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# swasth hind

october 1985



- Health education research in India  
— Problems and prospects
- Development of medical sociology in India
- Research in health education
- Training of dais — a field experience
- Dais training scheme in Haryana State  
— an evaluation
- Appropriate technology for health

## DRINKING WATER AND SANITATION DECADE

- Position in India

## WORLD FOOD DAY

- Food safety — a worldwide public health problem
- Fibre — is it a dietary requirement ?

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## OBJECTIVES

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**REPORT** and interpret the policies, plans, programmes and achievements of the Union Ministry of Health and Family Welfare.

**ACT** as a medium of exchange of information on health activities of the Central and State Health Organisations.

**FOCUS** attention on the major public health problems in India and to report on the latest trends in public health.

**KEEP** in touch with health and welfare workers and agencies in India and abroad.

**REPORT** on important seminars, conferences, discussions, etc., on health topics.

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## In this Issue

Page No.

### BEHAVIOURAL RESEARCH

- Health Education research in India  
—problems and prospects** 237  
*Dr A. B. Hiramani & Neelam Sharma*
- Development of medical sociology in India** 242  
*Dr S. R. Mehta*
- Research in health education** 248  
*H. D. Subbe Gowda*
- Training of dais — a field experience** 249  
*Dr S. K. Chaturvedi*
- Dais training scheme in Haryana State—an  
evaluation** 251
- Appropriate technology for health—adaptable  
and acceptable** 255  
*Claudine Brelet*

### DRINKING WATER AND SANITATION DECADE

**Position in India** 257

### WORLD FOOD DAY—16 OCTOBER

**Food safety—a worldwide public health problem** 260

**Fibre—is it a dietary requirement ?** 262

*Smt. Kamal G. Nath*

**News** 264

**Book review** Third inside cover

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# Behavioural Research

## Health Education Research in India —Problems and Prospects

DR A. B. HIRAMANI  
&  
NEELAM SHARMA

While planning and more particularly while implementing various health programmes, it is logical to know the felt needs of the people, their ways of life and the factors that guide their health behaviour. To understand this, one has to study the community systematically and scientifically so that research applied to health problems must facilitate the synthesis and translation of results into the solution for human health problems.

THE health problems are multiple and multidimensional in the country, or which all round efforts are being made to prevent, control and ultimately eradicate them. There has been emphasis on the health education approach to prevent and control diseases in the developed and developing countries as it "embraces the sum of all those experiences of individual that change or influence his attitude or behaviour with respect to health and the process and efforts of bringing these changes about". The reason for this approach seems to be due to the growing realization and recognition that the factors coming in continuation of illness and maintenance, improvement of individual's health are essentially matters of

human behaviour. The epidemiological studies come closer (Dhillon, 1969) to the study of social etiology of diseases when it tries to identify the norms within various strata of society and their influence on the exposure of community to the risk of disease, the extent of prevalence of a health problem, the mode of transmission of diseases and people's practices related to prevention and promotion. Thus, while planning and more particularly while implementing various health programmes, it is logical to know the felt needs of the people, their ways of life and the factors that guide their health behaviour. To understand this, one has to study the community systematically and scientifically so that research applied to health problems must facilitate the synthesis and translation of results into the solution for human health problems.

### Development of Health Education Research

Of late in India, the activities of behavioural research in the field of health are visible due to the concern shown by health planners, health administrators and experts; and growing participation of behavioural scientists in studying, and examining various factors related either to the failure of the health programmes or non-compliance of the community to change their health behaviour. Research in health education is directed to discover answers to pertinent health questions through application of scientific procedure and to solve problems generating in practice. A modest beginning in this direction was made by the Central Health Education Bureau (C.H.E.B.) in the Government Sector in 1956 but actual activities related to health research were initiated in 1960 with a creation of Research and Evaluation Division which has a major focus to carry out problem oriented research and research relating

to a process on adoption of modern or desired health practices, development of techniques of communication and evaluation of various national health programmes and training activities.

Next to the Central Health Education Bureau, another Institution NIHAE (now called NIHEFW) National Institute of Health and Family Welfare after merging with (NIFP) came up in Sixties whose basic focus was on family planning services, strategies and training the health personnel rather than research in the field of health. Two more teaching institutions, i.e., All India Institute of Hygiene and Public Health, Calcutta, and GIRHFW (Gandhigram Institute of Rural Health and Family Welfare) Tamil Nadu, made a sizeable contribution to develop behavioural research through training to health functionaries and actually undertaking field studies involving both social scientists and physicians. Although the beginning was made, yet the growth of behavioural research in India was slow during the last two decades and it did not take off with a speed as in other fields. One would certainly like to probe in depth to realise what comes in the way of developmental process of health education research in the country.

#### Health education research—problems

As far as problems that are encountered in the health education research, it is difficult to describe and discuss these all because much have been known from what is available on human behaviour and process of behavioural change from basic research. Health education research does not only consider the forces within the individual but also those outside which influence him in the behavioural sense. However, it is useful to pin point a few which need attention.

1. *Methodological Problems—design and conduct of research*: Research carried out to develop health education takes place in a situation that has close linkage with the basic tenets of scientific research. Unlike research conducted in other fields where stress is laid on control of all variables excepting those under investigation, researcher in health education is hardly able to eliminate or control all extraneous factors that may influence the situation under study. Such situation minimises the effect of other potential factors. This is one of the many frequently encountered difficulties in health education research. Moreover, individual behaviour cannot be always measured directly through participant/non-participant observations. Again behaviour which cannot be measured through observation is obviously assessed through verbal reporting and this too poses problems. Most health education researchers use retrospective approach, when this problem is compounded due to the accuracy of information received from the respondent depends upon individual's memory which is further subjected to influence by series of his action and knowledge. Because of such factors, the health education researchers find it, more often than not, difficult to follow all rigorous

scientific research. The implication of this is reflected in a way that the compromise between the realities of the situation and the basic tenets of scientific research leads to a misconception that such research is a distortion of the fact and may yield misleading information.

Further, since health education research can be viewed in a social system approach in which the individual with his inner forces constitutes a focal point, individual researchers have their own conceptualisation and ways of strategy in totality. Moreover, theoretical orientation of the natural scientist is that he strives primarily to 'understand' behaviour and only secondarily to 'change' behaviour, this is another research gap as pointed out by Rosenstock (1960) in the health educational methodology conducted in life like field setting. It is, thus, important to recognise that theoretical finds cannot be applied in the field setting until simple methods are found to make it feasible. Unfortunately, not a single model can be completely inclusive to provide an adequate conceptualization from which individual studies as well as planned, and integrated studies could be evolved. Thus all methods—diagnostic, descriptive, exploratory and experimental are in use and we must accept the need to compromise to have a balance between requirements to sound scientific method and what is possible in a given situation.

But, it is disheartening to note that there is hardly any study conducted in health education in India that has a sound methodological base. The studies that suffer from lack of scientific methodology prompts one to doubt the validity of results and this undermines the efforts of health education researchers.

2. *Problem of broad field choices but lack of clear Priorities*: In its totality, research in health education as reviewed encompasses within its periphery a wide range of valid field choices, viz., communication motivation research, evaluation of training programmes and family planning, etc., which are all uncoordinated research efforts as new approach/finding cannot in itself be considered a remedy, but rather as a pre-requisite to the successful application of largely known remedial action. The usefulness of research for the programme depends on the extent to which the findings are available to the programme planner and other researchers. However, this lack of communication between the researchers duplicates the research in certain fields while completely neglecting the others which in many cases is proved to be expensive when limited resources are available to the researchers. Further due to lack of clear research priority among the broad field choices supplemented by varied research designs, it is difficult to compare these research findings and perhaps impossible to make any generalisations.

3. *Difference in Orientation*: Another problem that is constantly encountered by the researchers in health education, stems indirectly from the health



*Health education research does not only consider the forces within the individual but also those outside which influence him in the behavioural sense. Here the social scientists discuss the health problems in a group.*

Photo : CHEB

administrators. Although both, health administrators and behavioural scientists, have a common goal, *i.e.*, to solve the health problems, yet they have different approaches in solving such problems due to difference in orientation. The administrators are "a practising profession and are oriented towards seeking solutions to the problem, while social scientists deal with analysing factors influencing human behaviour and building theory" (Dhillon 1969). Due to difference in orientation and training, health administrators are more interested in research that feed them with quick results and not in the methodological issues. In order to satisfy the need of the health administrators and programme officers, the researchers have to adopt a course to select a design which may

not fulfil all the tests of scientific methods. Here the researchers face a dilemma from two fronts; one from the administrators who demand quick results with little consideration to the method adopted; and on the other hand from the professional/colleagues in the field of social science who always emphasise on sound scientific methods. The latter many a time question the validity of the findings emerged out of a study which have methodological lacuna. Djukamoric and Mach (1975) described it as a weak development of 'total system concept'. Wessen (1969) suggested that a social scientist should be flexible depending upon the need of practising profession as various practice situations provide different challenges to the social scientists. He exemplified that the

strategy of a social scientist in the study of health administration need to be different from the strategy of social scientists in studying specific problems related to family planning, nutrition, etc. He further remarked "the problem might be intimately linked up with the power structure and the process of administrative decision making. A social scientist under such a situation must face the totality of the situation squarely". Thus, forces, internal as well as external, restrict a choice to adopt a purely scientific method. However, this does not mean that research is conducted at the cost of scientific methods, but with incomplete control on determinants of human behaviour and the fullest compliance to the scientific methods is usually doubted.

4. *Problem of Collaboration with peer groups:* These exists the problem of inter-relationship between the social scientists and public health personnel working in government set up and those working in the non-government sectors such as universities and other privately funded research institutions. However, a gap is gradually bridged up due to realisation that working together by these two groups contribute considerably in solving much complex health problems. Here the problem of collaboration is not related to the understanding between these two groups but rather in "approach". Social scientists in government set up with inadequate resources have to work under multiple 'constraints' unlike their peer groups working in free atmosphere for the benefit of the public and the health research. This compels social scientists in government set up to look for close collaboration and association with their professional colleagues in the university to share their experiences in national and international forum to prove their worth to solve health problems.

5. *Lack of training facilities:* Extensive planning in health education research certainly requires research skills and understanding. Motivation to have training, and decision making process, including the involvement of peer groups for their support are essential components of planning research. A few social scientists in the health field have taken position concerned with broad planning research functions. A group of social scientists more particularly working in health area in government set up at national level, took a lead to conduct few courses in research methods; and urged the colleagues in the university and other research institutions to assume leadership in preparing health professionals to take up health education research. Although, there are some institutions in the government set up which train health professionals in the country, there are very few which are designed to prepare research workers in health education. Further more, even by establishing the training institutes, these will be seriously handicapped by a lack of funds and qualified faculty. Unfortunately, despite keen interest in health research and desire to increase activities of research having direct focus on health education, there are very few opportunities open to health professionals or specialists to develop themselves.

## Health education research—prospects

What we notice today is that theoretical findings cannot be applied in the field setting until simple methods are found which make it feasible. The principal gap between theory and practice in health education research is, to a great extent, due to the failure to support/recognise applied methodological research by 'Us' who need to stand for the benefit from such activity.

1. *Recognition of health education research:* Health education is yet to be 'recognised' as a discipline either by health professionals or by social scientists in India, although much is talked of it as one of the best approaches to bring behavioural change. The recent slogan spread all over the developing countries that health by the people, and for the people is nothing but a process of health education through which their health problems are solved by themselves in course of time. But, can we say with certainty that health education has really been taken care of for its proper development? The answer is negative. The State Health Education Bureaux (SHEB'S) are the agencies to develop health education in all its respect: training, educational methodology, strategy and research. A survey conducted by the C.H.E.B. in 1980 presents a disheartening picture that the research division as such does not exist in any of the eighteen SHEB's who responded, barring only one with research-cum-action project unit. The reason for this state of affairs seems to be an indifferent attitude of health administrators (CHEB, 1980). However, mere recognition of health education research without sufficient availability of research funds will hardly encourage young scientists in promoting research in health education. Although little is evident in few government-funded agencies, there is an urgent need to recognise professional organisations concerned with health education research so that they can assist in raising the health standard of the community by solving their felt needs.

2. *Need for centralised reference source:* The usefulness of research for a programme depends on the extent to which the findings are available to the programme planners. In addition, researchers need to review the literature in order to develop study designs based upon the known findings and attempt to solve the unknown. The effective communication of research findings between the researchers and the planners is, therefore, an essential step in the utilisation and promotion of research. For this, emerges a need for centralised reference source which may collect, abstract and synthesize available research reports to minimise communication gaps which is important for the development of the programme. Vidayarthi (1969) remarked "the problems of our country are numerous and the resources are limited. We cannot afford to duplicate research".

Since health education research be viewed in a total system approach and also as endorsed by W.H.O. (1969), a tentative conceptual model for or-

ganizing health education research be a three dimensional; there is a need for 'collaborated efforts' for identifying the area in which top priorities ought to be given. This collaborative efforts to strengthen action research will not only enrich the methodology but also help in developing new, comparative and analytical procedures while differentiating from well designed to poorly designed research.

3. *Need for training*: Collaborative efforts of practitioners and social scientists can increase the possibilities of applying the findings in action situation only when the difference in their orientation is removed. Teaching of different social science methods which can be used to study and evaluate various health and training programmes is another activity that needs serious attention. Butt (1969) remarks "there is a great need for operational research aimed at ascertaining as to how training could be more meaningful, what changes it produce on the trainees, and how to develop better methodology for extension training of the field workers". Further it is not only the behavioural scientists who need to know different methods involved in behavioural research in health; but teaching to medical graduates and professionals would greatly contribute to strengthen this field.

4. *Collaboration with universities and research institutions*: The Universities in the country can play a major role in solving most of the above mentioned problems and in strengthening the field of research in health and health education. The departments such as Sociology, Anthropology, Economics and Psychology can undertake an exercise through their students who could work on their M.Phil, and doctorate degrees on the problems relating to the field of health. Medical sociology which has been gradually coming up in few universities, does fall short in the efforts to promote this field. Thus, there is a need to recognise and finance this interdisciplinary approach. It is, of late, this interdisciplinary approach, i.e., social sciences and medical education along with other sciences are making a dent to discover solution to the health problems which are linked with socio-biological aspects. The beginning, albeit is very slow but can be accelerated by orienting the physicians as well as behavioural scientists in scientific foundations, theoretical and practical techniques and methods of health education research.

#### Suggested remedies

Problems in health education research are not too many to resolve. As of today, no forum exists either at national or state level which may frame guidelines on mechanism, criteria for determining research policies and priorities. In the absence of such policies, adhocism continues to hamper progress of research in different health programmes. To avoid this, following remedies suggested would help encounter some of the health education research problems:

1. Mutual understanding is required between different disciplines to consider various health problems which are not only related with biological constituents of the individual but are also closely linked with individuals socio-cultural, psychological and economic characteristics. Thus, one discipline must recognise the constructive role of other discipline in the process of tackling the problem.

2. A common understanding that a compromise between existing situation and flexibility of scientific methods though 'little' should prevail amongst health administrators and behavioural scientists in the field, be in government or non-government sector. To achieve this, frequent dialogue between these specialists should take place at various levels.

3. Choice of priorities of health education research, as evident today is not guided by any uniform policies. The programme officers who are consumers of the findings of health education research need to decide the priorities for research in close collaboration with behavioural scientists, after sorting out major problems regarding methodology.

4. Training in health education research need to be undertaken not only by those organisations engaged in health education, but also by the universities, research institutes, medical colleges and voluntary organisations too, which directly or indirectly are concerned with health and health education activities. This will not only avoid duplicate research but will also help in proper utilisation of resources.

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# DEVELOPMENT OF MEDICAL SOCIOLOGY IN INDIA

DR S. R. MEHTA

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Medical sociology is to be conceived as a discipline dealing with an interface between the providers and consumers of health and medical care services in India in view of a large population seeking services from available health care facilities, says the author. The author, being a participant observer in the growth and development of Medical Sociology in India, discusses in this article the Medical Sociology as a discipline, its development and future in India.

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THE recognition of the fact that the health of an individual is more than a biological phenomenon has brought into forefront the significance of behavioural dimensions of health. As a consequence of cultural relativism, every society views health problems from the perspective of its own culture and provides coping responses according to the understanding, knowledge, values, attitudes and beliefs of the people comprising it. (Mechanic, 1978). As such, traditional or quasi traditional societies are likely to have different orientations towards the social and cultural aspects of health and disease than the modern advanced societies of the west.

## Medical Sociology as a discipline

"Medical Sociology", "Sociology of Health" and "Sociology of Medicine" are different terms employed to refer to studies of individuals and groups in interaction with the environment, disease host and agent or carrier of disease affecting the health through illness, sufferings, pain and discomfort and efforts made in restoring their health to a normal state through self or directed efforts of the practitioners of health

(Metha, 1982). The practitioners of health may be practicing folk indigenous or modern systems of medicine. This would necessitate reviewing the concept and methods of medical sociology since it got evolved and developed in the United States of America where allopathic system of medicine flourished to its full.

The concept of illness was viewed as unmotivated deviance, remediable by the application of rational knowledge owned by a special class of persons (Parsons, 1951). In delineating the sick-role concept, the sufferer is not to be held responsible for his deviance, he is exempted from his normal obligations and also expected to seek competent help and cooperate with the treatment in order to become normal actor in the social system. Within this functional perspective, Cockerham considers 'Medical Sociology' dealing with social facets of health and illness, the social functions of health institutions and organisations, the relationship of the system of health care delivery to other social systems, besides studying the social behaviour of health personnel and those people who are consumers of health care (Cockerham, 1978).

The functionalist framework on the sick-role concept has been criticized for presenting a monolithic and homogeneous social structure whose participants act under the influence of exterior, reified values. Though Freidson, following the labelling theorists, recognises the relevance of cultural pluralism (Freidson, 1971), his plural groups remain sub-servient of their values. Further, Freidson tends to treat western scientific knowledge as more valid than other kinds of knowledge including folk medical knowledge which may not be true in all situations. This led Dingmall to advocate ethno-medicine approach in understanding the concept of illness.

Illness may be viewed as a form of failure at every day life, a disruption in the "familiar and taken for granted" state of affairs between subjective experience

of one's own body and one's knowledge, of what is normal experience or conduct, determined by a competent member of some collectivity. Thus ethnomedicine considers medical knowledge invoked by the physician to interpret a patient's behaviour identical to the knowledge invoked by a lay person to any other person's behaviour or conduct. (Dingwall, 1976). This provides a wider perspective to the understanding of concepts of health and illness and management and organisation of health services by including within its purview the folk and indigenous medicines and self medication practices of the lay persons (Mehta, 1984). These are based on the knowledge that members of some collectivity draw on to make sense in their social and natural world and on the content and organization of that knowledge (Dingwall, 1976).

Mehta also argues that Medical Sociology is to be conceived as a discipline dealing with an interface between the providers and consumers of health and medical care services in our context in view of a large population seeking services from limited health services (Mehta, 1982). The notion of health, as perceived by the people, is likely to affect the motivational aspects related to the preventive or curative medical and health care. In this context another perspective often used to study the preventive aspect of health behaviour is the "Health Belief Model". According to this, an individual's perception that he or she is personally susceptible and that the occurrence of the disease would have a severe implication of a personal nature, motivates him or her to go in for preventive practices to avoid illness (Rosenstock, 1966). Further the delivery of health care system has to be determined by the health expectations of the people and these are also influenced mostly by the social, cultural, economic and situational factors in the community. In view of limited medical manpower, that too concentrated in urban areas, a plea has been made to bring a large manpower resource of indigenous medicine men and homoeopaths (nearly four and a half lakhs in India) to the main stream of health delivery system of the rural areas (Mehta, 1984, 1982, 1975).

Besides, at the Alma Ata Conference (September 1978) on Primary Health Care, it was recognized that in view of a large majority of population in the developing countries residing in rural areas, where health resources are scarce, it is necessary to provide them with low-cost accessible and relevant health care through their involvement and participation (WHO, 1980). However, Mehta on the basis of analysis of

country case studies on Teamwork in Primary Health Care has raised a fundamental question: "Can the delivery system of primary health care through teamwork be effective without a change in the bureaucratic and socio-political structure of developing nations" (Mehta, 1984).

In the above backdrop, Medical Sociology in the context of the developing nations has a far greater challenge to face and a wider canvas to cover as a part of its nature and scope. Community participation and involvement in the organization and management of health care at the local level, adequate referral system to the secondary and tertiary based hospital care services, involvement of traditional systems of medicine and folk practitioners or traditional birth attendants, besides the extended role of medical professionals, para-professionals and semi-professionals in health care, would be added dimensions of Medical Sociology. Medical Sociology per se, does not have theories of its own and follows the perspectives of sociology in delineating different concepts and methods related to health problems of the people. But the new challenges in the field may provide new configurations of knowledge on social realities related to health for generalizations on the basis of emic and etic categories of analyses.

#### **Development of medical sociology in India**

Medical sociology is reported to have developed in the United States of America, mainly because of the setting up of National Institute of Health there in 1940 and later on due to the establishment of National Institute of Mental Health which promoted research and provided funds to both medical and social scientists during the sixties to pursue their research interests in this field (Cockerham 1978). Talcott Parsons was perhaps, first among the sociologists, to have developed the concept of the sick-role and his functional perspective had extensive bearing for long on the sociological research related to the health field. (Parsons 1951). We do not have any evidence of the contribution of Karl Marx towards the sociology of health, though quite lately, some of the scholars have started using the concept like political economy of health approach.

Notwithstanding the significance of different perspectives of sociology in the growth and development of medical sociology, it is observed that there is not as yet full consensus both among physicians and sociologists in regard to the juncture of medicine and sociological research because of variations within each

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'Medical Sociology' deals with social facets of health and illness, the social functions of health institutions and organisations, the relationship of the system of health care delivery to other social systems, besides studying the social behaviour of health personnel and those people who are consumers of health care.

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field. Further, due to complex nature of health and disease behaviour as a consequence of interaction of biological, social, cultural, psychological, economic, physical and situational factors in different permutations and combinations, there is increasing emphasis for a health Social Scientist than a Medical Sociologist or Anthropologist or Psychologist.

Among the sociologists, Robert Strauss made an attempt to provide two closely interrelated areas of Medical Sociology: 'Sociology in Medicine' and 'Sociology of Medicine', the former emphasizing the collaboration of the sociologist with the physician and other health personnel in studying social factors relevant to health disorders whereas the latter focussing on organization, role relationship, norms, values and beliefs of medical practice as a form of human behaviour (Robert Strauss, 1957). Hyman also makes distinction between two types of sociologists, one set of them utilizing the medical settings as convenient "Strategic" places for the testing of general sociological theory and the other involved in the application of sociological theory and research to the solution of medical problems. He considers the first category of sociologists as with "deductive" orientation and the second with "inductive" orientation (Hyman 1968).

The development of Medical Sociology in post independence India, was on the pattern of "Sociology in Medicine" and "Inductive Orientation" type, as sociologists and social anthropologists were for the first time involved in the public health programmes during the fifties by the Government of India. I had the unique opportunity of being a "Sociologist in Medicine" with "Inductive Orientation" and shifting over to "Sociologist of Medicine" with "deductive orientation". This provided me with an opportunity to be a participant observer in the growth and development of Medical Sociology in India.

Sociologists and Social anthropologists were involved in the mid-fifties as members of multi-disciplinary team of health personnel, administrators, practitioners, educators, sanitarians, etc., in the Government of India research-cum-action projects on environmental sanitation, sponsored by the Ford Founda-

tion, at Najafgarh (Delhi) and Singur (Calcutta). The focus on these projects was to carry out operational evaluation research, with the objective of providing feedback to the team members in regard to the social structural elements and cultural patterns influencing health of the people affected by environmental sanitation and the acceptance of rural latrine programme by the villagers. Besides the environmental sanitation projects, around the same time, an epidemiological survey was launched as a part of planning and programming of National Tuberculosis Programme at Bangalore and a medical person with an orientation in Anthropology was hired to carry out the operational studies under the tutelage of a W.H.O. consultant for drawing out the plans for the tuberculosis control in the country.

After the termination of these projects, the sociologists and social anthropologists engaged over there got research or training positions in the newly created National Institutes such as the Central Health Education Bureau or the National Institute of Health Administration and Education in New Delhi. These institutes, set up by the Government of India in early sixties, boosted up the role of behavioural components of health administration and education in different areas as a number of studies were carried out on national health programmes such as malaria, smallpox, tuberculosis, leprosy, maternal and child health, family planning, etc. Besides, the training programmes of health administrators and educators at different levels were strengthened with the social science components. For the first time in 1964, a forum was provided for the interaction of social scientists, medical administrators and health educators by NIHAE in the form of a seminar on Social Sciences in Health Administration. Later, in 1969, CHER organized a conference on Researches in Health Extension Education, which provided a review of research studies. With the introduction of family planning programme at the National level and the expansion of health education activities in different States, the involvement of social scientists in the health culture increased manifold. Postgraduate diploma courses in health education at the All India Institute of Hygiene and Public Health, Calcutta (affiliated to

Calcutta University), Gandhigram Institute of Rural Health and Family Welfare, Gandhigram (affiliated to Madurai University), and at the Central Health Education Bureau, New Delhi (affiliated to the University of Delhi) and an M.D. (Community Health) programme at National Institute of Health Administration and Education, New Delhi, were started. These courses had a large component of social sciences, and social scientists were involved both in research and teaching programmes. Social and Preventive medicine departments were also started in medical colleges to provide community orientation to the young graduates. In addition, a State Government Organisation at Lucknow (Planning Research and Action Institute) also carried out a number of studies on the health behaviour aspects in the rural areas.

After the establishment of the Indian Council of Social Science Research (ICSSR) in the early seventies as an apex body at the national level for the promotion of social science research, the central Health Education Bureau, New Delhi, organised another seminar in New Delhi under the joint auspices of ICSSR and ICMR (Indian Council of Medical Research) on 'Social Sciences in Health' in 1972. But over the years, the tempo of social science activities in health organisations appears to have slowed down. This may partly be due to turn over of social science oriented leadership from the health institutions at National level and partly due to merger of National Institute of Health Administration and Education and National Institute of Family Planning, resulting in professional biases of health or family planning. Consequently, the contribution of sociologists in the health field has been affected. The development of these health institutions has been observed to assume a parabolic curve and unless these are revitalized by providing dynamic leadership and reorganizing these to the changing national needs, the 'sociologists in medicine may not be in a position to make some definite contributions.

The declining interest in social science contribution in the health institutions seems to have been compensated by rising interest in Medical Sociology in the Universities over the years. However, the spread of this interest has been limited to a few University Departments of Sociology, Anthropology or School of Social Works: This was largely reflected by field report dissertation of students at their post-graduation level in areas related to health field. The interest of sociologists was hardly visible in medical sociology

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Most of the sociological studies done in India followed western paradigms and concepts. Sociologists in certain quarters condemned these and vouched for Indianisation of studies in terms of orientation, approach and value relevance, while others advocated sharing of sociological knowledge having universal application across the international boundaries. A few studies in the area of Medical Sociology done by Indian scholars for their doctoral dissertations or even those carried out by senior scholars are again biased towards western concepts and models. These studies are inadequate in number as well as in quality in terms of coverage of dimensions, restricted sample, urban and institutional bias, etc.

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Commission should make joint efforts and institute Chairs in some of the University departments in Medical Sociology.

We do observe that over the years, the medical personnel have shown greater appreciation and understanding of the role of utilization of social science concepts and methods through the involvement of sociologists in the health programmes. As such, it is imperative to bring the medical and social science personnel together to evolve a health social science culture for tackling some of the operational, organisational and management problems related to health care.

There is no doubt that the development of medical sociology in post independence India has been very slow. The sociologists in health institutions had no autonomy of their profession and worked under constraints. They had to forego theoretical sophistication and methodological rigour in many of the studies done by them because of pressure of time from the planners and administrators. Notwithstanding their contribution, they provided some useful insights into behavioural aspects of health which generated interest among the sociologists in the academic world. However, the contribution made by sociologists in the Universities is limited and needs to be further strengthened. Also, there is a need for a close collaboration and frequent interaction between 'Sociologists in Medicine' and 'Sociologists of Medicine' to make the application of Medical Sociology more relevant to national health needs and problems.

#### **Future of medical sociology in India**

Health is an important sector of development. It is well known that no nation can make progress and achieve economic development until the health of its people is taken care of. However, the Health Sector gets a low priority in the development plans (the Health outlay for the 6th plan is reported to be only Rs. 3862.8 crores, out of which Rs. 1010.0 crores is earmarked for Family Planning). But in order to tackle the problem of infant mortality rate among the poor who constitute nearly half of the population in India, it is advocated that the health policy should concentrate on far reaching public health and nutritional measures, affecting directly the living conditions of this vast poor group. The public health and nutritional measures in the community require larger resources in terms of men, money and material and unless the planning priorities are clearly defined there

is hardly any scope to develop them. This will restrict the community dimension of the health programmes and consequently the involvement of medical sociologists.

In the above backdrop, with the health sector getting a lip sympathy in the development what could be the future of Medical Sociology in India? But if we are concerned about having better understanding of the health behaviour of our people in order to relate our health services to their needs, we shall have to allocate more funds for the development of social science research and teaching programmes in the health sector. Further, in order that the role of Medical Sociology gets established with the health planners and administrators, there is an urgent need to strengthen the basis of Medical Sociology in Universities and National Institutes of higher learning. This is essential for bringing credibility to the disciplines with the health planners and administrators, as quite often they consider social sciences dealing with the obvious and doubt their utility for problem solving, how-so-ever that 'obvious' may be based on empirical facts.

It is also suggested that for the furtherance of Medical Sociology in India, young and bright students of sociology, social anthropology and social psychology, should be made interested to take up research studies in health field at M.A., M.Phil, and Ph.D. levels. After the completion of their studies, they can find entry points in health organisations and institutions to demonstrate the utility of their acquired knowledge for tackling health problems in different settings. In this direction, the University Grants Commission, the Indian Council of Medical Research and the Indian Council of Social Science Research, should make concerted efforts to promote Medical Sociology by offering fellowships and scholarships to students to undertake research in health and by encouraging selected teaching departments in the universities to institute Chairs in Medical Sociology. There is also a need to organise and promote research in Medical Sociology at the higher level. It is hoped that if this potential resource development in Medical Sociology is enhanced, it could contribute significantly towards a better understanding of behavioural or non-biological aspects of health, hitherto being recognised as essential in the "total" concept of health encompassing disease or illness dimensions and to conceive Medical Sociology within the framework of an interface between different sets of providers and consumers of health care in the developing nations.

Calcutta University), Gandhigram Institute of Rural Health and Family Welfare, Gandhigram (affiliated to Madurai University), and at the Central Health Education Bureau, New Delhi (affiliated to the University of Delhi) and an M.D. (Community Health) programme at National Institute of Health Administration and Education, New Delhi, were started. These courses had a large component of social sciences, and social scientists were involved both in research and teaching programmes. Social and Preventive medicine departments were also started in medical colleges to provide community orientation to the young graduates. In addition, a State Government Organisation at Lucknow (Planning Research and Action Institute) also carried out a number of studies on the health behaviour aspects in the rural areas.

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# Research in Health Education

H. B. SUBBE GOWDA

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Research literarily means seeking solutions to the problems. Health education research means also to discover answers to meaningful questions through application of scientific procedures.

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**R**ESearch in health education is mostly directed towards finding a solution to the problems posed in implementing health programmes. In this sense, the research in health education is more problem oriented. The research of this type more or less is designed for application rather than basic research discoveries.

In basic research, the attempt would be to discover new findings, which are not existing, whereas in health education research there is an altogether different task. For example, how to develop a most suitable contraceptive is a basic research, and if there is a problem for people to accept the designed contraceptive, finding out the reasons is health education research.

Research literarily means seeking solutions to the problems. Health education research means also to discover answers to meaningful questions through application of scientific procedures.

According to Frank, health education research is a dynamic approach to whole situation. Such research would provide the perceptions of entire situation and to find better ways to meet the situation.

In the implementation of Public Health Programmes, it is attempted to change the social and health behaviour, and the change of social or health behaviour is

a difficult task, and many problems are posed in the process of initiating a change. The research is a technique used to determine the extent of causes or reasons to such problems and further directed to suggest ways and means to overcome the problems. It aims at locating or identifying the barriers to the anticipated achievements and to discover the suitable means to attain the goals.

Health Education research is equally important to assess the felt or the real need of the community in addition to the other health needs. Again it is imperative to assess under each programme or the problems of the community, the quantum of knowledge, attitude, opinion, beliefs, sentiments, thinking, emotions, values and norms, etc., which are the operating forces for all needs. Therefore, assessment of health needs is important in research.

Social structure of the community helps in understanding the people, their reactions, attitudes, behaviour towards the programme, and it will be very much useful for programme implementation. If we know the community structure, their sub-groups, relationships, their leadership patterns by way of research, it will help in programme implementation and its evaluation. Obviously research in health education and assessment of health needs are the different sides of the same coin which are interrelated and interdependent. ○○

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# TRAINING OF DAIS



## — A FIELD EXPERIENCE

DR. S. K. CHATURVEDI

*The Rural Health Training Centre, Naila, in Rajasthan has been training the indigenous Dais since 1976. This centre also provides comprehensive health care to 40,000 population in 54 villages and has been actively involved in public health research, training of undergraduate medical students, interns, doctors under the Multi-purpose Workers (MPW) Scheme and para-medical staff of different categories. The author in this article brings out some interesting facts about Dais, their practices and training.*

THERE are 38 active dais who cover the 54 villages of the Rural Health Training Centre (RHTC), Naila. The average age is about 47 years ranging from 35 years to 53 years. The area of operation does not extend beyond 2 or 3 villages on an average. In some villages more than one dais were found practising having different periods of working during the year with division of households in the village. These dais are not solely dependent on their so called expertise in midwifery but most of them are agricultural labourers. They are illiterate and the technical know-how was passed on to them by their mother-in-laws.

We had planned to train these dais well in advance to government's scheme, with the objectives to enable them to conduct safe deliveries and involving them in the delivery of Maternal and Child Health

(MCH) services in the area. This centre distributed locally devised sterile delivery packets to the interested and approachable dais free of cost. This packet consists of 1% Tr. Iodine in an autoclaved vacuum sealed vials, sterile half shaving blade, autoclaved gauze piece, a little cotton and strong thread in a sealed polythene bag (4" x 4" size). This packet is disposable and meant for use only once. Instructions as regards to its use were given to dais when they registered themselves with the centre. It was highly acceptable and dais showed active interest in its use. For the supply of another packet it was necessary to register the birth they conducted with the Auxiliary Nurse Midwife (ANM) thus bringing the mother and child under the umbrella of MCH services.

Meanwhile the government's dai training programme started in 1978. The centre did not have to face much difficulty in selecting dais for this training as some of them were already using the sterile delivery packets but some offered resistance owing to misunderstanding that they were being taken into government service and might be sent to some other place after training; distance of centre from their residence; loss of time and work, restrictions put on by mother-in-law and husband and hesitation on their part. They were totally unaware of the modern hygienic and obstetric sciences and had low levels of understanding. But it was pleasing to note that if they were taught in local language in an informal environment and revising the topic from time to time and whenever the opportunity



arose, they could grasp the subject with ease. Films, slides and demonstration on models, flash cards and flip charts were of immense help in carrying out the training programme.

Those who come for training have long experience of "so-called" skill with staunch cultural and social background which cannot be changed over night. Therefore, it would be unwise to reject abruptly what they have been doing till now but should be substituted slowly with the modern knowledge giving illustrations of their level of understanding. It was observed that these ignorant ladies got curious to know more about modern midwifery practices. It is necessary to know the local practices and folk terminology before hand.

#### Learning experience

The classroom teaching and demonstration might go waste unless supplemented with the opportunities of 'learning experiences'. Keeping this fact in mind trainee dais were exposed to field practice alongwith ANM/LHV (Lady Health Visitors) covering different aspects of maternal and child care and practical demonstrations on the subject concerned. The field visits were planned for four days a week and the trainees were assessed regularly for what they learned in the field. The training was to be carried out for 30 working days, a weekly programme of lectures, demonstrations and field visits was designed to cover each MCH activity, i.e., ante-natal care, post-natal care, infant and toddler care alongwith family welfare. Motivational aspects of immunization and nutrition were specifically stressed during the training. This schedule gave very encouraging results. Every dais was required to conduct two deliveries under supervision of MCH staff as per recommendations. It provides good practical exercise but often impracticable due to social and administrative reasons as observed during the training here. The best way, as followed at this

centre, is to let dais work in their area of operation and send in a call to ANM to help and supervise the conduction of delivery. Lectures/demonstrations on asepsis, normal and abnormal labour require repetition as and when opportunity arises relying mainly on persuasion and recalling. One should restrain using difficult and technical terms. The use of local dialect creates a sense of homeliness and let dais feel that they are not being examined and harassed. More attention must be given to the kit during training as regard to its maintenance in proper and aseptic condition. Many dais could not open the kit properly when asked to do so well after months of training. It was not uncommon to see used enema can and its tube being kept alongwith scissors and other contents in the kit. Bowels and kidney trays might be seen out side the kit. The soap provided for washing hands was also used for bathing after conducting the delivery as they used to do earlier. Dais should be warned of such carelessness and irregularities during and after training. Many trained dais had a feeling that the kit was not handy and they preferred the sterile delivery packet provided by this centre. Occasionally they would use the scissors and liked to use the shaving blade supplied in the packet. Washing of mackintosh (waterfoot cloth) spon and boiling of articles was not upto satisfaction. Boiling period (15 min) requires special mention. There may not be the facilities for recording of time. To overcome this difficulty, the boiling period must be standardised with some common activity lasting for the prescribed sterilisation time period. Easiest method of diagnosis of complications should be preferred, e.g., for detection of puerperal fever she may be asked to put the back of her palm on the forehead and compare with her own temperature. Counting pulse with the help of sand glass or reading thermometer seems impracticable as most of them are illiterate and might fail to interpret properly. Anaemia may be detected by seeing the colour of conjunctiva and nails.

(Contd. on page 254)

*Doubt clearing session after a teaching class.*



# DAIS TRAINING SCHEME IN HARYANA STATE

## —An Evaluation\*

*An evaluation of Dais Training Scheme was carried out in 14 States in India in which nine research and training institutions participated. The study was conducted at the instance of the Government of India.*

*This training scheme has been considerably expanded in the entire country since 1978 with financial assistance from the United Nations Family Planning Association.*

*The Central Health Education Bureau undertook the study in the States of Haryana and Himachal Pradesh. We publish here a summary of the evaluation study in Haryana State. The study has dealt with various aspects of implementation of Dais Training Programme and its efficacy in terms of Trained Dais' performance in their profession after their training and also as compared to untrained Dais.*

### OBJECTIVES OF STUDY

#### Broad objective

Major objective of the study was to find out the quality of Dais' training, their present functioning, changes in their practices, community perception of services rendered by them, collaboration/co-ordination with health functionaries and performance of health workers in relation to training and guidance provided to Dais.

#### Specific objective

1. To study the profile of trained and untrained Dais in terms of:

- (i) Socio-cultural, education status and income variables;

- (ii) Professional apprenticeship and experience as Dai;
- (iii) Motivation for training;
- (iv) Inter-personal relationship with other Dais, health functionaries and community; and
- (v) Dais' performance perception regarding last 5 cases in relation to (a) cases registered and care provided at various stages, (b) deliveries conducted independently and with health workers, (c) referrals and (d) family planning motivational activities.

2. To assess the training of Dais including their performance in terms of:—

- (i) Enrolment;
- (ii) Duration;
- (iii) Facilities at the training centre (physical resources);
- (iv) Curricular inputs;
- (v) Field training organisation, deliveries conducted (supervised and unsupervised);
- (vi) Dais' role and responsibilities;
- (vii) Trainers' capability and motivations;
- (viii) Teaching methods and aids used;
- (ix) Inter-personal interaction between trainees/trainers in the class and field with emphasis on handling of responses and procedures of reinforcement of learning;
- (x) Level of communication vocabulary, terminology and language used;
- (xi) Evaluation procedures, testing methods and feed-back to trainees;

\*B. C. Ghosal, A. B. Hiramani, V. P. Srivastava, Usha Srivastava, S. P. Verma, A. Sarkar

- (xii) Need for continuing education (retraining) as perceived by Dais and trainers;
- (xiii) Use of reference/teaching material;
- (xiv) Management of training inputs and logistics, honorarium stipend, kit, etc.; and
- (xv) System of accreditation or recognition.

3. To assess the job performance of trained Dais in terms of:—

- (i) Services rendered;
- (ii) Quality of care provided in terms of improved maternity practices;
- (iii) Use of appropriate equipment (maternity kit, medicines);
- (iv) Appropriate referrals, consultations and family planning motivation, and information regarding medical termination of pregnancy;
- (v) Problem solving during emergent situations;
- (vi) Technical supervision of Dais' work; and
- (vii) Replenishment of Dai kit.

### Sampling design

Keeping in view the dimensions and objectives of the study the following sampling procedures were adopted :

*District* : Ten per cent random sample selection of districts in a State, subject to a minimum of two, was envisaged. Accordingly, two districts were selected randomly.

*Primary Health Centres* : In each selected district, four PHCs were randomly selected ensuring that at least in one of the four PHCs the training programme was going on at the time of study. Selection of a PHC having ongoing training programme was done with a view to observe the Dais Training Programme. Thus a total of eight PHCs were selected for study.

*Dais* : In each selected PHC, 12 Dais, six trained between April 1978 to June 1980, and six untrained, were randomly selected following the procedure that (a) One trained and one untrained Dai belonged to the village having or closer to PHC Headquarter, (b) two trained and two untrained Dais belonged to two

sub-centre villages (one set of trained and untrained Dai in each of the two sub-centres), and (c) three trained and three untrained Dais belonged to three remote villages beyond five kilometres from PHC sub-centre (One set of a trained and untrained Dai in each of the three villages). Wherever the sampled Dais were not available for interviews these were substituted from the vicinity villages.

*Mothers* : Recent five mothers delivered by each selected Dai were identified for interview to study the Dais' functioning in the community. As such, the mothers' sample in each PHC constituted 60, which included 30 for trained and 20 for untrained Dais.

*Health Functionaries* : In the PHC where training was going on all health functionaries which were participating in the training programme were selected for interviews. In each PHC the Health Worker (Female) (HW(F)), Auxiliary Nurse Midwife (ANM), lady health visitor (LHV), attached to selected sub-centres constituted the sample for interview in order to ascertain their performance as trainer and technical guide to Dais. Medical Officers In-charge of selected PHCs and Chief Medical Officer/District Public Health Nurse of the selected districts were interviewed for ascertaining administrative and other problems encountered in implementation of Dais Training Programme.

### Accomplished Sample at a glance

1. <i>Dais</i>	
(a) Trained	45
(b) Untrained	44
(c) Total	89
2. <i>Mothers</i>	
(a) Delivered by trained Dai	228
(b) Delivered by untrained Dai	237
(c) Total	465
3. <i>Health Functionaries</i>	
(a) HW(F)/ANM/LHV	18
(b) Medical Officers (I/C) PHC	7
(c) District Level Officers	3

### Tools used

Following schedules were used for data collection in the study.

1. Interview schedule for Dai.

2. Interview schedule for Health Worker (Female)/ Auxiliary Nurse Midwife/Trainers.
3. Class room observation schedule and observation schedule for the clinic/home during field training.
4. Interview schedule for mothers.
5. Interview schedule for District Level Officers.
6. Interview schedule for Medical Officer In-charge, PHC.

## SUMMARY FINDINGS AND CONCLUSIONS

The Dais were carrying mid-wifery services as their family profession. About half of Dais had more than 15 years of working experience in the field. The Dais were generally illiterate and elderly ladies. They were fairly well known in the community and were reported to be providing their services to the needy families/mothers as and when required. The community was satisfied with their services mainly because they were easily available, provided good care and personal assistance to the mother and the baby.

### Training Programme implementation

Out of two districts under study, the achievement of Dais Training Programme was quite short of targets in one district throughout during three years. In the other district, the targets were achieved in the first two years but thereafter declined to almost half in the third year, i.e., 1980-81. The position of issue of kits to trained Dais was found to be improving over years, yet about one fourth of the trained Dais were to receive kits by the end of 1980-81.

Competence and popularity of Dai and need of the villages were major considerations which influenced selection of Dais for training. The female health workers were the main source of information and motivation to Dais for training. The Dais had undertaken training mainly for the reasons of getting economic benefits like stipend and maternity kits. Learning of improved midwifery practices was their secondary reason for training.

Dais Training Programmes were mostly conducted at the PHC/Sub-centre headquarters by female health staff of PHC/Sub-centre. The trainers informed that availability of teaching materials/aids and consumable items like kerosene oil and reagents for demonstrating various test, etc., was not satisfactory.

Lectures/lecture cum discussion was the main teaching method used by the trainers for training. De-

monstrations, group discussions were also reported. The trained Dais in general confirmed teaching of various subjects in their training.

A good proportion of trained Dais reported to have observed demonstration of maternity kit, got and availed opportunity to sterilise the same during their training. Excepting, preparation for and giving of anaemia to mothers (reported by 80.0 per cent) no other demonstration was reported by more than half of trained Dais. On the question of demonstrational training, the trainers reported that they emphasized on adoption of aseptic measures by Dais by way of sterilizing the equipments and immunization of mothers and children. The evaluation of trainees was reportedly done mostly through oral tests.

The District and PHC Level Medical Officers reported supervision of Dais Training Programme by observing the ongoing training programme and collecting progress report from the concerned health workers. The trained Dais were being followed up in the field and the health staff again emphasised upon the Dais to observe better personal hygiene and aseptic measures for safe delivery.

### Dai Performance

The trained Dais had conducted more deliveries than untrained Dais during a reference period of three months duration. The trained Dais' average was 7.9 against untrained Dais' average of 4.2. The trained Dais sought more assistance from the PHC/Sub-Centre staff than untrained Dais for ante-natal check up and delivery services.

The performance of trained Dais was better than that of untrained ones in relation to various practices for conducting safe deliveries. For ante-natal practices a higher proportion of trained Dais attended mothers had got them registered with PHC/Sub-centre, got them immunised with TT injection, arranged for ante-natal check up and prophylaxis against nutritional anaemia.

Regarding natal services also the trained Dais were found to have fared much better than untrained Dais in relation to safe delivery practices like boiling of equipments/cord cutting instrument, and giving of drugs to the mother.

The trained Dais were mostly using scissors for cutting cord, whereas in the case of untrained Dais, use of blade was found to be most frequent. During post-natal care, a higher proportion of trained Dais gave

attention for controlling of bleeding/PPH in mothers and care of baby's cord.

Data on Dais' advice to expecting mothers suggested that the trained Dais rendered advice to the mothers more than untrained Dais on various ante-natal, natal and post-natal matters including personal hygiene. For family planning work as well, performance of the trained Dais was found to be better both in terms of advising the mothers as well as acceptance of various methods by the people.

### Conclusions

The targets of Dais Training Programme were almost only half achieved during 1980-81. Only about three fourths of the trained Dais had received maternity kit by 1980-81.

The availability of teaching materials/aids for Dais training was reported to be inadequate. Nearly half the trainers had not received any guideline and schedule for Dais Training Programme.

Theoretical training was widespread as confirmed by the trained Dais. Dais' responses on demonstrational training showed inadequate coverage.

The performance of trained Dais was better than that of untrained Dais in almost all respects of midwifery services and advice pattern to expecting mothers in relation to safe and smooth deliveries. However, in matters of personal services to the mothers and new borns, the trained and untrained Dais did not differ. As compared to their pre-training conducted deliveries too, the trained Dais had shown over all improvement in their functioning.

The practices which required cooperation of PHC/Sub-centre/health staff (like registration of mothers, ante-natal check up, TT injection and iron with folio acid tablets to mothers etc.) were found to be adopted

*(Contd. from page 250)*

These were some of the observations and more might be pointed out. A regular contact, follow-up and supervision are of utmost importance and a close liaison must be maintained with them. They should get due affiliation, recognition and encouragement from time to time to make them practice for what they have been trained. The impact of the training of dais is evident as there has been of great improvement in recording of pregnant mothers and births. Remuneration for replenishing the kit has proved to be good

more by Dais/mothers belonging to PHC/Sub-centre villages than those belonging to remote villages.

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The health workers followed up the trained Dais in the field and according to their observations as well, the functioning and performance of trained Dais had improved, particularly in the matters of personal hygiene and sterilizing the equipments for conducting safe delivery and cutting cord. Above all, the trained Dais also confirmed learning of improved practices during their training.

The officers and health workers in general reported their overall satisfaction with the Dais Training programme.

### SUGGESTIONS

The Dais Training Programme personnel need to ensure availability of teaching materials and aid required for teaching and training of Dais, and maternity kits for issue to trained Dais after completion of their training.

Each health worker participating in the Dais training may be supplied full curriculum, guidelines and schedule in order to enable them to have full overview of the training programme.

More emphasis may be given on non-theoretical/demonstrational training in order that the Dais comprehend and assimilate practical knowledge during training situation.

Some such system may be evolved and maintained by which the trained Dais may get registered with the PHC/Sub-centre and may continuously remain in touch with health functionaries for mutual co-operation.  $\Delta$

incentive to dais and its periodic disbursement has been useful in arranging refresher classes and developing faith and favourable attitude towards health centre.

The trainers require a special mention. The staff should be fully equipped with the necessary material, modern knowledge and local socio-cultural practices. Only those having a positive attitude to work should be involved in the training. Administrative support has to be assured to the programme as a priority from time to time.  $\Delta$

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Think Globally, act locally: this saying of French ecologist Rene Dubos is one of the watchwords of appropriate Technology for Health. It means — bringing health care to where it is needed

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## APPROPRIATE TECHNOLOGY FOR HEALTH — Adaptable and acceptable

CLAUDINE BRELET

**A**PPROPRIATE Technology for Health is a concept that has launched thousands of projects and programmes all over our planet, initiated by governments, non-governmental organizations, small local voluntary groups and private individuals.

Generally abbreviated as ATH or A.T., it has been defined by WHO as “technology that is scientifically sound, adaptable to local needs, and acceptable to those who apply it and those for whom it is used, and that can be maintained by the people themselves in keeping with the principle of self-reliance with the resources the community and the country can afford.” So from the start, the accent has been put on people’s participation, and on their appropriation of the appropriate means to provide and use health care.

A.T. does not mean cheap, second-class technology, nor is it a fashionable label that can be used to sell cheap devices to developing countries. Although sometimes scornfully dismissed as “bamboo-technology”, this is to overlook the fact that, in some places, bamboo can indeed be a better adapted and more appropriate choice of material than, say, corrugated iron. One basic characteristic of A.T. is that it entails the choice of the best locally available produce, irrespective of whether it stems from the indigenous culture or from the latest high-technology. Indeed, the pioneers of A.T. emphasised the need in today’s world for “appropriate science and technology by and for the people.”

The A.T. concept has developed during the last three decades—essentially during the decolonisation period when it was vital for young nations to build up their independence and for young people of the old nations to get ready for a new type of civilisation based, not so much on competitiveness, but rather on sharing and cooperation. Historically, the process was started by China’s Mao Tse-Tung and India’s Mahatma Gandhi, each in his own style but both with an enormous impact on younger generations eager to implement self-management.

Today, more than ever before, we are recognising the active interdependence that exists between all living systems and, consequently, between all human activities. In the field of health, this means a new awareness of the need for a global approach, involving many other sectors besides health. We have stopped thinking in terms merely of pathogenic agents of disease; we have to consider many other factors such as healthy environment, better housing, teaching all the family (especially the mother) to read and write so that they can better understand the root causes of sickness. In turn, this means we must examine those needs that are actually *felt* by the people, and must seek their participation in finding solutions.

The accent on people’s participation is reflected in the concepts that are related to the A.T. approach: self-development, self-efficiency, self-reliance. A.T. appeals to people’s sense of responsibility and at the

same time it is a process of continuous education, of conscious adaptation to the evolving needs of any developing country or community.

All these considerations have led WHO to enlarge its ATH programme from a small pioneering unit in the 1970s into an integral part of its Seventh General Programme of Work (1984-89)—as an approach built into all aspects of health policy.

Let us look at one example of WHO's work in specific areas which may illustrate "the A.T. spirit." In 1983, WHO followed the advice of a group of leading scientists and set up a programme to develop new and improved vaccines against selected diseases. This includes producing microbial antigens by recombinant DNA technology, peptide synthesis and monoclonal antibody techniques. Such an approach is based upon the complex interaction required between the different components of the immunological system in order to produce a protective immune response. The late French eco-biologist Rene Dubos used to say: "Think globally, act locally," and this quickly became a slogan of A.T. Using the new biotechnology, vaccination remains a global strategy—the only universally applicable approach—but also becomes a local action—using the specific response of the patient's organism.

In addition, WHO is playing a key role in coordinating the production of new vaccines, and in encouraging the transfer of the locally appropriate technology to produce them from the developed world to the less developed countries that have requested such sharing of knowledge and skills.

### Learning capacity

For far too long, it was thought that only university-trained people could become qualified health personnel able to cope with modern technologies. The emphasis that the A.T. approach puts on indigenous values has relegated such an attitude to the history books. It is now readily accepted that people who have not grown up in a highly literate culture are not at all automatically deprived of learning capacity.

One example stems from the need for radiology services in rural and outer-city areas. Two years ago, the Ministry of Health of Colombia, with the help of WHO's Regional Office for the Americas,

provided a rural health centre with a simplified WHO Basic Radiological System; the local rural health workers received an accelerated training course of only four days.

Although the system cannot make x-ray plates, it is able to deal with almost 90 per cent of the radiological examinations that are routinely made in a teaching hospital. The experiment was so successful that the health workers were able to make accurate pictures right from the start, after only four days of instruction. The net effect was the desired one—to provide health care to more patients at less cost.

One of the founding fathers of A.T., Dr E. F. Schumacher, was famous for his saying: "Small is beautiful." It is equally true that "Small is useful." Modern miniaturisation of electronic systems enables us to reach such unfortunates as leprosy sufferers. A "leprosy pencil" has been developed by WHO's Leprosy Unit with the assistance of CERN, the European Nuclear Research Centre in Geneva, Switzerland. Only about five million of the estimated eleven million leprosy cases in the world are registered, because of the difficulty of detecting the disease. Control of the disease depends to a large extent not only on adequate treatment but on starting treatment as early as possible.

The new pencil permits diagnosis at a very early stage. Nerve dysfunction is characteristic of leprosy, and one of its early symptoms is the impairment of thermal sensation. Hitherto, clinics tested for this by asking the patient to differentiate between one test tube containing warm water and the other containing water at room temperature. The new pencil consists of an electronic sensor that fits into a pencil-shaped holder and is powered by two small batteries. A person should easily be able to distinguish between the warmth of the sensor and the cooler part of the pencil—unless he or she is suffering from early leprosy. The device makes it possible for health workers to test for the disease under all field conditions.

So here too, the A.T. principle of "acting locally" is invoked, and modern technology in an appropriate form makes it possible to reach people where they are. Bringing health care to where it is needed is one of the most pressing preoccupations of health authorities in developing countries; no device or method that makes this more possible is to be despised.

— World Health,  
June 1985.

Swasth Hind

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# Drinking Water & Sanitation Decade

## POSITION IN INDIA

The Government of India is fully aware of the urgency to find the solution to the serious problem of drinking water and sanitation and is firmly committed to the achievement of the goals of the International Drinking Water and Sanitation Decade.

**I**N India alone, it is estimated that over 73 million mandays are lost every year as a consequence of water-borne diseases. The cost to India in terms of medical treatment and lost production is around 4,500 million rupees annually.

There are approximately 500 million people partly blind with trachoma, 250 million people with the swollen limbs of elephantiasis, 200 million people passing blood in their urine because of schistosomiasis, 160 million people with malaria and 100 million people with diarrhoea in the world.

The most vulnerable section of the population is children below the age of five. The United Nations International Children's Fund (UNICEF) estimated that 1000 million children in developing countries have no access to clean drinking water. The Brandt Commission found that between 20 and 25 million children below the age of five die every year in developing countries, and a third of these deaths are from diarrhoea caught from polluted water. In India alone about 1.5 million children die annually because of diarrhoea.

It is in order to correct this situation that the United Nations has taken up the challenge of providing safe drinking water and proper disposal of human waste. The target has been set for the year 1990.

For India, however, the achievement of the target poses a formidable problem. At the beginning of the decade, in 1981, only 31 per cent of the rural po-

pulation had access to water. By 1990 it is hoped to provide water to the entire rural population. The target is to provide access to sanitary facilities for disposal of human waste to 25 per cent of rural population by 1991.

### Magnitude of the problem























The magnitude of the problem is evident from the fact that an estimated 12.78 million urban households have dry latrines which need to be converted into pour flush latrines. The present rate of conversion is approximately 25,000 latrines a year. Even if the rate of conversion were 100,000 latrines a year, it is estimated that it will take more than 100 years to complete the work. In addition, there are a staggering 10.54 million urban houses which have no latrines at all and which need to be provided with them. And this is only the size of the urban problem which affects about 20 per cent of the population.

The Government of India has stepped up its allocation for water supply and sanitation programmes from 49 crore rupees in the First Five Year Plan to 4177.51 crore rupees in the Sixth Five Year Plan. However, the estimated requirement to achieve the goals of the decade is 14,700 crore rupees.

At the General Assembly Session in 1980 the Director General of the World Health Organisation Dr Halfdan Mahler stated that "the number of water taps per 1000 persons will become a better indicator of health than the number of hospital beds."

# the everlasting flame



					
		<p>The flame of Freedom Lit by our brave Countrymen And glowing in the Hearts of our millions How can any storm snuff It out? It's that glow that changed our destiny and made us FREE— This day 38 years ago. It's that glow that showed us the way to progress and prosperity. It's that glow that has made us strong and self-reliant That spirit of Freedom— Let it glow forever.</p>			
					
					
					

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*In 1981 only 31 per cent of the rural population had access to water. By 1990 it is hoped to provide safe water to the entire rural population.*

The Government of India is fully aware of the urgency to find a solution to this serious problem, and is firmly committed to the achievement of the goals of the water and Sanitation Decade. The United Nations Development Programme, which coordinates the efforts of other U.N. agencies, is providing active technical, financial and educational support for this programme. However, for the goals to be achieved, the participation of the people at all levels and especially of voluntary organisations is essential.

#### **Role of Women**

Women can play an especially vital role. Since they bear the burden of collecting water and have a critical influence on family health, they benefit most directly from both water supply and sanitation. Paradoxically, they are typically the least consulted in decision making processes. In helping to achieve the Decade's goal, women can be especially important in several areas. They can help develop an awareness of the importance of clean water and sanitation in their families, workplaces and communities.

Women can also help in choosing and testing hand-pumps and other technologies which they will later use daily. Any attempts to change attitudes or social practices should involve women as the frontline workers. The strategy to eliminate 80 per cent of illnesses which are directly related to water and sanitation is heavily dependent on the participation of women.

The National Health Policy explicitly calls for the participation of the local communities in the official efforts. The success of the decentralised primary health care systems depends vitally on the organised building up of individual self-reliance and effective community participation.

The policy statement says: "the provision of water supply and basic sanitation facilities will not automatically improve health. The availability of such facilities should be accompanied by intensive health education campaigns for the improvement of personal hygiene, the economical use of water and the sanitary disposal of waste in a manner that will improve individual and community health".

The International Drinking Water Supply and Sanitation Decade is everybody's concern.

—PIB

# World Food Day—16 October

## FOOD SAFETY

### — A Worldwide Public Health Problem

**D**ESPITE the advances of modern technology, keeping food safe remains a worldwide public health problem in both developed and developing countries. Illness caused by contaminated food is a leading cause of sickness and death in the developing world, and affects untold millions in all countries.

While few precise figures are available, WHO estimates that only a fraction of foodborne disease is currently recognized and reported throughout the world. In developing countries, the ratio between real and reported cases may be as high as 100:1, while in industrialized countries the food-connected health incidents that are reported represent far less than 10% of the actual total.

Contaminated food is responsible for a high proportion of diarrhoeal and other infectious diseases, particularly in the developing world. WHO estimates that in 1984 there were about 1000 million episodes of acute diarrhoea among children under five years of age in Africa, Asia (excluding China), and Latin America; the disease proved fatal for nearly five million of them.

Diarrhoea is a significant health problem for the adult population too, especially for those who travel. Of some 2,600 million people who travel each year for business, pleasure or other reasons, WHO estimates that between 20% and 50% suffer from diarrhoea, much of it caused by contaminated food or water.

WHO receives reports each year of tens of thousands of cases of foodborne diseases among all age groups in Canada, Japan, the United Kingdom, the United States and other developed countries, where

these diseases are a leading cause of illness.

While the problem is indeed worldwide, it is particularly acute in the developing world, where poor nutrition renders the problem more severe. A vicious circle sets in: foodborne diseases lead to impaired digestion and absorption of nutrients, until resistance to illness is reduced, causing further sickness and, in many cases, death.

Contamination of food can thus affect whole populations. Gastroenteritis occurs in Indonesia in more than 40% of the population every year and is recognized as responsible for much malnutrition, especially when accompanied by acute diarrhoea. In Thailand, gastro-intestinal infections accounted for 60% of all illnesses in 1979 and were the main cause of death there; the same was true in Colombia, Costa Rica, Egypt and Mauritius.

#### Causes of Food Contamination

Contamination is often caused by faulty handling, storage and preparation of food. Examples of traditional food habits and customs which perpetrate contamination include:

- eating fermented pork in Northern Thailand and raw sausage in Central Europe puts people at risk of contacting trichinellosis.
- a preference for uncooked or undercooked meat in some communities may cause illness because there was not enough heat to destroy all the dangerous pathogens.
- the taboo found in some countries on handwashing following certain activities which dirty the fingers. This frequently leads to

contamination of food handled subsequently.

— partially pre-cooking a Thanksgiving turkey, a time—and work-saving tradition in the USA, can be dangerous. Often weighing more than 10 kilograms, the large bird requires many hours of cooking to eliminate pathogens or toxins. Multiple cooking over a period of days is normally not enough to do this, and may even add to the risk.

Most food contamination is microbiological in origin. However, in both developing and developed countries, the widespread use of chemical substances throughout the food production chain has increased the risk of chemical contamination in recent years. Chemicals commonly used include agricultural pesticides and fertilizers, veterinary drugs and growth stimulants, and food additives.

Other varieties of chemicals—such as lead and cadmium—are not intentionally brought into contact with foodstuffs and have nothing to do with food production. But they find their way into the food chain from the general environment and pose a risk to public health.

Food is one of the most important commodities in all economies, and its contamination results in substantial economic losses. In some countries, food losses due to preventable spoilage can run to as much as 30% of the total crop.

The social cost of food contamination includes the costs of treating the induced diseases, and loss of output or earnings resulting from illness, disability, or premature death.



*Contamination of food is responsible for a high proportion of diarrhoeal and other infectious diseases, particularly in the developing world. Safeguarding food could save millions of lives, especially of children.*

— Photo : UNICEF

### **The importance of health education**

Outbreaks of foodborne diseases can be reduced if both professional and domestic food handlers understand the importance of correct hygienic practices. Health education is one of the most effective means of eradicating the problem, but will only work if it reaches, motivates and convinces all those involved along the food chain.

Hygiene practices are often hampered by ingrained traditions and practices, as well as economic limitations. Therefore, health education on safe food practices must involve not only policy makers and health authorities, but also consumer organizations and the general public.

Children can be useful in passing on to their parents new, health-related messages acquired

at school. Other means of health education include radio messages and visits from community health workers.

### **The WHO food safety programme**

The World Health Organisation has an active programme in food safety which aims to improve programmes for monitoring and control of foodborne hazards (microbial, chemical and others) so as to reduce the incidence of these diseases in the population. The programme lays particular stress on involving communities in taking the necessary measures, and also co-operates with Member States in improving and strengthening food control systems, including legislative measures. Some of these activities are carried out in collaboration with the Food and Agriculture Organisation (FAO) and other organizations.

Making food safe also requires government action. Regulations that could make food safe and enforcement of food safety standards are often limited in the developing world. Governments should seek to educate and inform in addition to enacting and enforcing regulations, making safe food a habit rather than just an obligation.

Today WHO is also seeking assistance from the food industry in the fight against foodborne disease. Food producing, processing and handling companies can help by promoting positive health messages.

Another important element in promoting international trade in safe food is the Codex Alimentarius Commission. Working under the auspices of WHO and FAO, the Commission's aim is to ensure the safety of food moving in trade and to provide guidelines for national food control through its standards and codes on various food commodities, raw materials, plant facilities, processing and general hygiene.

To sum up—safe food is vital to conserve valuable energy, proteins, vitamins and other substances which are necessary for human nutrition. In the developing world, safeguarding food could save millions of lives and ensure that millions more do not suffer the dire consequences of foodborne disease.

— W.H.O.

# Fibre — Is it a Dietary Requirement ?

SMT. KAMAL G. NATH

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**There is good evidence that fibre depleted diets cause pathological effects not only in the gastrointestinal tract, but also in other structures including the arteries, lower limb veins and gall bladder.**

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FOOD fibre has traditionally been defined as the part of the diet that is not destroyed by boiling in both dilute acid and dilute alkali. Not only is this a pure academic definition which bears little relationship to what happens to food in the gastrointestinal tract, but it takes no account of the pentosans which, though not digested by small bowel enzymes are largely broken down by bacteria in the colon.

Because fibre has no nutritive value it has been classified as unavailable carbohydrate. Consequently, it has been presumed to have no function in maintaining health, and has therefore, been discarded as a food impurity. Although it has been the most neglected component of human diet its value has been appreciated by those concerned with animal husbandry.

## **The effects of fibre depleted foods on the gastrointestinal tract**

The natural function of the gastrointestinal tract has been the removal of fibre from plant foods so as to render the contained starches and sugars available for absorption. In modern society this function has been largely taken over by artificial food processing which removes most of the fibre before the food is consumed. This alters the normal physiological activity of the whole of gastrointestinal tract.

### **Effects of fibre on mouth**

*Effects on teeth* : Acids produced by fermentation of sugars play a major role in causing dental decay. Soft starchy foods, particularly those composed of refined flour, hold the sugars and their fermented products in prolonged contact with the teeth and gums. This results in dental caries and periodontal disease. Less refined diets are less cariogenic

and foods requiring mastication have a cleansing and abrasive effect and therefore have a protective action on the teeth and gums.

*Effect of mastication* : Coarse food requires more mastication than refined food and is consequently held for longer time in the mouth before swallowing. As a result it reaches the stomach mixed with more saliva than does more quickly eaten refined food.

### **Effects on stomach**

*Over consumption* : A high fibre content increases the bulk of a meal. Consequently, the stomach is filled and appetite satisfied with less food and less energy than would be the case with concentrated refined foods which provide no bulk and so lead to over consumption. Obesity, which is so closely linked with refined carbohydrate foods, may be due partly to over eating and partly to more complete absorption of the food ingested in the small bowel.

*Delayed emptying* : There appears to be a relationship between peptic ulcer and refined foods. The possible causes could be:—

- (1) deficient mastication and mixing with saliva,
- (2) protein stripping and action of sugar.

Remission in peptic ulcer patients in India was obtained by adding rice bran to their diet.

### **The small intestine**

*Increased food absorption* : There is some evidence that a greater proportion of nutrients, vitamins and minerals are absorbed from refined than from less processed foods.

The increased absorption from a low residue meal may in part be due to the fact that it takes longer to pass through the small intestine. When sugars and starches are consumed in refined form they are absorbed from the small intestine much more rapidly than they would be if eaten in their natural state. Since the starches are changed to glucose after absorption, this means that the pancreas may have to cope with a much more rapid intake of glucose to the

bloodstream than that which naturally occurs. This may be a fundamental cause of diabetes—a disease which is much more prevalent in communities eating a refined diet.

*Reabsorption of bile acids and absorption of dietary cholesterol:* More bile acids are reabsorbed from the terminal intestine on a refined than an unrefined diet. Since bile acids are formed from cholesterol there is less need for cholesterol to be used for this purpose if the bile acids are recycled.

More of the cholesterol eaten in food is believed to be absorbed on a low than on a high residue diet. The fibre in the latter apparently binds the cholesterol and evacuates more of it in the faeces.

For both these reasons a low residue diet is believed to predispose to a build up of cholesterol.

*Absorption of lithocholate:* Lithocholate, a product of the breakdown of bile acids in the intestine also tends to be absorbed and returned to the liver in case of low residue diet. In contrast, more of it is excreted in the stools in case of high residue diet. The absorbed lithocholate suppresses the breakdown of cholesterol into bile acids.

For these reasons a fibre depleted diet may be an important cause of coronary heart disease.

### **The large intestine**

Studies have indicated that the speed of passage of faeces through the large bowel is profoundly influenced by the fibre content of the diet.

While the fibre content of diet is inversely related to intestinal transit time it is directly related to stool bulk and weight.

The more rapidly passing large stools associated with high residue diets are characteristically soft and usually unformed, whereas those associated with low residue diets are firm.

The muscles in the intestinal wall have to work much harder on a low than on a high residue diet in order to propel the small, firm fecal masses along the lumen of the colon. The strong muscle contractions required build up unnaturally high pressures in the lumen of the bowel. Soft bulky stools associated with high residue diets are prepared through the intestine much more easily, and consequently intraluminal pressures are markedly smaller.

Although bowel function can be shown to be related to the fibre content of the food, it might be

assumed that it is some other constituent of diet that is the important factor. Fibre from cereals and legumes has been shown to be more effective than fibre in fruits and green vegetables in influencing bowel activity.

### **Diseases of the large bowel related to fecal arrest**

*Constipation:* A low residue diet is the most important cause of constipation.

*Appendicitis:* It is rare in rural communities in developing countries. It is believed that the fundamental cause is obstruction to the lumen of the appendix either by a faecalith or by muscular contraction, both of which are related to low residue foods. Pressures build up behind the obstruction and cause damage to the mucosal lining of the appendix which allows bacterial invasion. Diet also causes changes in bowel bacteria and this probably contributes to the development of appendicitis.

*Diverticular disease:* This is the most common intestinal disease of the western world where it was rarely seen before. It is still exceedingly rare in developing countries where most of the population live on high residue diets. It is believed to be caused by the high pressures produced in the bowel by low residue diets. These pressures force the mucosa through the muscle layers of the intestine.

A high fibre diet is becoming increasingly recognised as the best treatment for the disease.

### **Diseases associated with raised intra-abdominal pressures**

Constipation, consequent to a low residue diet causes raised intra-luminal pressures in the colon. It also results in staining of stool which causes unnaturally raised intra-abdominal pressures.

All these conditions are rare in communities living on high residue diets.

There is good evidence that fibre depleted diets cause pathological effects not only in the gastrointestinal tract, but also in other structures including the arteries, lower limb veins and gall bladder. There is no evidence that the restoration of fibre in our diet in the amounts that would seem necessary to combat these diseases could do any harm. With odds of this nature the only logical step seems to be an endeavour as individuals and as members of a community to restore the cereal fibre which has been removed from our food. △

# NEWS

## PRIME MINISTER OPENS CANCER INSURANCE SCHEME

PRIME MINISTER Rajiv Gandhi became the first member of the newly-introduced cancer medical expenses insurance scheme when he signed the policy documents on 11 July, 1985, at New Delhi.

Inaugurating the membership-cum-cancer insurance scheme, jointly sponsored by New India Assurance and the Indian Cancer Society, Shri Gandhi stressed the need for creating an awareness among the people, particularly the rural masses, of the need for early cancer detection.

"Early detection is the key to fighting the deadly scourge", he said.

Shri Gandhi also emphasised the role of primary health centres and voluntary agencies in educating the rural people on the symptoms of cancer and necessary preventive steps to combat it.

Shri Gandhi regretted that while breakthroughs had been made in finding cures to most major diseases, little progress had been made with regard to cancer.

Shri Gandhi expressed the hope that the policy would act as a catalyst to creating an awareness among the people about the need to go in for check-ups.

Shri Gandhi also emphasised the need for more detection centres. The inadequate number of detection and curative centres in the country had contributed to the high mortality rates.

Though early detection was essential it was also necessary that modern cancer treatment equipment be manufactured in the country, he said.

Shri Gandhi said the production of sophisticated detection and curative equipment indigenously would also reduce dependence on imports.

## REGIONAL HEALTH MINISTERS' MEETING

### EMPHASIS ON PEOPLES PARTICIPATION IN FAMILY PLANNING

THE Family Planning Programme in the coming years will be implemented "not merely with the help of the Governmental infrastructure but also with the help of the voluntary agencies and more than that with the involvement of the people in the Programme through greater emphasis on education, motivation and the realization that the Family Planning Programme is a people's programme which has to be pushed forward in the interest of the nation. We have taken some steps but we intend to take many more steps with the overall objective of involving voluntary agencies, professional bodies, cooperative societies, panchayats and other governmental agencies which may be functioning in the field of social welfare, rural development, education and agricultural extension programme of workers, etc."

In her inaugural address at the two-day Conference of the Health Ministers of Uttar Pradesh, Bihar, Madhya Pradesh, Rajasthan and Orissa, on 17 July, 1985, in New Delhi, Smt. Mohsina Kidwai, Union Minister for Health and Family Welfare, asked the Ministers to evolve "new strategies in respect of mass media, interpersonnel communication to give fillip to the Programme".

The Health Minister also said that the Government was committed to achieve "5.56 million sterilizations as against the actual achievement of 4.05 million last year. Similarly, 3.24 million IUD insertions, 0.96 million oral pill users, 9.51 million conventional contraceptive users have to be brought during the current year into the fold of family planning acceptors".

The Health Minister assured them that finance would not be a problem in their efforts towards achieving the goal.

The Health Minister expressed her unhappiness over the higher mortality rate due to tuberculosis.

Over five lakh people die every year due to this disease. She said that this could be drastically reduced if the State Governments actively cooperated with the Central Government in its case detection activity.

In spite of the giant strides made in the leprosy eradication programme, the disease still continues to be a problem, the Health Minister admitted. She said that eight districts in Uttar Pradesh, ten districts in Bihar, five districts in Madhya Pradesh, seven districts in Orissa and two districts in Rajasthan were higher endemic and needed special attention.

The Minister complimented the States of Madhya Pradesh, Rajasthan and Bihar for their efforts in controlling blindness. She said that efforts were underway to train more Ophthalmic Assistants to help implement the Blindness Control Programme.

The Minister said that Malaria Eradication Programme was facing acute problem due to the emergence of the drug-resistant *P-Falciparum* variety of mosquito. She urged the States to evolve new strategies for controlling the spread of malaria to urban slum areas and among rural population.

Shri Yogendra Makwana, Minister of State for Health and Family Welfare, expressed his gratitude to the States over the performance of the 10 week long Family Planning Campaign undertaken during the summer months. The performance in these months was remarkable, the Minister said. This experience gave the Ministry confidence about the ability of the family planning workers to achieve the target set before them with the active participation of other agencies.

The Health Secretary, Smt. Serla Grewal, in her vote of thanks assured the States that the Ministry would give all assistance in their efforts towards the implementation of the programme. △

# BOOKS

**Low-Cost Water Supply and Sanitation Technology: Pollution and Health Problems**, New Delhi, 1984, 40 pages, (WHO-SEARO Regional Health Papers No. 4), ISBN 92 9022 173 9 Price: Sw. fr. 5.—

Under the aegis of the International Drinking Water Supply and Sanitation Decade (1981-1990), designated by the United Nations, there has been progress in the provision of water supply and sanitation facilities in the developing countries. However, if the Decade targets are to be met, nearly half a million people would have to be given access to new water supply and sanitation facilities *every day*. It would be impossible to achieve this using conventional technologies alone owing to their high costs and the level of skills required. Hence alternative approaches have to be tried—approaches that are simple and cheap. Many such methods have been tried and tested for water supply, particularly in the rural communities, and several applications have also been designed for excreta disposal. Some of these technologies have proved socially acceptable and economically viable, and hence have come to be called “appropriate technologies”.

While some of these technologies can undoubtedly increase the coverage, their improper use can give rise to health problems. This aspect assumes special significance in developing countries where the incidence of water-borne and water-related diseases and diseases resulting from soil pollution and food contamination is very high. It has thus become imperative that the provision of simple low-cost technologies be preceded by an assessment of their design, quality and the existence of adequate maintenance facilities.

This publication, based on a report submitted to the UN Economic and Social Commission for Asia and the Pacific (ESCAP), starts by summarizing the health problems that can result from the improper use of low-cost technologies.

The apparent paradox of how a high coverage by water and sanitation facilities can actually lead to low health status is discussed, using the example of a typical family that lies in a mud hut with a thatched roof. A chapter is devoted to a few principal applications on low-cost technology in water supply based on rainwater, groundwater, surface water and piped water. Water-quality surveillance is also discussed.

The chapter on low-cost technology applications in sanitation covers on-site excreta disposal systems, pit latrines, groundwater pollution, septic tanks aquaprivies, waste-stabilization ponds, fish ponds, biogas digesters, night soil disposal systems, land irrigation systems and refuse disposal.

A 10-page summary table also lists suggested precautions and remedial measures to be applied with different types of low-cost technology.

Written in simple and lucid language, this publication should be useful to public health administrators, health planners, health educators, designers sanitary engineering personnel, and all those actively engaged in planning and maintaining low-cost water supply and sanitation technology. △

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## **Self-learning Materials and Modules for Health Workers —A Guide for their Development, Utilization and Evaluation,**

**SEARO Technical Publication No. 6, 18 pages,  
Price Indian Rs. 5.—**

An essential pre-requisite for the effective delivery of health care is to impart continuing education to health workers at all levels, in order to keep them abreast of the latest skills, knowledge and expertise in their respective fields of activity. But shortage of manpower, the problems caused by disruptions of work, and a host of other factors make it difficult to organize institutional training for them at regular intervals. A viable alternative is to provide this continuing education at their doorstep in the form of high-quality self-instruction modules—or the development of a learning module bank.

How can such a module bank be developed? What are the constraints, advantages and limitations? How does one ensure feedback? To find answers to these and other related questions, the WHO Regional Office for South-East Asia convened a meeting of a task force on module banks in December 1983. This guide is one of the outputs of the meeting. It contains the definition, purposes and processes of self-learning materials and modules and operational guidelines on how to develop, implement and evaluate them at the national level. The guidelines are brief and succinct, and have been framed in general terms so as to permit their application in different countries under varying situations. △

# swasth hind

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