

Geneva Foundation for Medical Education and Research (GFMER)

From Research to Practice

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# MATERNAL MENTAL HEALTH AND EARLY CHILDHOOD DEVELOPMENT: PART 2

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# OUTLINE OF THE PRESENTATION

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1. What is early child development?
2. Why focus on development in the early years
3. Investing in early child development
4. Brain Development
5. The burden and impact of impaired development
6. The risk factors
7. Importance of maternal mental health and effects on child health and development
8. Consequences of adversity
9. Evidence based interventions
10. Relevance for MDGs

# WHAT IS EARLY CHILD DEVELOPMENT (ECD)?

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## Early child development (ECD)

- Ages 0-8
- Includes the sensory-motor, social-emotional, language and cognitive domains
- Has a determining influence on subsequent schooling, life chances and health through skills development, education, and occupational opportunities
- Determines future health status and productivity of individuals, and socio-economic development of nations
- Determines equity/inequity from the start

# STATUS OF ECD

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- In definition, ECD is from zero to eight years- but in practice, advances have been made in preschool age 3-6 years. The 0-3 age group remains neglected in most developing countries
- 0-3 age range is a priority for the health sector but focus in most countries has been on survival and health and much less on psychosocial development
- Even when ECD has been considered, most attention is on physical growth and cognitive outcomes
- In recent years, ECD research and analyses show the need for attention to social-emotional development of children which acts as the principal 'gate-keeper' for other domains of development

# STATUS OF ECD (CTD)

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- Need to actively promote bonding and attachment of babies with their family members in the early stages of development.
- Health promotion and the management of illness through strategies such as Integrated Management of Childhood Illnesses (IMCI) and its related home and community activities, is a most promising way to integrate interventions for growth, health and psychosocial development
- WHO, UNICEF, GFMR and many others are promoting integrated approach to ECD within regular Maternal and Child Health Care

# WHY FOCUS ON PROMOTING ECD?

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- First years influence the whole life course
- Brain development is most rapid and vulnerable from conception to three
- The burden of impaired child development is very large
- The factors known to affect child development are common, especially in low/middle income countries- most are modifiable
- Cognitive ability & behaviour upon entry in school determines extent of progress – early ability predicts later school progress
- Long-term effects contribute to continued inequalities in the next generation
- Inequalities can be reduced with intervention in the early years
- Early interventions are more cost effective than at other ages
- Economic investment in ECD promotes human capital & equality

# WHY FOCUS ON ECD? (1)

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- When children spend their early years in an unstimulating, emotionally and physically unsupportive environment their brain development is affected in adverse ways, and leads to cognitive, social and behavioural delays.
- Problems in childhood means a sub-optimal developmental trajectory and the beginning of pathways to problems later in life.
- There is evidence that many problems in adult life have their origins in pathways that begin in childhood.

## WHY FOCUS ON ECD? (2)

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- In the short term, ECD influences ‘readiness for school’. Over the balance of the first and the second decade of life it influences school success, social success or rejection, stunting, early criminality and the prospects for a successful transition to citizenship.
- By the third and fourth decade of life, ECD influences mental health (depression and anxiety disorders), physical health (obesity, blood pressure, heart disease, non-insulin dependent diabetes), and socio-economic mobility.
- From the fifth decade onward, ECD influences a wide range of chronic diseases including dementia as well as the prospect of healthy aging



# INVESTMENT IN EARLY CHILD DEVELOPMENT REDUCES INEQUALITIES (1)

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“Investment in the early years provides one of the greatest potentials to reduce social inequities within a generation...” WHO Commission on the Social Determinants of Health (WHO, 2008)

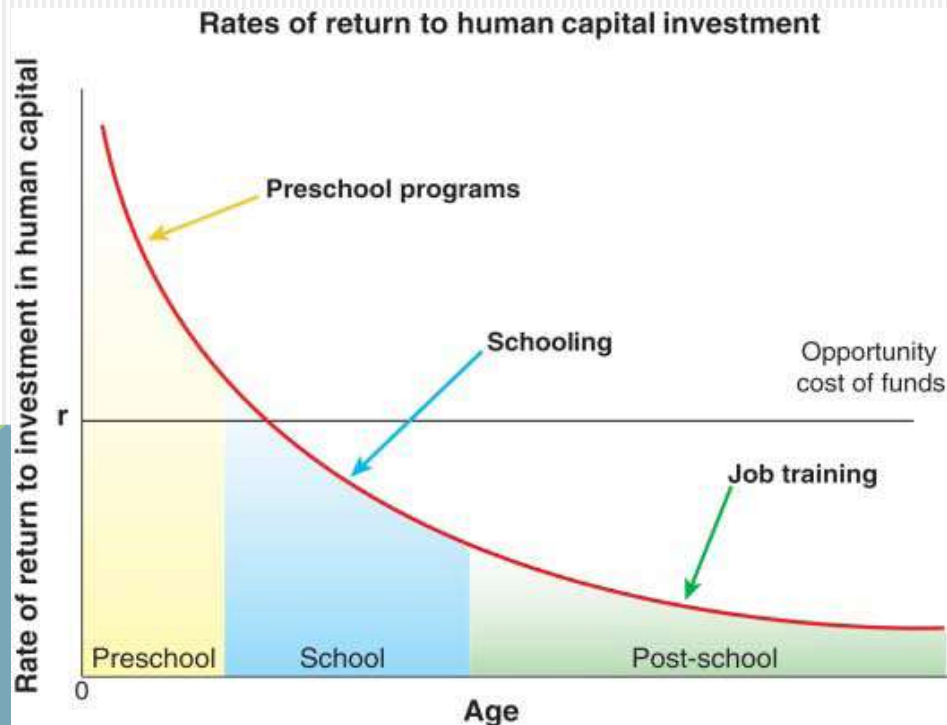
Investing in ECD must be a major objective in all regions the world, to:

- Reduce the proportion of populations living in poverty
- Improve equity in literacy, health, and income
- Reduce violence
- Enhance social stability
- Improve the quality of human capital
- Embrace the opportunities in modern, knowledge-based economies
- Be successful citizens

# INVESTING IN EARLY CHILD DEVELOPMENT IMPROVES INDIVIDUALS' AND SOCIETIES' ECONOMIC PRODUCTIVITY (2)

## Investing in disadvantaged children...

- Promotes fairness and social justice
- Promotes productivity in the economy and society
- Pays off more in earlier interventions than later interventions



J. Heckman,  
Nobel Laureate in  
Economics

# BRAIN DEVELOPMENT (1)

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The following **CORE CONCEPTS** emerge from mutually independent research in economics, neuroscience, and developmental psychology:

- Architecture of the brain and the process of skills formation are both influenced by an inextricable interaction between genetics, biology, and individual experience
- Mastery of skills that are essential for economic success and the development of their underlying neural pathways follow hierarchical rules in a bottom-up sequence such that later attainments build on foundations that have already been laid
- Cognitive, linguistic, social, and emotional competencies are interdependent – all are shaped powerfully by the experiences of the developing child and all contribute to success in the workplace

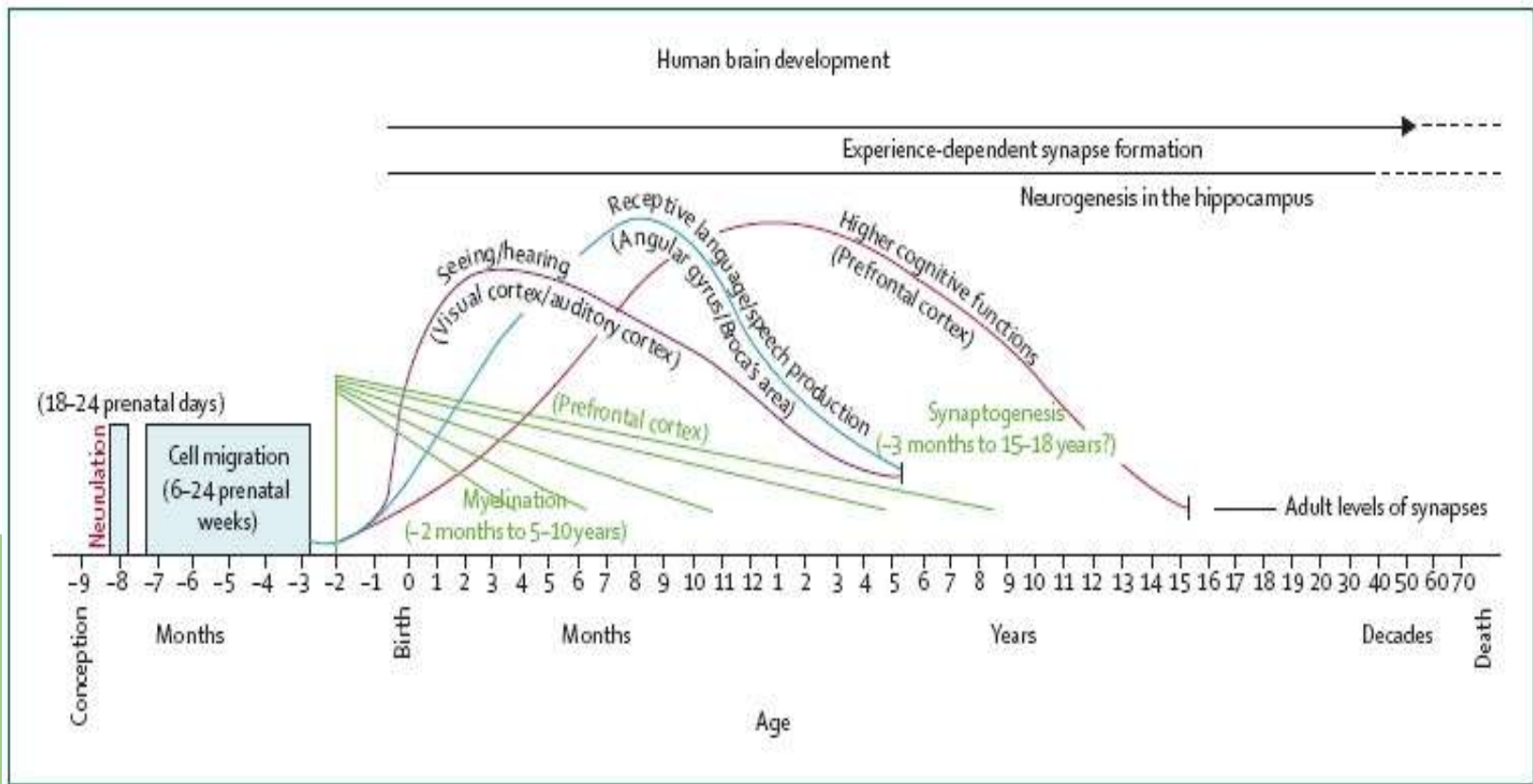
# BRAIN DEVELOPMENT (2)

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- Although adaptation continues throughout life, human abilities are formed in a predictable sequence of sensitive periods, during which the development of specific neural circuits and the behaviours they mediate are most plastic, and therefore optimally receptive to environmental influences (Heckman, 2006) whether those environmental influences are positive or negative (Shonkoff, Boyce, & McEwen, 2009)
- We now know that adversity impacts brain development because of its effect on parenting and the quality of the parent-child relationship and that disparities increase with early, multiple, and cumulative risks.

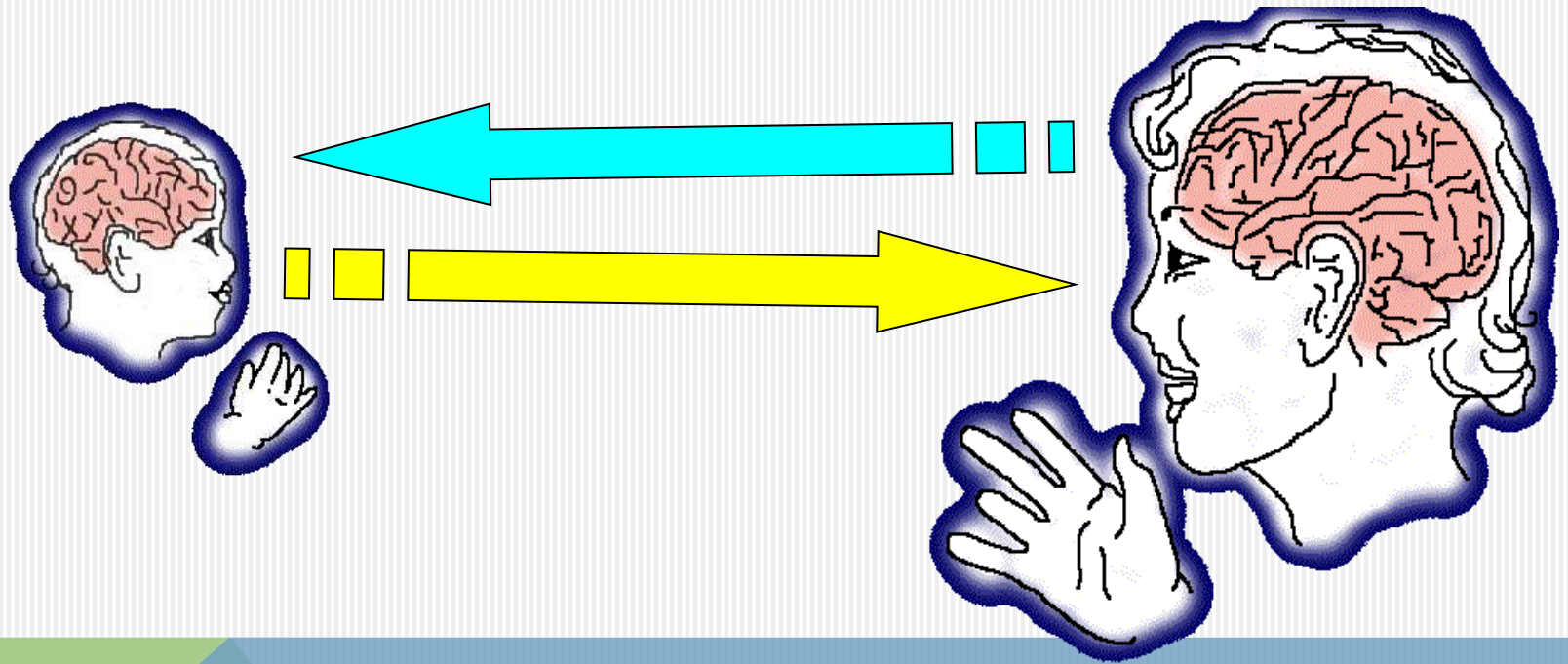
# EXPERIENCE AFFECTS DIFFERENT ASPECTS OF BRAIN FUNCTION IN DIFFERENT PERIODS OF LIFE (3)

Hearing and sight: 3-4 months; Language: 6 months-2 years; Resolving problems: 7 months-10 years



**STIMULATION OF BRAIN DEVELOPMENT** is heavily dependent upon interaction between the child and the adult. how the mother responds to signals from the child will be influencing how the child's brain develops (4)

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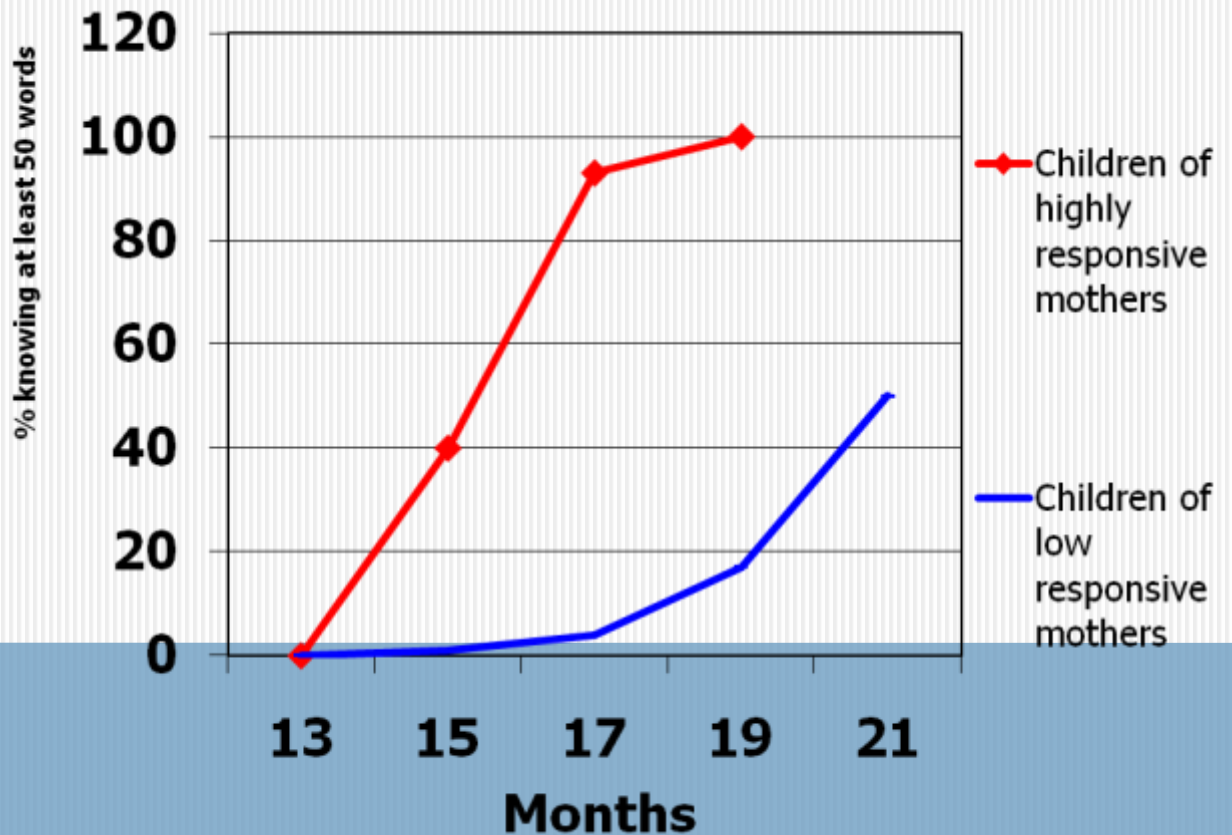
- Sound
- Vision
- Smell

- Touch
- Proprioception
- Taste

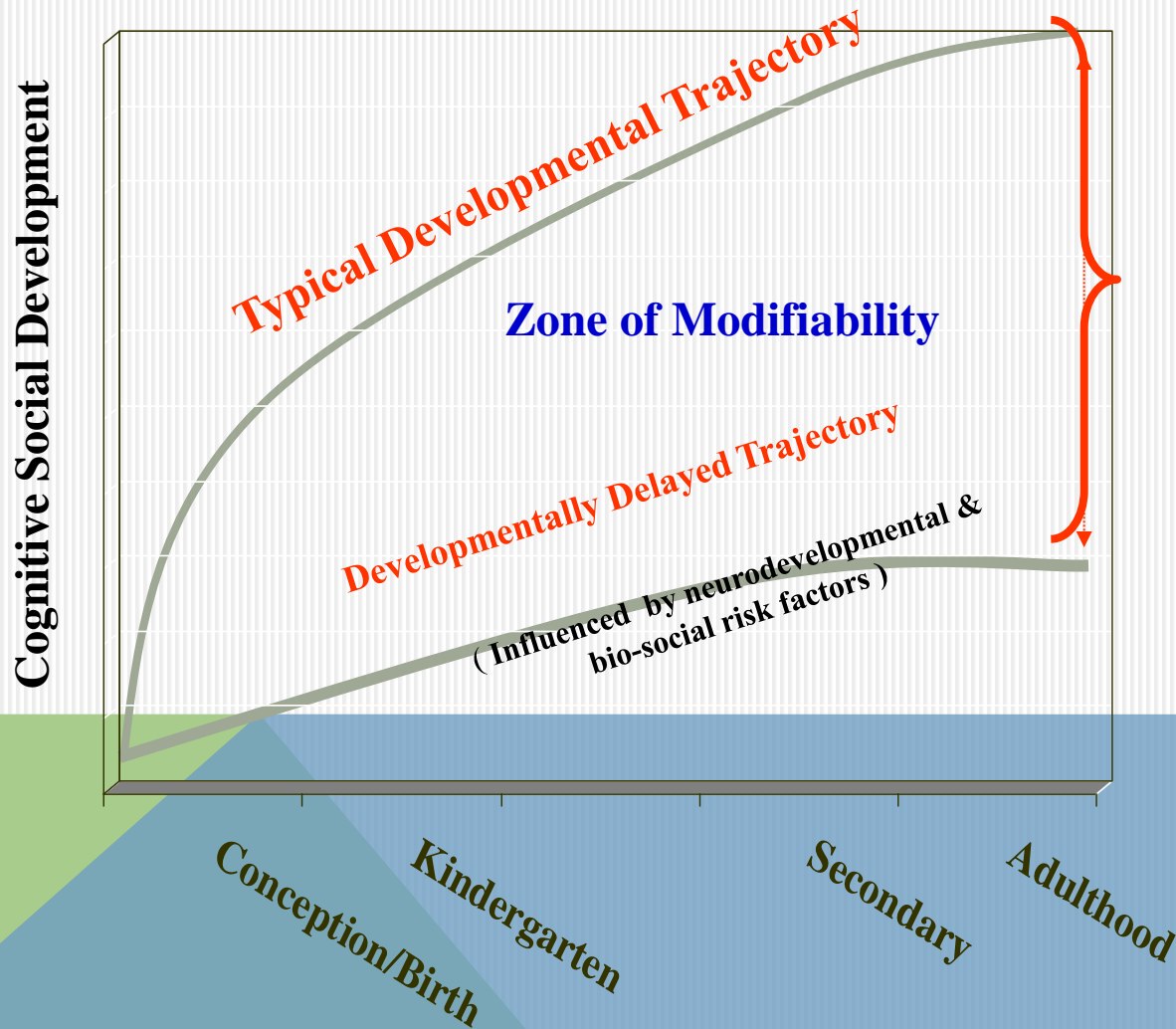
# THE BRAIN IS EXPERIENCE-DEPENDANT

## ("Serve and return") (5)

- The brain requires a response (or an answer) to grow
- Stimulation from one direction is not enough – Interaction is necessary



**BRAIN PLASTICITY** decreases with age - so early interventions are more effective than later. Prevention is less expensive than treatment (6)





# THE IMPORTANCE OF EARLY RELATIONSHIPS

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- The quality of the relationships a young child has with caregivers is all important - starting with bonding and attachment in the early days and months of life- Relationships are the “active ingredients” of the environment’s influence on healthy human development
- Nurturing and responsive relationships build healthy brain architecture that provides a strong foundation for learning, behaviour and health (including physical growth)
- They also lay the foundation for outcomes such as – self-confidence and sound mental health, motivation to learn, the ability to control aggressive impulses and resolve conflicts in nonviolent ways, knowing the difference between right and wrong, having the capacity to develop and sustain friendships and intimate relationships, and ultimately to be a successful parent oneself

# 2007 AND 2011 *LANCET* SERIES ON CHILD DEVELOPMENT

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- Estimated numbers of children in low-and middle-income countries who are at risk of poor development
- Identified major risks for poor child development
- Described available evidence on effective early interventions
- Estimated the cost of not investing in early childhood programmes

# LANCET REFERENCES

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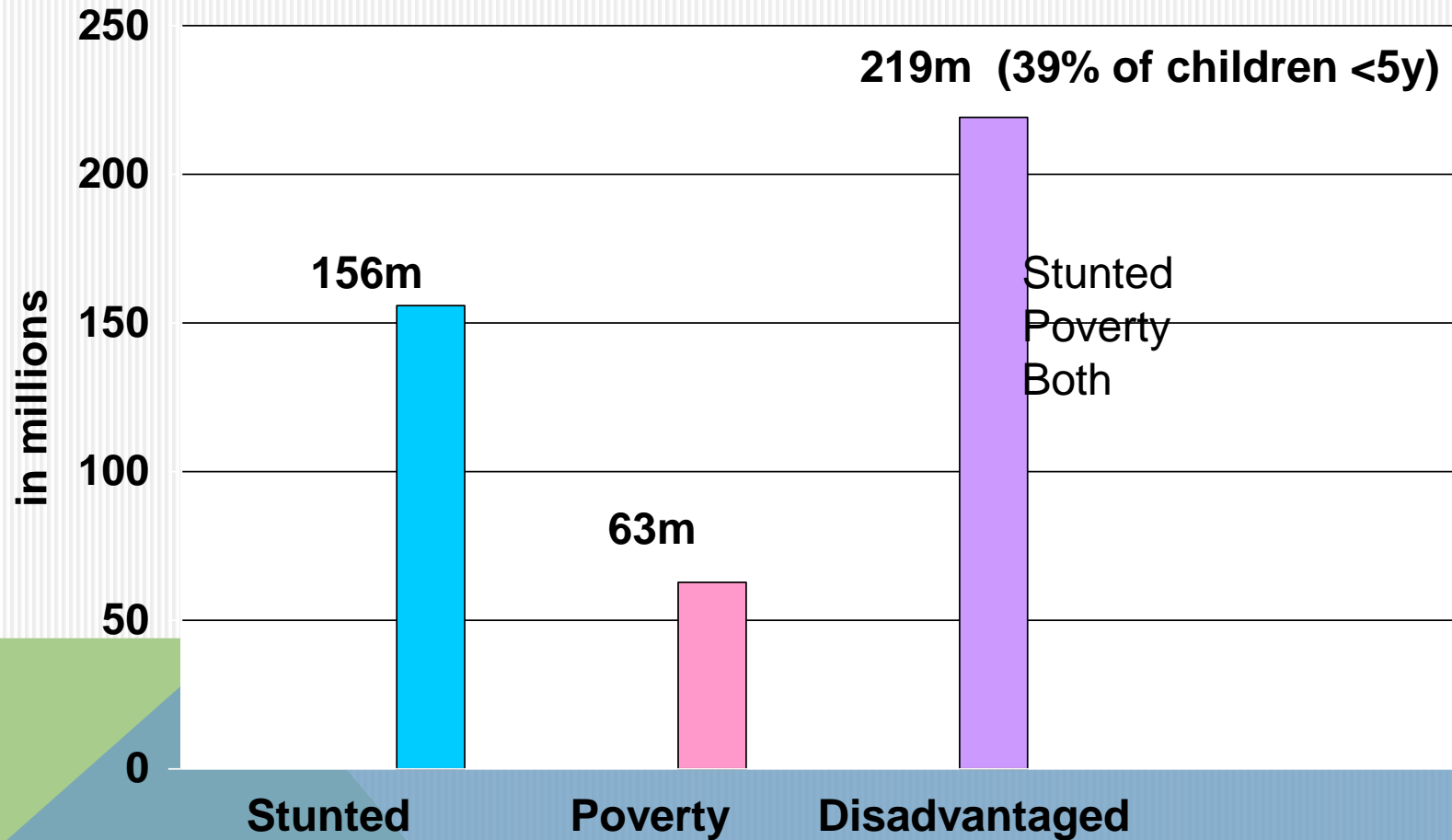
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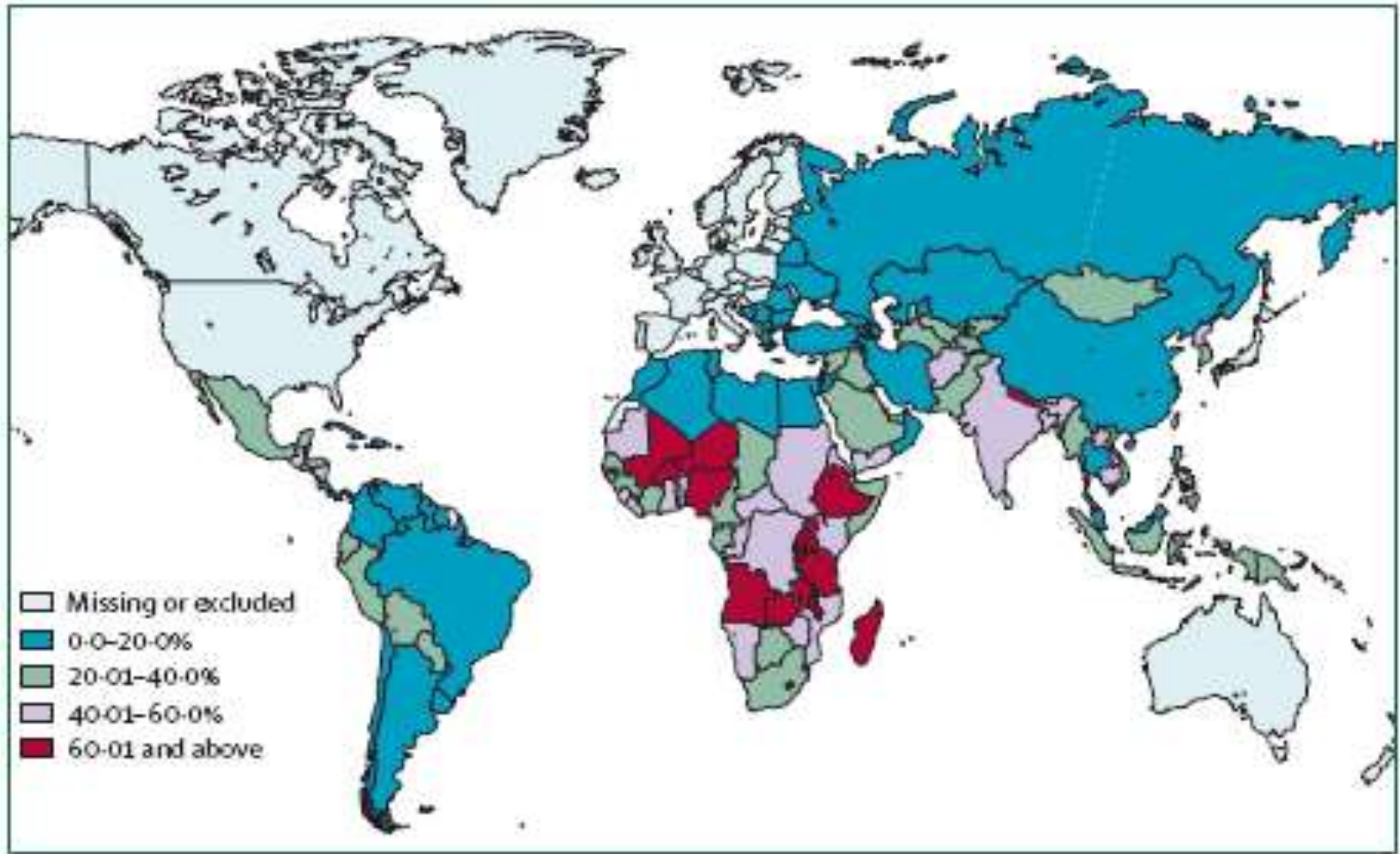
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# NUMBERS (IN MILLIONS) OF CHILDREN < 5Y NOT FULFILLING THEIR POTENTIAL IN DEVELOPMENT



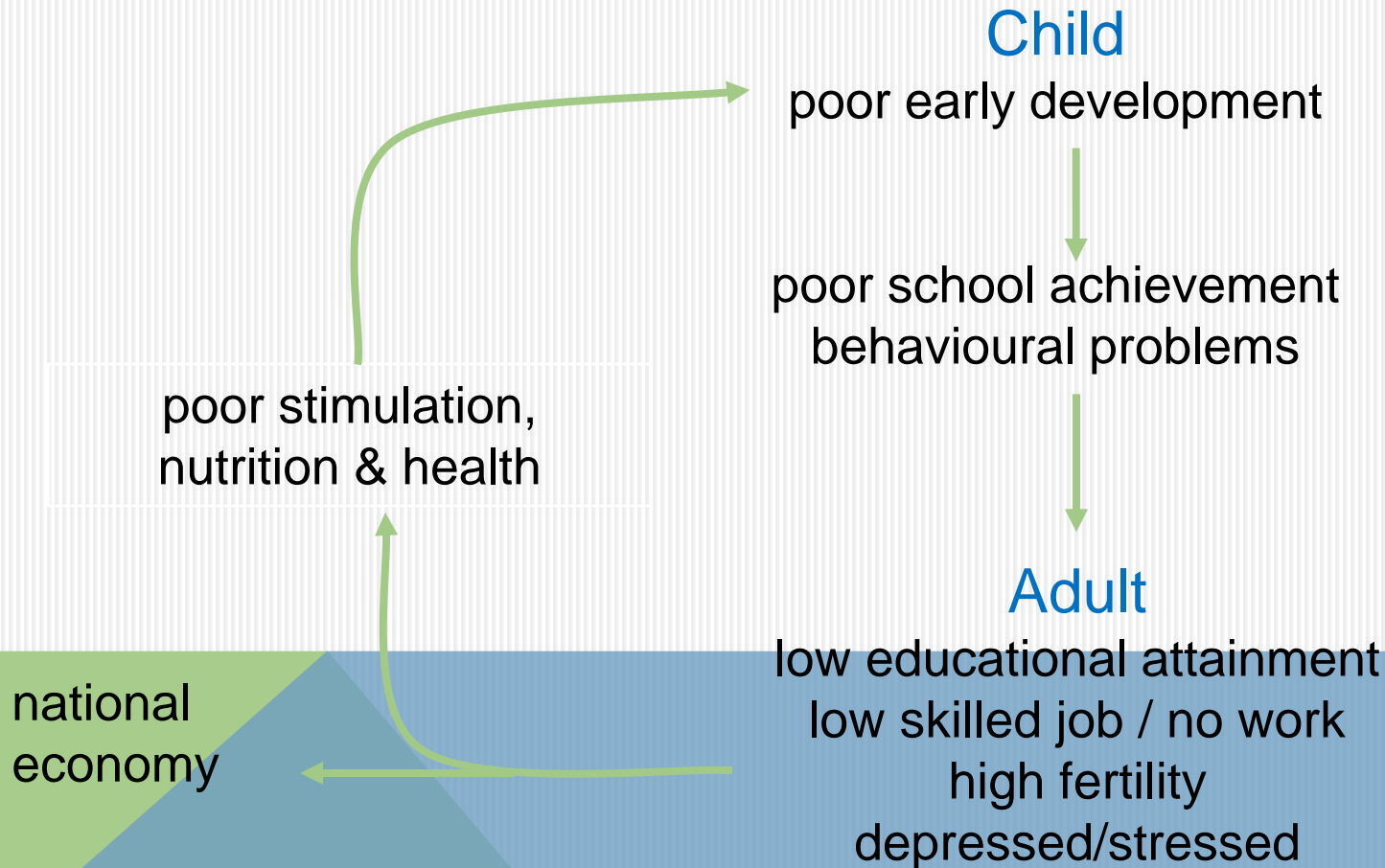
# PERCENTAGE OF DISADVANTAGED CHILDREN BY COUNTRY

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# INTERGENERATIONAL TRANSMISSION OF POVERTY

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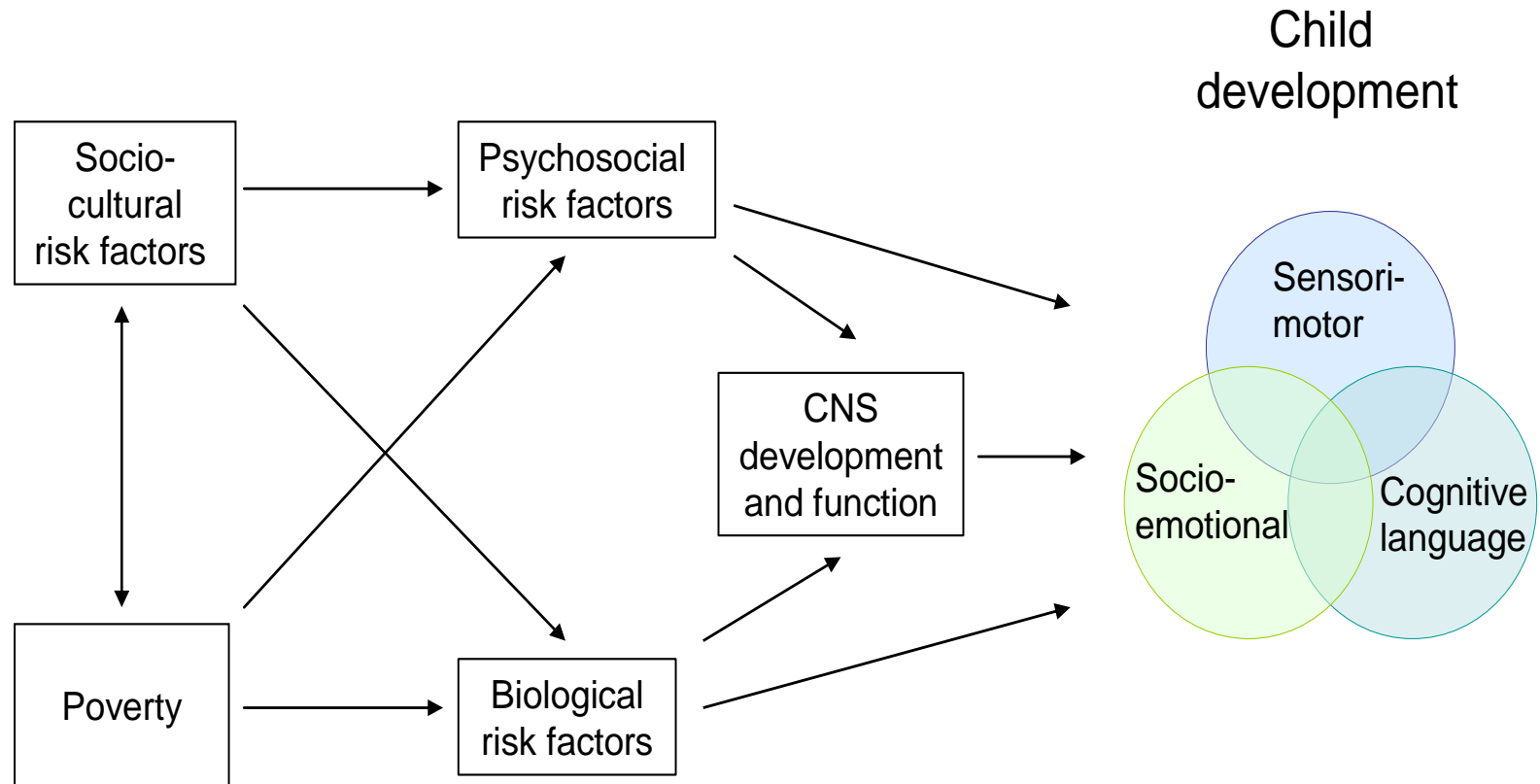


# LIFE COURSE IMPACT

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- Early exposure to risks sets children on a lower developmental path.
- Long-term effects on schooling and income contribute to continued inequalities in the next generation
- Two pathways reduce productivity and yearly adult income
  - Fewer years of schooling, and
  - Less learning per year in school
- Studies from 51 countries show that, on average, each year of schooling increases wages by 9.7%.
- The loss in productivity is estimated to be more than 20% of yearly adult income for the 219 million disadvantaged children when they become adults

# RISK FACTORS AND PATHWAYS TO POOR DEVELOPMENT



Source: Walker et al, *The Lancet* 2007



# EMERGING KEY PSYCHOSOCIAL RISKS FOR POOR DEVELOPMENT

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## Additional key psychosocial risks:

- Maternal depression
- Exposure to societal violence
- Parental loss & institutional rearing

Common to all is disruption of normal family functioning



# MATERNAL MENTAL HEALTH AND WELL BEING

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# PREVALENCE OF MATERNAL DEPRESSION

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- Depressive disorders are common, chronic, and a principal source of disability among women throughout the world
- Average prevalence of maternal depression across countries: 10-20%.
- Estimates of prevalence of maternal depression from community studies in low and middle-income countries range from 15-28% in Africa and Asia, 28-57% in Pakistan and 35-50% in Latin America
- Rates are higher in low and middle income countries possibly representing the greater prevalence and exposure to multiple depression-related risk factors by women: poverty, economic stress, domestic violence, lack of status and lack of control in family decision making.
- Risk factors for maternal depression, and poor social support are also risk factors for poor child development, suggesting that the relation between maternal depression and compromised early child development is multilevel and cumulative

# MATERNAL MENTAL HEALTH & IMPACT ON CHILD

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- At each age period, children of depressed mothers show difficulties in achieving age-appropriate:
  - Physical health milestones
  - Developmental tasks in cognitive and language development
  - Social emotional functioning

# HOW MIGHT **ANTENATAL** MENTAL HEALTH INFLUENCE EARLY CHILDHOOD DEVELOPMENT ?

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Through three possible mechanisms:

1. less likely to use preventive antenatal health care
2. increasing stress-related hormones including cortisol
3. worse physical health and weaker immune system

These may affect foetal development, birth outcomes, and have lasting effects on early childhood development.

# **BIRTH OUTCOMES AND EARLY CHILDHOOD DEVELOPMENT AFTER EXPOSURE TO ANTENATAL CMD**

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## **Evidence of the associations with birth outcomes:**

- Increased rate of premature birth (RR=2.3, Rondo et al 2003) and
- Increased risk of low birth weight (<2,500 grams) (RR=1.9, Rahman et al 2007);

## **Evidence of the associations with ECD:**

- Increased risks for underweight, stunting (Rahman et al 2004);
- Worse infant cognitive development (Bergman et al 2010),
- Behavioural and emotional problems in pre-school children (O'Connor et al 2002).

# HOW **POSTPARTUM** MATERNAL MENTAL HEALTH CAN INFLUENCE EARLY CHILDHOOD DEVELOPMENT (1)

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- Day-to-day interactions between primary caregivers and babies influence the infant's neurological, cognitive, emotional and social development;
- Effective care involves a mutually rewarding and affectionate relationship with the infant;
- Maternal sensitivity is associated with more secure infant to parent emotional attachment;

## HOW **POSTPARTUM** MATERNAL MENTAL HEALTH CAN INFLUENCE EARLY CHILDHOOD DEVELOPMENT (2)

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- Caregiver sensitivity and responsiveness involve observing infant cues, interpreting what these indicate, and acting consistently, contingently and effectively in response;
- Higher maternal responsiveness is associated with higher infant cognitive ability and lower rates of behaviour problems in preschool children.

Agarwal et al, 1992; Murray and Cooper, 1996; Valenzuela, 1997; Posada et al, 1999; Richter et al, 2000 and 2004; Tomlinson et al, 2005; Eshel et al, 2006; Grantham-McGregor et al, 2007; Walker & Wachs et al, 2007; Engle & Black et al, 2007 {Lancet Series 2007}; Walker & Wachs et al, 2011; Engle et al, 2011 {Lancet Series 2011}



# MATERNAL MENTAL HEALTH & INTERACTION WITH CHILDREN

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Numerous studies have shown that depressed mothers:

- Are slow to respond to children's verbal or physical interactions
- Are more critical
- Have difficulty in encouraging the child's speech and language
- Talk less to their infants and don't use the lilt and exaggeration that are typical of non-depressed mothers
- Have difficulty asserting authority and setting limits, which would help the child learn to regulate his or her behavior education
- Find difficulty in providing appropriate stimulation
- Are less aware of and responsive to their infant's cues

# MATERNAL MENTAL HEALTH & INFANT & TODDLER DEVELOPMENT (1)

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Even at a very young age, babies have shown to be overly sensitive to their mothers negative moods.

- **Face to face interactions in the first year of life show**
  - Fewer positive facial expressions
  - More negative expressions and protest behaviour
  - Higher levels of withdrawn behaviour and avoidance
  - More fussing and less able to tolerate separation
  - An absence of positive affect

# MATERNAL MENTAL HEALTH & INFANT & TODDLER DEVELOPMENT (2)

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- **Adverse outcomes for child development include:**
  - Poor quality of the mother infant relationship
  - An insecure attachment to the mother
  - Avoidant attachment style or increase in infant protests

# MATERNAL MENTAL HEALTH & INFANT & TODDLER DEVELOPMENT (3)

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- Effect of postpartum depression on children older than one year show significant delays in cognitive and social aspects of development.
- The highest risk is from enduring, cumulative stress without support
- In more recent studies of low risk populations, differences in the mother-infant interactions of depressed compared with non depressed mothers tend to be fewer in number.

# MATERNAL POSTNATAL MENTAL HEALTH AND INFANT DEVELOPMENT IN RESOURCE-CONSTRAINED SETTINGS

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In resource-constrained settings maternal postnatal depression has been linked directly to:

- Higher rates of stunting in infants;
- Higher rates of diarrhoeal diseases, infectious illness and hospital admission; and
- Lower completion of recommended schedules of immunization.

(Patel et al 2003;  
Rahman et al, 2003; 2004; 2006 and 2007;  
Stewart et al 2008)

# IMPACT OF POSTNATAL DEPRESSION ON SCHOOL-AGE CHILDREN

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- If the child has not been able to successfully master developmental tasks at an early age, competencies at subsequent ages are often affected. Compared to children of non-depressed mothers, school-age children of depressed mothers have been found to function more poorly in a number of areas and to have:
  - More school problems;
  - Poorer levels of cognitive functioning, significantly lower IQ scores characterized by difficulties in mathematical reasoning;
  - More special educational needs;
  - Poor peer relationships;
  - Lower levels of self-esteem;
  - More behavior problems (anti-social behaviour, over-activity and distractibility);
  - Difficulties in setting limits;
  - Negotiating conflicts; and
  - Are at risk for a variety of depressive and anxiety disorders.
- Deficits and delays in the development of social and interpersonal competence are risk factors for the development of adjustment problems.

# PROTECTIVE FACTORS FOR CHILD DEVELOPMENT (1)

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Certain protective factors for child development in the presence of maternal depression have been identified.

- Breastfeeding was found to be protective of verbal IQ and to mediate the link with mathematical ability.
- Importance of breast feeding to cognitive development is of considerable interest given that women with PND have been found to be more likely to:
  - Terminate breastfeeding early;
  - Experience failure to breast feed; and/or
  - Derive less satisfaction from the experience.

# PROTECTIVE FACTORS FOR CHILD DEVELOPMENT (2)

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The provision of additional support for mothers with PND to assist them in initiating and continuing to breastfeed is warranted.

- Paternal acceptance is an important mediating or buffering factor found. By contrast, an aggressive marital partner has a deleterious effect on maternal sensitivity.

- Favorable family circumstances, such as sufficient economic resources, and psychosocial support from family members.



# APPROACH NEEDED (1)

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- A number of health system and cultural differences make it difficult for mental health interventions to be extrapolated from the developed to the developing world.
- Treatments are unlikely to be adopted by professionals and policy makers unless they are shown to be efficacious, cost-effective, integrated in existing community health services, and linked to other health problems perceived to be higher in priority.
- Families are more motivated to seek services where outcomes such as infant growth and development are perceived to be more tangible. Multi-modal or combined interventions are more likely to fit these criteria.

# APPROACH NEEDED (2)

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- Multi-modal interventions for depressed mothers need to include support for the mother, nutritional and practical child care and development knowledge, and responsive parenting techniques, all delivered in a psychologically therapeutic manner.
- Such interventions have relatively lesser delivery costs, less duplication of services, and appropriate identification of those who are most likely to benefit.

# CONTINUUM OF CARE

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Poor maternal nutrition

Domestic violence

- Improved antenatal care
- Improved maternal nutrition
- Psychosocial support
- Interventions for violence



Poor obstetric care

Delayed initiation of breast feeding

- Improved obstetric and early newborn care
- Breast-feeding support
- Support for bonding and attachment



Inadequate nutrition

Inadequate stimulation

- Psychosocial stimulation
- Maternal mental health promotion
- Nutritional supplementation

# INTERVENTIONS TO IMPROVE DEVELOPMENTAL OUTCOMES

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A few individual and group interventions targeting maternal mood and enhancing parenting skills have been developed and tested, mostly in developed countries. Treatment trials have shown that:

- Nondirective counselling by health visitors (Elliot et al, 2001);
- Supportive home visits;
- Dynamic psychotherapy (Cooper and Murray, 1997);
- Cognitive behaviour counselling; and
- Antidepressants (Appleby et al, 1997)

are all equally effective.

The evidence suggests that:

- Maternal mood can be enhanced;
- The incidence of infant behavioral problems can be reduced; and
- The likelihood of insensitive interactions developing is reduced (Murray et al., 2003).

# WHO/UNICEF'S "CARE FOR CHILD DEVELOPMENT"

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WHO/UNICEF's Intervention for Improving Mother-Child Interaction "Care for Child Development". Key points:

- Designed to meet the needs of parents and children by incorporating counseling about care into Integrated Management of Childhood Illnesses
- Target groups – parents of all children from birth to 2 years of age and of any child under the age of 5 years identified as malnourished
- Health care workers demonstrate and discuss with caregivers recommendations in three areas - feeding, play and communication to promote responsive care - with special emphasis on mothers experiencing problems in child care

# THE WHO/ INTERNATIONAL CHILD DEVELOPMENT PROGRAMME (ICDP) MODEL PROGRAMME

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Another example includes the WHO/ICDP Model programmes

- The WHO/ICDP programme is a sensitization process for improving mother-child interaction in order to promote better psychosocial development in children.

## 8 guidelines of good interaction of WHO/ICDP

- In the first year and a half:
  1. Show your child that you love her;
  2. Talk with your child. Get a conversation going with sounds or gestures;
  3. Follow the child's lead; and
  4. Give praise and affirmation for what the child manages to do well.
- In the second year and third year:
  5. Help the child focus her attention and share her/his experience;
  6. Help your child make sense of the world by sharing and describing it;
  7. Help your child expand and enrich his experiences; and
  8. Teach your child limits, rules, and values.

# ICDP MODEL: EFFECTIVENESS

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- Studies show positive effects on quality of interaction between caregiver and child
- Effects seen among poorest and most disadvantaged
- Can be combined with health interventions

# LATEST EVIDENCE AND RESEARCH

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## Integrating MMH into M&C Health programmes: Rahman et al, 2013

- “The evidence... shows that many outcomes that contribute to infant mortality, such as under nutrition, diarrhoeal disease, immunization & breastfeeding uptake, have direct associations with maternal mental health.”
- “By narrowly fixating on mortality & morbidity targets, & relegating psychosocial well-being to be a peripheral goal, the MCH community is missing an important opportunity &, in the process, depriving millions of mothers & children of their basic right to health.”



# LATEST EVIDENCE AND RESEARCH

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Integrating maternal psychosocial well-being into child-development intervention: 5 pillars approach: Zafar et al, 2014

- **An adaptation of evidence-based CBT intervention to improve maternal psychosocial well-being in Pakistan**
- **The 5 Pillars were:**
  - Empathetic listening
  - Family engagement
  - Guided discovery using pictures
  - Behavioural activation
  - Problem solving

# LATEST EVIDENCE AND RESEARCH

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Integrating maternal psychosocial well-being into child-development intervention:  
5 pillars approach: Zafar et al, 2014

- Moderator analysis showed that the intervention works effectively in women living in conditions of poverty and disempowerment
- Success of the approach attributed to:
  - Mothers being central focus of the intervention
  - Using local CHWs whom the mothers trusted
  - Simplified training and regular supervision
  - Approach *facilitates*, NOT adds to, the CHWs work.

# LATEST EVIDENCE AND RESEARCH

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Interventions with Proven Efficacy : Galdstone & Racham et al, 2014

- A systemic review of 7 intervention trials from Asia, Africa, South America & the Caribbean
- 5/7 trials demonstrated a positive outcome of the intervention on maternal depression
- The most effective trials had an active psycho-therapeutic component + general supportive measures such as empathic listening & social support
- Strongest evidence for interventions to treat maternal depression in LAMIC is for individual or group Cognitive and Behavioural Therapy (CBT)
- Interventions which combined direct maternal component with infant health component produced demonstrable change in infant outcomes

# MENTAL HEALTH AND THE MILLENNIUM DEVELOPMENT GOALS

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## Mental health is closely linked to the realisation of the Millennium Development Goals

■ Each country requires local evidence about the nature, prevalence and determinants of poor mental health in mothers, and the consequences for their children, to inform health service development and meet the Millennium Development Goals of:

- Reduced child mortality (MDG 4);
- Improved maternal health (MDG 5) which require that comprehensive health care including physical and mental health care is available to all;
- Women's mental health is inextricably linked to their social circumstances; it is improved when their rights to equality of opportunity and participation are promoted (MDG 3).

# CONCLUSION

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- It is critical to continue the study of maternal depression and its effects on child care in conditions of poverty and underdevelopment and to explore ways in which depression can be feasibly ameliorated in poorly resourced countries.
- Improved care for depression holds the promise of improving the emotional well-being and functioning of mothers and the long-term outcomes of their children.
- There is an equally vital need to reduce the risk factors that render women vulnerable to depression and anxiety in the first place.
- Preventing depression in children who are at risk may be the closest we can come to the primary prevention of depression.

# ASSIGNMENTS (1)

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- Review existing MCH policies and programs integrating Care for early childhood development for the 0-3 age group, if any, in your country and prepare a summary.

-Or-

- Conduct a literature search on what research, if any, has been conducted in your country on maternal depression and its effects on child development and prepare a short summary of the findings.

Please feel free to contact *Caireen Stewart* ([caireen.stewart@yahoo.co.uk](mailto:caireen.stewart@yahoo.co.uk))  
or *Mirella Smith* ([mirellasmith@live.com](mailto:mirellasmith@live.com))

# ASSIGNMENTS (2)

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- Suppose you are planning to do a post-intervention evaluation only of the pilot project: Propose a plan for evaluation of what did and what did not work in the community-based pilot project

-Or-

- Consider conducting formative research in your community to determine local awareness of the importance of early childhood development across the life course and awareness of its risk and protective factors.

# ASSIGNMENTS (3)

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-Or-

- In light of the presentation you have heard on maternal mental health and its importance for early childhood development, and after having reviewed some of the suggested additional reading materials, prepare a commentary on what types of interventions could be feasible and acceptable to implement as a pilot project in your own community to improve early care giving by mothers with the support of their families



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