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THE INFLUENCE OF HEALTH ON POPULATION

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THE INFLUENCE OF HEALTH ON POPULATION

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Abstract : Mutual relations between health and population are complex and wide-spread. Health status directly affects levels of morbidity and mortality and directly or indirectly affects levels of fertility and hence population trends.

Accessibility to health and medical care as a factor influencing mortality levels is, by and large, reflected in the differentials in mortality levels observed in urban and rural areas. The current inadequate level of health care, especially in the rural areas, may be augmented by increasing the paramedical or community involvement in the health delivery system to meet the growing demand for health services. The success of public health policy depends on the ability of the government to provide health services to the population at reasonable cost and convenience. Thus, the location of health service delivery centres becomes important in the planning of health services and programmes.

Health is also seen as a factor influencing population trends via fertility. The role of health and nutrition in altering the fecundity or fertility status of the woman by changing the incidence of certain diseases, by affecting the survival pattern of the population, by influencing the length of reproductive life, etc. has been highlighted. In the formulation of broad-based social and population programmes, the influence of health or nutrition on reproductive parameters is to be given adequate attention.]

Introduction :

Health interacts with population trends and also socio-economic development. Health may, therefore, be regarded as a determinant as well as a consequence of the other. However, the mutual relations between health and population are complex and widespread. In general, health status in a population influences all the components of population change.

It directly affects levels of morbidity and mortality and directly or indirectly affects levels of fertility. It also influences migration, as for instance, healthy persons are more inclined to migrate than others because they have a greater chance of success. Further, previously uninhabitable areas may be made habitable by health measures which may attract migrants. Conversely, population characteristics like growth, structure and distribution have health implications. Population growth through pressure on the basic necessities of life like food and shelter contributes to the deterioration of health conditions. In view of the age dependency of morbidity and mortality, the age structure of the population is an important determinant of health problems and demands and changes in the age structure may call for considerable adjustments in the size, structure and type of health services. Parity and spacing of birth affect the health of both mother and child. This discussion is mainly focussed on the effects of health on mortality and fertility processes and their policy significance.

Effect of health on population trends through mortality :

Traditionally health has been regarded as a factor influencing population dynamics via mortality. By the application of simple and effective health measures, mostly acquired through foreign support, noticeable reductions in mortality have been achieved in many developed countries in the recent past leading to a high rate of growth of population. A reduction in mortality is no doubt a desirable demographic development but in the absence of a parallel improvement in nutrition and socio-economic condition the decrease in mortality may not be sustainable but may even be reversed thus affording a grim solution to the problem of population which will naturally militate against human ingenuity and dignity. On the other hand, mortality drop without economic progress may create problems of education, employment and dependency.

It may be appropriate to mention here that, of late, the decline in mortality has generally slowed down partly because of the

resurgence of some major epidemic diseases, for instance, malaria, due to the diminished vigour of the eradication programme and a feeling of complacency as in India, the ineffective control of other communicable diseases such as tuberculosis and partly because of the inevitable persistence of parasitic, bacterial and viral diseases, particularly among infants and children, responsible for high rates of infant and child mortality.

Though the overall mortality rate has decreased, infant mortality rate in the developing countries is 90 per thousand live births^{1/} and in India about 120 currently which means that about 10 million of about 110 million children born in the developing countries and about 3 million of about 23 million children born in India annually die before their first birth day. Lower life expectancy at birth is the result of high infant mortality.

Easy accessibility to health and medical care influences mortality levels. The main reason for the difference between urban and rural mortality (e.g. expectation of life at birth, India, urban : 58.9 and rural : 48.0^{2/}) is that health facilities in India and most other developing countries are largely located in urban areas and more easily available to the urban population. It has been observed in a number of developing countries which could claim easy accessibility to health care and high literacy levels, but without any apparent stimulus from a dynamic economy death rates declined substantially. Sri Lanka and the Indian state of Kerala are best known cases with life expectancies of 66 and 60 years respectively^{3/}.

The social class variation in death rates is more pronounced in the developing countries. Mortality variation by sex is also noticeable. This is the consequence of gender inequalities operating in the society along with other social and economic inequalities. Relatively higher female and child mortality can be traced to the relationship between women's status in society and their access to nutrition and health

care services. It is, therefore, important that the health policy should aim at reducing or removing regional, social, economic, gender and other inequalities. The Alma-Ata Conference of 1978 has emphasized the importance of primary health care for attaining an egalitarian health system by the year 2000.

But in the face of rapid population growth in the developing countries, governments may even find it difficult to maintain the current inadequate level of health care. Limited health inputs such as equipments and trained personnel cannot be miraculously stretched in the span of about 2 decades to serve all those who need them. But a part of the demand for health services could be met by expanding and streamlining the existing para-medical or community involvement approach to the health delivery system as part of a comprehensive national health care system. To this category belongs the Village Health Guide Scheme in India formerly called the Community Health Volunteer Scheme. The Chinese equivalent is the highly publicized "barefoot doctor" approach.

The success of public health policy depends in a large measure on the ability of the government to provide health services to the vast rural population at reasonable cost and convenience. Thus the question of location of health service delivery centres becomes important in the planning of health services and programmes.

Demographic surveys^{4, 5/} conducted by the Indian Statistical Institute in 3 districts around Calcutta (Howrah, Hooghly and 24-Parganas) in 1978 and in 3 districts away from Calcutta (Nadia, Murshidabad and Birbhum) in 1980 have highlighted, among other things, the accessibility of medical and health centres to the rural population. In rural areas primary health centres (PHC) and hospitals are the main sources which provide health care and services. Table 1 gives the average distance between household and the nearest primary health centre or hospital.

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Table 1 : Average distance (km) between household and nearest primary health centre or hospital in the districts around and away from Calcutta

Region	Average distance (km) from household	
	PHC (2)	Hospital (3)
(1)		
Districts around Calcutta (1978)	4.5	6.0
Districts away from Calcutta (1980)	6.2	20.9

Mere distance figures without information on the state of communication facilities help only in a partial understanding of the problem of accessibility of medical and health centres to the population. Normally, the area of effective influence of a medical institution may be assumed to lie within a radius of 5-6 kilometers. Assuming that the levels of communication facilities are about the same in the two regions, then the people living in the districts away from Calcutta are at a greater disadvantage than those living in the rural areas around Calcutta in the matter of accessibility and hence availability of medical and health care. It has been observed that about 63 per cent of the households in districts around Calcutta as compared with 40 per cent in districts away from Calcutta are within a radius of 5 km from the PHC. It is also interesting to note that nearly 80 per cent of households of a particular caste group, viz. Brahmin, Kayastha and Baidya lie in such areas in both the regions. Although health programmes are designed to assist the needy wherever and wherever they are, they often end up by providing services to the economically better-off people. Political and partisan considerations are partly responsible for this state of affairs.

In the ultimate analysis it is the acceptance or the use of medical and health care that matters. Accessibility helps in the acceptance of health services but another factor that has a significant impact

on the awareness and acceptance of basic family health needs is education^{6/}. The fulfilment of the message "Health for All" depends largely upon the removal of these constraints and disparities by suitable social and health planning.

The expansion of rural health facilities is on the cards of the government. This will lead to further widening of the hiatus between birth and death rates resulting in higher growth rates of population in future. This is inevitable because innovations that bring about a reduction in morbidity and mortality levels are more readily acceptable than those that bring about a reduction in fertility levels.

Effect of health on population trends through fertility :

Health is also seen as a factor influencing population trends via fertility. It is frequently held that better health increases fertility in the absence of contraception. But the apparent increase in birth rates often observed when health services are introduced can be partly explained by the better reporting of births rather than solely by actual changes in fertility levels due to health effect.

There are several ways in which improved health influences natural fertility. In most developing countries the incidence of diseases like malaria and certain other parasitic diseases, venereal diseases, tuberculosis, etc. which are known to reduce fecundity or interfere with completion of pregnancy is on the decline as a consequence of public health programmes and this may increase the ability to reproduce. It may be useful research to estimate the quantitative impact of these diseases on population fecundity and foetal loss in this country which may help in the planning and evaluation of health programmes.

A medico-demographic survey^{7/} conducted in 1971 in Upper Volta (Africa) has shown that the proportion of sterile women (secondary and primary) among those known to be suffering from venereal disease was about

85 per cent and among those with parasitic diseases was 58 per cent while in the control group it was 42 per cent. Similarly, the foetal loss rates (defined as percentage of pregnancies ending as pregnancy wastage) in the above three categories of women were 49, 22 and 19 per cent.

It has been observed that better health and nutrition lead to earlier menarche and delayed menopause thereby increasing the potential reproductive life span. A study in Uttar Pradesh reported that girls of better nutritional status showed earlier menarche^{8/}. In the developing countries the urban-rural classification is essentially a broad nutritional status classification with the urban areas enjoying a more favourable status. A study confined to two States in South India reported the mean age at menarche as 12.8 and 14.2 years respectively for urban and rural areas of Madras (Tamil Nadu), the corresponding figures for Kerala being 13.2 and 14.4 years^{9/}. A study in Papua New Guinea estimated the median age of menopause as 43.6 and 47.3 years among malnourished and better nourished women^{10/}. It may, however, be argued that since the effects of health and nutrition are at the extremes of reproductive life, it is unlikely that this may produce a significant impact on the over-all reproductive performance because of low fecundity status at these terminal ages. Besides, behavioural changes relating to age of marriage or desire to restrain childbearing act as fertility deterrents at the extremes of the reproductive period.

If menarche is an indication of marriageability of a woman as in most traditional societies, then nutritional status may influence the age of marriage through variations in age at menarche unless nullified by legal and other constraints. Further, marriage duration itself is affected by mortality with consequent effect on fertility.

The reduction in family size due to the death of some of the husbands before the end of the wife's reproductive life time has been estimated in some studies by comparing the average completed family size

of women whose marriages were not broken before the end of their reproductive period with that for the ever-married women^{11, 12, 13/}. The results are given in Table 2.

Table 2 : Average number of children born per currently married woman of unbroken marriage and per ever-married woman and fertility reduction due to widowhood and separation

Study		Currently married woman of unbroken marriage	Ever-married woman	Reduction in family size	Percentage reduction
(1)		(2)	(3)	(4)	(5)
Mysore Population Study (1951) ^a	Rural	5.8	4.8	1.0	17.2
	Towns	6.7	5.6	1.1	16.4
	Bangal-City	5.9	5.3	0.6	10.2
SRS Survey (1972) : India ^b	Rural	5.5	5.1	0.4	7.3
	Urban	5.4	5.1	0.3	5.8
Demographic Survey in Sudan (1961-62) ^{*c}	Rural	7.5	6.9	0.6	8.0

* Gezira population

a = 45+ and married once

b = 45-49

c = 40-49 and married once

On the other hand, health and nutritional factors may also help in reducing fertility. For example prolonged lactation made possible by improvement in health may extend the period of post-partum amenorrhoea and thereby reduce the chances of conceiving. On the contrary, malnutrition by itself may produce lactational amenorrhoea and thus reduce fecundity. It may be mentioned in this connection that the proportion of deprived population or population with inadequate intake of food grains, mainly cereals and pulses, has been estimated as 40 per cent in India^{14/}.

The change in the fecundity and mortality status arising out of health and nutrition programmes has certain policy implications. The push on population growth as a result of such programmes may have to be countered by suitable developmental measures associated with diminished reproductive goals and fertility.

Health measures bring about both quantitative and qualitative changes in population. Some effects are almost immediate. For example, improvement in nutrition of adult workers increases the amount of work that they can do.

If food production lags behind population growth as seen in some of the developing countries, then rapid population growth may cause the persistence of chronic under-nutrition and malnutrition.

The most profound effect of malnutrition in a population is on the survival of the infant. Infant mortality can affect fertility through either a biological or a behavioural mechanism. The biological effect relates to shortening of the period of lactational amenorrhoea and the behavioural effect is seen in the desire to compensate for the childloss.

Thus, in the formulation of broad-based population policies and programmes one must recognize the closely related biological and behavioural aspects that relate health and nutrition to reproduction. Though the direction of the effect of nutrition and health on the various reproductive parameters like length of reproductive life, post partum amenorrhoea, survival of offspring, pregnancy wastage, etc. is more or less clearly understood, it is doubtful if the exact repercussions of a specified improvement in health or nutrition level on any or all of these parameters has been quantitatively measured. Such information will greatly help in the formulation of a more realistic health and nutrition policy.

Just as health can affect fertility dynamics, fertility process can also affect the health status. There is evidence that birth spacing has a profound impact on maternal and child health. Studies in different countries including India have shown that infant mortality rates for babies born within one year of a previous birth are 2 to 4 times as high as for babies born after an interval of two years or more. Thus, empowering mothers with the knowledge and the means to increase the interval between births can go a long way to promote maternal and child health. The association between too many births and too close together is too obvious that it does not require evidence based on scientific investigations. For out of 21,000 Third World women interviewed by the World Health Organization, nine out of ten knew that the health of both mother and child was better if there were fewer births and longer intervals in between^{15/}. But in practice, many women do not have either the means or the freedom to ensure proper spacing. This highlights the contribution of family planning to health.

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