Protein-Energy Malnutrition and Intellectual Abilities

Communications 5

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JAN HOORWEG

Protein-Energy Malnutrition and Intellectual Abilities

A study of teen-age Ugandan children

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Introduction

Anyone who has ever seen a severely malnourished child cannot but wonder how this experience will have affected the child for the rest of its life. The misery and bodily disfigurements from which these children suffer leave the strong impression that they will never be quite normal again; that they will never be able to fulfil their human potential. In the last decade, attention has more and more become focused on the implications of malnutrition for brain growth and for the development of intellectual abilities. Sometimes extravagant claims have been made about the damage suffered by these children, but these claims were often based upon the results of studies with animals, in particular rats. Unreserved extrapolation of such findings to man is apt to be misleading because the development of the brain in relation to birth is very different in man. Also, the conditions to which these animals were often exposed generally fall outside the human experience.

This monograph is concerned with the relation between protein-energy malnutrition and intellectual abilities in man. Research into this question is bedevilled by problems of design and problems of measurement, both of nutritional status and of intellectual abilities. For this reason there is some pessimism about the feasibility and usefulness of, at least, small-scale studies and a tendency rather to concentrate on large, longitudinal investigations. We do not share this view because such undertakings have other, comparable weaknesses.

Although the reviews of this field of research by now proba-

bly surpass the actual number of empirical studies, a coherent framework accommodating most of the psychological evidence is still lacking. In this monograph such a framework is developed against a background of the results obtained in a study carried out jointly by Dr. J. Paget Stanfield, a paediatrician, and the author, who is a psychologist.

These findings concern a group of 60 Ugandan boys and girls who became severely malnourished during the first 27 months of life, resulting in their admission to the hospital. At the time of the study, the children varied in age from 11 to 17 years. The relation between malnutrition and intellectual abilities is explored in two ways: first by comparison with a matched group of children who were not severely malnourished during the first years of life, and secondly by relating present intellectual abilities to the condition of each child on admission to the hospital. These findings shed light on the role of the different components and the timing of malnutrition and are discussed against the evidence from other psychological studies.

The plan of the monograph is as follows. The first chapter starts with a brief description of Uganda and its population and continues with a discussion of food and nutrition in the country, in particular the incidence and aetiology of protein-energy malnutrition in young children. Chapter 2 formulates some research questions that can be asked and elaborates upon the impediments that face investigations. The next chapter discusses some aspects of psychological testing in Africa, south of the Sahara, paying particular attention to studies pertaining to the structure of abilities of African children. The design and organization of our investigation are described in chapter 4, which also includes an analysis of the medical condition of the children on admission. The tests that were used, their construction or adaptation, and data concerning the reliability and validity of the tests are presented in chapter 5. The findings of our study and other studies regarding intellectual abilities in the aftermath of malnutrition are discussed in chapter 6, together with the role of the components and the timing of malnutrition. Chapter 7 presents analogous findings concerning the motor ability of the Ugandan children, while in chapter 8 some aspects of the daily behaviour of these children are discussed. The argument

that is developed in these chapters is compared with other recent findings and with some alternative explanations in chapter 9. This final chapter concludes with some speculations concerning the avenues by which malnutrition precisely interferes with intellectual abilities and with a brief discussion of the case for intervention.

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