Extent and Impact on Child Development

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Extent and Impact on Child Development: Of What?

- Prenatal Alcohol Exposure?
- FASD?
- Cumulative Risk Factors?
- Resilience/Adaptation Promoting Factors?
- Prevention . . . Intervention?
Outline

• Models of Risk, Resilience and Outcome
  – Issues of Attribution
• Core Principles of Child Development
• Possible Deficits in FASD Populations
• Possible Trajectories
• Need for an Individualized Approach
• Policy Implications
Models of Risk, Resilience and Outcome

• Frame attribution, trajectories and prognosis
• Guide prevention and intervention

• Linear Causality Models:
  - Prenatal Alcohol Exposure
  - Adverse Outcomes/FASD
• But is FASD the Only Lens for Understanding Outcome?
Models of Risk, Resilience and Outcome

- Fetal Programming of Adult Disease
  - A stimulus/insult at a critical period of development has lifelong effects

- Cumulative Risk
  - Total number of risk exposures predicts maladaptation, regardless of the specific individual risks

- Developmental Psychopathology
  - Development occurs from the dynamic transaction between biologic, behavioral, psychological, and broader system/contextual variables
Cumulative Environmental Risk: Verbal IQ in 4-year-old Children

- Parental Mental Health
- Parenting Style
- Maternal Education
- SES Variables
- Family Social Support
- Stressful Life Events

- No single factor uniquely enhanced or limited early IQ
- Combinations and multiple risk factors needed to jeopardize child IQ

Sameroff, 1987
Cumulative Prenatal Substance Exposure and Environmental Risk: Child Development

• Carta et al, 2001
  – Overlapping cohort; N=278; serial assessment over 54 mo. developmental ability
  – Environmental risk accounted for more variance (9-11%) in developmental outcome/trajectory than prenatal drug and/or alcohol exposure (3-4%)
  – Widening gap in trajectory regardless of exposure over time
  – Children with higher levels of substance exposure were not more affected by environmental exposure than children without prenatal exposure
Developmental Psychopathology: A Transactional Model

Pearce JW, Pezzot-Pearce TD, 2007
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Attribution

• Attribution:
  – to explain by indicating a cause
  – Issues of misattribution in the field of FASD
Attribution: A Complex Neurodevelopmental Disorder

- FASD
- Other Prenatal Exposures
  - Parental Genetics
- Specific Genetic Syndrome
- Post-Natal Experiences
  - Attachment Disorder
  - PTSD
- Physical Brain Injury
Alberta FASD Diagnostic Clinic Data: Cumulative Risk (N=52) unpublished data

- Tobacco: 89%
- Marijuana: 50%
- Any Street Drugs: 27%
- Any Maltreatment: 67%
  - Neglect: 56%
  - Physical Abuse: 37%
  - Sexual Abuse: 33%
- Witness to Domestic Violence: 33%
- Multiple/Disruptive Caregivers: 69% (Ave # = 5)
Principles of Child Development

• Children are normal until proven otherwise
  – Normal variation - maturational delay - transient disorders - persistent impairment
• Characterized by continuities, discontinuities and transitions
• Dynamic and continuous interaction between biology and experience, and sources of vulnerability and resilience
• An interdependent process: domains influence each other
• Early experiences are important but risk and protective factors are influential into adulthood
• Trajectories can be altered by interventions that change the balance between risk and protection/promotion
Models of Assessment

- Neurologic Processes
- Neuropsychology
- Developmental Pediatrics
- Brain Injury/Pediatric Rehabilitation
- Strength-Based

- What is the purpose of assessment?
- What model is used in the field of FASD?
Potential Deficits: Canadian Guidelines

- A range of cognitive and behavioural outcomes
- No modal profile of abilities is unique to alcohol exposure
- No profile can be distinguished from that observed with other neurobehavioural disorders
- Not every deficit identified in a child with prenatal exposure to alcohol may be solely the result of alcohol exposure
- There is a lack of expert consensus on core deficits
- Features of FASD are complex and multifaceted, originating with organic brain damage caused by alcohol, but interacting with genetic and other influences
- Over the lifespan of the affected person, these features may be exacerbated or mitigated by environmental experiences
Possible Functional Deficits

- Intelligence: Verbal and Non-Verbal etc.
- Academic Achievement (esp. Mathematics)
- Communication: Core/Higher-Order/Pragmatic
- Executive Functioning/ADHD
- Memory
- Motor: GM/FM/Planning//VMI/VP
- Sensory Processing
- Adaptive Skills
- Maladaptive Behavior
- Mental Health Disorders
Is there a Behavioral Phenotype or Neuropsychological Profile?

• One profile versus several (Gray, Mukkherjee and Rutter, 2008)

• Difficulties with math and aspects of attention (Jacobson and Jacobson, 2002)

• Impairment in complex information processing and integration (Kodituwakku, 2007; Aragon et al, 2008; Kodituwakku, 2009)
Is there a Behavioral Phenotype or Neuropsychological Profile?

- “A neuropsychological phenotype has not been defined” (Aragon, 2008)
- Considerable variability in neuropsychological impairment was noted between FASD subgroups and within each subgroup following detailed neuropsychological testing (Astley et al, 2009)
Possible Trajectories

- Attachment/Experience ➔ Poor Social Skills
- Regulation ➔ Externalizing Behaviors
- Developmental Delay ➔ Functional Deficit
- Cognitive Skills ➔ Stable?
- Worsening Adaptation?
- Unmet Development of Higher-Order Skills
- Mental Health Disorders
Possible Trajectories:
Discontinuity in Development
Summary: Impact and Extent

- No unique developmental or psychiatric disorders in children with FASD
- Confounded by overlapping risks for outcome
- Research to date limited by:
  - Few studies
  - Mix of “FASD” versus “alcohol exposure”
  - Use of standardized instruments
  - Methodology: comparison groups/community samples
An Individualized Approach

- An individual difference approach to assessment and intervention is needed
- Minimize incorrect assumptions about ability and limitation based on etiology
  - “These Kids”
- Each child has a unique profile to tailor intervention:
  - Particular biologic strengths and challenges
  - Developmental levels
  - Family patterns

Greenspan and Wieder, 1998
Policy Recommendations

• Prospective cohort research examining cumulative risk and adaptation variables including intervention for the Canadian context
• Should not distract from research and policy related to:
  – Comprehensive screening and surveillance for all children and adolescents linked to timely assessment and intervention
  – Intervention research for functional deficits for all children regardless of etiologic diagnosis
Policy Recommendations

• Learn from existing deficit and intervention literature in developmental disorders and pediatric rehabilitation

• Implement treatment informing diagnostic approaches to chart individual patterns of ability and disability and underlying risk and adaptation promoting factors

• Learn from innovative programs which appreciate the effects of cumulative risk and which emphasize collaboration across child serving sectors – e.g. “Pediatrics for Kids in Care (P-KIC)
References

Cumulative Risk


Developmental Psychopathology

References

Principles of Child Development

Potential Deficits
Potential Deficits