

BOOK REVIEW

Newer Concepts in Nutrition and Their Implications for Policy

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The current concept of nutrition according to which 48 per cent of Indian population are malnourished because of poverty, is facing a serious challenge in the wake of new concept under which the estimate comes not more than 15 to 20 per cent. Such a significant change in the incidence of poverty needs immediate attention of the planners and administrators who take policy decisions for improving the living conditions of the masses. In this direction, perhaps there could not have been a better way than bringing out this volume which clarifies the newer concepts through the writings of eminent scientists from diverse disciplines such as statistics, economics, bio-chemistry and public health. Prof. Sukhatme needs to be congratulated for undertaking such a stupendous task of collecting and editing the original papers which were presented and discussed during several nutritional institutes held at Maharashtra Association for the Cultivation of Science (M.A.C.S.), Pune during winter of 1979 and summer and autumn of 1981. As Prof. Sukhatme rightly points out in the Preface to this book, the lectures and discussion during the institutes developed into a libely and frank exchange of ideas and views between the staff and the participants of the institutes. Initially, there were quite a few who were critical about Prof. Sukhatme's main nutritional concept that the energy requirement of man, like that of protein, is variable and auto-regulatory but as the courses advanced, the participants settled down to an unbiased study of newer concepts.

It was clearly brought out during the institutes that a process view of nutrition is important in understanding how the body interacts with the environment provided by food intake, slowing down metabolism on some days and speeding it up on others as occasion demands but always in a manner which enables it to

maintain homeostasis. Such an interaction results in variable efficiency with which the nutrients are consumed by man. The day-to-day energy balance varies in such a manner that the variance persists even when the data are averaged over as long a period as a week. The balance follows a stochastic stationary distribution implying an auto-regulatory mechanism. The fact that at any given point of time some of us eat only half the amount of food others eat, but all do the same work, is of tremendous significance in the development of nutrition science and policy and in the interpretation of nutrition status of man. Articles involving these concepts as well as others such as those relating to health and education are vividly discussed in this book. Viewed in this context, the book should be welcomed by a diverse group of researchers, planners and administrators engaged in nutrition, food-technology, medicine, bio-chemistry, economics, statistics and social sciences.

The book is divided into seven sections with two appendices dealing with the reports of the Winter (1979), Summer and Autumn (1981) Institutes. In Section I, the methodological aspects involving newer concepts of nutrition and poverty problem are discussed. There are four papers in this Section. The first paper by Sukhatme, reviews, in a comprehensive manner the entire problem of the measurement of poverty linked with malnutrition. The article begins with the current theory of nutrition according to which adult individuals of the same age, sex and body-weight and living the same mode of life and engaged in similar activities have similar requirements of energy. This concept is refuted on the basis of published data which gave, for mean weekly intake, a coefficient of variation of about 15 to 16 per cent instead of zero per cent as expected under current theory. Sukhatme advocates a dynamic process view of nutrition and measures the incidence of undernutrition as the integral of density function of intake for such people whose intake falls short of the recommended intake of reference man minus three times the standard deviation of intake. Based on FAO survey data where household is a unit of collection and therefore, standard error of the household intake per nutrition units is taken into account, the incidence of undernutrition in India was estimated to be between 20 to 30 per cent. For examining the pattern of intra-individual variation, longitudinal data on intake as well as expenditure of the same subject, maintaining body weight and engaged in fixed task are required. The size, nature and source of intra-individual process are discussed with the help of published longitudinal data on intake and expenditure. The autoregulatory nature of homeostatic process is

brought out and the genetic significance of the process is discussed. Further evidences of process view of nutrition are provided with the help of published data as well as the illustration from Indira Community Kitchen. Based on these evidences, man's energy requirement is stated to be dynamic adapting itself to intake over a wide range from 60 to 140 per cent of the average dietary allowance. The assessment extent of undernutrition and poverty is then made using the newer concept of energy requirement with the help of National Nutrition Monitoring Bureau (NNMB) and National Sample Survey (NSS) data. The analysis made by NNMB is critically examined and inadequacy of such data for estimation of poverty pointed out. Sukhatme comes to the conclusion that the incidence of undernutrition in NNMB surveys is grossly overestimated. Although NSS data are also inadequate for estimating the extent of poverty, Sukhatme makes appropriate adjustments and estimates that some 15 to 20 per cent of the households suffer from malnutrition. Such lower estimates of poverty raises a fundamental question : why the children and people of India are small in stature and show poor growth when undernourished form only a small proportion of the total. The issue is discussed at length and it is pointed out that smallness is not caused by small intake. On the contrary, it is the result of chronically high morbidity rates to which the population is exposed because of inadequate water supply for drinking and maintenance of hygiene, and lack of health consciousness among people. Such conditions make children consume their energy in combating infections and in the process they are forced to lose body weight, both tissue and water. They get adapted to lower stature in contrast to their counterparts in the West where children grow uninterruptedly because of better surroundings in which they live. The article concludes with policy implications of newer concepts of nutrition.

The second and third articles in Section I are by Sukhatme and Margen dealing respectively with models for protein deficiency and auto-regulatory homeostatic nature of energy balance. The fourth one is by Narain on genetic components in man and environment. All the three papers are basics for understanding the auto-regression model and the manner in which genetic entities possessed by an individual interact with the environment to which he is exposed.

Section II includes to papers by Seckler elaborating on the concept 'small but healthy' and explaining the implications of the auto-regulatory mechanism for body growth and work output. The

third paper in this section is by Desai on the wage-efficiency mechanism and nutrition theory. Section III comprises of two papers by Chen which provide with altogether new dimensions of the self-regulatory mechanism in terms of ecology. Section IV includes contributions from Deodhar on relevance of environment of human nutrition and by Antia on dilemma of health care. In Section V are grouped two papers by Soman dealing with the Kerala experience. The first paper shows how with intake as low as 1300 to 1400 calories, women in Kerala have a level of health and activity on par with other women eating much more and thus illustrates how food is used with greater efficiency at the lower end of the homeostatic range. The second paper shows how school meal program in operation all over the State in its 8000 schools have utterly failed to bring any increase in the weight and height of children.

The paper entitled "An experiment in Community Kitchen : its philosophy and implications for the lives of the poor" by Sukhatme included in Section VI happens to be the most important paper in the whole book. It is in this paper that one finds an answer to the Philosophical question how poor can help the poor and how can he be self-reliant and altruistic at the same time. One of the reasons, why poor have remained poor despite planned efforts to alleviate poverty is the exaggerated assessment of the problem and failure to introduce a proper methodology for identifying the malnourished. A man cannot be taken as malnourished simply because he eats less than the average energy requirements, since such a requirement is dynamic and self-regulated over a wide range. The second reason is that affluent people eat in excess of their real needs and develop a life style akin to the western people. This creates relative scarcity and pushes up the prices of primary foods, which is disadvantageous to the poor. A poor spends an increasingly larger part of his meagre income on the food. Under such situations, the only way the poor can ever get justice is to organise themselves in the form of small communities on the model of Indira Community Kitchen. This model illustrates how a band of 300 employees drawn from the poorest section of the population prepare traditional food articles (chapati, rice, bhakhari, dal, vegetables, sweets) in the Kitchen and sell them through as many as 10 centres at half the market price. The whole operation of the Kitchen has a human touch and is carried out with the same efficiency as that of an assembly line in a factory. The Kitchen has illustrated how labour intensive technology can be used in offering guaranteed employment at market wage rate

of about Rs. 14 to 15 per day on an average, keeping the marginal productivity sufficiently positive. Besides this, the selling price includes a margin of profit of 1 to 2 per cent set aside for future investment for further growth and for expanding the services to meet the needs of the poor. The kitchen is self-sufficient and does not ask for and monetary aid or donations or even subsidies from the Government. Sukhatme has demonstrated convincingly how development of newer concepts in nutrition can be helpful to generate a philosophy that it is only poor who can help themselves. In this view, the process view of nutrition enables one to assure the poor that they can enjoy health and vigour and carry out the desired activities on an intake in the lower range of homeostasis and thereby dissuade them from chasing after the moon in the higher range as the affluent do. It is very gratifying to note that such a process view of nutrition finds mention in the Vedas and the Gita. Particularly in the latter, it is clearly stated that to be healthy and active, requires that man should eat at levels in the lower range of homeostasis. For the same reason, these scriptures advise people to use restraint not only in eating but also in their entire life style by practising Yoga.

The last Section VII is a sort of an interview of Sukhatme with the Press on how to improve living conditions in the villages. The interview is quite informative and non-technical. It covers newer concepts of nutrition in a layman's language in the form of questions and answers and indicates how the theories developed by Sukhatme can lead to an alternative model for improving living conditions that is consistent with values and is scientifically sound.

The Planning Commission estimates that about 304.6 million people, of them 252.8 million in the rural areas, were living below the poverty line in the country in 1977-78. The norms for per capita minimum requirement of food in terms of daily energy (intake measured in terms of calories) were taken as 2400 calories for the rural areas and 2100 for the urban areas. The minimum total expenditure level at which normative levels of calorie consumption were attained was taken as the poverty line. This enabled them to arrive at the poverty line in terms of monthly per capita consumption expenditure as Rs. 65 for rural areas and Rs. 75 for the urban areas at 1977-78 prices. This procedure adopted by Planning Commission is not in accordance with the newer concepts of nutrition outlined in this book and therefore, does not reflect the real situation

about poverty in the country. It is hoped that this book will bring home the scientific aspects in determination of poverty based on the newer concepts of nutrition and would thus help the Planning Commission and others in arriving at a more realistic and true picture of the incidence of poverty in the country.

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