

NOTE: Some photos have been removed from this pdf version of the presentation

Resilience in Perilous Times

Pathways to the Future



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Continuing Medical Education Commercial Disclosure:
I, Ann S. Masten, have no commercial relationships to disclose.

Objectives

- Define resilience for scalability and transdisciplinary action
- Highlight what we are learning about multisystem resilience
- Describe implications of a multisystem developmental perspective on resilience for research and practice
- Describe steps toward integrated theory and knowledge on resilience in the context of global threats to human development



Overview

- Why is global interest in resilience rising now?
- Advances in theory
- Striking parallels in resilience factors across levels
- Advances in resilience science
- Implications for research, action, and training
- Some intriguing questions
- The road forward

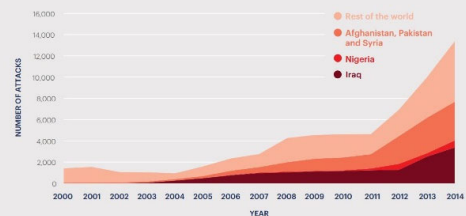
We live in turbulent times...

- Natural disasters
- Climate and weather changes
- War, political conflict, terror attacks
- Millions of refugees, displaced families



Terror attacks 2000-2014

FIGURE 2 TERRORIST ATTACKS, 2000-2014
The majority of terrorist incidents are highly centralised. In 2014, 57 per cent of all attacks occurred in five countries; Iraq, Pakistan, Afghanistan, Nigeria and Syria. However the rest of the world suffered a 54 per cent increase in terrorist incidents in 2013.



Source: START 010

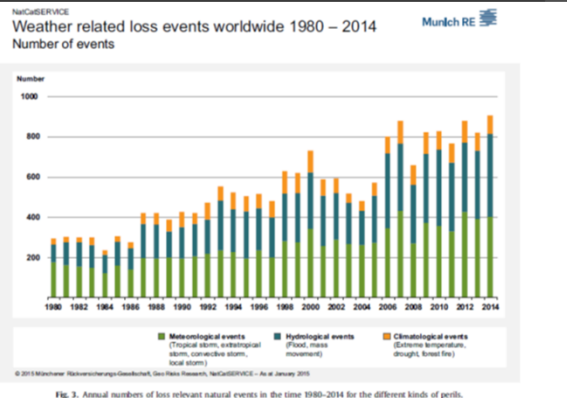
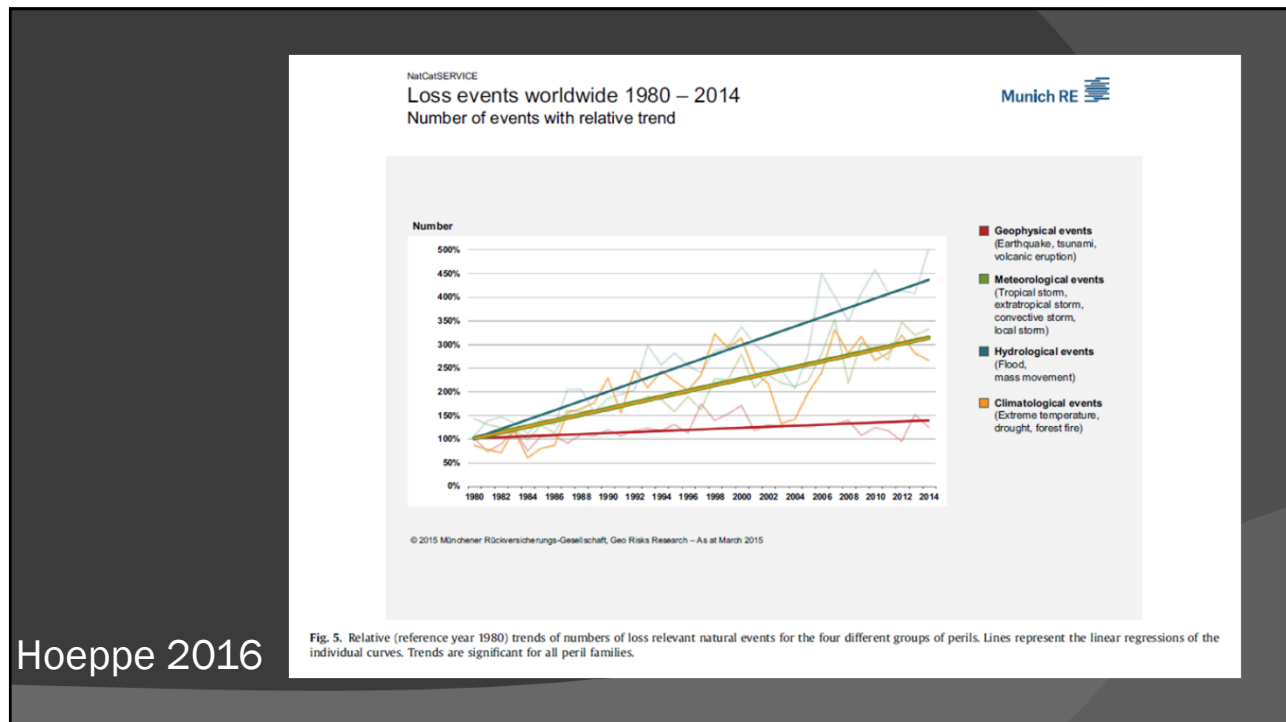


Fig. 3. Annual numbers of loss relevant natural events in the time 1980-2014 for the different kinds of perils.

Hoeppe 2016



And growing alarm about lifelong effects of early adversity

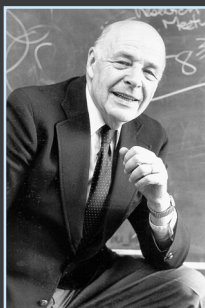
- Adverse childhood experiences (ACEs)
- Poverty
- Maltreatment or neglect
- Inequality or injustice
- Toxic stress
- Biological embedding of adversity



It is not surprising that interest in resilience is surging across many fields

Resilience science

- Emerged around 1970
- Inspired by pioneers in children's mental health
- Began studying risk for mental health problems



Norman Garmezy



Emmy Werner



Michael Rutter

Many advances in the science since 1970s

- Methods ~ from imaging brain activity to field data collection
- Models of resilience processes and differential sensitivity
- Research at multiple levels of analysis
- Neurobiological as well as cultural studies
- Inclusion of research/researchers from the Global South
- Collaboration of humanitarian agencies with researchers
- Bridging divides to prepare for disaster
- **Realization that we need a common language**

Capacity of a system to adapt successfully
to challenges that threaten system
function, survival, or development

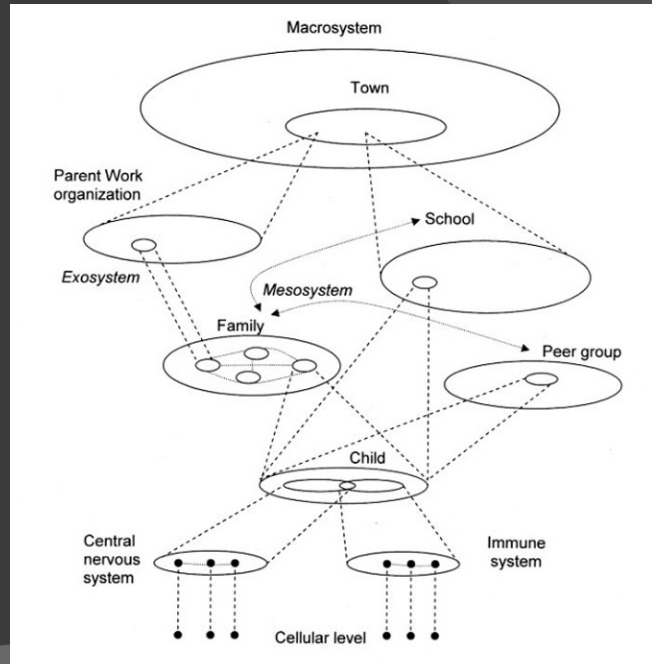
Resilience

Masten 2014, 2018

Systems

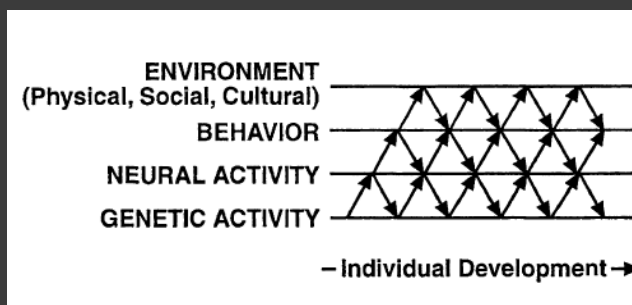
- ⦿ Embedded
- ⦿ Interacting
- ⦿ Interdependent

Masten & Obradović 2008



Human development

...emerges from interactions of many systems across levels



Gottlieb

Gottlieb 2007; Lerner 2006; Overton 2013, 2015; Sameroff 2010; Zelazo 2013

Resilience capacity

- Depends on many systems
- Reflects resources and processes that can be engaged to adapt to threats and system disturbances
 - Restore equilibrium
 - Counter challenges
 - Transform the system
- Shaped through biological and cultural evolution

3 defining questions in research on resilience (individual example)

1. What are the challenges?	3. What fosters adaptive success?	2. How is the person doing?
Threats	Protections	Adaptive success
Trauma	Neurobiological	Developmental tasks
Neglect	Individual	Mental health
Poverty	Family & relational	Physical health
War	Community	Wellness
Natural disaster	Cultural	Happiness
ACEs	Societal	School or work achievement

See Masten & Barnes 2018

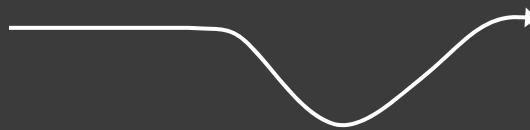
From a systems perspective

- Resilience is dynamic ~ always changing
- Capacity for adaptation is distributed across systems
- Individual (or family or community or ...) resilience depends on resilience of other systems
- **Diverse pathways of adaptation are expected and observed**

See Masten, 2012, 2014, 2016, 2018; Masten & Cicchetti 2016

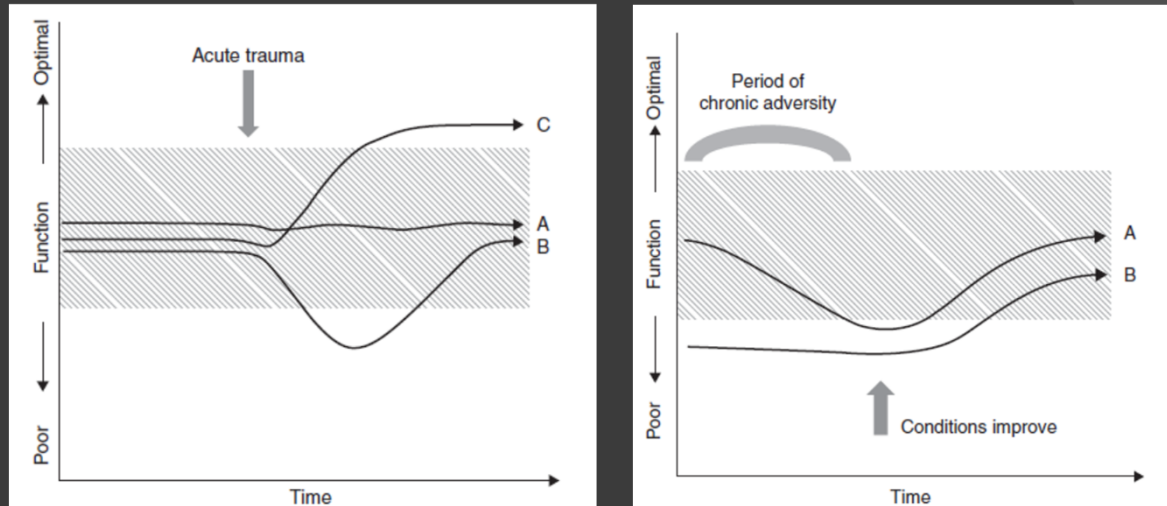
Pathways

The course of development can be described as a pathway



Patterns of adaptive function vary over time in relation to adversity or challenges

Multiple pathways of resilience



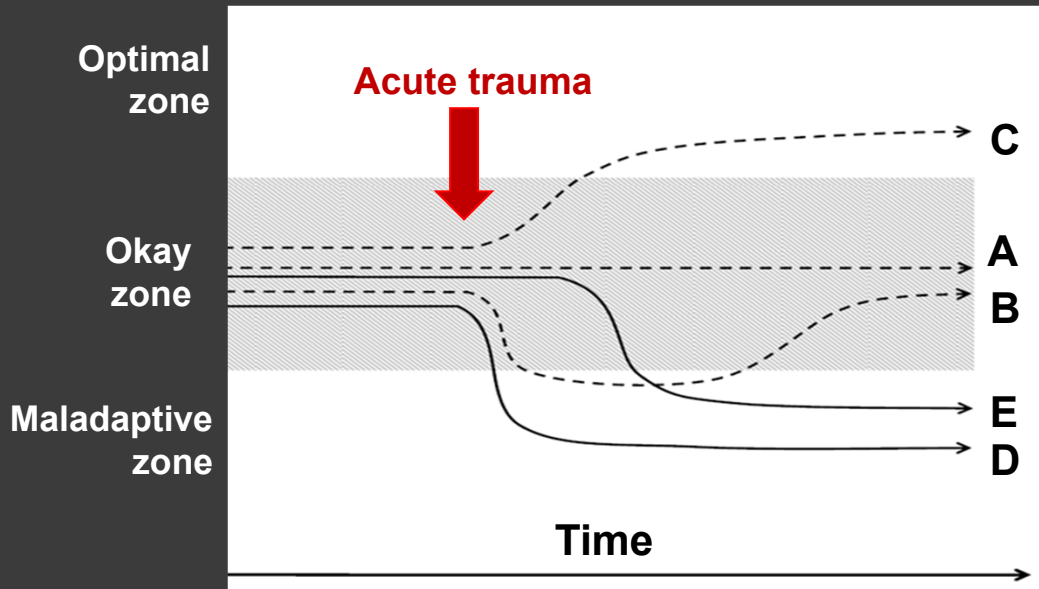
Figures © Ann S. Masten

Resilience after chronic adversity

Examples in recovery of

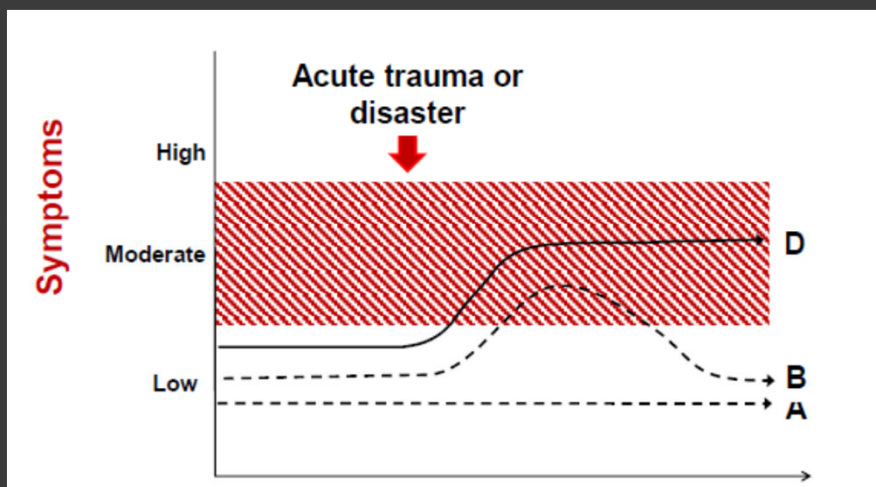
- Abused children moved to better homes
- Children adopted from orphanages
- Child soldiers who are rescued
- Refugees who find a safe new homeland

Diverse pathways of adaptation

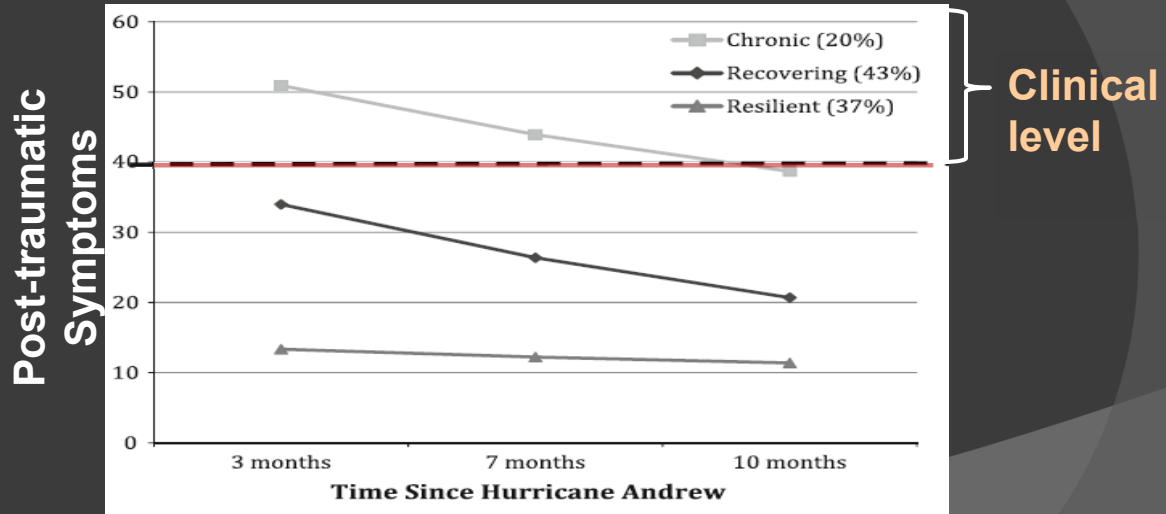


Masten et al 2016
 Masten & Narayan 2012
 Masten & Obradović 2008

Pathways showing symptom patterns

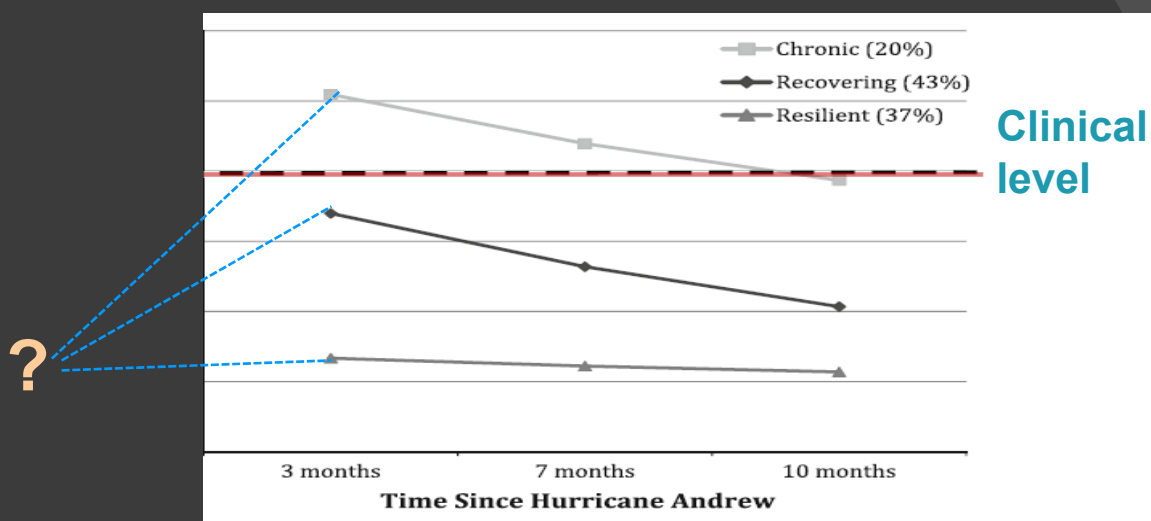


After Hurricane Andrew 1992



La Greca et al. (2013) *Child Youth Care Forum*, 42, 351-369

After Hurricane Andrew 1992



La Greca et al. (2013)

Sichuan Earthquake 2008

Luo et al 2012 found cortisol in hair related to 2008 earthquake exposure and PTSD

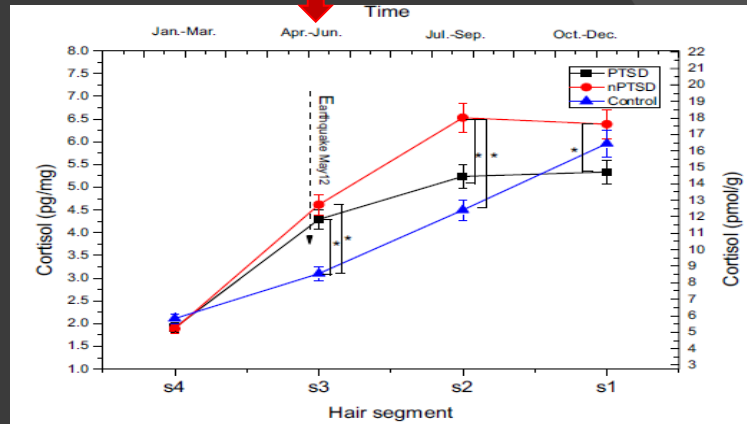


Figure 1. Analysis of cortisol levels in 3-cm hair segments (S1, S2, S3, or S4) from posttraumatic stress disorder (PTSD) ($n = 32$), non-PTSD (nPTSD; $n = 32$), and nontraumatized control ($n = 20$) groups ($*p < .05$ significance, error bar: 95% confidence interval). S1, period of 5 to 7 months after the earthquake; S2, period of 2 to 4 months after the earthquake; S3, period between 2 months before and 1 month after the earthquake; S4, period of 3 months before the earthquake.

After Katrina & Deepwater Horizon oil spill

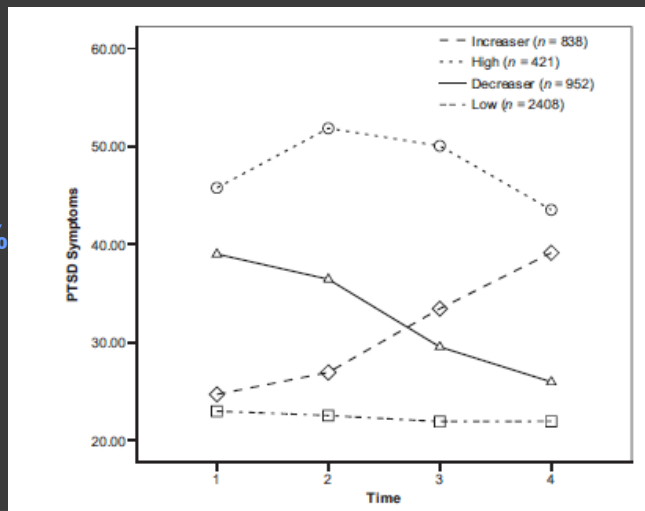
Osofsky et al 2015

Stable high 9%

Steep decreasing 21%

Low increasing 18%

Stable low 52%

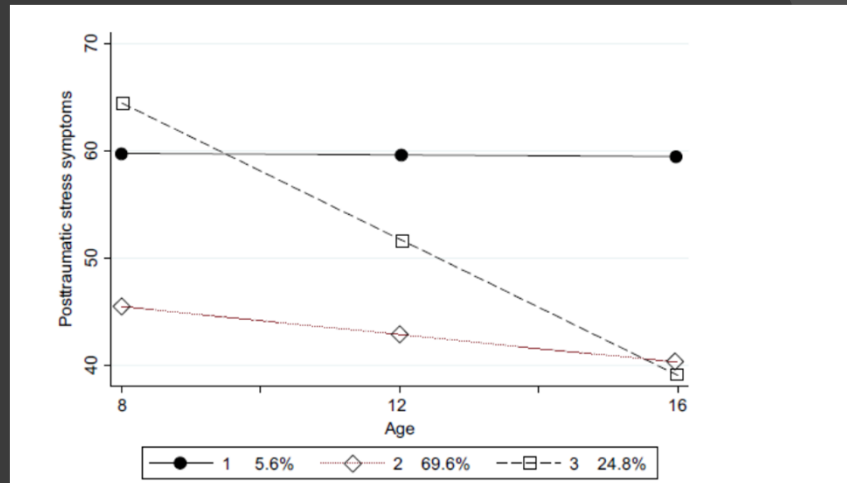


Trajectories of PSS for children exposed to violence LONGSCAN* studies of maltreatment Miller-Graff & Howell 2015 JTS

25% "Clinical-Improving"

6% "Borderline-stable"

70% "Resilient"



*Consortium of Longitudinal Studies in Child Abuse and Neglect

Pattern complexities

- Variable adaptation in different domains – same level of analysis
 - Example: Good school adjustment with high internalizing distress
- Variable adaptation at different levels of analysis
- Variable adaptation at different times in the life course
- Roller coaster adaptation
- Late bloomers

Different levels of analysis – different patterns

- Is it possible to show good adaptation at one level of adaptation and problems or breakdown at another?
 - YES
 - Classic study example: Stress-related health problems
 - Children of Kauai resilient group grown up – Emmy Werner’s classic study
 - Recent example: Allostatic load in high achieving resilient AA youth
 - Brody et al (2013) article “Is resilience only skin deep?”



What matters?

- **Dose (severity of exposure)**
 - Current, prior, ongoing, cumulative; Toxic stress
- **Context**
 - Historical, cultural; Recovery context
- **Developmental timing**
 - Sensitive periods; Risk, meaning, capabilities, expectations all vary with development
- **Individual differences**
 - Biological, cognitive, socio-emotional...and “sensitivity to experience”
- **Family resilience**
 - Protection, security, regulation, rules, routines, meaning, identity...etc
- **Community resilience**
 - Safety, healthcare, childcare, education, services, recreation...etc
- **Societal supports for individuals, families, & communities**

Two literatures yield parallel protective factors (Masten 2018 JFTR)

Individual Resilience	Family Resilience
Nurturing, sensitive caregiving	Nurturing care of vulnerable members
Attachment, security, belonging	Family cohesion, sense of belonging
Skilled parent management, discipline	Maintaining family boundaries, rules
Agency, motivation to adapt	Active coping, mastery
Problem-solving, planning	Collaborative problem solving
Self-regulation, emotion regulation	Co-regulation, family balance
Hope, faith, optimism	Hope, faith, optimism
Meaning, purpose	Coherence, family meaning
Self-efficacy, positive identity	Positive views of family, family identity
Routines and rituals	Family routines and rituals

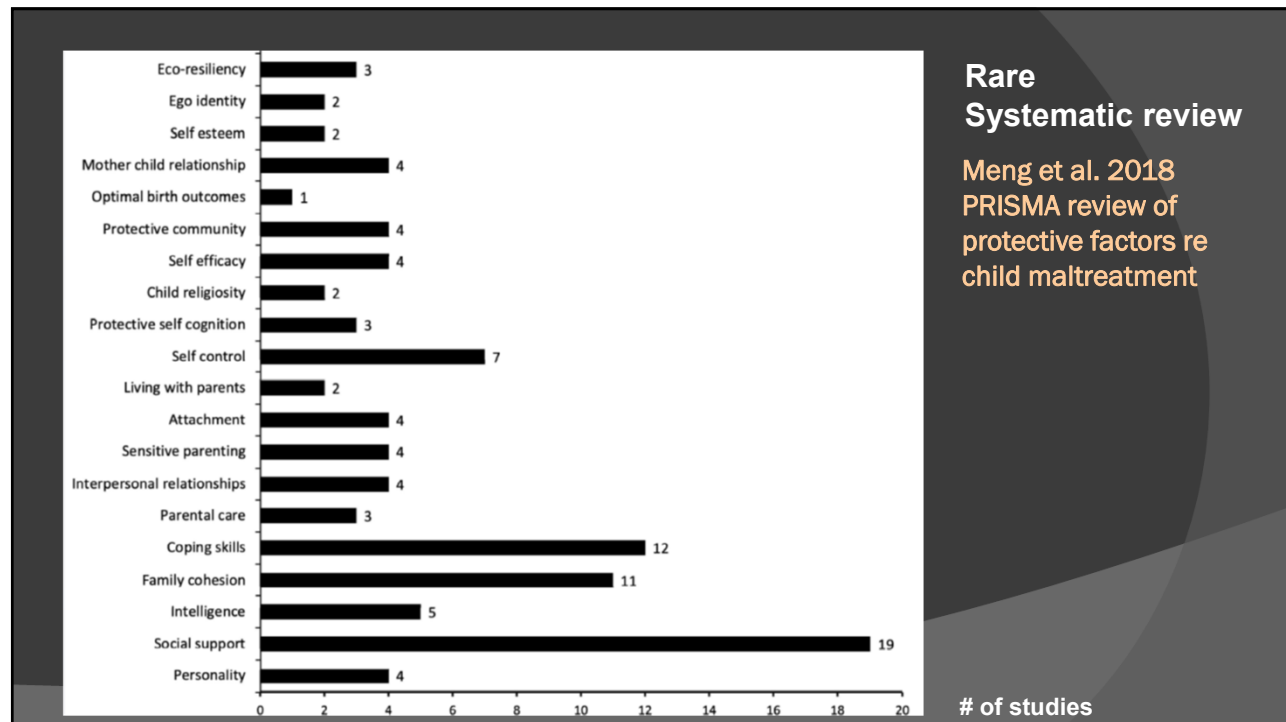
Comparing the “shortlist” of resilience factors in DRS with resilience factors in theory of ambiguous loss of Pauline Boss

Table 1. Shortlist of common factors associated with resilience in developmental resilience science and ambiguous loss theory

Resilience Factors in DRS	Resilience Factors in Ambiguous Loss
Close attachment relationships	Revised attachment in the psychological family
Mastery motivation, agency	Adjusting mastery
Optimism, hope, faith, coherence	Optimism, hope, faith, coherence
Problem-solving skills, executive functions	Flexibility, collaborative problem solving, tolerance for ambiguity
Meaning making, belief life has meaning	Making meaning, collective meaning, coherence
Positive view of self	Reconstructed identity
Family rituals and routines	Reconstructed family rituals and routines
Cultural or community rituals, routines	Rituals and memorial ceremonies

Note. Examples of widely reported factors associated with resilience in the developmental resilience science literature (see Masten, 2014b; Wright et al., 2013) with corresponding factors suggested by Boss (2006) as central to resilience in ambiguous loss theory and practice.

Masten 2016 in JFTR



Community resilience

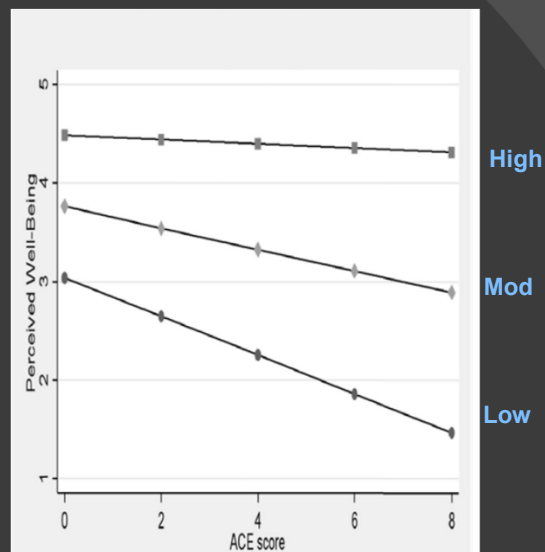
From the classic paper by Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum 2008

- ⦿ **Community resilience is a process linking a set of networked adaptive capacities to a positive trajectory of functioning and adaptation in constituent populations after a disturbance**
- ⦿ Community resilience emerges from four primary sets of adaptive capacities
 - Economic development
 - Social capital
 - Information and communication
 - Community competence
- ⦿ To build collective resilience...
 - Reduce risk and resource inequities
 - Engage local people in mitigation
 - Create organizational linkages
 - Boost and protect social supports
 - Plan for not having a plan (flexibility, decision-making skills, trusted sources of information)

Adaptive capacities are robust, redundant, and rapidly accessible

Proposed parallels at the community level	
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Individual	Community
Nurturing, sensitive caregiving	Care of vulnerable members
Attachment, security, belonging	Community pride, belonging, engagement
Skilled parent management	Skilled governance, leadership
Agency, motivated to adapt	Motivated community action
Problem-solving, planning	Collaborative problem solving, planning
Self-regulation, emotion regulation	Collective efficacy, orderly community
Hope, faith, optimism	Hope and optimism about the community
Meaning, purpose	Community coherence, meaning
Self-efficacy	Positive beliefs about community capabilities
Routines & rituals	Community routines & celebrations

“Sense of community”
moderates link of ACEs
to adult well-being
Nurius et al 2015



2010 Behavioral Risk Factor Surveillance System BRFSS for Washington State
(random dialing) N over 13,000

Community resilience movement

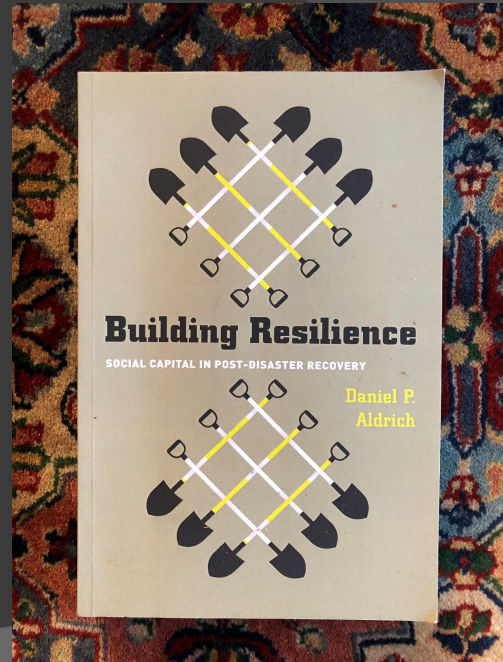
- ◎ **Los Angeles (with Rand)**
 - Community resilience...the capacity of a community to prepare for, respond to and recover from adverse events.
 - ...is about moving from the “me” to the “we”...to the “us”
- ◎ **100 Resilient Cities (Rockefeller)**
 - **Urban resilience** is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience.

Rockefeller's 7 qualities of resilient cities

Reflective	Using past experience to inform future decisions
Resourceful	Recognizing alternative ways to use resources
Robust	Well-conceived, constructed, and managed systems
Redundant	Spare capacity purposively created to accommodate disruption
Flexible	Willingness and ability to adopt alternative strategies in response to changing circumstances
Inclusive	Prioritize broad consultation to create a sense of shared ownership in decision making
Integrated	Bring together a range of distinct systems and institutions

Building Resilience: Social Capital in Post-Disaster Recovery

- ◉ Daniel Aldrich (2012)
- ◉ *"high levels of social capital...serve as the core engine of recovery"*



Tōhoku 2011
triple disaster

earthquake
tsunami
Fukushima



U. S. Navy Photo by Alexander Tidd



Rekishi Shiryō Networks –
teams of historians who help restore documents
and artefacts

Honma family warehouse

Rebuilding community



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

- Strengths and assets
- Positive pathways
- Promotive & protective processes
- Building capacity at multiple levels

Resilience framework for action

Mission	Frame positive goals
Models	Include positive influences
Measures	Assess assets & positive goals
Methods	Risk, asset-, & adaptive-system focused
Multiple	Engage multiple systems & disciplines

Masten 2011, 2014

Mission ~ Frame Positive Objectives

- Positive statements of goals
- Treat illness/problems → Promote or restore health/well-being
- Prevent violence, problems, risky behaviors → Promote conflict resolution, healthy relationships, civic engagement, gun safety, positive youth development, school and work success; recovery
- Promote the positive to prevent problems
- Positive goals hold appeal to stakeholders

Measures

Track the positives along with the problems

- **Assess the positive as well as the negative**
 - Strengths in children, families, communities
 - Potential resources and protective factors
 - Strengths and adaptive capacity in systems

- **Evaluate positive as well as negative pathways and outcomes**
 - Gains, achievements
 - Health & competence + problems & symptoms

Strategies

Risk focused

- Prevent or mitigate damaging adversity exposures

Asset focused

- Increase resources or access to resources

Adaptive system focused

- Support, restore, or engage dynamic adaptive systems

Risk-focused examples

- ⦿ Reduce violence in families, schools, neighborhoods
- ⦿ Address injustice and structural violence
- ⦿ Prevent premature birth
- ⦿ Reduce stress of pregnant women
- ⦿ Screen and treat depression in mothers
- ⦿ Reduce child maltreatment
- ⦿ Avoid multiple foster care placements
- ⦿ Clean up toxins
- ⦿ Dig up landmines
- ⦿ Prevent homelessness

Examples of risk-focused community strategies

- ⦿ Reduce exposure to toxins in the environment
- ⦿ Plan for vulnerable populations & areas of the community
- ⦿ Reduce hazards and resource inequities
- ⦿ Emergency plans and warning systems
- ⦿ Plan for surprises and uncertainty
- ⦿ Train media, parents, and teachers about risks to children
- ⦿ Reduce inequality, injustice, marginalization, discrimination

Asset-focused examples at multiple levels

- ⦿ Ensure rapid availability of essentials
 - Food, water, shelter, medical care...
- ⦿ Educate parents, teachers, and traditional “first responders”
 - Invest in a well-trained disaster workforce
- ⦿ Funding for disaster preparedness, fortifications, shelters, etc.
- ⦿ Provide books, tutoring, mentoring, childcare
- ⦿ Build schools, playgrounds, libraries
- ⦿ Improve or restore community services
- ⦿ Stabilize housing, schooling, case managers
- ⦿ Emergency equipment for all ages, conditions
- ⦿ Shelters suitable to likely community threats
- ⦿ Portable internet service and web sites for reunification

Adaptive system focused examples

Engage and nurture powerful engines of resilience

- ⦿ Foster prosocial bonds at every level
- ⦿ Support families
- ⦿ Nurture healthy brain development
- ⦿ Integrate systems of care
- ⦿ Provide opportunities for everyone to succeed, develop talents...
- ⦿ Support cultural traditions and ceremonies that foster resilience
- ⦿ Invest in healthy development and well-being across the lifespan
- ⦿ Invest in good education from an early age to nurture future resilience
- ⦿ Support community engagement and collective action
- ⦿ Build resilient communication networks and strategies
- ⦿ Plan to normalize opportunities for children and family activities after disaster
- ⦿ Plan to restore and protect cultural treasures and traditions

Integration is underway for resilience across systems, disciplines, sectors, and applications

In theory

- Molecular & global
- Individual & family
- Family & community
- Psychosocial & ecological
- Human & electronic
- Social & economic

In action

- Disaster response
- Humanitarian
- Prevention science
- Public health
- Climate change
- Peacebuilding



Multisystemic resilience

Some intriguing questions

- Are there hidden talents or stress-adapted skills we have overlooked?
- How are typically adaptive systems hijacked to serve maladaptive ends?
- What are the tradeoffs of current resilience for future health/well-being?
- How is resilience (as well as trauma) transmitted across generations?
- When and how does adversity exposure foster resilience?
- Can harm from adversity exposure during sensitive periods be undone?
 - Is “reprogramming” possible?

Given that key adaptive resilience capacities are observed at multiple levels of human systems...

- Social bonds
- Perceived belonging
- Problem solving intelligence
- Self-regulation
- Agency
- Perceived efficacy
- Optimism, hope
- Purpose, meaning

- Have these co-evolved at multiple levels?
- Which occur in other species?
- Which are uniquely human?
- How will they be affected by AI?

Takeaways

- Resilience is dynamic and inherently always changing
- Many systems contribute to adaptive capacity of individuals, families, and communities
- Resilience of individuals, families, and communities depends on networks of adaptive systems
- To all the young scholars here today:
There is a lot to learn!

On the road to the future

- ⦿ Focus on intersystem processes
 - Across levels and systems
 - Multilevel models of resilience
 - Statistical tools for analyzing complex adaptive systems
 - Example: Kalisch et al 2019 on a dynamic network approach
- ⦿ Study the dynamics and malleability of resilience
 - Across development, communities, and cultures
- ⦿ Mobilize and invest in interdisciplinary integration
 - Theory harmonization
 - Problem-solving
 - Training

Thanks to

- ❑ Research participants who shared their lives to help us understand resilience
- ❑ My mentors, colleagues, & collaborators over the years
 - Especially my students!
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 - Center for Urban and Regional Affairs, Fesler-Lampert Chair, Humphrey Institute

Key Resources

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