

Nutrition News for Africa

Abstract - January 31, 2007

An article entitled “Child development: risk factors for adverse outcomes in developing countries” was published by Walker S et al. in the *Lancet* 2007; 369: 145–57.

Approximately 200 million children under 5 years of age in developing countries are not fulfilling their developmental potential. This paper reviews the biological and psychosocial risk factors, that are all modifiable, and that can compromise development. Poverty and the socio-cultural context increase young children’s exposure to biological and psychosocial risks that affect development through changes in brain structure and function, and behavioral changes. The paper focuses on risk factors in early childhood that affect readiness for school, and subsequent school performance, as children’s ability on school entry is an important component in determining their progress in school.

An initial review was made of the effect on development of individual biological and psychosocial risk factors. Based on this review, a number of key risk factors were identified to be the main focus for interventions.

The biological risk factors for child development included the categories of nutrition, infectious diseases and environmental exposures. The nutrition category included a review of intrauterine growth restriction, child undernutrition, iodine deficiency, iron deficiency, and other nutritional factors. The psychosocial risk factors included two categories: Parenting factors, which included cognitive stimulation or child learning opportunities and caregiver sensitivity and responsiveness; and, Contextual risk factors, which included maternal depression and exposure to violence.

Of all these risk factors, four key factors are highlighted as they each affect at least 20-25% of children in developing countries, and the evidence for their effect on development includes randomized controlled trials. These four risk factors are: inadequate cognitive stimulation, stunting, iron deficiency, and iodine deficiency. Together they represent crucial risks which are preventing millions of children from reaching their developmental potential, and for which interventions are urgently needed. Another set of risk factors including low birth weight infants with intrauterine growth restriction, malaria, exposure to metals (lead and arsenic), maternal depressive symptoms, and violence also affect substantial numbers of children and have consistent epidemiological evidence that shows their effect on development. Their prevalence varies from country to country and interventions to address them are also needed, but their priority needs to be set depending on the country context. An important point raised is that these risk factors often coexist and their cumulative risks, to which many children are exposed, strongly suggest the need for integrated interventions. Implementation and assessment of other integrated intervention strategies are a high priority.

The authors recommend that future research investigate mechanisms, the importance of timing, duration, and severity of exposure, and reversibility of effects. They also recommend that future research include greater recognition of all aspects of development, with inclusion of social-emotional outcomes. The authors mention that intervention strategies will be addressed in the final paper in this series on Child Development.

Discussion: The study findings confirm that anemia in late infancy is a public health problem in Zimbabwe. VAS did not significantly improve hemoglobin concentrations and the authors explain that this may largely be attributed to iron deficiency and is consistent with other research in iron-deficient children. Infant HIV infection increased the risk of anemia approximately 6-fold. The authors recommend using the study findings as a guide to develop appropriate interventions to control anemia in Zimbabwean infants, with a focus on improving TBI at birth, promoting EBF in the early months of life, and examining specific interventions to decrease mother-to-child transmission of HIV.