Exploring IPV outcome measures

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Long term goals:

- To deepen our understanding of the impact that our interventions are having through more detailed analysis on existing trial data

- To explore how measurement issues and coding decisions may affect this assessment.

- *This is a work in progress!*

Collaborators

- **Sangeeta Chatterji PhD,** Postdoctoral Fellow, Johns Hopkins Bloomberg School of Public Health

- **Jasper Cooper**, PhD, Assistant Professor, UCSD Department of Political Science

- **Christopher Boyd**, Harvard School of Public Health

Take Home Message:

We can reduce violence!

Presentation aims

▶ How to maximize the information gleaned on the nature and size of the impact that our interventions are achieving

▶ How to select our outcome measures so as to maximize our ability to detect a real effect when it is there

▶ What outcomes should we routinely report when evaluating the impact of our interventions

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Measures: IPV Questions

▶ Based on WHO modified Conflict Tactics Scale

    ▶ Controlling behaviors   (5-6 Questions)

    ▶ Emotional IPV   (4 Questions)

    ▶ Physical   (5 Questions)

    ▶ Sexual   (3-4 Questions)

    ▶ Economic   (4 Questions)

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EXAMPLE: Physical Violence

In the past 12 months, how often has your partner...	Never	Once	A few times	Many times
slapped you or thrown something at you that could hurt you?	0	1	2	3
pushed you or shoved you or pulled your hair?	0	1	2	3
hit you with his fist or with something else that could hurt you?	0	1	2	3
kicked you, dragged you or beaten you up?	0	1	2	3
choked or burnt you on purpose?	0	1	2	3
threatened you with or actually used a gun, knife or other weapon against you?	0	1	2	3

How and why is coding important?

▶ Coding affects what is defined as a "case" of violence.

  ▶ Do you need to experience a "pattern of abuse" before you are considered a case of IPV

  ▶ Is it appropriate to consider all acts of equal weight in qualifying as a "case" of violence?

  ▶ How does the above affect estimated prevalence of abuse and/or the evaluated impact of interventions?

▶ Alternatively, can combine frequency and number of acts into a IPV "score," e.g. 0-24

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Outcome options

Current practice

- IPV coded as yes/no binary
- Counts all items equally, regardless of severity
- Doesn't capture "emotional only" or "economic only" violence

Alternatives

- Simple score based on count of types of violent acts experienced (e.g. 0-5 for physical IPV)
- Score based on frequency of acts (0-15 for physical IPV)
- Weighted score that takes into account severity of act (e.g. insult ≠ threat)

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Exploring differential impacts

Binary vs. Score

Yes/No   0 to 24

Intensity

Prevent new cases?

Effect on women with no IPV in the past 12 months at baseline

IPV reduced, ceased, increased?

Effect on women who were experiencing IPV at baseline

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Data: Three What Works Trials

Indashyikirwa

21 Session Curriculum

Married couples

Rural Rwanda

Stepping Stones Creating Futures

Young unrelated men and women

Gender and economic empowerment curriculum

Women for Women International

Women's economic and social empowerment

Mostly illiterate Afghani women

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Indashyikirwa

- Significantly reduced physical, sexual, emotional economic and severe IPV (WW definition)

- Women report greater reduction in physical versus sexual IPV

- Substantial reduction in intensity of acts among on-going cases

- In almost half of on-going cases, the violence stopped

- No evidence of being able to prevent violence from starting

INDASHYKIRWA'S COUPLE'S CURRICULUM IN RURAL RWANDA:

REDUCED WOMEN'S ODDS OF REPORTING PHYSICAL AND/OR SEXUAL IPV BY 55%

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UKaid

Cessation vs Reduction among women who reported IPV at baseline
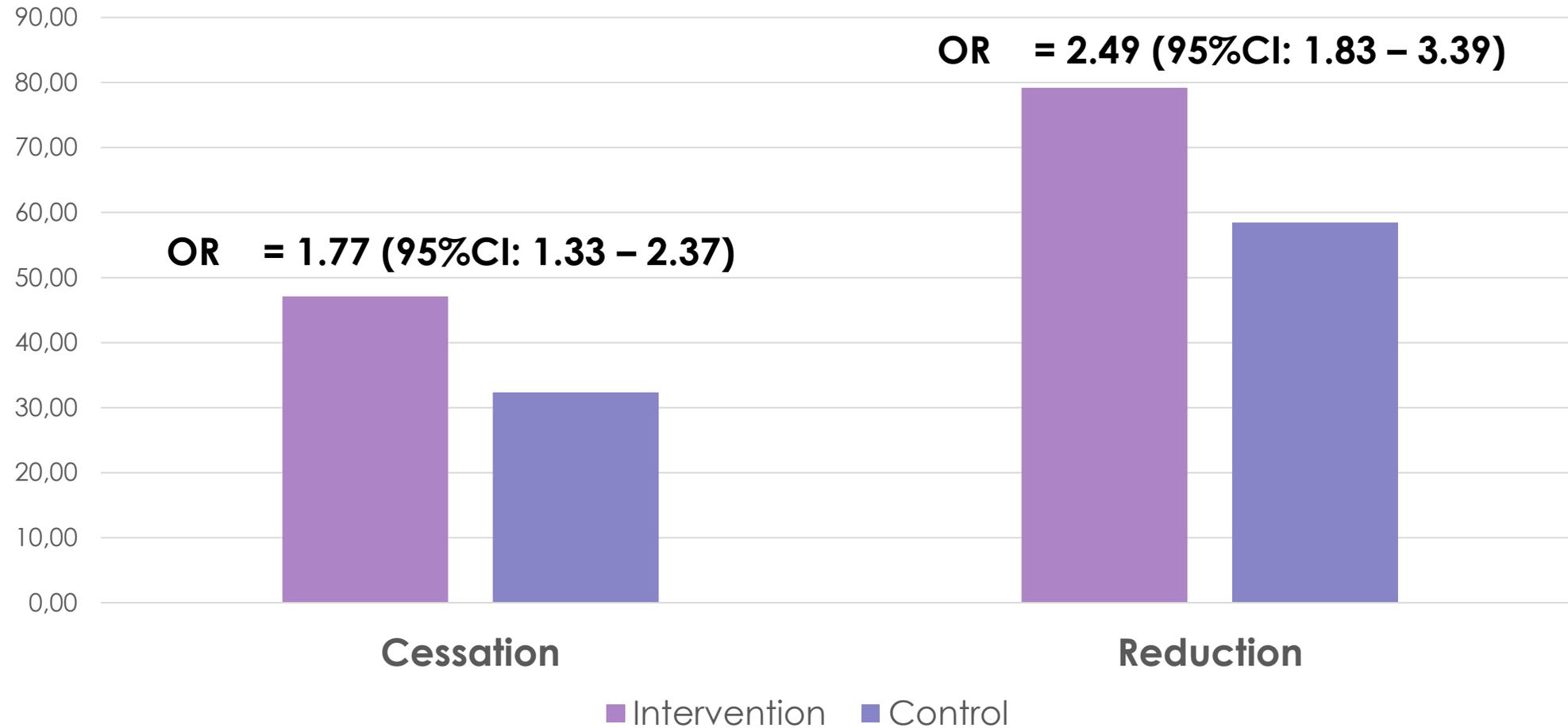
N=913 total, 493 intervention & 420 control

Outcomes at 24 months (binary)

Rwanda

Women ⬇ Sex/Phys Viol

⬇ Phys Viol

⬇ Sex Viol

Men ⬇ Sex/Phys Viol

NS Phys Viol

⬇ Sex Viol

South Africa

Women No effect

Men ⬇ Sex/Phys Viol

⬇ Phys Viol

P=.07 Sex Viol

Afghanistan

Women No effect

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Impact on physical and/or sexual IPV

Prevention		Reduction		Cessation	
Rwanda Women No		Rwanda Women	1.79***	Rwanda Women.	2.49***
Rwandan Men	No	Rwandan Men	1.84**	Rwandan Men	1.64**
S. African Women	No	S. African Women	No	S. African Women	No
S. African Men†	0.50**	S. African Men.	No	S. African Men.	No
Afghan Women	No	Afghan Women	No	Afghan Women	No

† sexual only; physical borderline

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Natural History of Abuse?

▶ Even in the absence of intervention, violence appears to dissipate

  ▶ In roughly 1/3 of IPV cases at baseline, women report no IPV in the past 12 months

  ▶ In roughly 60% of cases of IPV at baseline, women experienced reductions in the intensity of abuse even in the absence of intervention

? *Natural cessation? Regression to the mean? Secular trend? Measurement instability?*

Indashyikirwra *(at 24 months)*

IPV Score	Intervention	Control
IPV Reduced	79 %	58 %
IPV Ceased	47 %	32 %
IPV Increased	14 %	31 %

Binary vs Continuous (24 months)

▶ **Women Rwanda** (sex/phys)

    Binary   **Continuous**

    ⬇   ⬇

▶ **Men Rwanda**

    Binary   **Continuous**

    ⬇   **Not sig**

▶ **Women South Africa** (sex/phys)

    Binary   **Continuous**
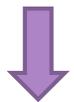
    Not Sig   **Not Sig**

▶ **Men South Africa**

    Binary   **Continuous**

    ⬇   **Not sig**

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Binary vs Continuous Outcomes

▶ Both yield unbiased estimates of the true treatment effect, but they estimate different things:

- The binary measure estimates the difference in the proportion who are experiencing any violence over the recall period.

- The continuous measure estimates the mean difference in number and frequency of violent acts experienced over the recall period.

Simulation study

▶ Designed to explore relative power of binary vs continuous measures based on different modeled treatment effects

▶ Simulates hypothetical randomized intervention study, using "Declare Design" in R, using a data structure based on empirical data from a trial in Uganda.

▶ Modeled as a Poisson process governed by a common parameter (lambda) that represents the average rate of violence during the defined recall period

Scenarios

► **constant** - a constant/homogeneous treatment effect across all 10 acts

► **physical_only** - moderate reductions in all physical violence variables, but no reduction in sexual violence.

► **sexual_only** - moderate reductions in all sexual violence variables, but no reduction in physical violence.

► **moderate_only** - reduction in only slapping and pushing, all other acts are unaffected.

► **divergence** - large reduction in slapping and pushing but increases in more severe violence and small uptick in sexual v
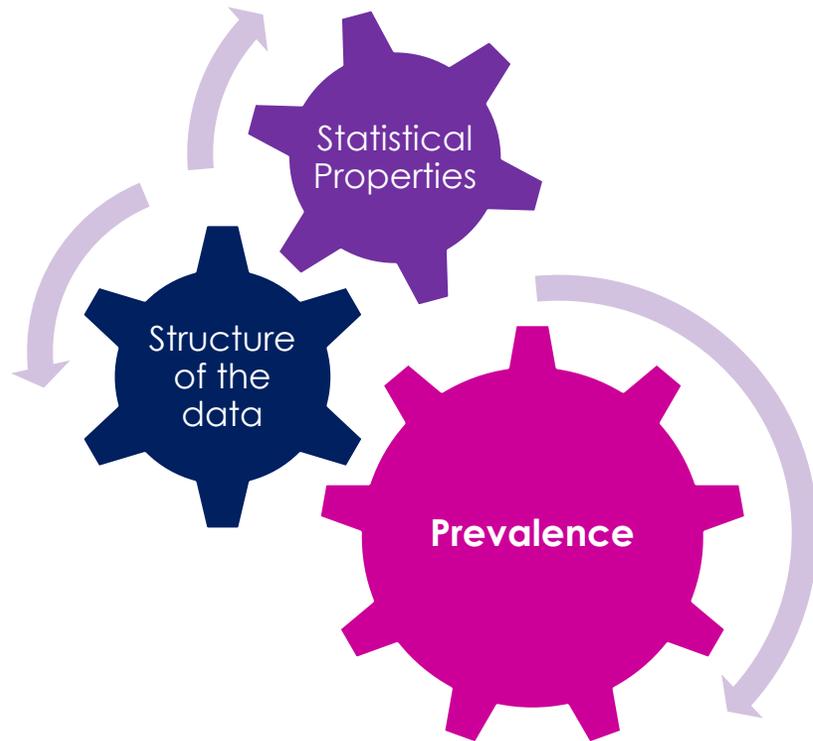
Results

of

▶ In terms of power, continuous outcome dominates binary when intervention has a constant effect across acts

▶ Binary is more powerful when intervention affects acts differently and at the bottom end of the frequency distribution

Choice of outcome

- Statistical Efficiency
- Structure of data
  - Mix of severe and moderate violence;
  - Mostly moderate, etc.
- Prevalence
  - Binary outcomes are most "noisy" (highest variance) at 50% prevalence
- Anticipated impact of intervention

Take home messages:

Interventions have differential impacts on:

▶ Preventing versus reducing intensity of on-going violence

▶ Given this, investigators should routinely report an intervention's impact on:

 ▶ New cases of IPV

 ▶ Cessation and reduction of IPV

Coding of outcome measures affect trial conclusions:

▶ Choice (binary vs continuous) can affect whether intervention is interpreted as "effective" or not

▶ Estimated size of impact is likewise affected by how one defines a "case" of IPV

Special thanks to implementing partners, research teams, and participants…

Indashyikirwa

RWMREC, RWN, CARE Rwanda

Research team: Kristin Dunkle, Lori Heise, Erin Stern, Lyndsay McLean

Stepping Stones/ Creating Futures

Project Empower

Research team: Andy Gibbs, Yandisa Sikweyiya, Samantha Willan, Rachel Jewkes

Women for Women International

Women for Women International

Research team: Rachel Jewkes, Andy Gibbs, Nwiabisa Shai, Esnat Chirwa, Julienne Corboz

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Indashyikirwa Couple's Results

Kristin Dunkle. L Heise, S Chatterji, E Stern, E. Chirwa

2:30 pm Thursday,
Exhibit Hall 10