department, Village Industries, Agriculture, Education, Social and Women's Welfare, Panchayats and Cooperatives would be most vital. Active community participation in organising all the above activities and programmes would be the key to success.

Maternal and Child Health Care

Maternal care: Systematic efforts are to be made to increase progressively ante-natal registration and care of pregnant women from the present level of 35 per

cent to 100 per cent. It is also to be ensured that all deliveries are conducted under aspective conditions by trained health personnel *i.e.* the traditional birth attendants (dais) or female multipurpose workers. Pregnant and nursing mothers should get prophylactically two to three doses of tetanus toxoid, and iron and folic acid supplement for nutritional anaemia. During post-natal check-ups, mothers are to be educated on breast feeding, growth monitoring, proper weaning practice and immunization of the child; and on personal hygiene, proper diet and family planning. For proper implementation of these programmes people are to be educated and utilised for active involvement.

Infant care: Effective intervention adopting a high-risk approach by the properly trained dais and female health workers and health assistants would be important. Proper facilities for referrals to the secondary and tertiary levels are also to be developed and organised. People's awareness and orientation about the problems and their genuine interest and efforts in solving them would go a long way, in improving infant care and in decreasing the mortality and morbidity among the infants.

Care of young children: For curing malnutrition in pre-school children the strategy would be: (a) to provide nutrition education to mothers; (b) to detect cases of malnutrition and to grade them; (c) to rehabilitate grades I and II by supplementary feeding from home resources; (d) supplementary feeding of grade III cases at sub-centers; and (e) referral of grade III cases with diarrhea and infection to the secondary level of care.

For fighting against infant mortality the strategy should be: (a) to educate the mothers on how to prevent and treat diarrheal and respiratory diseases; (b) to train the health functionaries about how to recognize and treat these disorders and to judge which patients should be referred to higher levels of health services; (c) to create facilities for secondary level care of referred cases; and (d) to provide drugs. ORS and other supportive measures.

All children preferably at the age of under one year must be immunized against tuberculosis, poliomyelitis, diphtheria, whooping cough and measles (where feasible).

For all these activities the people have to be educated and their involvement in community welfare activities are to be promoted. People must recognize that health programmes are in their own interest and they should take part in the implementation and monitoring of these programmes

Family planning. The acceptance and continued use of contraceptives are influenced by several factors such as the method of contraception, including its advantages and disadvantages, individual and social acceptability, provider's knowledge, skill and attitude; effective communication, motivation and counselling the nature and quality of delivery services including supply logistics and follow up care and the cost

Small family norm has to become a way of life; for this purpose, organization of population education in the schools and colleges, for the out-of-school youth and in adult education programmes would be most vital.

There is increasing evidence that programmes based on the participation of the people have drawn much better response. Much larger percentage of eligible couples accept even terminal methods of contraception and persons opposed to the programme are fewer. It is evident that people do participate in family planning whenever they are mobilized by an agency or organization close to them. Therefore, there is a need for conscious and deliberate mobilization of the people for promotion of family planning.

Prevention and Control of Locally Endemic Diseases

Some endemic diseases and disorders in the country are known, to have caused major public health problems. With differences in degree of prevalence and geographic distribution, the major diseases are tuberculosis, leprosy, malaria, filaria, iodine-deficiency goitre, blindness, diarrhoeal disease - particularly among the infants, rabies, guinea-worm infestation, and others. Several national programmes are simultaneously in operation for their eradication or control. The health functionaries are to be trained for their early detection and treatment, and the services and follow-up care are to be organized. People's participation is to be promoted in implementing measures for prevention, early diagnosis and proper treatment of these diseases.

Diseases like leprosy and tuberculosis continue to be associated with high degree of ignorance, prejudice and social stigma. These can be removed only with proper education of the people and with their full cooperation.

Appropriate Treatment of Common Diseases and Injuries

People need to be educated about the availability of local remedies and other facilities to meet these needs. Other sectors such as education, social and women's welfare, panchayats. Voluntary organizations and other community level institutions can play an important role in educating the people, the school teachers etc. and in the mobilization of resources.

Provision of Essential Drugs

Utilization of locally available remedies and use of indigenous system of medicines should be considered. Considering the financial constraints from the Government sources, community's participation through cooperative funding etc. may be explored.

Organization of Referral Services Support

For the success of primary health care one of the essential requisites will be

development of proper referral support. This has to be built in a systematic manner, and the following issues would need careful attention:

- a. establishment of network of institutions
- b. development of appropriate record system
- c. identification of referred cases and provision of priority attention to them
- d. transportation of patients
- e. building teams and movement of specialists
- f. providing support for services
- g. involvement of private practitioners and voluntary agencies.

For proper implementation of the referral services support programmes, proper orientation, involvement and cooperation of the community would be most vital.

Complimentary Developmental Activities and Inter-sect oral Coordination

Health and family welfare programme cannot be implemented in isolation of other development programmes. The activities of other sectors directly as well as indirectly influence health development. Therefore, primary health care has to become a part of the overall socio-economic development process. It demands coordinated and simultaneous efforts being made in such sectors as agriculture, irrigation, animal husbandry, education, social and women's welfare, housing and public works, communication, rural development, cooperatives, industries, panchayats and voluntary organizations, etc. At present, extension workers and functionaries of these sectors/departments are operating in the field without any linkages or coordination among themselves. Often the health personnel are not aware of various projects and schemes under other sectors of development which have relevance to health.

For mobilization of resources and cooperation of other sectors towards promotion of health, alertness, initiative, persistent efforts and pursuation of the community would be crucial.

EXAMPLES OF A FEW SUCCESSFUL INDIAN EXPERIENCES

I. Vadu Rural Health Project (Maharashtra)

Background

Initially, an underdeveloped area having a population of about 30,000 spreading over 19 villages was selected. In this area, the birth rate and infant and maternal mortality rates were high, and the incidence of anemia, malnutrition and preventable diseases was above normal. Later on, the project was expanded to a total population of 125,000 covering 59 villages. This project was undertaken by the K.EM Hospital, Pune with the following objectives.

Objectives

To establish a system of delivery of comprehensive health care with community

participation that would be replicable, and also to collaborate with other agencies in rural areas for total development.

Approaches and Methodology

1. Because of the perceived needs of the community, the project initially concentrated on providing curative services, but to use this as an entry point for acceptance of package of comprehensive health care and family planning services. The Village Panchayats extended cooperation. Demands for curative medicine became increasingly overwhelming.
2. Later on, the project was reformulated to involve village level workers in community's health care after giving them training and the local health functionaries were made more responsive, with the object of bringing the health system and the people for more clear interaction.
3. The villagers were asked to select Community Health Guides (CHGs) on the basis of acceptability to the community and earlier records of community welfare activities. Selected CHGs were given a 3-weeks' training on data collection, health education, sanitation and preventive health measures.
4. One male and one female CHVs were carefully chosen mainly from socially and economically backward classes. They provided leadership in various activities such as regular chlorination and disinfection of wells, construction of soakage and compost pits, latrines, smokeless chulhas, biogas plants, and raising kitchen gardens. They were involved in the care of maternal and child health, minor ailments and communicable diseases; they assisted in the family planning programme, and helped in getting referral support. They were provided supportive supervision by multipurpose workers and health assistants.
5. Monthly meetings were held which provided useful forums for the villagers, CHGs and the project personnel to discuss the problems encountered and their possible solutions.
6. The entire system worked through a coordinated team approach and for this purpose special orientation and training were organised at different levels. Regular training and retraining were arranged to update their knowledge and skill, and to reinforce the philosophy and concept of primary health care.
7. At a later stage, for ensuring sustained community participation and smooth functioning of the programme, the project strategy was expanded to provide a broader canvas of support. Village Health Committees were formed and specific interest-groups such as women's groups, youth groups and farmers' club were created persuading them to take primary interest in health care.
8. Several types of efforts were also made for socio-economic development.

Impact

Over a four year period (1978-82), the ante-natal and natal care of pregnant women and the immunization programme improved markedly; the incidence of diarrheal diseases and malaria decreased, while T.B. and leprosy control work progressed very satisfactorily. The crude death rate decreased from 13.1 to 7.8 per 1,000 populations and the infant mortality rate decreased from 102 to 68 per 1,000 live births. There had been a very marked increase in contraceptive prevalence rate; about 38 per cent of eligible couples are effectively protected.

Lessons Learnt

1. Although the peoples' perceived need may be for curative care, rather than preventive and promotive health measures, properly selected and trained community level health workers can act as a catalyst to bring out attitudinal changes.
2. The philosophy and approach of partnership between the people and the health services system can energise and generate great unexploited resources including innate capacity of the people for self-care in health. It helps the villagers in articulating their needs and consciously striving for satisfying the needs.
3. Providing comprehensive health care and involving the community, greatly promoted family planning acceptance.
- 4 The path for achieving the goals is not easy and may have many pitfalls. The community being a heterogeneous group and often having conflicting interests and values, poses a challenge for continuing participation and smooth functioning of a programme
5. Community participation is far more readily forthcoming in such programmes, if these have a distinct economic component.

II. Comprehensive Rural Health Project, Jamkhed (Maharashtra)

Background

The project area with a profile of illiterate, drought-ridden and poor people, scanty natural resources and improper communication facilities is known today as a landmark of community's participatory efforts in primary health care. The comprehensive rural health programme of this project which operates now in 175 villages with over 200,000 populations had initially begun in 8 villages of this socio-economically backward region. The project is the fruition of two individuals' commitment and their close partnership with the local community. The concepts experimented at Jamkhed clearly indicate that even the illiterate and backward people can play important role in the promotion of their health care. The project was undertaken at Jamkhed taluka by Dr. and Mrs.(Dr.) Arole with the following objectives:

Objectives

To develop a health care system suited to the specific felt needs of the people of the area. This was to be operated within the framework of people's own resources and through mobilizing people's active participation and creating a sense of independence and self-reliance of the villagers. The specific objectives included moderation of fertility, reduction in morbidity and infant mortality and control of communicable diseases. The emphasis was on both the curative and preventive health care in the area.

Approaches and Methodology

1. As a pre-requisite to formulating a suitable health care programme, the 'community setting' was studied thoroughly by the initiators of the participatory project. A comprehensive profile of the area was developed going through all the available records of the health centre, rural hospital statistics, census data and sample surveys etc.
2. Realising that poverty and ill health coexisted in the area, the approach included the socio-economic improvement as one of the important means for promoting health. This was done through 'farmer associations' - bringing waste-land into cultivation, digging wells and bunds' and making efforts for repair of local roads etc.
3. In order to establish immediate confidence and credibility among people, realising that preventive and promotive aspects would take lot of time in showing explicit results, the curative work was given initial priority.
4. The project formed the nucleus of their activity in a place where the government-run health facilities were remotely accessible to the people.
5. As a part of the strategy to mobilize the people, the project preferred conducting their curative activities where the community as a whole provided them a place to work and partial nursing assistance from amongst the villagers to further compliment their activities. The approach was to generate at least some support and to make the people responsible in 'owing' the health programmes in their respective villages by using the local resources such as building, manpower etc.
6. Health team approach' also formed a part of the methodology. The health team always moved together in the area along with part-time village Health Worker, avoiding the isolation of health worker at grassroots level.
7. The development of referral system for more sophisticated treatment or curative care for such cases which were not possible to be treated in the village, was another aspect of implementation methodology. The three tier system of health care delivery consisted of: (i) the village health worker - a resident in each village; (ii) the mobile health team; and (iii) the health care centre at Jamkhed taluka for inpatient care.

8. Affordable charges were also made for curative care and as patient's fees, accounting for a sizeable proportion of running expenses of the project activities; this helped in building the participation of the people.

Impact

Over a decade and half the Comprehensive Rural Health Project, Jamkhed has attained a distinction not only at the national but also at the international level as an illustration of operationalising the philosophy and principles of participation in the delivery of health care.

This project has proved in qualitative and quantitative terms that the faith and commitment of professionals in the philosophy of people's strength can change the health scene through building people's capacities in realising their socio-economic and health needs. Clearly demonstrated improvements in infant mortality, immunization status and acceptance of family planning methods are noticed in project villages as compared to non-project control villages over a period of time.

Lessons Learnt

- a. Communities need total and comprehensive health care and not any fragmented one; organisation and implementation of other economic and social developmental programmes strengthens and hastens health development processes.
- b. Systematic study of the community setting through observations, analysis of health records, census data and small sample surveys etc., is a professional requisite which helps in formulating a viable health care delivery plan with community's participation in accordance with the local needs and strengths.
- c. It has been realised that health improvement is not a top most priority agenda for the illiterate, poor and under-privileged villages in India.
- d. Availability of primary health worker resident near the doorsteps of the people has a positive role in changing the rural health scene.
- e. Development of greater social responsibility of the health professionals is desired now if they are to be trusted by the ordinary, poor and illiterate people.
- f. Team approach and effective referral support system are the backbone of rapidly promoting health care delivery in rural area.
- g. Villagers themselves can provide the solution for some of their problems, as in this project they identified the middle aged women who could help in the delivery of health care.

III. Institutionalizing Community Health Programmes Through Participatory Health* Communication and Action: An Innovative Research Project; National Institute of Health and Family Welfare, New Delhi

Background

This demonstrative project was formulated to operationalise the concepts of community involvement based on the following:

- i. the felt need of the people;
- ii. greater emphasis on the needs of under-privileged population groups — the women, children and backward communities; and
- iii. intersect oral and coordinated approach to health care.

The project was launched in 1984 in the 42 villages of three DANIDA Area Project Districts in Madhya Pradesh which are backward with a typical 'social-ethos', although the area is economically not so bad. The project area villages also revealed a low profile in terms of utilization of health services, acceptance of family planning etc. Majority of the people are simple, frank and straightforward, although there are law and order problems in these villages. This project was undertaken by National Institute of Health and Family Welfare with the following objectives.

Objectives

The project had twin objectives: (i) to develop the process or tentative steps for organizing participatory programmes and activities; and (ii) to try innovative I EC strategies in the project area encompassing five different types of activities in the form of sub-projects for generating community participation in health care. These schemes were: (a) Activation of village health committees, (b) Organizing mothers' health clubs, (c) Reorienting village health guides through training and visit system (TVS) approach, (d) Organizing health clubs in schools, and (e) Scheme on clinic-cum-orientation for workers, supervisors and leaders.

Approaches and Methodology

1. Sensitization and thorough orientation of the functionaries (Action Research Officers) who were to work as change agents or 'go between' in the project village to the concepts and philosophy of participation was done.
2. Before putting all the proposed innovative schemes into action for mobilizing participation, assessment of the health needs, available measures and the existing problems in the villages was done through informal meetings, need assessment surveys etc. Based on these, village inventories were prepared through formal dialogues using a structured checklist.

3. Wherever the institutions of Village Health Committees were not existing, these were got formed, and wherever these were existing but in a dormant state, these were made broad-based and restructured with inclusion of women and other unreached population groups as their members.

4. Village Health Planning Workshops were organized for sensitization. The community was provided a forum for dialogue to discuss and identify health related activities. The workshop meetings helped the villagers to initiate activities for betterment of their own health through the efforts of these Health Committees and Mothers' Health Clubs.

5. The teachers and students in the schools were used as 'institutional-vehicle' for more effective health care education in the formative years of learning.

6. The innovative scheme of orienting village level health workers used the methodology of TVS basically adapted from agricultural extension work and it was tried to serve as an effective tool to train and gear them towards solution of health problems.

7. The methodology in the innovative scheme on clinic-cum-orientation for workers/supervisors and health leaders was focussed to educate the health personnel on continuing basis both in the clinic and actual field situations.

Impact

Both quantitative and qualitative changes have been noticed since the launching of the innovative schemes in this field-based participatory action research project within a period of 2 to 3 years.

Impact is reflected in terms of physical activities in accepting and utilizing the health and related services, and the general responsiveness of the community and its various interest groups.

Villagers now prepare their own draft of action plans for health services alongwith their proposed demand also for other developmental activities. They discuss and identify, with minimum support from the 'go-between' action workers appointed from the Institute, the health problems and mobilise local efforts for solving them. They also approach and write to health authorities. The community in the project area has now become familiarised with the processes for participatory efforts.

In terms of tangible changes, now the disinfection of drinking water is a community-managed continuous programme, the community has extended support for plantation, mending of school tenses and repair of its building; the students have been found to keep hairs, nails and teeth clean as a part of regular health related efforts. These practices have come as a result of participatory efforts for maintaining better health. In some villages at the initiative of Mothers' Health

Clubs, 'Poshak Aahar' — package of cheap nutritious food is prepared and its social marketing done by the villagers for their own consumption.

Lessons Learnt

1. Health needs assessment surveys are helpful to develop a full profile of the environment of village life, where community participation has to be generated as an instrument to promote primary health care.
2. Community participation for health care is not merely a theoretical proposition, but it can be put to action provided it is operationalised in a systematic manner.
3. The sensitization and fresh orientation of health functionaries in the programme are required so that they may appreciate the rationale and advantages of the participatory approach.
4. Documentation of the participatory process is of vital importance for developing practical guidelines for the workers to operationalise the approach of participation. Maintenance of exhaustive diaries by workers for this purpose were very helpful.
5. To begin with, the participatory process may have to be an induced one, till it gradually gets roots and is sustained by the community groups.
6. It is not so easy process to mobilize the community to participate for primary health care activities. But it is equally, rather more difficult to bring a change in the outlook of the programme functionaries towards people's involvement. Usually, the functionaries by and large have been mentally turned to 'top-down' approach for the delivery of health care. The change in vision and attitude becomes possible when direct and frequent interactions take place between the health personnel and the community. Once the administrators or professionals are convinced of the potentials and the capacity of the communities to deal with their own problems, they may not ignore community consultation and involvement in the process of planning and implementation of the programmes.
7. Special and separate attention of the women through mothers' health clubs ensures the chance of free and frank participation of the women as providers of health care in the family and the community. So long participatory efforts had been focussing on participation of men only. But it should be realised that effective motivators for women will be the women.
8. Starting participatory activities involving planning and implementation in an area with no previous similar experience is very labourious, strenuous and time consuming. But once it starts and is tagged to economically productive or income generating activities, it has a better chance of long-term sustenance.
9. Participatory action research gives greater insight in understanding and solving the problems of the marginal and under-privileged groups

IV. Holistic Modality of Participatory Interface Mechanism for Integrated Health Care in Rural West Bengal, Institute of Child Health, Calcutta

Background

The project area has a majority of population (over 9,000) as scheduled tribes (Santhals) in the 11 project villages in Memari sub-division of Burdwan District, West Bengal. The ongoing socio-economic development is under the Tagore Society of Rural Development. The Institute of Child Health, Calcutta is offering the health service component of the overall development programmes. Mothers and infants are focused as beneficiaries.

Objectives

To develop a holistic health care model to be integrated with rural development programmes concerning the sustenance of healthy growth and development of the child, and the life-supporting economic system.

Approaches and Methodology

1. To improve the status of health and life style at the micro level. Mothers as volunteers were trained by rotation. Focus of operation was on the art of taking care of their children and sustains their growth.
2. Organizational structure for people's forums was set up to develop an interface between multi-sect oral services and health related activities.
3. A data-base system was developed to monitor health information about the community.
4. The operational methodology included identification of new families to be visited by the volunteers/motivators to familiarize them with the objectives of the integrated health care programmes.
5. Organization of village committees in each village where every family under the project deputed one member.
6. Three tier structure in the working methodology included (a) family level volunteers, (b) village level volunteers, and (c) the professional group including doctors, ANMs, male health workers and trained dais. Family level workers are changed and rotated every six months and others every two years.
7. Groups of villages were divided in sub-groups of two villages which were visited by the doctor once a week.

Impact

1. Chlorination of drinking water stored at family level as an alternate approach for safe water in a rural community brought down the endemic diarrhea in children of the vulnerable village groups.
2. Earlier the people used to bolt the windows and door of the rooms and shared the rooms with pests and animals. Later on, this practice was changed and the ideas of the people such as 'most of the diseases' were caused by 'bad air' were modified to a large extent.
3. Earlier the community was not for boiling the water, as according to the notion of the community boiling destroyed its quality. Also they considered vegetables as garbage without any food and nutrition value. A value shift has been observed among the motivated clientele.
4. The clientele families have started looking at the rural indebtedness as a social evil. The community has organized a people's vocational education centre with a programme to train people for producing what they need without depending on profit-oriented market system.
5. The incidence of morbidity, particularly with respect to diarrheal diseases, has been found lowered for all the units over the period of time.

Lessons Learnt

1. The holistic frame helps to generate enthusiastic participation of the target population because of its socio-economic contents.
2. Transfer of low cost appropriate technology is suitable for rural groups because of its feasibility to be put to use within the framework of local expertise. This has employment and income generating components providing avenues and opportunities to the under employed rural people. The utility of appropriate technology was seen particularly for chlorination of drinking water at the family level.
3. Wherever the sanitary latrine programme and the chlorination process were taken as focal efforts for community participation, these were required to be linked to all aspect in the totality of approach and to the control diarrheal endemicity.
4. Multi-focal strategy dimensions of the project have provided an effective approach which may be tried in other developing areas and communities.
5. The culture and concept of the people under the programme are very central and lack of realization of this fact may be one of the main reasons for limited acceptance of health measures as provided by the State institutions.

V. The Tilonia Model as a New Approach for Cooperative Development, Tilonia, Rajasthan

Background

The project started in 1972 on the premise of fulfilling basic felt needs of the community which had a profile of low productivity in agriculture, very low use of technology, unequal and fragmented ownership of land holdings, and poor facilities and utilization of medical care. The objectives of this participatory project were as follows:

Objectives

The general aim was to develop an organization which could help the poor people through organizing the community for helping each other rather than looking entirely towards the government. The Tilonia model of participatory efforts was to see that the technical information as a source of strength reached those who were needy and poor, and voluntarism was practiced as a profession.

Approaches and Methodology

1. Its special clientele population groups were under privileged viz. small and marginal farmers, rural artisans, scheduled castes, rural women and children.
2. An integrated approach for rural development through people's involvement was adopted
3. The organization consisting of the professionals and change agents had to be local and permanently village based.
4. Identification of local technical skills with strengthening their capacities enabled the possessors to participate in more effective development programmes.
5. No services were provided without contribution and charge; and mobilization of resources from within the community.
6. Using the ground water survey as an entry point for initiating the group# participation in decision making.

Impact

1. In the area of health care, the preventive health programmes were organised with people's active involvement.
2. With the help of the community-groups formed, ground water surveys were done in 110 villages which later helped bringing electricity to all the project villages.

3. People's participation is seen in terms of mobilizing community finances to the tune of 40 per cent along with the mobilization of land, building and acquiring an old T.B. Sanitorium.

4. Use of appropriate technology at village levels, in terms of bio-gas, wind mills and development of other technical and extension skills for income generation and small rural industries etc.

Lessons Learnt

1. Tilonia model indicates that the process of organizing people as a pressure group can come from within and from below.

2. Participatory efforts grow as a process and therefore the project and programme planning for health care cannot be a static affair.

3. Locally developed human resource in villages can replace gradually and the outside urban trained professional and technical persons may be needed for limited period during initiation and training.

4. Being with the people and staying permanently in the community premises better qualify a professional for mobilizing community resources than his qualification etc.

5. All participatory project should plan for a 'termination phase' and should gradually delink and stop hanging around an individual figure.

वर्ष 2000 ईसवी तक सभी के लिए स्वास्थ्य लक्ष्यों की प्राप्ति के लिए प्राथमिक स्वास्थ्य देखरेख सेवाओं के सफलतम क्रियान्वयन हेतु सक्रिय सामुदायिक प्रतिभागिता समर्थित गतिविधियों में से एक अत्याधिक महत्वपूर्ण गतिविधि है। इस लेख में प्राथमिक स्वास्थ्य देखरेख सेवाओं के विभिन्न घटकों के सफलतम क्रियान्वयन में सामुदायिक प्रतिभागिता का स्वरूप, इसके विविध पहलुओं एवं विस्तार के साथ-साथ इसकी भूमिका तथा कार्यक्षेत्र का उल्लेख भी किया गया है। देश के भीतर तथा अन्य देशों से उपलब्ध विस्तृत अनुभवों तथा विकसित धारणाओं के आधार पर आम सिद्धान्तों का विधिवत ढंग से विश्लेषण तथा व्यवस्थापन किया गया है। इस लेख में प्राथमिक स्वास्थ्य देखरेख सेवाओं के विभिन्न घटकों के सफलतम पहलुओं एवं विस्तार के साथ-साथ इसकी भूमिका तथा कार्यक्षेत्र का उल्लेख भी किया गया है। देश के भीतर तथा अन्य देशों से उपलब्ध विस्तृत अनुभवों तथा विकसित धारणाओं के आधार पर आम सिद्धान्तों का विधिवत ढंग से विश्लेषण तथा व्यवस्थापन किया गया है। इस लेख में सामुदायिक प्रतिभागिता संबंधी प्रक्रियाओं को प्रयुक्त करने हेतु उठाये जाने वाले आवश्यक उपायों का भी उल्लेख किया गया है। देश

में सामुदायिक प्रतिभागिता में प्रयुक्त अनुभवों से अर्जित शिक्षा के प्रसार के लिए यहां पर कुछ सफलतम अनुभवों को भी प्रस्तुत किया गया है। पूर्ण विश्वास है कि यह लेख विभिन्न स्तर के स्वास्थ्य कार्मिकों तथा इस क्षेत्र से क्रियान्वयन हेतु गतिशील सामुदायिक प्रतिभागिता संबंधी प्रक्रियाओं की समुचित जानकारी तथा प्रयोक्ता के लिए उपयुक्त सिद्ध होगा।

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RESEARCH IN PLANNING AND MANAGEMENT OF NUTRITION PROGRAMMES

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ABSTRACT

Several nutrition programmes are launched in India to overcome the problems of malnutrition due to the lack of protein-energy, vitamin A, etc. Several basic and operational research studies have significantly contributed to the formulation of nutrition policy and other nutrition programmes. These are reviewed in this paper.

Research in planning and management of nutrition programmes follows the methodologies applied in social, biological and physical sciences. The scientific method whether applied in natural or social sciences, is conceptually unified, insofar as it involves observation, the process of induction and logical deduction. It differs in certain aspects, particularly in the instruments and techniques used for observation and induction. Observational techniques developed and standardized for physical phenomenon, for example, measurement of weight or height, help to identify the malnourished and quantify the degree of the disorder. Observational techniques for biological phenomenon require development of suitable criteria for recognition and correct classification, for example, those evolved for diagnosing and grading goitre or hypovitaminosis A. In contrast to the observation of physical phenomenon, where instruments are developed for recording (weighing machines, height scales), in the observation of biological phenomenon, the human observer plays a more important role, necessitating a greater training of observers. Observational technique for social phenomenon entails the development of conceptual modules on the basis of which empirical studies are conducted, and require highly sensitive perception of subtle events. For example, utilization patterns of nutrition programmes, behavioral models explaining community involvement and participation and acceptability of various approaches for control are priority areas of research.

Techniques developed for controlled experiments permit general conclusions from particular observations which constitute the technology of induction. Causal mechanisms of deficiency disorders have been established through empirical studies in the natural sciences. Controlled experimentation in social phenomenon is often difficult, and simulation techniques have been developed to analyze them. "Simulation is the analogue of the *in vitro* experiment in biology"¹ For example, the

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impact of different approaches in controlling hypovitaminosis-A, has been studied through the construction of a simulation model². Recently, there has been a focus on systems theory, operations research and other managerial techniques for increasing efficiency and effectiveness of the delivery system.

THE PROBLEM

The factors such as inadequate intake of calories and proteins, deficiency of certain micronutrients like iron, vitamin A, calcium or iodine, misdistribution of essential food commodities, low purchasing power, lack of knowledge about balanced nutrition, cultural practices and taboos and limited access to health care facilities are leading to malnutrition in India. About 15 to 30 per cent of the Indians are estimated to be suffering from malnutrition, and some studies reveal that 50 percent of the people have an average energy intake of less than the recommended level³. In our country one million children die of severe protein energy malnutrition every year⁴. Studies show that malnutrition is the underlying cause of death in 7 per cent of the children under 6 years of age and also an associated cause of death in 46 per cent of the cases⁵. About 50 per cent of the women in the third trimester of pregnancy are estimated to have a hemoglobin level of less than 10 grams per cent⁶. Anemia in pregnancy accounts directly for 20 per cent of all maternal deaths and indirectly for a much larger proportion⁷. About 10,000 children are estimated to become blind every year because of hypovitaminosis-A⁸. In large surveys, Bitot's spots were recorded in 4 per cent⁹ and 4.2 per cent¹⁰ cases of preschool children respectively. About 40 million people are estimated to be affected by goitre in our country", which is epidemiological¹¹ associated with cretinism, deaf — mutism and mental deficiency^{12, 13}.

THE PROGRAMMES

Nutrition intervention programmes and nutrition related health activities form an important part of a nation's food and nutrition policy and complement other components, such as increased food production, measures for equitable distribution, improved food processing techniques and better storage. It has been stressed that "none of them can be neglected, and they complement each other in ways that are highly significant"¹⁴, contrary to an earlier notion that malnutrition can be combated by increased food production and better distribution alone. The Ministry of Health and Family Welfare has launched specific intervention programmes to combat nutritional anemia and prevent nutritional blindness. The Directorate General of Health Services coordinates the National Goitre Control Programme. Several programmes provide supplementary nutrition to bridge the protein and calorie gap, such as the Special Nutrition Programme, Balwadi Nutrition Programme and Mid-day Meal Programme. The package of services like the Integrated Child Development Service provides supplementary nutrition along with basic health care and non-formal education. Others, like the Applied Nutrition Programmes, are education oriented and promote production of protective food at village level. The Department of Food in the Ministry of Agriculture focuses on the production, processing and supply of nutritious food and nutrition education and demonstration

RESEARCH

Nutrition will continue to demand the most pervasive attention and challenge⁵ Extensive literatures on various researches provides details of discoveries and studies in nutrition⁶⁻⁹

ETIOLOGY

Causal thinking in the realm of deficiency diseases relied on circumstantial evidence based on dietary grounds, or on a process of deductive reasoning following successful treatment of patients. Inadequate intake of energy as the primary cause of marasmus which was known for thousands of years; and from 1950 onwards, it was observed that marasmus was due to under nutrition whereas kwashiorkor was due to protein deficiency. In many countries, the latter was common, there was often no shortage of food, but it tended to be starchy in nature⁸. In Uganda, kwas' liorkor was predominant around the fertile lake shores; marasmus occurred in the drier Northern regions where food shortage was common. However, in a study this was refuted and observed that there was no difference between the protein/energy ratios in the diets of children who become marasmic and those who become cases of kwashiorkor²⁰. He introduced the term "dysadaptation" and postulated that kwashiorkor was a failure of adaptation, a failure of some biochemical mechanisms which are usually invoked to protect tissues like the liver at the expense of less essential muscle. In 1820, Coindet, a physician from Geneva successfully treated goitrous patients with tincture of iodine. Thereafter, Chatin, after analysing iodine in foodstuffs and drinking water concluded that iodine is relatively deficient in areas where goitre is endemic". Nightblindness, and its cure by liver (rich in vitamin A) was mentioned in Egyptian and Chinese writings as early as 1500 B.C. In 1681, Sydenham administered "Iron and steel filings steeped in cold Rhenish wine" for the treatment of anaemia. After a hundred and fifty years, Blaud recognised that anaemia was due to iron deficiency.

Confirmatory evidence for causal mechanisms was provided by laboratory experiments which demonstrated that a fatty liver could be reproduced in rats by high carbohydrate/low protein diets, similar to that found in kwashiorkor in man, but not marasmus". Few authors in 1911 found that goitre in trout could be prevented with iodine²¹. Elmer Mocollum, in 1912, fed rats with purified protein, fat, carbohydrate and mineral salts, and supplemented the diet with egg yolk and butter fat²³. Thereafter, he isolated a fat soluble factor necessary for growth and the prevention of exophthalmia in rats. Extensive research has followed these pioneering studies, both in the laboratory and the field, and has included studies on humans.

OBSERVATIONAL TECHNOLOGY

Nutritional assessment of communities aims at knowing epidemiologic features of nutritional problems and guiding action intended to improve health and nutrition. The need for standardisation of observational techniques for correct interpretation has been emphasised^{24, 25}.

Clinical assessment, a method for direct assessment of nutritional status, essentially elicits physical signs believed to be related to inadequate nutrition. Lack of nutrient specificity in almost all signs recorded, is now known²⁵. For example, Bitot's spots, classically pathognomic of Vitamin A deficiency, can sometimes be due to other reasons like smoke, dust, glare and eye infections, possibly traumatising the conjunctive. Classifications of physical signs have been developed. For example, the most widely used classification system for assessing the prevalence of endemic goitre²⁶ grades thyroid enlargement. The classification of xerophthalmia suggested by an expert group on Vitamin A deficiency and xerophthalmia²⁷ facilitates clear description and reporting of various eye changes.

Nutritional anthropometry is concerned with measurement of variations of physical dimensions and the gross composition of the human body²⁵. It requires the selection of suitable instruments, and interpretation of data depends upon the classificatory system^{28, 29}. In a study, where a correlation and regression of muscle mass on age and anthropometric measurements was done³⁰ the best prediction of muscle mass was seen with the height and mid-arm circumference taken together, explaining 64.6 per cent of the total variation. However, another study³¹ reported 30.9 per cent misclassification based on mid-arm circumference and height. Development of accurate methods and techniques for measurement is a research priority, which should be applicable in the field. Further, the development of local reference standards to account for potentially different growth patterns is necessary. From a study³² of a large number of healthy Indian children, where anthropometric measurements made, the Indian reference standards for height, weight etc. were obtained according to age and sex.

Biochemical estimation, biophysical methods and indirect nutritional assessment of groups (made through inferences from age-specific and cause-specific mortality experiences) are other techniques. There is an urgent need to develop simple and reliable biochemical tests, particularly in those conditions of public health importance where the assessment of physical signs are highly subjective.

SITUATIONAL ANALYSIS

Following establishment of causal mechanisms, development of observational technology, estimation of human nutritional requirement³⁶ and analysis of the nutritive value of Indian food³⁸, surveys were carried out to map out the geographical distribution of the problem, describe demographic profiles, assess its magnitude, elicit etiological factors, ascertain dietary need and suggest corrective measures.

The prevalence of goitre in some Himalayan villages was found to be high³⁹. In Uttar Pradesh, it was calculated that there were 25,000 deaf-mutes⁴⁰. The various percentages of people in different regions suffering from goitre was observed which led to the demarcation of the "goitre belt"⁴¹.

Several studies of haemoglobin estimations in adults, cited in the Nutritional Atlas of India revealed lower values in women. Other investigations in pregnant and

lactating mothers, as well as in children (particularly in those below six years of age), helped in identifying high-risk groups⁴². A comprehensive country wide survey⁴³ of 18,536 pre-school children in six regions of the country revealed widespread protein-energy malnutrition and anemia in lower socio-economic groups, which are fairly consistent with findings in other surveys⁴⁴. Dietary studies on a random 10 per cent sample revealed that 92 per cent of the children were deficient in calories and 35 per cent in protein, an important policy finding. A large number of dietary surveys have provided insight into the existing patterns of diets consumed in different regions which help to plan culturally relevant nutrition programmes⁴⁰.

STRATEGY

Various researches have demonstrated beneficial effects of different approaches of control. The selection of optimal combinations of programmes and processes to provide a plan of action so as to yield maximum benefit at minimum cost, particularly to those who need it most, are important considerations. The control of nutritional disorders of public health importance depends on the amount and type of food supplement given strategy used, effectiveness of the programme and in particular, administrative feasibility as well as acceptability.

The classical intervention study published in 1920 shows reduction of goitre in school children was achieved by giving them suitable doses of sodium iodide in their food". The choice of vehicles for iodine supplementation depends upon its feasibility - distribution of iodide tablets (as in Sudan) requires a large organizational set up. Injections of iodinated oil are administered (for example, in selected areas of Ecuador and Argentina). Most countries use fortified salt as a vehicle. Canada enacted legislation in 1949 making iodization of salt compulsory; India adopted salt iodization as a control measure in 1955, which was made available in endemic areas.

Several therapeutic trials have shown a significant increase in hemoglobin level^{46, 47} with iron supplementation. In one study⁴⁶, where several combinations (iron with Vitamin B12, iron along with Vitamin B12 alone and folic acid alone and iron alone) showed an increase in hemoglobin. However, in another study⁴⁸, the best results were observed with the administration of 120-240 mg. of iron daily along with Vitamin B12 and folic acid. Recently, field trials of salt fortified with iron in different regions of the country have shown improvement of hemoglobin levels in the population. In the Hyderabad centre, for example⁴⁴, hemoglobin estimation showed no difference six months after the intervention, some increase as compared to the control villages after 12 months and significantly higher levels after 18 months. In groups of children, field studies have shown that a single massive dose of Vitamin A, given even yearly, prevents nutritional blindness⁴⁹, and recent evaluative studies⁴⁴, observed that the prevalence of Bitot's spots had decreased wherever the programme had been implemented. Other approaches to control have been fortification of edible oils with vitamin A. Studies are also being carried out to evaluate the feasibility of fortifying milk with vitamin A.

The beneficial effect of supplementary feeding on the growth of children⁴⁸, and improvement in the weight of neonates born to mothers who were given supplementary nutrition⁴², have been demonstrated. A comprehensive study⁴⁹, with 2415 children under 3 years of age in six different regions of the country provided insights into weaning practices and supplementary feeding. In the first phase of the study, information on (a) locally available foods, and (b) weaning practices from a representative sample of mothers was collected. During the second phase of the study three types of recipes were developed — (a) those which could be prepared fresh by the mother daily; (b) ready-to-consume infant mixtures which could be made by the mother and used, when needed; and (c) recipes for biscuits etc.. Which could be prepared on a commercial scale? The third phase of the study was concerned with the development of ways and means to propagate these recipes, for which supplementary feeding programmes were organized by most of the centers. (The Gandhigram Centre provided nutrition education and made the supplement available at cost price regularly at local shops). An improvement in growth was observed in the intervention groups as compared with the control groups. It may be noted that dietary surveys of these groups revealed that the food intake of both of them at home was the same.

The synergistic action of infection and malnutrition has been documented in various studies⁵⁰. Intervention measures based on narrow etiological basis are often ineffective. A number of projects, providing a package of services including basic health care, nutrition supplements and health and nutrition education, demonstrated the beneficial impact of this integrated approach. Examples are the Rural Health Research Centre at Narangwal", Project Poshak in rural and tribal Madhya Pradesh^{52, 53}, the Comprehensive Rural Health Project at Jamkhed⁵⁴ and the Kasa Model in Maharashtra⁵⁵.

The Nutrition Project at Narangwal had the following research design. Ten villages were grouped according to the inputs administered as follows: (i) villages that received nutrition care (which included nutrition surveillance education and selective supplementation); (ii) villages which received health care (surveillance of infectious diseases, early treatment, immunization and education for preventive measures); (iii) villages receiving both health and nutrition components (designated as 'integrated care villages'); and (iv) control villages

The relative cost computed for averted deaths showed that the group given supplementary nutrition had the best ratios for perinatal deaths. The 'health.care' group of villages had the best ratios for infant and 1 -3 year mortality⁵¹.

FORMULATION OF PROGRAMMES

Following situational analysis and prioritization of problems according to magnitude and severity, it was observed that protein-energy malnutrition, vitamin-A deficiency, anaemia and goitre 'were found to be the major health problems. Research to delineate a set of effective strategies for tackling health problems was undertaken. For example, the findings of the Narangwal Nutrition Project and Project

Poshak influenced the formulation of the Integrated Child Development Services. These findings have also stimulated reformulation of the objectives of the Balwadi Nutrition Programme and the Mid-day Meal Programme, which hitherto provided only supplementary nutrition.

An important aspect of nutrition planning is a clear definition of objectives which must relate to measurable impact over an acceptable time frame. Recently, there has been a shift from merely laying down broad goals to impact. There is, however, an absence of detailed planning, which weighs the effectiveness of possible and feasible alternate strategies, against their respective costs. The delivery system and mechanisms of implementation are other aspects which are often not detailed. Designing a monitoring system is vital for any planning activity. Intersect oral linkages is vital in the field of nutrition and need to be strengthened.

THE DELIVERY SYSTEM

The choice between competing and feasible delivery systems ought to be made in such a way that outreach is maximized and the cost is minimized. In the sphere of nutrition, some researches have tried to assess the optimal outreach and cost combinations for different delivery systems.

The main purpose of Project Poshak^{52,53} was to evaluate the operational feasibility, efficiency, impact and cost of an integrated health nutrition project, in tribal and non-tribal areas of Madhya Pradesh. The project incorporated the concept of "take-home" food. The existing government rural network was used. This was done because the coverage of combined "on-site" feeding programmes (Special Nutrition Programme, Applied Nutrition Programme and Mid-day Meal Programme) resulted in a coverage of only 10.23 per cent of children. Whereas, through this approach (within a radius of 8 kilometers of the primary health centre) 20.61 percent would be reached. The project was divided into three phases - (i) an exploratory phase (where field methodology was refined and standardized, and the implementation and logistics examined), (ii) an extensive phase (examining all administrative problems); and (iii) an intensive phase (which concentrated on particular areas like cost and pricing). The intervened group of children in every phase of the project showed a better nutritional status. Supervised feeding was found to be superior to the "take-home" approach.

The main objective of the Indo-Dutch Project for Child Welfare⁵⁶ was to explore ways and means of increasing the effectiveness of existing programmes. Community involvement was sought. The integrated package of services was delivered through Mahila Mandals.

Nutritional Rehabilitation Centres^{57, 58} have successfully reduced nutritional problems in groups. They ensure participation of mothers. Several approaches for community participation⁵⁹ have been tried, involving school teachers, young girls and youth clubs.

PROGRAMME IMPLEMENTATION

Researches in this field have originated outside the purview of nutrition. Modern management techniques are now being successfully applied in various programmes — Project Poshak used PERT (Programme Evaluation and Research Technique). Of particular importance is the development of. Management techniques adopted for nutrition programmes within a realistic framework.

Monitoring is an intrinsic component of programme implementation. This is often the weakest part of several programmes. Traditionally, records have been periodically submitted to the higher managerial levels, which give statements of number of beneficiaries covered. They often do not even indicate the proportion of the target population covered. The Integrated Child Development Services has evolved a monitoring system which attempts to rectify this. Continuous monitoring of growth and development of children under six years of age is undertaken. Identification of high-risk cases and their progress is monitored.

The National Nutrition Monitoring⁶⁰ was set up to assess the nutritional "status and dietary intake of people. Every year, a total of 500 rural households are surveyed in each of the ten States where this unit exists. The districts for survey are chosen on the basis of the food production, land under cultivation and proportion of agriculturists.

EVALUATION

Evaluation research may be conducted during (mid-term) or after (terminal) a programme to assess "processes", or "impact" of the programmes. Several studies have been conducted on the existing nutrition programmes. A few have assessed the feasibility of the programme, for example, the evaluation carried out by the Planning Commission on the 'readiness' of the ICDS Project in 1976. The re-evaluation examined the process variables. Another evaluation⁶¹ of the same scheme assessed the coverage. Studies have been carried out to examine the impact of provision of iodized salt in endemic zones of goitre^{62, 63}. Baseline surveys and other surveys have shown a marked reduction of prevalence. A review of evaluation of various aspects of the Applied Nutrition Programme pointed out the deficiencies and helped to reformulate the objectives by including a larger number of measures.

RESEARCH NEEDS

The contribution of fundamental research in the formulation of nutrition programmes is very significant. A few areas suggested are as follows: (i) development of observation methodologies and techniques, particularly those which can be applied in the field; (ii) the study of cost-effectiveness of various alternate strategies of control of malnutrition; (iii) identification of practical problems of acceptability as well as utilisation of various programmes; (iv) investigation of interactions between infection and nutrition in the Indian environment; (v) various aspects of maternal nutrition: basic and applied; (vi) effect of nutritional

supplements: (vii) development of methodologies, using modern management techniques, to improve efficiency and effectiveness of nutrition programmes; (viii) nutrition in primary health care; and (ix) evaluation of relevance and effectiveness of health and nutrition education at community level.

प्रोटीन-ऊर्जा, विटामिन ए जैसी कमियों के कारण उत्पन्न कुपोषण की समस्या को दूर करने के लिए भारत में अनेकों पोषण कार्यक्रम चलाये जा रहे हैं। पोषण नीति और अन्य पोषण कार्यक्रमों को बनाने में अनेकों मूल व आपरेशनल अध्ययनों ने प्रशंसनीय योगदान दिया है। इस पेपर में इनकी समीक्षा की गई है।

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**FERTILITY BEHAVIOUR IN THE SUGALIS OF CHITTOOR
DISTRICT,
ANDHRA PRADESH**

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ABSTRACT

The fertility behavior studied on 353 couples of the Sugalis, a tribal population, shows that it is at its biological maximum. The crude birth rate, the general and total fertility rates are comparable to the highest levels observed for any population'. The child-woman ratio also confirms potential growth trend of the Sugalis. The cumulative fertility measures are also high in this population. The influence of age at marriage on fertility is inverse as is expected and the occupational variability in the Sugalis also has an influence on fertility behavior.

The most analytical studies concerned about the demographic determinants are fertility, mortality, migration, age at marriage, parental age. etc. Of all these, fertility attracted much attention. The possible causes of fertility differentials were determined through many studies on different cultural groups -'. But the limitations of these factors are very clear from the cross-cultural survey in non-industrial societies¹.

Indian woman gives birth to six or more children on an average during her entire reproductive period". Several backward class people maintain high birth rate probably to compensate for their reproductive loss. Many studies showed differential mean number of progeny between caste populace and between regions and religions. Educational status influences fertility rates. The variance of progeny number is more than double in the small Kota tribe \ one and a half times in Delhi Jats" and about unit in a small food gathering tribe (Pahira) of Eastern India'

In a United Nations study conducted in 1965, the countries are classified into three types according to the behavior of the fertility curve around the peak: (1) broad peak of less developed countries in which age specific fertility rates for women aged 20-24 and 25-29 differ only slightly; (2) the early peak: and (3) the late peak types typical of developed countries with maximum age specific fertility rate at the age groups 20-24 in the former and 25-29 in later. In Indian women the peak fertility is reached in the age group 20-24 and unlike other countries a steep decline is observed at the maternal age group 30-34' The peak is delayed till late twenties in the backward communities.

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The influence of late marriage and never married is marked in lowering fertility in Western Europe⁸ It appears that late marriage reduces fertility as in the case of Ireland, but in most other societies the age at marriage does not seem to be significant in affecting fertility. In most primitive societies marriage takes place early. This is relevant because early marriage would seem to compensate reproductive loss in these tribal populations⁹. The present study aims at presenting the fertility behavior of the Sugalis, a tribal population of Andhra Pradesh.

MATERIAL AND METHODS

Among the tribal population groups of Andhra Pradesh, Sugali (also called Lambadi or Banjara in different parts of India) is the largest one and distributed in almost all the districts. Rayalaseema and Telangana are the principal areas in which their concentration is high; Sugali or Lambadi is declared as a scheduled tribe in Andhra area and as a denotified tribe in Telangana area according to Scheduled Castes and Scheduled Tribes Lists Modification Order 1956. They are also living in the adjoining States of Andhra Pradesh, namely Karnataka, Orissa and other States of India like Madhya Pradesh, Rajasthan, Uttar Pradesh, Bihar, West Bengal, Himachal Pradesh and in Delhi with the name Banjara. Once they were nomadic group but now a settled population and involved mostly in agricultural work, in addition to other occupations such as cattle rearing, selling of firewood, etc. This population is characterized mostly by nuclear families and a few extended families are observed. Marriage is an universal phenomenon and is controlled by exogamous clans. The cross-cousin marriage is a common one. Monogamy is rule, but polygamy is also permitted. Widow remarriage is allowed and divorce is decided by their panchayat. In general, their villages, commonly called Bedikis or Tandas, are neat and clean with mostly rectangular houses, sometimes square or circular thatched houses with mud walls, constructed in rows with streets or haphazardly without streets. When the Sugalis fall ill, they do not prefer to go to hospitals or rural medical health centres, but rely on indigenous medicines of their own. They speak their own language Sugali, or Lambadi or Banjari, which has no script. They also speak other languages like Telugu, Urdu, Hindi, Kannada, etc. The literacy rate is very low and is limited to secondary school level only.

The demographic data were collected in eight villages of Chinnagottigallu taluk of Chittoor district of Andhra Pradesh. The data were collected on all the families residing in each village. The sample consists of 300 families with 353 couples. The total size of the population in these villages is 1416 with 737 males and 679 females. The data were collected for each family. The pregnancy history, i.e. the outcome of each pregnancy of each woman after recording from the concerned woman by recall method is verified through the elders of the corresponding family. They do not have the record of their dates of birth or other demographic events. So the age of each individual or age at each event is estimated to its nearest accuracy on the basis of 'triangulation method'. The analysis of the fertility data is done in two ways. The first one is the analysis of the fertility measures, which necessarily the devices to quantify the birth performance over a period of one year and the second is the cumulative fertility performance of the woman over a long period.

RESULTS AND DISCUSSION

The fertility pattern of the Sugalis over a period of one year is presented in Table 1. The crude birth rate is 52.26 and the general fertility rate is 247.49. The total fertility rate per woman is 6.49. In the age specific fertility rates for the five year age groups of 10-15 to 40-44 high rates are observed in 20-24 and 25-29 age groups with slight difference between them. So in the Sugalis it is a broad peak fertility. The total fertility is calculated to be 6488.75 which is also high. The highest levels of fertility in any country of the world are a crude birth rate of about 55, general fertility rate of about 235 and a total fertility of about 7500 and these are taken as the parameters of a population whose fertility is nearly at its biological capacity¹. The corresponding values for the Sugalis are also high and are near to these values and so it can be said that the fertility is at its maximum/.e. at its biological capacity. This may be explained by their higher illiteracy rate (88.7 per cent), (The literacy 11.3 per cent is limited to secondary school level only), higher incidence of infant and child deaths, occupations and family planning behaviour²⁰. The child-woman ratio calculated for this population is also very high (720.13) which is an indication of potential growth of the perflation.

The fertility pattern of the Sugalis of the present study is compared to the Sugalis of another area, the Yanadis and the Chenchus (tribal populations) and a caste population, the Balijas of Tirupati town (Table 2). In the present study, the highest fertility rate is observed in the 20-24 age group, whereas in the other tribal populations and another Sugali sample the peak fertility is observed in the 25-29 age group. In the Balijas it is in the 20-24 age group. The trend of fertility rates is similar in all the tribal populations, but in the Balijas. an urban caste population rates are lower in all the age groups excepting 15-19 age group. The tribe Yanadis, also shows lower fertility rates. This may be due to frequent marital dissolution in the Yanadis.

The cumulative fertility and mortality of the Sugalis and of the different Sugalis samples studied earlier is presented in Table 3. The mean of pregnancies is more or less equal for the Sugalis of the present study and the Sugalis of Kurnool district (SVU, 1983) whereas the Sugalis of Chittoor district (SVU, 1978) show lower value. With respect to the prenatal mortality the former two studies showsimilar values and in the latter it is far lower. In the live birth and living children rates, the present study shows lower values compared to the other Sugalis.

In Table 4 the distribution of different fertility and mortality measures for the mothers of all ages and the mothers aged 40 years and over is presented. There are considerable numbers of mothers who have more than 6 pregnancies. The completed family size is high for this population (4.42). The means for the pregnancies, prenatal deaths, live births, infant and child deaths and living children are 4.01, 0.25, 3.76, 0.91 and 2.86 for the mothers of all the ages and 6.33.0.25.6.08. 1.66 and 4.42 for the mothers aged 40 years and over respectively. These measures are relatively higher for this population and confirm the higher fertility and mortality rates and the potential growth trend of the Sugalis.

TABLE 1

FERTILITY PATTERN IN THE SUGALIS

Fertility measure	
Crude birth rate	52.26
General fertility rate	247.49
Total fertility rate	6488.75
Mean total fertility rate	649
Child-woman ratio (children upto 4 years)	720.13

TABLE 2

FERTILITY PATTERN IN SOME TRIBAL AND CASTE POPULATIONS

Fertility measure	Sugalis Present study	Sugalis Naidu. 1978	Yanadis Naidu 1978	Chenchus Gangadharam 1979	Balijas Gunasundor -amma, 1980
Crude birth rate	52 26	51 22	4692	54 33	24 95
General fertility rate	247 49	237.11	166 67	215 90	105 72
Age specific fertility rate					
15-19	297.30	23077	135.14	102 94	222.22
20-24	351.85	294 12	200 00	322 58	24500
25-29	317 46	37037	350 00	394 74	190 27
30-34	195.12	250 00	133.33	25000	94.89
35-39	97 56	87 96	71.43	260 00	40 00
40-44	38 46	-		55 55	-
Total fertility rate	6488 75	6161.10	444950	693335	3961.90
Mean total fertility rate	649	6.16	4.45	693	3.96

TABLE 3
FERTILITY AND MORTALITY AMONG THE SUGALIS OF ANDHRA PRADESH

	Sugalis (353) (Present study)			Sugalis (262) (S.V.U. Diss. 1983)			Sugalis (205) 8.V.U. Diss 1978)		
	N	Percentage	Mean	N	Percentage	Mean	N	Percentage	Mean
Pregnancies	1417	100.00	401	1146	100.00	4.37	733	100.00	3.38
Prenatal deaths	89	6.28	025	33	2.88	0.13	25	3.41	0.12
Live births	1328	93.72	376	1113	97.12	4.25	708	96.59	3.45
Infant and child deaths	320	22.58	091	244	21.29	0.93	50	6.82	0.24
Living children	1008	71.14	286	869	75.83	3.32	658	89.77	3.21

Figures in parentheses represent number of mothers

TABLE 4
CUMULATIVE FERTILITY AND MORTALITY IN THE

Fertility/mortality measure	No. of mothers of																Mean±s.e.
	all ages	40 years	0	1	2	3	4	5	6	7	8	9	10	11	12	N	
Pregnancies	353		12	52	61	55	39	38	31	17	19	20	5	3	1	1417	4.01±0.14
		73	1	3	2	2	8	09	12	8	16	7	3	1	1	462	6.33±0.29
Prenatal deaths	353		290	46	10	5	2	-	-	-		-		-	-	89	0.25±0.03
		73	60	9	3	1	-	-	-	-	-	-	-	-	-	18	0.25±0.07
Live births	353		21	60	58	54	36	37	28	17	16	18	4	4	-	1328	3.76±0.14
		73	1	2	4	5	5	11	12	11	9	9	2	2	-	444	6.08±0.29
Postnatal deaths	353		192	70	51	22	11	04	3	-	-	-	-	-	-	320	0.91±0.07
		73	27	8	16	11	8	02	1	-	-	-	-	-	-	121	1.66±0.19
Living children	353		24	75	68	75	42	36	14	13	5	1	-	-	-	1008	2.86±0.10
		73	1	5	6	14	11	13	11	8	3	1	-	-	-	323	4.42±0.22

The infant and child mortality in relation to the cause of death is presented in Table 5. The highest frequency of deaths (32.5 per cent) is due to dysentery and vomiting followed by stomach ache and indigestion, fever and titanus. Approximately, each mother had one infant or child death, which is considered to be high. It may be due to either they may be reluctant to go to health centres as still they have strong confidence in the traditional methods of treatment for various diseases, or to their high illiteracy.

The influence of some indirect social factors such as age at marriage, occupation etc. on fertility is also evident in the present study. The relationship between age at marriage and pregnancies, prenatal deaths, live births, infant and child deaths and living children is shown in Table 6 and 7. In all these measures a consistent and clear trend is observed, *i.e.* the early the marriage, the higher the fertility and mortality and the later the marriage, the lower the fertility and mortality. The influence of the occupation on different fertility and mortality measures is given in Table 8. The means of pregnancies, live births and living children are higher for the agricultural laborers and lower in those who own lands with an exception of others category which includes different occupations such as petty business, selling of firewood etc. The fertility behavior according to their mortality behavior, the numerical strength and the demand or necessity for their occupation is clear in the Sugalis of the present study. Since the agricultural work needs more and more people for completion of work they procreate more and more: thereby fertility is high in the case of agricultural laborers and also in the agricultural labor and cultivation of own land. This is in conformity with the earlier studies. Another reason for higher fertility in these groups is to compensate their relatively higher mortality. With respect to their economy the labourers are very poor thereby to support their daily family needs or demands, they need more people to earn and so higher fertility is seen.

TABLE 5
INFANT AND CHILD MORTALITY BY CAUSE OF DEATH

Cause of death	Infant and Child Mortality	
	N	Percentage
Dysentery and vomitings	104	32.50
Stomach pain and indigestion	84	26.25
Fever	28	8.75
Titanus	11	3.44
Others	22	6.87
Unknown	71	22.19
Total	320	100.00

TABLE 6
DISTRIBUTION OF PREGNANCIES LIVE BIRTHS AND LIVING CHILDREN
ACCORDING TO AGE AT
MARRIAGE OF MOTHERS

Age at marriage	No of mothers	Pregnancies			Live Births			Living Children		
		N	Percentage	Mean	N .	Percentage	Mean	N	Percentage	Mean
9	11	57	4.02	5.18	51	3.84	4.64	42	4.17	3.82
10	29	134	9.46	4.62	126	9.49	4.34	96	9.52	3.31
11	25	106	7.48	4.24	101	7.61	4.04	75	7.44	3.00
12	52	241	17.01	4.63	221	16.64	4.25	171	16.96	3.29
13	64	275	19.41	4.30	256	19.28	4.00	201	19.94	3.14
14	63	254	17.93	4.03	241	18.15	3.83	187	18.55	2.97
9-M	244	1067	75.31	4.37	996	75.01	4.08	772	76.58	3.16
15	58	195	13.76	3.36	185	13.93	3.19	133	13.19	2.30
16	36	111	7.83	3.08	104	7.83	2.89	80	7.94	2.22
17	8	22	1.55	2.75	21	1.58	2.63	11	1.09	1.38
18	4	11	0.78	2.75	11	0.83	2.75	6	0.60	1.50
19	1	3	0.21	3.00	3	0.23	3.00	1	0.10	1.00
20	2	8	0.56	4.00	fi	0.60	4.00	5	0.50	2.50
15-20	109	350	24.69	3.21	332	25.00	3.05	236	23.42	2.17
Total	353	1417	100.00	4.01	1328	100.00	3.76	1008	100.00	2.86

TABLE 7
DISTRIBUTION OF PRENATAL AND INFANT AND CHILD MORTALITY
ACCORDING TO AGE AT MARRIAGE OF MOTHERS

Age at marriage	No of mothers	N	Prenatal Deaths		N	Infant & Child Deaths	
			Percentage	Mean		Percentage	Mean
9	11	6	6.74	0.55	9	2.81	0.82
10	29	8	8.99	0.28	30	9.38	1.03
11	25	5	5.62	0.20	26	8.12	1.04
12	52	20	22.47	0.39	50	15.63	0.96
13	64	19	21.35	0.30	55	17.19	0.86
14	63	13	14.61	0.21	54	16.88	0.86
9-14	244	71	79.78	0.29	224	70.01	0.92
15	58	10	11.24	0.17	52	16.25	0.90
16	36	7	7.86	0.19	24	7.50	0.67
17	8	1	1.12	0.13	10	3.12	1.25
18	4			-	5	1.56	1.25
19	1				2	0.62	2.00
20	2				3	0.94	1.50
15-20	109	18	20.22	0.17	96		0.88
Total	353	89	100.00	0.25	320	100.00	0.91

TABLE 8
DISTRIBUTION OF PREGNANCIES, PRENATAL DEATHS, LIVE BIRTHS, INFANT
AND CHILD DEATHS AND LIVING CHILDREN BY OCCUPATION OF PARENTS

Occupation*	No of mothers	N	Pregnancies		N	Live Births		N	Living Children		Prenatal Deaths		Infant & Child Deaths			
			Percentage	Mean		Percentage	Mean		Percentage	Mean	N	Percentage	Mean	N	Percentage	Mean
1	86	284	20.04	3.30	279	21.01	3.24	229	22.72	2.66	5	5.62	0.06	52	16.25	0.60
2	155	649	45.80	4.19	608	45.78	3.92	412	40.87	2.63	41	46.07	0.26	125	39.06	0.81
3	45	191	13.48	4.24	174	13.10	3.87	161	15.97	3.58	17	19.10	0.38	40	12.50	0.89
4.	58	266	18.77	4.59	243	18.30	4.19	182	18.06	3.14	23	25.84	0.40	90	28.13	1.55
5.	9	27	1.91	3.00	24	1.81	2.67	24	2.38	2.67	3	3.37	0.33	13	4.06	1.44
Total	353	1417	100.0	4.01	1328	100.0	3.76	1008	100.0	2.84	89	100.0		320	100.00	

- 1- Cultivation of own land
- 2- Agricultural labour and cultivation of own land
- 3- Cultivation of own land and cattle rearing
- 4- Agricultural labour
- 5- Others

In India some investigators tried to investigate the relationship between the occupation of the husband and fertility^{21, 25}. The studies conducted in the past suggest that (i) the cultivators and laborers, on an average, had 7.4 children compared to the professionals who had 6.6; (li) the laborers had higher fertility compared to the other occupational groups; (in) the average size of the family is high in agricultural laborers followed by cultivators, domestic and industrial workers and government servants; and (iv) the highest fertility in case of Yanadis was observed for traditional occupation, *i.e.* collection of forest products and fishing followed by agricultural laborers, own agriculture, household work, employees and industrial workers.

SUMMARY AND CONCLUSION

The fertility behavior of the Sugalis of the Chittoor district is studied on 353 couples. The fertility data are analyzed in two ways:

- (i) Fertility performance of women in one year; and
- (ii) Cumulative fertility of woman over a long period.

The crude birth rate, the general fertility and total fertility rates of the Sugalis are relatively higher. The child-woman ratio is also high indicating the potential growth trend of the Sugalis. The cumulative fertility and mortality measures are moderately high in the mothers of all ages. These are still higher in the mothers who have completed their reproductive stage. So these again confirm high potential growth trend of the Sugalis. The influence of age at marriage on fertility and mortality is inverse, *i.e.* the lower the age at marriage, the higher the fertility and mortality. The fertility and mortality behaviour differs in relation to the occupation of the Sugalis.

सुगाली नामक एक जनजाति के 353 दम्पतियों के प्रजनन व्यवहार का अध्ययन दर्शाता है कि यह अपने जीववैज्ञानिक अधिकतम पर है। अपरिष्कृत जन्म दर, सामान्य व प्रजनन दरें किसी जनसंख्या के उच्चतम स्तर तक तुलना करने योग्य हैं। शिशु-महिला अनुपात भी सुगालियों की वृद्धि रुख की पुष्टि करता है। इस जनसंख्या में गुणक प्रजनन तरीके भी ऊंचे हैं। विवाह की आयु का प्रजननता पर प्रभाव भी जैसा कि अपेक्षा है प्रतिलोप है और काम-धन्यों में विविधता का भी सुगालियों के प्रजनन व्यवहार पर प्रभाव पड़ता है।

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PROFILE OF STERILISATION ACCEPTORS IN ONE OF THE DISTRICTS OF HARYANA

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ABSTRACT

To determine the factors responsible for the sterilization decision about 816 women in the reproductive age group were interviewed by administering an open ended schedule in a rural area of Haryana. More women from 'higher' castes accepted sterilization as compared to the 'lower' castes. A greater proportion of women from the upper middle socio-economic strata accepted sterilization. Tubal ligation acceptors had a better socio-economic status. Tubal ligation was found to be more popular, 78 per cent of the acceptors were in the age group of 25-34 years. The mean age of ligation acceptors was 30.4 years while it was 32.7 years in case of spouses of vasectomy acceptors. About 60 per cent of the couples accepting sterilization had more than 5 living children and 69.4 per cent of the acceptors had 2-3 living male children at the time of the sterilization.

The importance of a planned family, in the context of our overall socio-economic development has been well established. It has been estimated that the present population of 74.2 crores (1985) would increase to 83.7 crores in 1991 and 98.6 crores in 2001 A.D In view of the serious implications of population explosion, India became the first country to accept a national family planning programme. Since the inception of the programme, it has been observed that the maximum preference has been for the terminal methods as compared to other methods. The number of acceptors of terminal methods has been steadily increasing and since the inception of the programme, 36 million sterilizations have been done'. In the initial stages vasectomy was popular, but, over the years tubal ligations became a more popular method. The factors affecting the sterilization decision have been the subject of many discussions. But, valid reasons have not yet materialized. Thus, the present study was designed to study the dynamics leading to the sterilization decision, including socio-economic status, caste, the total number of living children, and male preference.

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MATERIALS AND METHODS

The study was undertaken during 1984 in a large village of the Ballabgarh block of Haryana, which forms a part of the Intensive Field Practice Area of the All India Institute of Medical Sciences. All married women in the reproductive age group were administered an open ended schedule. Information relating to the respondent's age, age at sterilization, number of males and the socio-economic status was recorded. For measuring the socio-economic status of the respondents, the scale developed by Parik was used.

RESULTS

About 816 women in the reproductive age group were interviewed by one of the investigators and the data were collected through an open ended schedule designed for this purpose.

Table 1 shows the caste distribution of all respondents as well as the number of acceptors in each caste group. 57.48 per cent of the population in the village belonged to the higher castes. The higher castes included were Rajputs, Brahmins, Jats, Mahajans, etc. while the lower castes included were scheduled castes, Rai Sikhs, Barbers, Washermen, Kumhars, etc. Comparing the number of acceptors in each caste group it was found that there was a difference of more than 10 per cent between the higher and the lower castes.

The socio-economic status distribution of the sterilization acceptors is given in Table 2. When the number of sterilization acceptors in each of the strata was compared, it was found that the maximum proportion of acceptors was observed in the upper middle socio-economic strata.

Table 3 shows the age of the women at the time of sterilization. For vasectomy, the age of the acceptor's wife was considered. It was seen that the maximum sterilizations were done when the women's age was 30-34 years. Women aged 25-29 years, formed the next largest group. As far as the tubal ligation was concerned, there were an equal number of acceptors in the 25-29 years age group and the 30-34 years age group, whereas with vasectomy, the maximum acceptors were 30-34 years old followed by acceptors in the 35-39 years age group.

About 60 per cent of the sterilization acceptors had more than 5 living children as shown in Table 4. The trend was the same in both the tubal ligation and vasectomy groups. The data also showed the same trend in all the caste groups.

The total number of living males at the time of the sterilization is given in Table 5. 37.5 per cent of the acceptors had 2 living male children, while another 31.88 per cent of the acceptors had 3 living male children. A larger proportion of vasectomy acceptors (34.55 per cent) had 4-5 or more living male children compared to ligation acceptors (19.05 per cent). An analysis of the caste of the acceptors revealed that the higher castes accepted sterilisation after lesser number of live male children, compared to the lower castes.

TABLE 1
CASTE DISTRIBUTION OF STERILISATION ACCEPTORS

Caste	Total No. of Women	No. of Acceptors	Per cent
1. Higher castes	469	114	24.31
2. Lower castes	347	46	13.26
Total	816	160	19.61

TABLE 2
SOCIO-ECONOMIC STATUS DISTRIBUTION OF STERILISATION ACCEPTORS

S.E.S.	Ligation		Vasectomy		Total sterilisation	
	No.	Per cent	No.	Per cent	No.	Per cent
1. Lower (169)	16	15.24	10	18.18	26	16.25
2. Lower-Middle (301)	29	27.62	23	41.82	52	32.50
3. Middle (272)	43	40.95	19	34.55	62	38.75
4. Upper-Middle (72)	17	16.19	3	5.45	20	12.50
5. Upper (2)	-	-	-	-	-	-
Total	105	100.00	55	100.00	160	100.00

TABLE 3
AGE DISTRIBUTION OF STERILISATION ACCEPTORS

Age Group	Ligation		Vasectomy		Total	
	No.	Per cent	No.	Per cent	No.	Per cent
1. Less than ≤ 20 yrs (131)	1	0.95	-	-	4	0.63
2. 20-24 yrs. (186)	9	8.57	4	7.27	13	8.12
3. 25-29 yrs (188)	37	35.24	8	14.55	45	28.12
4. 30-34 yrs (114)	40	38.10	24	43.64	64	60.00
5. 35-39 yrs. (101)	12	11.43	14	25.45	26	16.25
6. More than ≥ 40 yrs. (96)	6	5.71	5	9.09	11	6.88
Total (816)	105	100.00	55	100.00	160	100.00

In the vasectomy column, ages shown are those of the acceptors wives.

TABLE 4
DISTRIBUTION OF THE NUMBER OF LIVE BIRTHS AT THE TIME OF
STERILISATION

No. of live births	Ligation		Vasectomy		Total	
	No.	Per cent	No	Per cent	No.	Per cent
0	-	-	1	1.82	1*	0.63
1	-	-	1	1.82	1	0.63
2	2	1.90	1	1.82	3	1.87
3	14	13.33	6	10.11	20	12.50
4	33	31.43	6	10.11	39	24.37
More than 5	56	53.34	40	72.72	96	60.00
Total	105	100.00	55	100.00	160	100.00

*Sterilisation done without any children.

TABLE 5
DISTRIBUTION OF THE NUMBER OF MALES AT THE TIME OF STERILISATION

No. of Males	Ligation		Vasectomy		Total	
	No	Per cent	No	Per cent	No	Per cent
0	-	-	1	1.82	1	0.62
1	6	5.71	3	5.44	9	5.62
2	41	39.05	19	34.55	60	37.50
3	38	36.19	13	23.64	51	31.88
More than 4	20	19.05	19	34.55	39	24.38
Total	105	100.00	55	100.00	160	100.00

DISCUSSION

The respondents belonging to the higher castes only 114 out of 469 and in case of lower castes 46 out of 347 accepted sterilization. Thus, it is clear that caste has an important role in finalizing the sterilization decision.

A greater proportion of women from the upper middle socio-economic strata accepted the sterilization. There was a linear relationship between the proportions of acceptors in each of the socio-economic strata. There were no acceptors in the upper socio-economic strata. However, there were only 2 women in this group. Thus, it can be concluded that socio-economic status also has an important role to play in the sterilization decision. It was also seen that a greater number of vasectomy acceptors belonged to the lower middle socio-economic strata. This is at variance with a study done in Jabalpur, where vasectomy acceptors had a better socio-economic status, compared to tubectomy acceptors³. The reason could be that since in the study area, most of the vasectomies were done during the emergency, a larger number of people from the lower socio-economic strata were influenced by the then propaganda and thus accepted the method.

The present study also shows that in these parts of the country, tubal ligation is the more popular method. 65.6 per cent of the sterilisation acceptors preferred ligation. A study conducted in the past has also reported a similar findings⁴ while another study has shown a higher acceptance of vasectomy⁵.

60 per cent of the acceptors (or their wives, in case of vasectomy acceptors) were 30-34 years of age. Women aged 25-29 years formed the next largest category. Thus in the present study 78 per cent of the acceptors were 25-34 years old, as against 57 per cent in the same age group, in a study conducted in Delhi⁴.

Analysis of data from 8 hospitals in India, showed that the average age of the women accepting tubal ligation was 30.2 years⁶. 70.4 percent of these women were 25-34 years of age, while in the present study, the mean age of ligation acceptors was 30.4 years and 73.34 per cent of the women were 25-34 years of age. Wives of vasectomy acceptors were older, and their mean age at acceptance of vasectomy was 32.7 years, with 69.09 per cent being in the 30-39 years age group. Our findings corroborate the findings from a study done at Jabalpur where vasectomy acceptors were older, compared to ligation acceptors. It was felt that taking the age of the wives of vasectomy acceptors would be better as it enables a comparison of the same sex.

Regarding the total number of live children at the time of sterilization, a study in India, showed that over 50 per cent of women had 3-4 live births and only 20.5 per cent had less than 3 live births⁶. In another study, 30 per cent of the acceptors had 4 living children⁴. In the present study, 60 per cent of the couples accepting sterilization had more than 5 living children at the time of sterilization. The average number of live births was 4.4 for all sterilization acceptors. There was no difference between the tubal ligation and vasectomy acceptors, unlike the study from Jabalpur where vasectomy acceptors had more live children at the time of sterilisation³.

In the present study, 69.4 per cent of the acceptors had 2-3 living male children at the time of the study, when they had undergone sterilization. The mean number of living male children was 2.7. On an average, vasectomy acceptors had 2.8 living children (male), while ligation acceptors had 2.7. Our results differ from a study from A.P., where 77.5 per cent of the acceptors adopted sterilization, after 1 -2 living male children⁷. The study done at Jabalpur also showed that 62 per cent of the acceptors had 1 -2 male children³. Thus in the present study Couples desired more male children. However, based on the 1980 age specific mortality, a child born in India, has a probability of 0.65, for survival up to the age of 45 years, at current mortality rates. By then, *even* if the mother had conceived at the age of 15 years, she would have reached an age of 60 years. To have a surviving son till that age, she would need to produce 3.07 children. If the couple wants 2 sons, then they would need to bear 6.1 children, assuming an equal 50:50 chance of a male or female child at birth. Thus, in this context perhaps the rural women are basing their calculations of the number of male children on a logical reason. If the present programmes for child survival bear fruit, then one may expect rural women to accept sterilization, after lesser number of living male children.

It is thus evident that many factors such as caste, socio-economic status, popularity of a particular method, age of the acceptor, and, the number of living male children are playing an important role in the sterilisation decision.

बन्ध्याकरण निर्णय के लिए जिम्मेदार कारकों का निर्धारण करने के लिए हरियाणा के एक ग्रामीण इलाके में लगभग 816 प्रजनन आयु समूह की महिलाओं के इन्टरव्यू एक खुले बंद अनुसूची द्वारा लिए गये। निचली जातियों की अपेक्षा ऊँची जातियों की अधिक महिलाओं ने बन्ध्याकरण को अपनाया है। उच्च मध्य सामाजिक-आर्थिक पृष्ठभूमि की महिलाओं ने बहुतायत में बन्ध्याकरण को अपनाया है। ट्यूबल लिगेशन स्वीकार करने वालों का सामाजिक-आर्थिक स्तर बेहतर था। ट्यूबल लिगेशन को अधिक लोकप्रिय पाया गया, 78 प्रतिशत स्वीकारकर्ता 25-34 वर्ष के आयु समूह में थे। लिगेशन स्वीकारकर्ताओं की औसत आयु 30.4 वर्ष थी जबकि पुरुष बन्ध्याकरण कराने वाले व्यक्तियों की पत्नियों के मामले में यह आयु 32.7 वर्ष थी। बन्ध्याकरण स्वीकार करने वाले लगभग 60 प्रतिशत दम्पतियों के पांच से अधिक जीवित बच्चे थे और 69.4 प्रतिशत स्वीकारकर्ताओं ने बन्ध्याकरण के समय 2-3 जीवित बच्चे पुरुष थे।

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PROGRESSIVE PATIENT CARE

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ABSTRACT

In this paper the basic concept of progressive patient care has been described taking into account its history, development and benefits. The main features and functions of the different elements of progressive patient care are discussed. The organization, functions and management of Intensive Care Unit has been given in details. Also, steps in introducing progressive patient care in a hospital are highlighted.

The most important purpose to have a hospital in a community is to provide care to the sick and injured. The quality of patient care is the central core around which all hospital activities revolve. Hospital services should be organized in such a way that the patients receive optimal care. Tremendous technological changes have imposed a great stress with reference to staff, cost, equipment, supplies and techniques. In spite of this, the hospital must innovate to improve the quality of patient care. Though, progressive patient care is not the solution to all hospital problems but it is a recent method which could reduce many drawbacks experienced in the traditional arrangement of hospital services.

HISTORY

The progressive patient care aims at providing best services to the patients in the hospital. The basic philosophy of PPC concept is not new but it has been described as a development in hospital. The classification of patients according to their needs has been carried out by the Japanese for centuries and for more than 100 years ago in England, we can say. Miss Florence Nightingale practiced progressive patient care in her open wards by placing the sickest patients near the nurses desk while convalescent or least ill patient in rear beds.

Since early this century, the most sick and self care patients were concentrated separately by armed service hospitals, tuberculosis hospitals, psychiatric institutions and some private hospitals in the U.S.A.

In our country also, for a long time it has been practised to separate post operative cases from others for providing more nursing attention, and the

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convalescent and least ill patients are placed on floor or extra beds in overcrowded wards. Although few attempts were made to follow an organizational plan of this type, the exact date that Progressive Patient Care emerged into its present form is not very clear. It is generally agreed, however, that the concept began to take shape in several hospitals in the early 1950's. The concept was named as Progressive Patient Care in 1956. In 1963, McPherson Community Health Centre in Howell, Michigan became the first hospital to attempt the complete PPC concept¹.

BENEFITS OF PPC

The guidelines of the PPC concept help the patients, physicians, nurses and the hospitals.

The Patient: (1) the patient receives the specialized attention when he needs it; (ii) he is assisted in making his adjustment first with the hospital atmosphere and later on his return with tr.'« home and the community; and (iii) the patients who are not critically ill are not deprived of nursing and medical attention as the critically ill patients are separated.

The Physician: (2) the physician is given a greater assurance that his patient is receiving a high quality of nursing care and that emergency treatment if necessary is in the immediate vicinity of the patient.

The Nurse: (1) the nurse makes an effective use of her special capabilities; (ii) the problems of providing services by nurses to critically ill patients are reduced when the patients are divided to various groups according to the degree of illness; (iii) it helps the nurses to devote their full attention and skills to the best to meet the needs of the patient; (iv) helps the nurses to plan the nursing care for the patients better as the needs are of almost same degree in each unit; and (v) the nursing staff can also have benefits from the inservice training programme which ideally is an important part of a Progressive Patient Care programme.

The Hospital: (1) the beds, physical facilities, equipment, supplies and funds available in the hospital may be used efficiently; (ii) use of trained personnel reduces personnel turnover and improved administration; (iii) improves public image of the hospital in the community; and (iv) home care programme as a part of PPC helps the hospital to coordinate its activities with the community health and social services.

ELEMENTS OF PROGRESSIVE PATIENT CARE

The principal elements of the progressive patient care are as follows:

1.Intensive Care - implies intensive nursing of critically ill patients demanding the immediate availability of skills personnel, life saving equipment and supplies for the revival, restoration and sustenance of their vital functions;

2.Intermediate Care - means moderate nursing of moderately ill patients who may be ambulatory for short period of time. It may be implied to terminally ill patients;

3. Self Care - is primarily educational and supervisory care of convalescent, ambulatory and self sufficient patients requiring therapeutic or diagnostic services. Provision for relaxation and recreation is also made;

4. Long Term or Extended Care - is restorative and rehabilitative care of chronically ill patients requiring prolonged medical and nursing care;

5. Home Care - implies preventive and promotive care of the community restorative care of the convalescent at home through the extension of certain hospital services; and

6. Ambulatory or Outpatient Care - means care of the ambulatory patients requiring diagnostic, curative, preventive and rehabilitative services and who are not registered as inpatients in the hospitals.

INTENSIVE CARE

To provide intensive care to the critically ill patients an intensive care unit needs to be organized. The Intensive Care Unit is a nursing care unit which is specially staffed and equipped to look after a critically ill patient with possibility to survive regardless of diagnosis, sex or economic status who require continuous observation and intensive medical and nursing care with immediate availability of life saving equipment, drugs and materials³.

Intensive Care Unit can be organized as a generalized ICU or a specialized ICU *i.e.* for a specialty *e.g.* -

- Post operative unit
- Cardiac care unit
- Burns unit
- Dialysis unit
- New Born Nursery, etc.

LOCATION OF ICU

Intensive care unit should be easily accessible to each part of the hospital, special emphasis is given to accidents and emergency departments, outpatient department, operation theatre and inpatient areas.

SIZE OF ICU

Though various committees have recommended a range of 2-8 per cent of the total hospital beds should be included in ICU, the minimum number of beds which constitute a viable unit of ICU is FOUR and a maximum of TEN to maintain the high standard of medical and nursing care.

PHYSICAL FACILITIES

- i. **Area** - It is suggested that the minimum of 150 square feet per bed in open

ward areas and 225 square feet for isolation unit be provided. So that the nursing is easy and heavy emergency equipment are manoeuvred with ease.

ii. **Air Conditioning** - Centrally air conditioning is necessary to cope up with extreme weather and to prevent dust. Temperature 60-70 degree F. and humidity 50-60 per cent should be maintained.

iii. **Ventilation** - There must be minimum of 10 air changes per hour. Positive pressure in ICU should be maintained so that contaminated air from passages do not rush to the unit. The exhaust fans creating negative pressure in cubicles should be avoided.

iv. **Lights** - The patient area should be uniformly lit. There should be provision for light below bed level to check the drainage bottle, water seal, etc.

v. **Piped Supply** - (i) Piped oxygen with two outlets for each bed with suitable flow meters, capable of supplying 20 litres per minute at a pressure of 60 Lbs./sq.ft.

(ii) **Piped vacuum** - Central suction with two outlets with manometer for each bed is necessary and air extraction should be 40 litres/minute. The vacuum in pipeline is 500 mm. of Hg.

COMMUNICATION

i. There should be a call bell attached from each bed to nursing station

ii. Nursing station should have a call bell attached to doctors room.

iii. Telephone — at least two telephones one for internal and one for external lines are required.

iv. Paging system should be introduced for calling consultants and residents from the respective area of their work place.

ELECTRICAL FACILITY

i. 4-5 power plugs arrangements for each bed and a special socket of 60 amperes. 230 volts, single phase for portable radiographic equipment should be provided.

ii. All outlets and lights should be connected to the emergency power system.

iii. There should be provision for a stand by generator for ICU.

PATIENT AREA

The beds in ICU should be arranged in such a way that there is ample visibility of all the patients from the nurses' desk. One or two isolation rooms should be attached to unit for isolation or reverse isolation. The rest of the beds can be arranged in circular or semicircular or rectangular design placing each bed at equidistance from nurse's desk. Each bed should be separated from the other by glazed partition to provide necessary privacy.

ANCILLARY AREA

- i. **Nurses' Station:** The nurses' station should be located in the centre of the ICU. Space for a ward clerk should be provided. The equipment should include desks, counters, chart rack, chairs for the nurses and clerk. An office for the sister incharge also be provided.
- ii. **A Medicine Cabinet,** with a locked narcotics compartment should be provided.
- iii. **A Medication Preparation Room** — or nurses work room should adjoin the nurses' station.
- iv. **A Doctors Charting Area** — adjacent to the nurses' station is highly desirable.
- v. **A Consultation Office** — for the use of the medical staff is desirable.
- vi. **A Store** — for storage of materials or supplies should be provided adjacent to nurse's work room. Another store which can be outside the main unit should be provided for holding O₂ cylinder suction machine drainage bottle etc.

SANITARY AREA

The soiled holding or dirty utility room needs to be provided for cleaning up of equipment and disposal of waste materials. A toilet should be provided for those patients whose clinical condition contraindicates bedpan use and those patients for early ambulation. The water closet should be equipped with bedpan lugs and flushing attachment for cleaning bedpans and for disposing of fluids. A sink in counter will take care of the minor utility functions of this room. The major utility functions should be carried out in the main utility room.

AUXILIARY AREA

A room with lockers for the nurses should be provided for personal use of the nurses. A toilet should be attached to it. A relatives waiting room in the ICU permits relatives to be physically near the patients without interfering with treatment and nursing care. This room should be well furnished with sofas, easy chairs, lamps and tables. Toilet facilities should be provided. A telephone booth should also be nearby. A small laboratory should be adjacent to the ICU for the use of the medical staff and in emergency.

A doctors' rest room should be provided with internal telephone or call bell system from nurse's desk. The room should be furnished with easy chairs, tables, chairs, lamps and an attached toilet. An area for the storage of stretcher and wheelchairs should be provided.

EQUIPMENT

As a nursing care unit an ICU also requires all the equipment required by any other nursing care unit. The special equipment needed for an ICU are as follows:

1. Wall mounted sphygmomano-meters which eliminate the need to move the instrument from bed to bed is suggested.
2. Intravenous rods suspended from a track or ceiling mounted hook over each bed or attached to each bed should be provided.
3. Equipment for respiratory resuscitation, *i.e.* Respirator Intubation sets with various sizes of endotracheal tubes. Tracheostomy set Sets for pleural drainage
4. Cardiac monitoring equipment, *i.e.* Cardiac monitor Defibrillator and pace makers ECG machines, etc.
5. Sets for venssection, catheterization, lumberpuncture etc.
6. All the life saving drugs

STAFFING

The intensive care unit should be covered by medical staff for 24 hours. At least one medical officer should be on duty per shift.

The medical officer who is in charge of the ICU is usually an anesthetist for generalized ICU. But for a specialized ICU the respective specialist takes the charge of the ICU.

Nurses. One nursing sister in charge of the ICU is recommended. The requirement of nursing staff for a unit depends upon the requirement of nursing care of the patients. As all the patients in an ICU are critically ill or need intensive nursing care, *i.e.* 10-12 hours of bed side nursing care per day, for each bed at least two nurses should be provided per day which make the nurse patient ratio as 2:1. Though in the Western countries, the norm followed is 1:1 per shift or 4:1 per day. Keeping in view of the shortage of nurses in our country we cannot dare to adopt their norms. Each shift should be covered with at least two auxiliary persons preferably one male and one female.

One ward clerk should be posted to take away the clerical work from the nurse's shoulders and spare them for nursing care.

One sweeper should be on duty in each shift.

Technical Staff Like physiotherapist, inhalation therapist. ECG technician, electronic technician, biomedical engineering and laboratory technician are required to give necessary technical support to ICU.

MANAGEMENT

1. ICU committee should be appointed consisting of one representative of surgery, medicine, neuro-surgery, nursing service and hospital administration and anesthetists as chairman.
2. The medical officer incharge of the ICU for day-to-day administration should have a final authority to transfer in and out the ICU.
3. Any controversy or problem should be referred to the ICU committee.
4. A patient who is transferred to ICU is the responsibility of the transferring unit for his treatment.
5. Policies and procedures should be laid down as:

i. **Admission/Discharge Criteria:** Define objective criteria should be laid down for admission and discharge of patient based on the patient's condition: degree of illness, nursing and medical needs. As a general rule, patients in need of continuous observation and monitoring of vital signs and the total support of physiological system should be admitted to ICU. Usually the terminally ill, contagious disease patients, post operative thoracic cases with active tuberculosis, violent patients are not admitted to ICU, Each admission is done with consent of the medical officer incharge of ICU. If required, patients can be admitted directly to the ICU.

A separate admission and discharge register is maintained in ICU for record and study the utilization of ICU.

ii. **Bed Utilization:** Ideal bed occupancy rate for ICU is 75-80 per cent leaving 20-25 per cent of beds vacant for unforeseen emergencies.

iii. All treatment and medication should be written.

iv. Special observation chart for each patient should be maintained.

v. **Rules for Visitors:** (a) visitors should be restricted to immediate family; (b) one person should be allowed at a time, and (c) duration of the visit should be very short.

vi. **Proper Information System for Relatives:** The doctor in charge of the patient is responsible to inform the relatives about the condition of the patient.

vii. Discharge summary must be made by the attending physician prior to discharge of the patient from ICU.

viii. **Dietary Services:** The nutritional requirements of these patients must be evaluated on a daily basis. Mostly the patients will require modified diet consisting primarily of liquids and soft food.

ix. **Training of Staff:** For each staff to be appointed to ICU, training programmes should be organized. If special training for ICU is not available, in-service training for at least three months in the hospital should be arranged.

- x. All the investigation and requisition forms should be of some special colour so that these can be identified and attended immediately.
- xi. Standing orders should be written for resuscitation of patients, fluid electrolyte balance and life saving medications.
- xii. Procedure manual should be prepared and all the procedures for resuscitation, intubation, tracheotomy etc should be written for ready reference.
- xiii. The supply system for materials, drugs, linen and sterile supply should be very prompt and frequent.

PROBLEMS

Various problems are faced while introducing this element of Progressive Patient Care concept such as:

1. To determine the size, type of hospital where this can be implemented.
2. To determine the size of Intensive Care Unit.
3. It is difficult to decide its location.
4. In determining the layout of the unit in already existing hospital.
5. It is difficult to staff the unit adequately.
6. It becomes difficult to make the supply system function efficiently and to provide continuous supply of life saving drugs and materials.
7. Problems regarding admission and transfer of patients to and from ICU.
8. It is difficult to have biomedical engineering services available for the maintenance of the equipment specially sophisticated electronic equipment.
9. Political and outside interferences to admission and transfer of patients.
10. Team building which is very much essential for critical care becomes difficult. It becomes problematic to have coordination among various units.
11. It posts psychological stress on the relations and at times on patients.

INTERMEDIATE CARE

Intermediate care unit is a nursing care unit where patients, who are either moderately ill or for whom the treatment can only be palliative (terminally ill) are cared for. A large proportion of the hospital patients will be admitted to and discharged from this unit.

The unit comprising the intermediate care area is similar to the patient care units in the conventional general hospital. The most feasible size appears to be from 30 to 35 beds.

The patient beds can be arranged in few single bed rooms, few double bed rooms and the rest in 4 to 6 bed rooms.

Ancillary areas include as usual a nurse's station, stores, clean room, and a treatment room.

A number of patients will be ambulatory and will require space for day and dining facilities. This unit will require more toilets and bathrooms preferably one attached to each patients room irrespective of its size.

Supportive areas like a clinical teaching room, side laboratory, doctors room, attendants room and a changing room for the nurses are necessary.

STAFFING

Since the intermediate care unit is not disrupted by emergencies, a reasonable stable staffing pattern is possible. The average nursing care requirements for each patient is about 4 hours per day. The need vary with each shift, nevertheless, at all times among those on duty there must be at least one trained nurse. Usually during the morning shift, staff nurse can adequately serve 6-7 patients, during the evening shift one nurse be assigned to 8 patients and during the night shift one nurse is needed for 12-15 patients. By and large other services will be similar to those of the conventional hospital regarding visitor's privileges, hospital services such as dietary, housekeeping, laundry and supply.

Patients are admitted to this unit either as a transfer from another unit or directly from the admitting office. From this unit he may either be sent to another unit or directly home, depending upon his condition.

SELF CARE

Ambulatory patients who are convalescing or require diagnosis or therapy may be cared for in a self care unit. These patients are like physically self sufficient requiring diagnostic procedure not feasible on an outpatient basis, the patient requiring daily or more frequent specialized treatment such as radiation or physical therapy, the convalescent patients who need a few more days help in the adjustment of daily routine or activities etc.

The services provided in this unit are chiefly educational and supervisory, the medical, nursing and dietary staff instruct patients on how to meet most of their own needs, including for example, taking medication, scheduling their diets, or taking simple treatment. The nurse can teach good health practices and plan for health maintenance at home.

MANAGEMENT

Patients may be admitted here directly from the admitting office or they may be transferred from some other patient care units.

Patients should be permitted as far as possible to follow a home like routine. There is no need to restrict visitors or limit visiting hours.

The patients may be permitted to go to cafeteria and have their meals, to the lawn, library or TV lounge. So. there should be a system to locate the patient whenever he is needed in the unit.

PHYSICAL FACILITIES

The self care unit should be located convenient to diagnostic facilities, the dining room or cafeteria and to the main hospital entrance.

As these patients demand maximum privacy single bed rooms with toilets are preferred. Since an ambulant patient is likely to spend less time in his room than a bed patient the room can be of minimal size. In addition to the bed, there should be a small desk and chair, desk lamp, an easy chair and a bedside small table. The nurse station can be of minimal size with glazed partitions to permit easy supervision of the adjoining areas. An office with attached toilet should be provided for the Head Nurse. A medication preparation room should ad joint. An examination-cum-treatment room should be provided. A small store with minimal supply and a soiled holding room are needed.

There should be c. demonstration room where patients can be taught self treatment. Provision for social recreation facilities for the patient on the self care unit is important. The spaces required for are as follows:

1. A dayroom containing sofas, easy chairs, good reading lamps, and a television set.
2. A nourishment room with minimal facilities for preparation of meal/snack~
3. A storage closet for games and recreational equipment.
4. Toilet facilities for visitors.
5. A sitting room for use by small groups.
6. A public telephone booth.

STAFFING

The staffing requirement for this unit will depend on the size of the unit and the services provided. An average size of 30 beds, one trained nurse with two auxiliary persons or nurses aids can manage each shift.

LONG TERM CARE

Patients admitted to a long term care unit require the type of medical and related services which can best be provided in a hospital setting. Moreover, they are expected to require these services for a prolonged period.

Patients may come to this unit by transfer from the intermediate care unit when it is evident that the convalescence will take a long time or they may be admitted from outside the hospital for a course of restorative or rehabilitative treatment of considerable duration. For example, patient after CVA, paraplegia, with multiple fractures and in a body case etc.

PHYSICAL FACILITIES

Optimum size for the long term care unit may be 35 to 40 beds. The unit may be located anywhere in the hospital.

In an existing hospital, long term care patients can be housed in the conventional patient care unit. Patient rooms should be large enough to permit patients to move freely on wheelchairs, crutches, canes, walkers. In general, two bed rooms are recommended, 4 bed rooms may also be used. A few single bed rooms should be provided. The minimum area per each bed in multiple bed rooms is required 100 square feet and for a single bed room 125 sq. feet. There should be 4-5 feet space left in between 2 beds and 3 feet of clearance between the adjacent wall and the bed should be maintained. The space between two ends of beds should be of minimum five feet.

Provision of toilets adjacent to each patient room is recommended for the convenience of both patients and staff.

Day room and dining space is recommended to encourage early ambulation. The usual ancillary facilities are required which include — nurses station with adjacent medication preparation room, supply room or stores, soiled holding room, clean work room, treatment room and space for stretchers and wheelchairs storage.

STAFFING

There may be time consuming treatments such as changing of constant wet dressings or the frequent turning of a patient in a body cast. Many patients will need assistance in transferring from bed to chair or stretcher. Many patients will need assistance with eating as well as with many aspects of personal care. The bedridden will require extra attention in respect of personal hygiene and every mean of comforts both emotional and physical. The services of physiotherapist and occupational therapist should be provided for the rehabilitation and restoration of their health. As most of the patients require complete physical care on this unit, one nurse can look after only three patients on the morning shift, one nurse for 4 patients in the evening and five or six patients can be looked after by one nurse at night. Nurse's aids can be posted to assist the nurses. The services of a medical social worker should be provided in this unit.

HOME CARE

Hospital based home care programmes may be organized for the patients who can best be cared for at home with extended services from the hospital whenever needed.

SERVICES REQUIRED

The minimum trends of services are medical, nursing, social and related services. All the diagnostic and therapeutic services of the hospital should be available to the ambulatory patient who is able to come to the hospital for outpatient department, for those who are non-ambulatory or unable to come to the hospital certain organized services of the hospital are brought home.

Direct medical services to patients in the home are provided by the attending physicians.

The nursing care should be provided by the public health nurse of the community, but if it is not arranged, nursing service may be provided by the hospital. Such care may include dressings, injections, irrigations, bed baths, and health instructions to the patients and the members of the family who are caring for the patients.

Social services for home care patients and their families may be provided by the social service staff of the hospital or of a community social service agency. Some patients may need some supportive services like physical therapy, occupational therapy, speech therapy, etc.

Facilities for the home care programme will depend on the extent of the services offered by the hospital. An office for the coordination of the home care programme must be provided.

Generally the equipment used in the home care programme will be drawn from the respective departments involved. But some of the items may be loaned to the patients by the hospital.

AMBULATORY CARE

In all hospitals in India, outpatient care is one of the important activities. Ambulatory care or outpatient care attracts a very large number of patients in every hospital. This service needs to be organised on more scientific lines so that maximum service is given to the needy patients who visit the hospitals in large numbers. To a large extent, the image of the hospital is determined by the quality of ambulatory care offered. Out patient department is also a rich source of morbidity data of a population. A well managed and streamlined ambulatory care service would go a long way in improving the hospital services in our country. These are three categories of out patients. These are:

1. **General Outpatient.** A patient provided with diagnostic or therapeutic services on an outpatient basis, for other than an emergency condition and not referred to such services by anybody. The responsibility for continuing his care and disposition is assumed by the hospital.
2. **Referred Outpatient** A patient referred directly to the outpatient department by his attending physician or by a dispensary or by other institutions, for specific diagnostic or therapeutic procedures other than emergency and the responsibility of continuing his care is of the referring agency.
3. **Emergency Outpatient** A patient given emergency or accident care for conditions determined clinically.

In addition to general outpatient consultancy various special clinics are operated in some hospitals

Facilities to be provided should consider the patients, their attendants and staff it should be easily accessible from the road.

The person in charge of the outpatient department should participate in policy formulation programme designing, etc. The number of physicians, surgeons and other medical officers will depend upon the workload.

The nursing staff will likewise vary as per patient load and services offered.

Medical social services are an indispensable part of outpatient programmes.

Competent staffing of the admitting and records office will help in the establishment and operation of a smoothly functioning department.

Steps in introducing progressive patient care in a hospital are as follows:

1. **Familiarity with the PPC** The hospital management should be thoroughly familiar with the PPC concept.
2. **Development of Teamwork:** The key persons of various disciplines should be involved.
3. **Evaluation of Needs:** The hospital should be analysed and then needed innovations should be determined
4. **Orient Staff** To orient staff to the PPC programme orientation programme may be organised.
5. **Estimation of Costs:** Hospital budget should be prepared according to the estimated cost of PPC.
6. **Formulation of Policies:** Policies and procedures for implementing the functions of each unit should be established
7. **Provide Flexibility:** Flexible zones between patient care units should be established.
8. **Adequate Staffing:** Staffing of units specially by nurses should be adequately provided.
9. **Instruct Patients:** Patients should be instructed prior to their admission, transfer concerning their care unit.
10. **Inform or Communicate Public** Public should be informed of the PPC concept.

इस पेपर में प्रगतिशील रोगी रक्षा का इतिहास, विकास और लाभों को ध्यान में रखते हुए इसकी आधारभूत धारणा का वर्णन किया गया है। प्रगतिशील रोगी रक्षा के विभिन्न तत्वों की मुख्य विशेषताओं और कार्यों की चर्चा की गई है। इंटेन्सिव केयर यूनिट के संगठन, कार्यों और प्रबन्ध को विस्तार से बताया गया है। इसके साथ ही एक अस्पताल में प्रगतिशील रोगी रक्षा आरम्भ करने के चरणों को भी प्रमुखता से बताया गया है।

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