Risk factors for Sub-Optimal Child Development

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Background

250 million children (43%) under five years in Low and Middle Income Countries are estimated to be at elevated risk of not achieving their human potential (Black et al, 2016; Ritcher et al, 2016)

Risk factors

- Inadequate cognitive stimulation
- Stunting
- Iodine deficiency
- Anaemia
- Intra-uterine growth restriction
- Malaria
- Lead exposure
- Maternal depressive symptoms
- Exposure to violence
- HIV infection
- Institutionalization

Protective factors

- Maternal Education
- breastfeeding

Grantham-McGregor et al. (2007), Walker et al. (2011)
Multiple Risk

Risk factors tend to cluster

Accumulation of risk is what tends to be most adverse for childhood outcomes.

In the hierarchical contexts, risk factors could be divided into biological and psychosocial risk within the same level.

(Wachs and Rahman, 2012)
Integrated Model of the bioecological and psychosocial environments

Bioecological Macrosystems
(eg., altitude, climate/seasonality, natural physical hazards)

Psychological Macrosystem
(eg., culture, minority status, social class)

Biological exosystem (eg., parasite infection or disease infection of primary caregiver)

Psychosocial exosystem (eg., Primary caregiver work environment or family neighbourhood)

Bioecological mesosystem (eg., Disease exposure ←→ nutrition, Lead exposure ←→ nutrition)

Psychosocial mesosystem (eg., Family ←→ School environments)

Biological microsystem (eg., Exposure to infectious agents, parasites or environmental toxins)

Psychosocial microsystem (eg., Family, child – care, school or peer environment)
Lessons from Paediatric HIV
Psychomotor delay

![Bar chart showing mean scores for age-standardized locomotor, eye-hand, and psychomotor scores across different community exposure levels. The x-axis represents community exposure levels, while the y-axis shows mean scores. The chart includes bars for each score type at different exposure levels.](image-url)
Mental health problems
Language impairment

![Bar chart showing language impairment in HIV infected, HIV exposed, and community controls. The y-axis represents the level of impairment, and the x-axis represents different groups.]
Neurocognitive impairments
Nutritional status
Psychosocial risk - orphanhood

- HIV INFECTED
- HIV AFFECTED
- CONTROLS
Psychosocial risk – SES
Psychosocial risk

- Caregivers of both infected and affected adolescents reported high depressive scores
- Significantly different from community controls
Psychosocial risk

Computed a psychosocial risk score based on

- Caregivers’ depressive symptoms
- Orphanhood
- SES status
Pathways to poor mental health

Chi Square (4, \( N = 130 \)) = 4.342, \( p = .36 \), TLI = .997, CFI = .992, and RMSEA = .026 (90% C.I. .00-.13)
IMPLICATIONS
- Identification, monitoring and surveillance
- Challenges of assessment
- Developing multiple risk index
- How best to monitor ‘at risk’ children