

Shocks, Stresses, and Health Outcomes

The Role of Promising Health Resilience Strategies in Fragile Settings

July 23, 2024

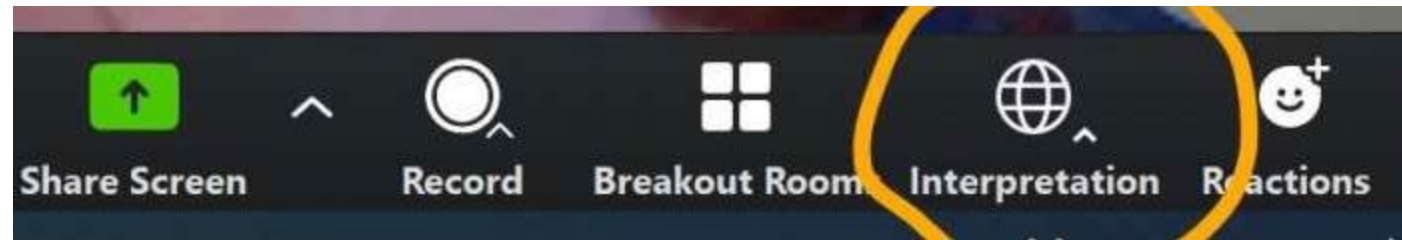


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Housekeeping

- This webinar will be recorded
- Slides and recording will be available afterward on MOMENTUM website
- Put questions into the Q&A/Chat as we go
- English/French interpretation is available



Agenda

- Objectives:
 - Gain a better understanding of health resilience literature and measurement
 - Learn how MIHR has applied this understanding of resilience to achieve improved health outcomes
- Presentations
 - *Health Resilience at the Last Mile: A Landscape Analysis and an Examination of Health Resiliency in Four Countries* (David Canning)
 - *Resilience in Action: The MIHR Experience* (Isabelle Bremaud)
- Q&A/Discussion

David Canning, PhD

Harvard University

David Canning, PhD is the Richard Saltonstall Professor of Population Science, and professor of economics and international health in the Department of Global Health and Population at Harvard T.H. Chan School of Public Health. His research focuses on the role of demographic change (e.g., the effect of changes in age structure on aggregate economic activity) and health improvements (e.g., health as a form of human capital and its impact on worker productivity) in economic development.



Dr. David Canning

Health Resilience at the Last Mile:

*A Landscape Analysis and
Shocks, Resilience, and Health
Outcomes: An Examination of
Health Resiliency in Four Fragile
African Countries*



Landscape Analysis

Landscape Goals

- Review the existing literature on health resilience at the health systems, community, household, and individual levels.
- Interview key informants – experts in the study of resilience and operationalization of resilience programming.
- Analyze concepts, measurement techniques, and implantation strategies to identify gaps in the knowledge & evidence base.
- Discuss how the current health resilience landscape can inform health service programming in fragile settings at the last mile.

Resilience Measures

- TANGO: Factor analysis on three domains of resilience (latent variable)
 - Absorptive capacity, Adaptive capacity, Transformative capacity
- FAO: Factor analysis on four domains of resilience (latent variable) based on fit of resilience with food security outcomes
 - Basic services, Assets, Social safety net, and Adaptive capacity
- Realized Resilience: Individual resilience measure estimated from time path of recovery of welfare outcome after a shock
 - Can be linked to baseline characteristics after estimation

Health Resilience Measures

Health system resilience measures aggregate indicators into domains

Kruk

- **Five** domains:
 - aware
 - diverse
 - self-regulating
 - integrated
 - adaptive

Hatfield

- **Three** domains:
 - health information systems
 - funding/financing mechanisms
 - health workforce

Zhao

- **Four** dimensions:
 - governance and prevention
 - health financing
 - health service provision
 - health workforce

Khan

- **Eleven** characteristics of resilience

Individual, Household, Community, Health System Effects and Fragile Settings

- The FAO and TANGO frameworks for constructing resilience as a latent variable focus mainly on individual and households.
- ARC-D toolkit is useful for measuring resilience at the community level.
- Health system resilience can be measured using indicators (e.g., Kruk).
- Should combine these into a measure of overall resilience. Community and health system resilience should be measured at the local level (last mile).

Literature Review: Gaps

- In the academic literature, there is a **lack of consensus** on defining resilience.
- There is a **dearth of literature** on health resilience at the household and individual – particularly in the delivery of services at the last mile – need to combine different resilience measures from different levels.
- **More evidence is needed**, particularly on program evaluations that incorporate resilience-strengthening activities.

Evidence Base for the Effectiveness of Resilience Measures

- A small number of papers estimate dynamic models of resilience in the face of shocks in panel data.
- Main approach is to estimate realized resilience for each unit as a measure of their recovery trajectory after a shock. This can then be related to baseline factors that may affect resilience.
- Each paper has a large set of baseline resilience indicators but some overlapping.
- Difficult to estimate effect of multiple components of resilience (shocks, capacities, outcomes).

Key Informant Interviews

Breakdown of KIs (n=25) by Profession

- Resilience academic (n=8)
 - University professors (n=5)
 - Researcher in university setting (n=7)
- Resilience practitioner (n=17)
 - Health resilience program advisors (n=10)
 - Resilience advisors and consultants (n=8)
 - Researcher in development organization (n=5)

Key Informant Interviews

Definitions & Concepts of Health Resilience

- Academics
 - **Continuing debate** around resilience definitions
- Practitioners
 - **General consensus** around the components of resilience:
 - Shocks – Resilience Capacities – Outcomes

Key Informant Interviews

Implementation & Operationalization

- Communities are often best placed to respond quickly and more efficiently to a shock.
- Characteristics of resilient communities in the health context:
 - strong community engagement,
 - trust in the health system, and
 - working mechanisms for communication/information sharing.
- Community context matters.



Key Informant Interviews

- Practitioners:
 - There exist sufficient and adequate measurement tools
 - The main challenge lies in operationalization



Quantitative Analysis

Quantitative Resilience Goals

- Using **Pseudo-Panel** of DHS data from Burkina Faso, DRC, Malawi, and Tanzania
- Effect of shocks on health
- How effects of shocks vary across people – vulnerability
- How effects vary by time since shock – resilience
- Can people “bounce back better ” (return to pre-shock trend)

- Characteristics of resilience at system – community – household individual level – health resilience at the last mile

DHS Surveys by Country and Year

	1999-2002	2003-6	2007-10	2011-14	2015-18
Burkina Faso	2001	2003	2010	2014	2017-18
DR Congo			2007	2013-14	
Tanzania		2004-5	2010		2015-16
Mali		2006		2012-13	2018



Exposures–shocks

- Map shocks onto DHS clusters using GPS coordinates and date.
- Local climate shocks: extreme rainfall and temperature.
- Local conflict shocks: incidents/deaths within 50 km radius.
- Existing literature finds effects of these shocks on child health.

Effects of Climate on Hemoglobin Levels and BMI

	Hemoglobin level (g/dl) BMI		Hemoglobin level (g/dl) BMI		Hemoglobin level (g/dl) BMI			
Low rainfall & low temperature	3.012 (1.29)	-0.320 (-0.76)	Normal rainfall & low temperature	3.445 (1.61)	-0.674 (-1.91)	High rainfall & low temperature	3.930*** (6.03)	0.012 (0.08)
Low rainfall & normal temperature	-0.870 (-1.26)	0.429*** (3.82)	Normal rainfall & normal temperature			High rainfall & normal temperature	1.793*** (4.86)	-0.161* (-2.53)
Low rainfall & high temperature	-4.374*** (-4.60)	0.489* (2.21)	Normal rainfall & high temperature	-0.041 (-0.12)	0.232*** (3.98)	High rainfall & high temperature	1.878*** (3.76)	0.043 (0.51)

Discussion

- Drought conditions – low rainfall and high temperature are associated with a fall in hemoglobin.
- High rainfall and normal temperature is associated with a fall in BMI.
- Some extreme weather conditions improve health outcomes.
- Complex interplay of effects on agriculture and infectious disease burden (e.g., water borne diarrheal disease).



Difficulties

- Exposures are highly correlated across clusters: often much of the country has the same extreme weather in a year; some years almost no extreme weather in a country.
- Same issue with conflict: highly spatially correlated; not present at different lags.
- Makes estimating lag effects difficult; at some lags, no extreme weather or conflict.

Major Issues in Empirical Model of Resilience

- Most health literature is **exposure -> health**.
- Resilience requires us to estimate a **three-way interaction**.
- To understand resilience, we want to look at how the shock affects vary with time and are moderated by measures of resilience.
 - Estimate effect of **shock x lag x resilience -> health**.
- Asking too much of rare shocks that are highly correlated within country waves. When we try this, we get very noisy results.



Way forward for climate effects

- Future work.
- There are climate effects on women's health.
- Modelling more complex lag structures and interactions with resilience measures is not possible with the data for 4 countries.
- A model using all DHS (80+) countries might allow models of lags and moderators.



Recommendations

Health Resilience Recommendations

- Advancing resilience measurement
 - Focus on **one measure** of resilience
 - Common measure should be used across studies
- Establishing the link between the measure of resilience and realized health resilience
 - More **panel data** studies of health resilience
 - Routine panel data collection – DHS plus
 - Look at effect of **one resilience measure** on resilience outcomes

Recommendation: Advancing resilience measurement

- Many different resilience measures – focus should be on one
 - Not possible to distinguish best resilience measure based or realized resilience (too multidimensional)
 - Psychometric properties of latent variable measures important for academics, each has their own favorite measure
 - Practitioners feel existing measures are adequate, we need a consensus on health resilience definitions and measures
 - Move to improving, rather than just measuring, resilience
- Similar issue to disability-adjusted life year (DALY)
 - Conceptual underpinnings have serious difficulties – QALY may be better
 - Easy to measures- we have measures for burden of disease for all countries by age

Isabelle Bremaud, MScR

MOMENTUM Integrated Health Resilience / GOAL

Isabelle Bremaud, MScR, has over 25 years of experience in Disaster Risk Reduction and Resilience strengthening as project manager, consultant and technical advisor. She has worked in Asia, Latin America and the Caribbean and Africa. She has led and supported a diversity of resilience activities and processes – ranging from strategic planning to program design and implementation, advocacy activities and evaluations – but her particular interests and strengths are linked to the development of technical guidance for practitioners and capacity development. She works in French, English and Spanish and holds degrees in Aid and Development and Disaster Management.



Isabelle Bremaud, Senior
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Resilience in
Action: The MIHR
Experience

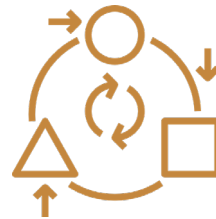
Understanding Health Resilience

The ability of people, households, communities, systems, & countries to mitigate, adapt to, & recover from shocks & stresses, in a manner that reduces acute and chronic vulnerabilities, and facilitates equitable health outcomes. (USAID 2020)



ABSORPTIVE

Prevention,
preparedness,
and coping measures



ADAPTIVE

Incremental
adjustments that reduce
exposure to risks



TRANSFORMATIVE

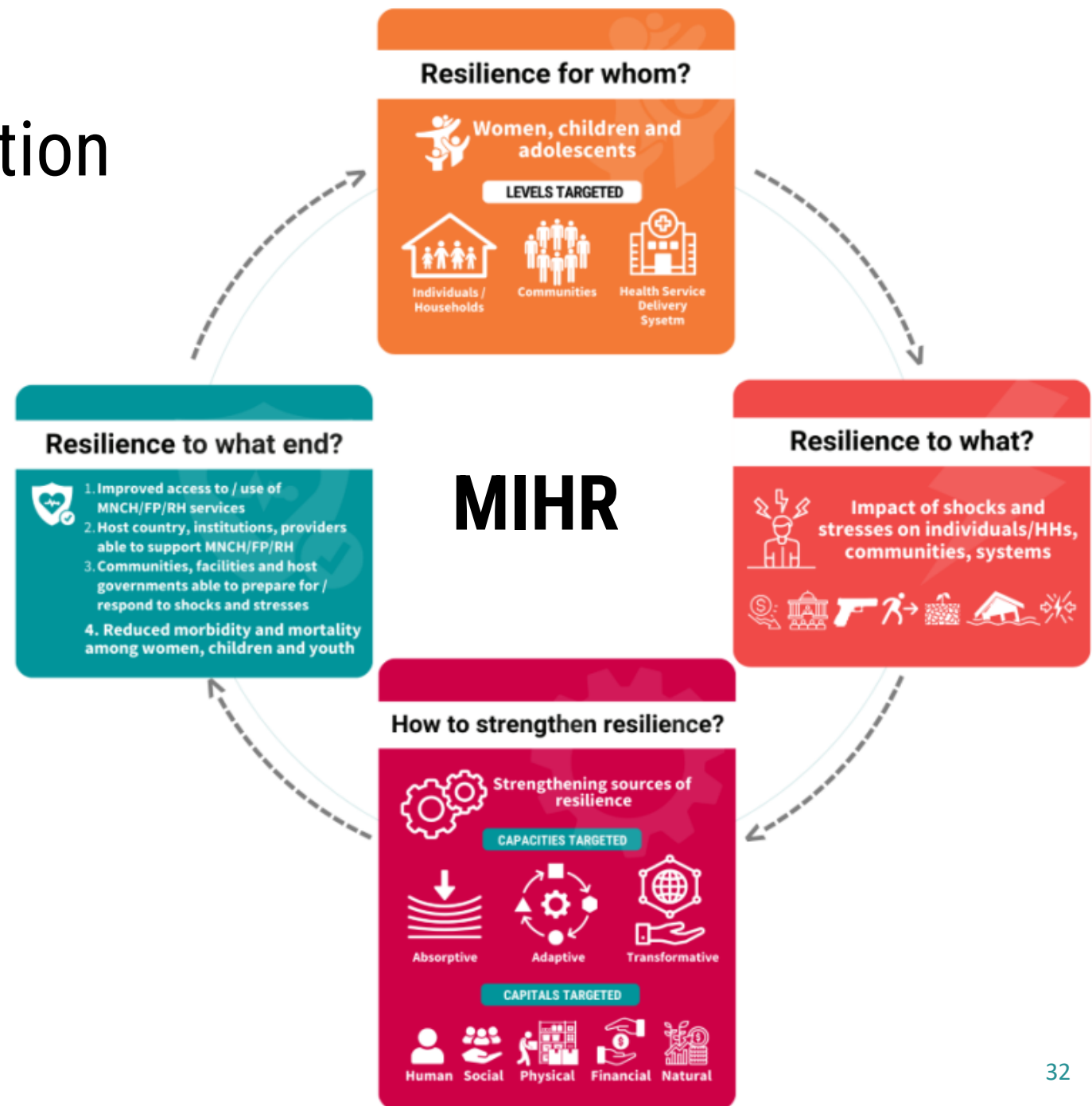
Structural changes
on underlying factors

Intentional Conceptualization

Harvard's work emphasized:

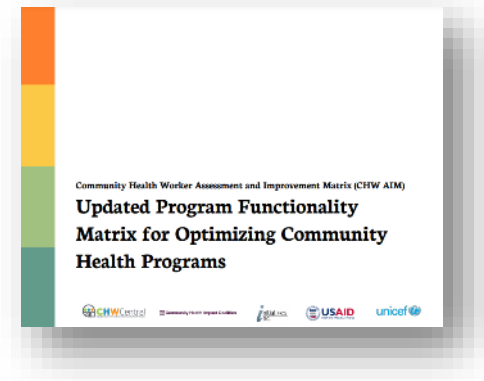
- Links between shocks and health outcomes
- Need for measures and evidence on what strengthens health resilience

Need to develop, test, measure, and learn from new “integrated” health and resilience interventions



Strengthening Sources of Resilience

Example of integration of resilience approach into “traditional” health interventions



Community Health Worker – Assessment and Improvement Matrix (AIM) Toolkit

- Addition of 3 new programmatic components, being tested in 3 countries



➔ Potentially contributing the following sources of resilience: bonding and bridging social capital, linking social capital, self-care and self-efficacy, preparedness, human capital, improved health behaviors, social cohesion

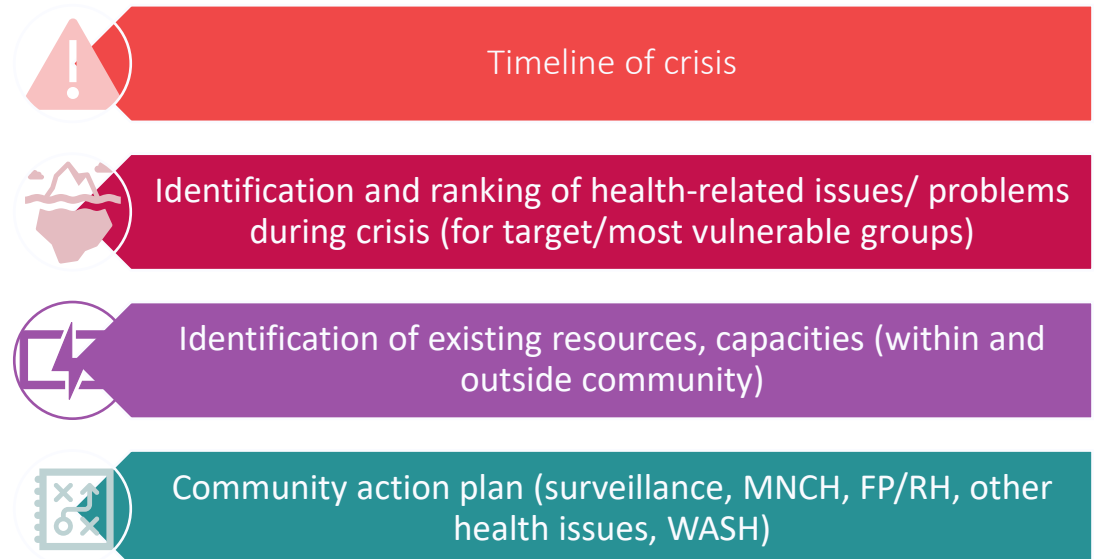
Strengthening sources of resilience

Example of integration of health-specific focus into “traditional” resilience interventions



Community-Led Action Planning for Health Preparedness/Resilience

Over 20 plans developed in 4 countries



Strengthening sources of resilience

Example of integration of health-specific focus into “traditional” resilience interventions with MIHR support

Health Facility Emergency Preparedness and Response Plan and Process:

- Since mid-2023, over 80 plans developed in 4 countries (and new ones being developed in 2 other countries)
- Learning and anecdotal evidence of success

Risk
assessment

Inventory of
resources

Continuity plan
for essential
services

Response plan

Preparedness
action plan



Other examples of integration

- Activities with youth (Youth Community Action Team/Youth Participatory Action Research) with specific section on the role of youth for community health resilience.
- Capacity strengthening of local partners (inclusion of resilience in the local Integrated Capacity Assessment Tool and partner's interventions on FP).
- SBC strategy focused on health resilience with adaptation of SBC tools.
- Microfinance for health resilience (Tanzania and Mali).
- Reaching Every District / Reaching Every Community / Reaching Every Child (RED-REC)

Understanding Health Resilience: Lessons from Harvard's Work

- Panel data is critical for understanding the resilience profile of populations experiencing shocks and stresses over time
- MIHR has designed and implemented a Recurrent Monitoring Survey (RMS) in eastern Democratic Republic of Congo to address the lack of longitudinal data
 - Focus on health resilience and resilience capacities related to health outcomes
 - Panel data (baseline + 2-3 rounds of follow-on with same households)



Q&A



Upcoming Webinars

- **July 31 (8:00am):** Assessing Progress of SRH Self-Care in Humanitarian Settings - one year anniversary of the Global Call to Action
- **August 31:** Learning from Supply Chain Challenges and Strategies for Reaching the Last Mile in Fragile Settings
- **September/October:** The Role of the Private Sector in Improving Access to Family Planning and Reproductive Health Care for Youth and Adolescents in Francophone West Africa

THANK YOU

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