Livestock Microfinance Buffers the Health Effects of Trauma

Partners

- Programme d'Appui aux Initiatives Economiques du Kivu (PAIDEK) Microfinance – Congolese led microfinance organization founded in 1996 to respond to economic needs of rural and urban Congolese in South and North Kivu Provinces – serving 13,000 households/groups with $2 million in loans in Eastern DRC.

- Johns Hopkins University School of Nursing

- Center for Health Research, Kaiser Permanente Northwest

Conflict and Instability in Eastern DRC

- Limited infrastructure (health care, education, employment roads, government)
- No accurate number of those affected, estimated 6 million have died;
- Forced Displacement
- GBV and other forms of human rights violations
- Economic insecurity: Rebels and soldiers have looted essential tools, animals, materials of value

Livestock Microfinance

- Raising and breeding of livestock/animals:
  - Provide household income for basic necessities:
    - Pays for food for family and livestock/animals
    - Pays for school and health care fees
    - Pays for rebuilding/repairing homes
  - Capital for other income generation initiatives
  - Provides fertilizer for crops

- Livestock microfinance as a strategy to improve health in low resources, post-conflict settings?

Livestock Microfinance: Pigs for Peace

- Why Pigs?
  - No cultural taboos
  - Women ownership
  - Prolific – 2x year (6-12 piglets)
  - Reinforce agriculture (compost)
  - Do not need a lot of space
  - Eat local resources (banana, sweet potato, manioc leaves)

Pigs for Peace

- Village-led microfinance association developed with mentorship by PAIDEK agents
  - Build pig pen
  - Attend and participate in association meetings and decision making
- Participant given female pig loan
  - Assisted with initial breeding
  - Ongoing mentorship and support through home visitation
  - Vet. Services (vaccination, education)
- Participant gives back 2 piglets when pig gives birth
  - One to repay loan
  - One to pay interest on loan
- Repayment pig given to association members in same village

Study Purpose

- Determine the effectiveness of a village-led livestock microfinance program, Pigs for Peace, on individuals and households:
  - Health (physical and mental health)
  - Reproductive health
  - Household economic stability (livestock assets, food security, health care access, household wealth)
  - Household decision-making
  - Gender attitudes (schooling for girls)
  - Intimate partner violence
  - Family and community relationships
  - Social inclusion - reintegration of GBV survivors (and their children) into family and community

- Funding: US National Institute of Health (NIH), National Institute of Minority Health and Disparities (R01MD006075, PI N.Glass, 12/2010-11/2015)

Study Design

- Randomized community trial

- 10 villages in the Walungu Territory, South Kivu province of Eastern DRC – determined through village assessments and meetings with village members and leaders

- 60-100 participants per village randomized:
  - Pigs for Peace Intervention: 30 receive 1st pig loan
  - Delayed control: 30 receive repayment pig
  - Delayed control #2 30-40 receive 2nd repayment pig

- Baseline interviews with 878 participants in intervention and delayed control groups and
- followed every 6 months for 24 months

Research Question

- What is the relationship between livestock/animal assets and mental health in a rural, low-resource and post-conflict setting?

Participant Characteristics

- Participants in intervention and delayed control groups who completed baseline survey:
  - 878 households
    - 183 males (20.8%)
    - 695 females (79.2%)

- Age of Participants
  - 16 to 19: n=16
  - 20 to 24: n=103
  - 25 to 34: n=237
  - 35 to 44: n=180
  - 45 to 60: n=271
  - Over 60: n=71

Participant Characteristics

- Marital Status
  - 74.7% married
  - 17.9% widowed
  - 3.9% divorced or separated
  - 2.1% never married
  - 1.1% abandoned by partner/husband

- Education
  - 60.8% never attended school
  - 16.5% primary school, but did not complete
  - 19.7% completed primary school
  - 2.9% secondary school or above completed

Household Characteristics & Wealth

Household members	Median – 8 members (5 children under 18 per household)
Household wealth	**% Yes**
Durable Housing - Tin roof	38.9%
Durable Housing -Wood or Brick Walls	5.9%
Electricity in household	2.4%
Savings	4.6%
Currently working (regular income)	24.2%
Perceived Wealth Worse than others in village About the same as others Better than others	 48.3% 39.1% 12.6%

Livestock Asset

- Surveyed 9 vendors in 5 different village markets in South Kivu province on the market price for a cow, goat, lamb, pig, chicken, rabbit, and guinea pig.

- Computed total livestock asset for each household by multiplying the average market price for an animal by the number of animals owned.

- Used quartiles of livestock asset value in analyses
  - Skewed distribution

Livestock/Animal	Value in US dollars
Cow	450
Pig	70
Goat	50
Poultry	10
Rabbit	8
Guinea Pig	1

Quartile	Mean Livestock Asset	Range
1	.11	0-2
2	11.85	3-38
3	73.26	39-125
4	599.43	126-9500

Conflict-Related Experiences (past 10 yrs)

Conflict-related Experiences (N=878)	% Yes
Lack of food or water	56.5
Ill health w/o access to medical care	61.3
Lack of shelter	21.9
Imprisonment	10.4
Serious injury	17.4
Combat situation	50.5
Brainwashing	15.3
Forced isolation from others	9.8
Being close to death	23.3
Forced separation from family members	27.4

Conflict-Related Experiences (past 10 yrs)

Conflict-Related Experiences (N=878)	% Yes
Murder of strangers	7.3
Lost/kidnapped	7.2
Tortured or witness to torture	18.5
Witnessed a rape or sexual abuse	9.9
Experienced rape or sexual abuse	6.0
Experienced other types of sexual humiliation	5.6
No conflict related events reported	33.1

PTSD Symptoms

In the past month….	% Yes
Recurrent thoughts of hurtful events	69.7
Reliving the event	57.3
Recurrent nightmares	66.2
Feeling detached/withdrawn	48.4
Unable to feel emotions	46.1
Easily startled	50.0
Difficulty concentrating	57.1
Trouble sleeping	61.0
Feeling on guard	67.4
Irritability/anger	61.2
Avoiding reminders of event	69.0
Inability to remember parts of event	69.5

PTSD Symptoms

In the past month….	% Yes
Less interest in daily activities	47.0
Feeling a lack of a future	36.2
Avoiding thoughts of event	76.4
Sudden reaction to remembrance	57.4
Blaming yourself for event	54.1
Feeling that people don’t understand	50.6
Feeling others are hostile	32.9
Feeling humiliated by experience	53.2
Lack of trust in others	51.6
Feeling powerless to help others	42.9
Feeling need for revenge	23.8

Depression Symptoms

In the past week….	% a little bit	% quite a bit or extremely
Suddenly scared for no reason	21.3	20.4
Feeling fearful	18.5	18.7
Faintness, dizziness or weakness	34.3	28.6
Nervousness	30.3	16.4
Heart pounding or racing	26.0	29.4
Trembling	24.8	15.6
Feeling tense or keyed up	35.6	18.4
Headaches	28.7	44.2
Spell of terror or panic	31.4	16.9
Feeling restless or can’t sit still	24.5	12.2
Feeling low in energy/slowed down	37.4	31.3
Blaming yourself for things	26.3	21.4

Depression Symptoms

In the past week….	% little bit	% quite a bit or extremely
Loss of sexual interest of pleasure	27.3	31.8
Poor appetite	33.4	20.0
Difficulty falling asleep, staying asleep	25.2	33.5
Feeling hopeless about future	23.9	19.8
Feeling blue	31.3	20.3
Feeling lonely	24.1	28.3
Thought of ending your life	6.0	7.8
Feeling trapped or caught	26.5	21.3
Worrying too much about things	31.2	27.9
Feeling no interest in things	28.6	16.6
Feeling everything is an effort	23.6	61.0
Feeling of worthlessness	40.8	24.3

Analyses

- Tested if livestock assets moderates the relationship between trauma events and mental health
  - Multiple Regression
    - Number of trauma events
    - Livestock asset value
    - Number of trauma events X livestock asset value
- Mental Health
  - PTSD as continuous variable
  - Depression as continuous variables
- Covariates
  - Wealth relative to others in the community
  - Currently working
  - Housing condition (roof, walls)
  - Current savings

Findings

- Livestock assets by trauma experience interaction was significant for symptoms of PTSD (p=.004) and depression (p=.005).
- The interaction (livestock assets X trauma) remained significant when controlling for other household wealth indicators for PTSD (p=.006) and depression (p=.017).
- Livestock assets buffer the effect of trauma on symptoms of PTSD and depression.
- As livestock assets increase, the impact of trauma on mental health is reduced.

“RISE UP”

“From the first pregnancy, my pig had 9 piglets. I returned 2 to the project and sold some of the piglets. I used the money to send my children to school and some money I saved. From the second pregnancy, I sold some of the piglets to buy my land and saved some of the money, too.”

“Now I am someone respected in the village. I am in good health. I am a big person. I have matured, life has evolved for me and my family” –MB

Conclusions

- “Do I have to be raped to get services?”
- Potential of livestock microfinance to reduce the health effects of multiple forms of trauma in low-resource, post-conflict settings.
- Livestock microfinance as a sustainable program to combine with other health, peace-building,