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HEALTH ASPECTS OF POPULATION DYNAMICS

Report by the Director-General

INTRODUCTION

Both the Eighteenth and the Nineteenth World Health Assemblies considered reports¹ submitted to them by the Director-General on the subject of health aspects of world population, and adopted resolution WHA18.49² and WHA19.43³ respectively.

These resolutions provide guidance for the World Health Organization for its programme of activities, including the conditions within which the Organization may provide advisory services on request from Member States, in this important area of health.

The activities of the World Health Organization relevant to the health aspects of population dynamics are numerous and varied and include, for example, the collection of vital statistics, the organization of health services, national health planning, the development of maternal and child health services, human reproduction, and many others.

In accordance with paragraph 5 of resolution WHA19.43, the Director-General has the honour to present the following report to the Twentieth World Health Assembly.

¹ Off. Rec. Wld Hlth Org., 143, Annex 18, and Off. Rec. Wld Hlth Org., 151, Annex 13.

² Handbook of Resolutions and Decisions, 8th ed., pp. 76-77.

³ Off. Rec. Wld Hlth Org., 151, 20-21.

I. GENERAL CONSIDERATIONS ON HEALTH ASPECTS OF POPULATION DYNAMICS

Interrelationships between health and population dynamics are complex, and manifest themselves in a great variety of ways. Changes in population size, in the age composition of populations, and in the geographic distribution of people, may profoundly affect health and disease, both qualitatively and quantitatively. An increase in population size often creates pressing demands for health services and health professionals. Changes in age structure of populations with, for example, an increase in the proportion of the elderly or of the very young, transforms patterns of morbidity and mortality. And new modes of living associated with changes in the density of people may entrain psychophysiological problems and adaptations that affect health and disease.

On the other hand, reciprocally, progress in medicine and public health together with technological and socio-economic developments, often radically alters population dynamics - as has occurred during the past decades with greatly prolonged life expectancies in many parts of the world.

Problems that accompany shifts in population dynamics are too often viewed only in terms of numbers when the factors involved in the imbalances they may create are much more complex. The multiplicity of problems that may result from shifts in population dynamics - including health problems - basically arise when such shifts create imbalances between resources and numbers. Imbalance between economic, educational, social, cultural, and health resources on the one hand and population numbers on the other hand, become problems when they affect the standard of living and the quality of life.

Such imbalances are found in parts of almost all countries of the world and not merely in nations traditionally thought of as having population problems. In this era of rapid urbanization, outstanding examples of such population imbalances are taking form in most of the larger cities of the world. Well designed, comparative, epidemiological studies of such urban population phenomena, which are occurring in both developing and developed countries, would provide much information

on the nature of population imbalances and on the influence of crowding, altered social patterns and traditions, stress, etc., on birth and death trends, on morbidity, and on the effects of migration. Because population shifts associated with urbanization are occurring so rapidly, insights about population imbalances and problems could be expected relatively quickly from such studies.

Patterns of health services developed in response to changes in population dynamics must, of course, be adapted to the social and cultural milieu in which they are to function, and to the problems, needs, and resources of specific populations and communities. Health professionals have of course always been concerned with the basic determinants of population dynamics - births and deaths. Today, in the face of increasing problems resulting from population imbalances, health professionals are being challenged to devise new ways to meet health needs.

Of fundamental importance in any health programme aimed at health problems associated with population imbalances, is the development of basic health services. Such services provided by trained personnel, known and permanently available to the area served, include, particularly, the health care of mothers and children, health education, the keeping of records of vital statistics, the detection, treatment and prevention of common diseases, especially communicable and nutritional disorders, and the improvement of environmental sanitation.

Basic health services impinge directly on the individual and on his family, and thereby have a far reaching influence on health and well being, and on patterns of living and reproducing. It has been noted, for example, that the antenatal, natal, and post-natal periods during which basic care is provided to mothers give outstanding opportunities for health education including education about personal hygiene, child bearing habits, infant care and fertility regulation. It is becoming clear that family planning measures, where indicated, are most effectively - as well of course as most safely - carried out when other aspects of the care of mothers and children are attended to at the same time.

Basic health services thus may have direct influence on population changes and they provide fundamental means of coping effectively with associated problems. In this context the setting up of basic health services and the expansion and extension of existent ones represent urgent priorities at present. Pressing needs exist for training of personnel for the organization and implementation of such basic health services. Such training should be extended to physicians, nurses, midwives, sanitarians and paramedical auxiliaries. At the same time it is necessary to learn much more about the relationships between health services and other factors such as economic, social, technological and agricultural influences, and to evaluate their combined effects on population dynamics.

What is particularly needed here is a better understanding of the determinants and consequences of fertility trends, their relationships to mortality, and to changes produced by population movements. In this connexion, in addition to traditional demographic methods of data collection by periodic censuses and surveys, what is needed are intensive and comprehensive studies of selected populations carried out over sufficient time. Comparative, epidemiological field studies of populations focused on searches for causal relationships between health, behavioural, social, agricultural and economic factors, and population dynamics offer outstanding opportunities towards this end.

II. THE WORK OF WHO IN THE FIELD OF HUMAN REPRODUCTION

The World Health Organization has been active in the area of human reproduction since 1963 and a separate Human Reproduction unit was established at headquarters in 1965. The functions of the unit are to develop a documentation centre at WHO on all aspects of human reproduction, to stimulate, co-ordinate and support laboratory and epidemiological research on the biological, medical and public health aspects of human reproduction, and, in co-operation with other units, to provide advisory services, on requests from governments, on medical aspects of fertility, sterility and fertility regulation methods.

1. DEVELOPMENT OF DOCUMENTATION CENTRE ON BIOLOGICAL, MEDICAL, AND PUBLIC HEALTH ASPECTS OF HUMAN REPRODUCTION

Many types of activities have been used to collect and assemble up-to-date information about the many aspects of reproduction.

(a) Meetings of experts at WHO headquarters. A series of 10 meetings were held between 1963 and May 1966. The purpose of these meetings was to review existing knowledge of various aspects of human and comparative reproductive physiology and to make recommendations of areas in which further research was required, and in which WHO might most fruitfully participate. Each meeting brought together experts from all over the world and led to the publication of reports now available in the World Health Organization Technical Report Series. These reports have proved to be important reference manuals and have been in demand by ministries of health, professors of medical and public health schools, of post-graduate departments of biology, as well as by physicians and scientists.

The subjects covered to date include the following: Biology of Human Reproduction - 1963;¹ Physiology of Lactation - 1963;² The Effects of Labour on the Foetus and the Newborn - 1964;³ Neuroendocrinology and Reproduction in the Human - 1964;⁴ Mechanism of Action of Sex Hormones and Analogous Substances - 1964;⁵ The Biochemistry and Microbiology of the Female and Male Genital Tracts - 1965;⁶ Immunological Aspects of Human Reproduction - 1965;⁷ Chemistry and Physiology of the Gametes - 1965;⁸ Clinical Aspects of Oral Gestogens - 1965;⁹ Basic and Clinical Aspects of Intra-Uterine Devices - 1966.¹⁰

¹ Wld Hlth Org. techn. Rep. Ser., 1964, 280.

² Wld Hlth Org. techn. Rep. Ser., 1965, 305.

³ Wld Hlth Org. techn. Rep. Ser., 1965, 300.

⁴ Wld Hlth Org. techn. Rep. Ser., 1965, 304.

⁵ Wld Hlth Org. techn. Rep. Ser., 1965, 303.

⁶ Wld Hlth Org. techn. Rep. Ser., 1965, 313.

⁷ Wld Hlth Org. techn. Rep. Ser., 1966, 334.

⁸ Wld Hlth Org. techn. Rep. Ser., 1966, 333.

⁹ Wld Hlth Org. techn. Rep. Ser., 1966, 326.

¹⁰ Wld Hlth Org. techn. Rep. Ser., 1966, 332.

A Scientific Group on the Biology of Fertility Control by Periodic Abstinence was held in June 1966 following the Nineteenth World Health Assembly. It reviewed, in particular, existing knowledge of the menstrual cycle and of the physiology of ovulation and fecundity relevant to the aim of understanding mechanisms of fertility regulation by periodic abstinence. The Group pointed to the needs of further research on the profile of variation of the menstrual cycle, including the influence of ethnic factors, climate, occupation, and nutrition; on the relationship between age and the relative frequencies of ovulatory and anovulatory cycles with age; on the periods of viability of ova and the fertilizing capacity of sperm; and on the correlations of ovulation with other body functions. The report of this Group also appears in the World Health Organization Technical Report Series,¹ and will be presented to the Advisory Committee on Medical Research at its Ninth Session in June 1967.

(b) Compilations and reviews of bibliographies. A bibliography of the world literature of the past 25 years on ethnic, geographic and secular variations of certain indices of human reproductive function has been completed and critically reviewed.

(c) Inventory of research institutions and research scientists working in the field of reproduction. Such an inventory, in the process of compilation at WHO headquarters, will include a tabulation of current research activities in the field of reproduction in centres all over the world. It will subsequently be kept on an up-to-date basis.

(d) Collection of other data. Information is continually being collected on the many subjects relevant to the health aspects of population dynamics, for example data on population dynamics, on the complex factors affecting mortality, fertility, and sterility, on the incidence of abortions, on the use of,

¹ Wld Hlth Org. techn. Rep. Ser., 1967, 360.

experience with, and side effects of fertility regulating agents, on family planning activities and others. This is done by members of various units concerned from extensive reading of the medical literature, from information received from ministries of health, schools of public health, physicians and scientists in many countries, and through contacts with the United Nations, specialized agencies and other organizations.

2. LABORATORY AND EPIDEMIOLOGICAL RESEARCH IN HUMAN REPRODUCTION, INCLUDING TRAINING

(a) Laboratory research. From the beginning WHO has been active in co-ordinating and stimulating research projects in reproductive physiology and has provided financial support to individual investigators working on a variety of problems. Research projects currently being supported by WHO are concerned with the assessment of mechanisms through which hormonal steroids modify the synthesis and release of pituitary gonadotrophins; the relationship between the chemical structure of certain steroids and their biological effects; clinical and serological aspects of auto-antibodies to sperm in man; the development of simple methods of detection, and prediction of ovulation in women; surveys of plant materials for their effects on fertility; the duration of lactation amenorrhea and postpartum infertility in tropical countries; and the introduction of new species into the laboratory for investigation of reproductive phenomena.

As a service to laboratory research, WHO is supporting a programme aimed at facilitating the collection of pituitary glands and the extraction, purification and distribution of the hormones obtained from them for biological, chemical, and medical research.

(b) Epidemiological research. An epidemiological study of population dynamics in selected communities in Peru is being carried on with WHO support and supervised by the Pan American Sanitary Bureau/WHO Regional Office for the Americas. A prospective study of abortion in São Paulo, Brazil, is also being supported by WHO; this project proposes to follow a selected sample of women through periodic interviews.

(c) Training and education. Funds for training have been granted by the Organization to a small number of individuals; to date, these have been used mainly for training in laboratory research in various fields of reproductive physiology.

3. ADVISORY SERVICES

WHO has continued to provide requested information on biological, medical and public health aspects of fertility, sterility and fertility regulation. A request for advice on the evaluation of an approach to family planning in a Member State has been received and means for implementing this request are being considered. Plans have already been formulated for members of the WHO staff and their consultants to fulfil a request from another Member State for advice on the place of family planning services within maternal and child health services, medical problems arising from certain fertility regulating agents, and the organization of research in the field of reproduction.

4. WHO REPRESENTATION AT MEETINGS

An important aspect of developing WHO's activities in the field of human reproduction involves the attendance and participation by members of its staff at various meetings that touch on the subject of health aspects of population dynamics such as the following held since the last World Health Assembly: the Council of Europe's European Population Conference, Strasbourg, 30 August to 6 September 1966; the meeting of the United Nations Population Commission's Ad Hoc Committee of Experts on Programmes in Fertility, United Nations Headquarters, 12-16 September 1966; the United Nations Inter-Agency Meeting on Programmes in the Field of Population, Geneva, 31 October - 2 November 1966; the meeting of the Indian Council of Medical Research's Advisory Committee on Scientific Aspects of Family Planning, Chandigarh, 4-5 December 1966; the Third Pan American Sanitary Bureau Conference on Population Dynamics, Washington, D.C., 13 February 1967; and the Eighth International Conference of the International Planned Parenthood Federation, Santiago, Chile, 9-15 April 1967.

5. FUTURE ACTIVITIES

Scientific groups will continue to be called to consider pertinent biomedical and public health aspects of human reproduction, including among others, periodic evaluations of various fertility regulating methods and techniques. The documentation activities of the Human Reproduction unit are being expanded by marshalling literature resources of the library at WHO headquarters, by co-ordinating searching of the literature with other interested institutions, and by increased contacts with organizations and ministries of health active along similar lines. It will be necessary in the future to synthesize the rapidly increasing amount of information accumulating in the field of reproduction so as to be able to provide ministries of health, physicians and scientists with information they require in a format which can be readily read and understood.

The stimulation, co-ordination and financial support of individuals and institutions actively pursuing laboratory research on the many aspects of reproduction will continue.

Past scientific groups convened by WHO have made recommendations that WHO become active in helping to set standards for clinical studies and for the collection and evaluation of data pertaining to the use of the various fertility regulating agents. Requests have been received from scientists and physicians for assistance for the formulation of clinical protocols for long-term trials that would allow greater comparability of results obtained in the use of various agents both in different countries and within the same country. WHO is studying the implementation of these recommendations and requests.

WHO will continue to support requests for training in any biomedical or public health aspect of reproduction. It also is prepared to assist upon request in the organization of training and research centres in reproduction in medical schools and schools of public health.

Steps are also being taken to train selected headquarters staff and the staff more particularly concerned in the regional offices in order to provide them with greater expertise relevant to problems arising in connexion with population and a thorough knowledge of the scientific aspects of fertility regulation.

WHO's reviews of variations of indices of human reproductive function are documenting the generally known fact that information of this kind is scanty, scattered and has never been collected systematically for prolonged periods of time in most parts of the world. There have been several recommendations that the Organization become active in stimulating, co-ordinating and perhaps even participating in long-term epidemiological studies of indices of human reproductive function, especially as these are affected by different environments. The kinds of data that are of particular interest to WHO range extensively from variations in such processes as rates of sexual maturation, menstrual phenomena, the menopause, multiple ovulation, non-ovulatory cycles etc., especially as these are affected by different social, physical, cultural and nutritional environmental conditions, to longitudinal studies of pregnancy histories, with the emphasis on the relationship of reproductive health or morbidity to maternal age, parity, spacing, total number of children, abortions, general health, paternal age and general health, infant health, etc., etc. WHO is currently reviewing existing knowledge, and is considering priorities, feasibilities, and possible designs for such studies.

Advisory services on any aspect of human reproduction including fertility, sterility, fertility regulation and others, will continue, on request from Member States, within the framework of the resolutions WHA18.49 and WHA19.43.