Why and how is research on resilience in the global south central to human development in these times of turbulence and uncertainty?

- Emergence of resilience in science and practice
- Advances in theory, methods, findings
- Contributions of the global south
- Future opportunities
Global child adversity – a sample

- Disaster exposed
  - 175 million children every year\(^1\)

- Living in conflict-affected poor countries
  - 25 million children\(^2\)

- Uprooted by war, political violence, disasters
  - 50 million children\(^3\)

- Child soldiers
  - 300,000\(^4\)

\(^1\)UNICEF 2011
\(^2\)UN 2012
\(^3\)UNICEF 2016
\(^4\)UNICEF 2012; Council of Foreign Relations 2012

Impending global water crisis

By 2040 UNICEF
1 in 4 children will experience water stress
600 million projected to be living in areas of extreme high water stress
Many (but not all) of them in the global south
Climate change vulnerability

Source Yusuf & Francisco 2009
From UNICEF EAPRO 2014

Disasters rising

EM-DAT International Disaster Database
Terror rising

It is no wonder that interest in resilience is surging across many fields!
Resilience science emerged around 1970

- In conjunction with
  - Risk research
  - Clinical science and developmental psychopathology
  - Resilience in ecology - but independently!

- A productive merger
  - Developmental and clinical sciences
  - Normative development and individual differences
  - International researchers

Harbinger of complexity in resilience science

**Masai study**

- American Journal of Psychiatry 1984 by DeVries

- Western studies suggested “difficult temperament” was a problem and “easy temperament” was positive

- Masai infants with easy temperaments were less likely to survive the sub-Saharan drought of 1974

- Early signal that measures and findings need to be considered in context and culture
Rutter 1987 landmark paper

“Psychosocial Resilience and Protective Mechanisms”
- Resilience is dynamic and functional
- Not a fixed trait
- Protective influences are not necessarily positive
- Steeling effects
- Importance of life turning points

See Masten (2011) chp in Developmental Psychology: Revisiting the Classic Studies

30 years of global adversity
- Disasters
- Wars and conflict
- Terrorism
- Famine
- HIV orphans
- Economic crises
- Child maltreatment
- Child exploitation

Sudanese Refugee Children in Chad 2009
U.S. Department of State
30 years of progress in resilience studies

- Awareness
- Theory
- Tools
- Evidence
- Multiple-level
- Multidisciplinary
- Multicultural

Tools for research have advanced

- Data collection and collaboration technologies
- Methods for observing the brain in action
- Culturally adapted measures
- Field-friendly measures
- Neurobiological assessment
- Genetic and epigenetic assessments
- Quantitative and qualitative analysis
Definitions of resilience have changed

- **Early**
  Doing well despite adverse life experiences

- **Contemporary**
  The capacity of a dynamic system to adapt successfully to challenges that threaten its stability, viability, or development


Systems in a child’s life

- Embedded
- Interacting
- Interdependent

Masten 2003
Models & analytic strategies advanced

- **Variable focused**
  - Advanced methods to test moderating influences
    - Mitigating risk or boosting protection
    - Testing sensitivity to experience
  - Developmental cascades
    - SEM and HLM modeling of multiple level and/or multiple domain effects over time

- **Person focused**
  - Growth models
  - Acute and chronic pathway models
  - Identifying resilience trajectories and correlates

Studies of youth & political violence expanded

- **Cascade example**
  - Boxer et al 2013 *Child Development*
  - 3 waves, 3 age cohorts, 3 populations
  - 600 Palestinians, 451 Israeli Jews, 450 Israeli Arabs
  - Social ecology → microsystems → individual aggression

- **Review of 53 studies by Tol et al 2013 JCPP**
  - Interplay of time-varying individual, family, contextual variables
  - “resilience as a complex dynamic process”
Culturally attuned resilience research expanded

- Leadership of the Resilience Research Centre

- In studies of
  - Human development
  - Disaster
  - War and conflict
  - Poverty and inequality
  - Pandemics

Stress & hope in Afghanistan

- Catherine Panter-Brick and colleagues

- Mental and physical health, stress, and coping

- Surveyed over 1000 adolescents

- Both family and political/military violence

- Role of cultural values and family resilience
  - Faith, family unity, service, effort, morals, honor

- “Life feeds on hope” – Afghan mother

Eggerman & Panter-Brick 2010
Refugee studies expanded
Cambodian survivors of Pol Pot

Minneapolis studies of Khmer youth

- High rates of trauma and symptoms
  - Dose effects after a decade
  - Recurring PTSD episodes
  - Depression

- High rates of good adaptation
  - Success in developmental tasks

RESILIENCE correlates

- Better English language skills
- Community support
- Culture
  - Bicultural or American identity and connectedness
  - Practices such as meditation

Khmer studies – see


Recent studies of Syrian refugee youth in Jordan

- Partnering of researchers with an NGO
  - Catherine Panter-Brick, colleagues, with Mercy Corps

- Multi-level methods work in a field setting
  - Hair cortisol, blood spots, DNA cheek swabs

- Resilience assessed by the CYRM in Arabic
  - Showed good psychometric properties
  - Moderates trauma link to SDQ suggesting protective effect

- Intervention to build resilience through play
  - Alleviate toxic stress - Create support - Heal conflict
  - Participants reported less insecurity and distress than controls

See Panter-Brick et al 2017 (in press) *Child Development*
Studies of resilience pathways expanded

Pathways showing symptom patterns
Trajectories of Internalizing Symptoms in War-Affected Sierra Leonean Youth 2002-2008

Betancourt et al (2013) Child Development

- 5% stable high
- 48% improvers
- 6% deteriorating
- 41% stable low

Trajectories of PTS in Palestinian children

Punamaki et al 2015 J. Affective Dis

- Increasing=28
- Recovery=183
- Resistant = 29

Palestinian children ages 10-12 post 2008/9 Gaza war - Latent Class Growth analysis
Growing interest in nonlinear dose effects

- Child soldiers exposed to prolonged and extreme violence and trauma
  - Klasen et al. 2010: child soldiers in Uganda

- Palestinian youth in Gaza
  - Quota et al. 2008: found more adaptive behavior at lower and at very high levels of exposure

Nonlinear effects ...continued

- Boothby et al. 2009
  - Research on former child soldiers from Mozambique

- Boys who spent < 6 months in RENAMO
  - Viewed themselves as victims

- Longer time in RENAMO
  - Viewed themselves as members
  - “Then he made me chief of a group of other boys. I had power”

Boothby et al. 2009
Further contributions of the global south

Disaster research

2004 Tsunami
Megathrust earthquake Indian Ocean
No warning ~ waves 30 meters (100’) high
Over 200,000 lives lost in 14 countries

Complex trauma:
Catani et al 2008 after the 2004 tsunami
296 Tamil school children ages 9-15 from Sri Lanka

BMC Psychiatry 2008
Intervention studies to promote resilience

- Tol et al with Indonesian (2008), Sri Lankan (2012) children
  - Regions with ongoing armed conflict
  - Focused on positive adaptation
  - Manualized 5 week treatment vs waitlist controls
  - CBT, creative expression
  - Improved coping, hope, support of peers
  - Mixed results for PTS and other symptoms

- Qouta et al 2012 with Israeli children
  - Randomized by classroom
  - Teacher training model
  - CBT elements plus coping and other
  - Some reduction in PTS – more for boys

Interventions for former child solders

- **NET (Narrative Exposure Therapy)**
  - with youth in Uganda (Ertl et al 2011)
  - Combines autobiographical narratives with desensitization-exposure
  - Decreased PTS compared to waitlist and active treatment comparison groups

- **Interpersonal group therapy**
  - Betancourt et al 2012
  - Most effective for depressed adolescent girls who had been abducted
SIT: Stress Inoculation Training

- Wolmer et al 2011 in Israel – natural experiment
- School-based program for coping and stress management
  - Children ages 8-12 with teacher-led manualized intervention
- 3 months later “Operation Cast Lead” surge in shelling
- Compared students from SIT schools to untrained schools
  - SIT trained students had lower PTSD

Pandemic threats and resilience

- Learning about resilience from HIV
- Important shift from deficit to risk/resilience framework
  - Betancourt et al 2013
  - Sherr et al 2014; 2016
- Community resilience in the wake of epidemics

What have we learned?

Dose and cumulative risk

**Exposure**
- Severity of traumatic experiences, duration, repetition
- Toxic effects of extreme violence as victim or perpetrator
- Awareness matters
- Stigma varies by culture and influences dose

**Mediators**
- Immediate survival needs
- Effects on ecological systems, community supports
- Effects on family system & function, personal supports
- Individual stress and epigenetic changes
- Individual interpretations
Roles of families in exposure

- **Gatekeeping and shielding**
  - Preventing or reducing exposure
  - Monitoring exposure

- **Preventing family stress spillover**
  - Stress can cascade when it effects family function
  - Terrified parents are terrifying to children
  - Families can monitor family stress

Resilience factors

- **Individual**
  - Problem-solving skills & knowledge
  - Self-regulation skills, self-control, executive function
  - Agency & Motivation to adapt, learn, survive, recover
  - Hope, faith, belief life has meaning, meaning-making

- **Family-based**
  - Attachment and emotional security, proximity
  - Positive parenting and caregiving
  - Physical protection
  - Maintaining or restoring routines of family life
  - Religious practices
Peers & learning opportunities outside the family

- **Access to ECE and education**
  - Education promotes human and social capital
    - Cognitive and social development
    - Tools for learning
  - Connections with prosocial adults
  - The normalizing power of school after disasters and conflict

- **Opportunities to build prosocial friendships**
  - In school, neighborhood, religious groups, or activities

- **Opportunities for play, recreation, and talent development**
  - Play supporting physical, cognitive, socioemotional development
  - Prosocial friends
  - Sport, music, dance, art…

Broader context examples

- **Cultural routines & practices**
  - Spiritual practices
  - Mindfulness practice, dance…
  - Emergency supports
  - Community acceptance

- **Cultural rituals & ceremonies**
  - Celebrations
  - Cleansing & blessing
  - Forgiveness and reconciliation

- **Community supports**
  - For caregivers, families, & schools
  - For health and safety
  - Emergency services
  - Water, housing, jobs…
  - Routines of normal community life

- **Policies supporting resilience**
  - Child protection and family supports
  - Health and education financing
  - Violence prevention
  - Equity, justice
  - Humanitarian activities
Powerful protective systems across levels

- Global
- Societal
- Cultural
- Community
- Family
- Child
- Neurobiological
- Microbiological

Neurobiological studies of resilience are advancing

- Early models
  - Vaccination
  - Sensitization and scarring
  - Sickle cell trait “balanced polymorphism”

- Emerging models
  - Biological embedding of experience
    - Toxic stress and early programming
    - Effective parenting
    - Telomeres
    - Probiotics and the microbiome
  - Plasticity & epigenetic programming
  - Sensitivity to experience
Transformational effects of resilience science on practice

Resilience science has transformed practice in many fields

- Clinical psychology
- Psychiatry
- School psychology
- Counseling
- Social work
- Family social science
- Pediatrics
- Many others!

Shifting the focus

- Positive outcomes
- Strength-based
- Promotive & protective processes
- Building capacity at multiple levels
Resilience framework for action

<table>
<thead>
<tr>
<th>Mission</th>
<th>Frame positive goals</th>
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<tbody>
<tr>
<td>Models</td>
<td>Include positive influences</td>
</tr>
<tr>
<td>Measures</td>
<td>Assess assets &amp; positive goals</td>
</tr>
<tr>
<td>Methods</td>
<td>Prevent - promote - protect</td>
</tr>
<tr>
<td>Multiple</td>
<td>Engage multiple systems &amp; disciplines</td>
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</tbody>
</table>

Masten 2011, 2014

Strategies

Risk focused
- Prevent or mitigate damaging adversity exposures

Asset focused
- Increase resources or access to resources

Adaptive system focused
- Support, restore, or engage human adaptive systems
Integration is underway for resilience across systems, disciplines, sectors, and applications

<table>
<thead>
<tr>
<th>In theory</th>
<th>In action</th>
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<tbody>
<tr>
<td>Molecular &amp; global</td>
<td>Disaster response</td>
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<td>Individual &amp; family</td>
<td>Humanitarian</td>
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<td>Family &amp; community</td>
<td>Prevention science</td>
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<td>Psychosocial &amp; ecological</td>
<td>Public health</td>
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<td>Climate change</td>
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<tr>
<td>Social &amp; economic</td>
<td>Peacebuilding</td>
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</tbody>
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Deeper transformation underway

- Resilience across scales
- Translational basic research
- Integrated sciences and solutions
Signs of change

- International multidisciplinary conferences
- Volumes on resilience across sciences
- Cross-referencing across ecology and developmental psychology
- UNICEF and World Bank focus on resilience

Free MOOCs can open a global conversation

Resilience in Children Exposed to Trauma, Disaster and War: Global Perspectives
Why and how is research on resilience in the global south central to human development in these times of turbulence and uncertainty?

- Children in the global south are at very high risk
- Leaders in inter-sectoral & and multi-level strategies
- Recognizing the dangers of complex global threats
- Knowledge to inform global efforts, including “global north”
- Experience with large-scale disasters and conflicts
- Extraordinary potential for innovation

Acknowledgments

- Resilience pioneers
- Collaborators and students
- Research participants
- Funders
- MOOC participants
- Parents who embarked on a global adventure
- My patient family
- All of you on this resilience pathway!