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REPORT ON THE CONFERENCE ON THE ASSESSMENT OF TESTS
OF BEHAVIOR FROM STUDIES OF NUTRITION
IN THE WESTERN HEMISPHERE

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Under the joint auspices of the National Institute of Child Health and Human Development and the Pan American Health Organization, a conference on the Assessment of Tests of Behavior from Studies of Nutrition in the Western Hemisphere was held in Puerto Rico from October 20 to 23, 1970. Conference participants listed in Appendix I represented the disciplines of pediatrics, nutrition, psychology, sociology, anthropology, and public health and included relatively equal numbers of individuals from North America and Latin America.

Over the last decade it has grown increasingly evident that an understanding of the relationship between malnutrition and intellectual development requires the clarification of at least three issues. First, we must identify behavior tests which are significant indicators of cognitive development and that are applicable across a broad range of cultures. Second, since it is doubtful that a physiologic stress in development affects all aspects of cognitive growth equivalently, it is necessary to identify measurements which are especially useful in estimating particular aspects of developmental competence and the relation of these to nutritional stresses. Third, since malnutrition is almost always associated with cultural disadvantage and with the general stress of environmental and familial inadequacies which may in themselves affect cognitive growth, an assessment of the particular contribution which malnutrition is making to disturbances in cognitive development requires an appropriate technique for separating nutritional from socio-cultural influences as well as a consideration of the interaction between the two sets of variables.

*Prepared by Dr. Herbert G. Birch, Department of Pediatrics, Albert Einstein College of Medicine, Yeshiva University, Bronx, New York.

The conference was divided into six sessions, the first five of which were focused upon particular aspects of the problem, the last of which was a summary session for the purpose of reviewing the material presented. The proceedings are being edited by Dr. D.J. Kallen of the Department of Human Development of Michigan State University and they will be published later this year. A brief outline of the report of the proceedings is given in Appendix II.

After a brief introductory meeting, the first session began with a consideration of theoretical and methodologic issues in the study of nutrition and mental development. Three principal topics were presented and discussed as a basis for providing an overview of the present state of knowledge and as background for subsequent discussion. The topics were: the contribution of animal investigations to the understanding of the relation between malnutrition and mental development; the nature of malnutrition in infants and its effect on development; and malnutrition and behavior in the community. In all of these papers, current knowledge concerning the interactions between nutrition and behavior as observed in the laboratory, in the clinic, and in the community, was reviewed. Particular attention was paid to the degree to which the association between malnutrition and faulty behavior outcome in all of these contexts could have been derived, not only from malnutrition but from other independently existing factors.

The second session concerned practical problems in field studies of nutrition and mental development and involved a consideration of 4 model settings: a rural village, an urban community, head-start programs, and educational interventions. Emphasis was placed on the description of ongoing studies and upon the methodologic and conceptual issues with which they were confronted. Some consideration was given to the ways in which decisions were made in providing designs for distinguishing between nutritional and sociocultural contributions to cognitive growth as well as to examine their interactions.

The third session concerned methods for estimating cognitive and intellectual development in children. The issues were considered from

both the psychological and psychiatric viewpoints. It was clear from the presentations that different studies have emphasized different aspects of intellectual functioning as a consequence of particular biases associated with different techniques for determining and evaluating cognitive growth. Attention was given to the problem of culture-free estimates of intelligence and to the ways in which different techniques allowed the definition of particular aspects of mental growth as affected by malnutrition at particular points in development.

The fourth session discussed the social milieu in which cognitive growth takes place and involved a detailed consideration of social class, other types of social stratification, and patterns of family organization. It was recognized that though many studies of nutrition and intellectual development allude to sociocultural variables, few studies have seriously examined details of the sociocultural situation which may affect early development. The session sought to suggest techniques for defining those variables and the contribution of those variables to cognitive growth.

The fifth session concerned social expectations and functional social competence as manifested in "role development." The issue of social expectation was considered with special emphasis placed on two outcome variables. The first of these was the individual's development of social competence as expressed in the development of his ability to do things expected of him by his society. The second was his ability to select from the options available to him and his ability to define a particular course of social development. The relation of these to malnutrition and to the individual's social position in society were considered.

The final session summarized the meeting from an anthropological and a biomedical point of view. General group discussions dealt with the issues raised and with the possible usefulness of the conference for improving the design of studies of malnutrition and cognitive growth. It was recognized that the conference was the opening stage of a cross-disciplinary dialogue that needed to be continued, and that the maximum contribution of such a dialogue could not be derived from a single

discussion. It was clear that further discussions at a less general and more operational level were necessary. However, on the basis of the issues discussed and from the beginning interactions between participants, additional more explicitly oriented exchanges could be anticipated.

APPENDIX I

List of Participants

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APPENDIX II

Proceedings of the Conference on the Assessment of Tests
of Behavior from Studies of Nutrition in the Western Hemisphere

PART I:

Introduction	Merrill S. Read
Welcome	Roberto R. Williamson J. G. Chopra

PART II: Theoretical and Methodological Issues in the Study of
Nutrition and Mental Development

Animal Studies	Richard Barnes and David Levitsky
Malnutrition in Infants	Henry M. Ricciutti
Malnutrition and Behavior in the Community	David J. Kallen
Summary of Discussion	

PART III: Practical Problems in Field Studies

A Rural Village Study	Robert Klein <u>et al</u>
Headstart Village Studies in the United States	Jefferson Sulzer
An Urban Community Study	Fernando Monckeberg
Educational Intervention Studies	Harrison E. McKay
Discussant's Paper	Julio Meneghello
Summary of Discussion	

PART III: Two Views on Cognitive and Intellectual Development

Cognitive Development	Francisco Cobos
Cognitive Development	Jerome Kagan
Discussants' Papers	Luis Ramallo Herbert Birch
Summary of Discussion	

PART IV: Meaning and Measurement of Social Functions

Social Class	Frederick Waisanen
Other Social-Structural Variables	José Austin Silva Michelena
Family and Modernization	Alfredo Mendez Dominguez
Discussants' Papers:	Constantina Safilios-Rothschild Luis Lenero Otero
Summary of Discussion .	

PART V: Social Expectation and Function

Social Competence and Use of Options	Marvin B. Sussman
Role Development	Sigmund Dragastin
Discussants' Papers:	Howard E. Freeman Reginaldo Zaccara de Sampos
Summary of Discussion	

PART V: Summary and Implications

Behavioral and Social Aspects	A. Kimball Romney
Medical and Environmental Aspects	Joseph J. Vitale
Summary of Discussion	