

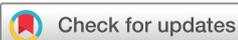
# How do programmes to prevent intimate partner violence among the general population impact women with disabilities? Post-hoc analysis of three randomised controlled trials

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## ABSTRACT

**Introduction** Women with disabilities experience higher rates of intimate partner violence (IPV) than women without disabilities. There remains limited evidence about whether IPV prevention interventions for the general population have benefits for women with disabilities that compare to those for women without disabilities. Using data from IPV prevention randomised controlled trials in diverse locations (Rwanda, South Africa and Afghanistan), we assess whether outcomes differed by disability status.

**Methods** We assessed disability at baseline in three IPV prevention trials. We performed post-hoc analysis of intervention impacts at endline (22 or 24 months post-baseline) stratified by disability status at study baseline and tested an interaction term for disability at baseline by intervention arm for three sets of outcomes: (1) past year experiences of physical, sexual and severe IPV; (2) economic and livelihood outcomes; and (3) health, mental health and substance use outcomes.

**Results** At baseline between 17.7% and 26.2% of women reported being disabled. For IPV prevention, in seven out of eight tests across three studies, women with and without disabilities had similar outcomes. For economic, health and substance use outcomes, there was more variation, with women with disabilities reporting both better and worse outcomes than women without disabilities; however there was no clear pattern in these differential results.

**Conclusion** IPV prevention programmes targeting general populations can prevent IPV among women with disabilities participants with benefits that mirror those for women without disabilities. Benefits for participants with and without disabilities on secondary programme outcomes related to economic empowerment and health may be more varied and should be explicitly monitored.

## BACKGROUND

Intimate partner violence (IPV) is a major threat to women's health and human rights, with around one in three women worldwide reporting experience of physical and/or sexual IPV during their lifetime.<sup>1</sup> A notable

## Key questions

### What is already known?

- ▶ Intimate partner violence (IPV) is a serious health and human rights violation which impacts approximately one in three women worldwide.
- ▶ Women with disabilities are at higher risk of IPV than women without disabilities.
- ▶ Little is known about whether existing IPV prevention interventions for the general population are equally beneficial for women with disabilities who are able to participate.

### What are the new findings?

- ▶ Across three cluster randomised controlled trials, we found no difference in IPV prevention outcomes in seven out of eight tests, with either the same positive benefit or null outcome reported for women with and without disabilities. In the eighth test, clear benefit accrued only to women without disabilities.
- ▶ All trials explored potential secondary benefits on economic and health outcomes among participants. In 10 tests of economic outcomes, 9 showed no difference by disability, and 1 showed increased benefit for women with disabilities. In four tests of health outcomes, two showed no difference and one showed increased benefit while one showed potential harm for women with disabilities compared with women without disabilities.

body of evidence from the Global North,<sup>2–6</sup> and increasing evidence from the Global South<sup>7–11</sup> shows that women with disabilities are at higher risk of IPV than women without disabilities, including risk for greater duration and severity of IPV.<sup>11–13</sup> A recent analysis of pooled baseline data from 8156 women participating in seven IPV prevention trials across the Global South found that women with disabilities were more likely to report experiencing physical and/or sexual IPV

## Key questions

## What do the new findings imply?

- ▶ IPV prevention programmes targeting general populations can prevent IPV among participants with disabilities with benefits that mirror those for participants without disabilities, but more data is required to understand how widely this applies.
- ▶ IPV prevention trials should include and monitor the participation of women with disabilities, and analyse whether the intervention has a differential impact by disability status of participants.
- ▶ People implementing and monitoring IPV prevention programmes should strive to make their programmes as accessible as possible to participants with a wide range of disabilities, track inclusion of participants with disabilities and monitor whether programmes are equally effective for participants with disabilities.

(adjusted odds ratio (aOR)=1.93, 95% CI: 1.52 to 2.46) in the past 12 months. The same analysis also showed that the odds of reporting recent IPV increased with increasing severity of disability: women with severe disability reported higher odds of IPV (aOR=2.63; 95% CI: 1.95 to 3.55), as did women with moderate disability (aOR=1.86, 95% CI: 1.57 to 2.21), compared with women without disabilities.<sup>11</sup>

Women with disabilities experience increased rates of IPV because the interplay of social, gendered and economic processes associated with stigma towards and discrimination against disabled people which exacerbate their vulnerabilities and limit their options for self-protection. Women with disabilities often have less education, and are therefore poorer,<sup>14</sup> and may have additional out-of-pocket costs for healthcare and adaptive devices expenses, further exacerbating poverty. Furthermore, they may rely on a partner, or others, to provide care, and therefore have fewer options for exiting a violent relationship or experience violence from caregivers.<sup>15–19</sup> It may also be that women with disabilities face additional stigma, and often IPV, when they cannot fulfil normative gender roles assigned to women in a given context.<sup>17 20–26</sup> Given the additional risk factors and unique challenges experienced by women with disabilities, they may have different IPV prevention and response needs than those that are effective for women without disabilities.<sup>17</sup>

Nonetheless, relatively little research has focussed on the particular needs of women with disabilities in relation to interventions to prevent or mitigate IPV. In the Global North, a small number of interventions that have sought to prevent or respond to experiences of violence among women with disabilities.<sup>17 27 28</sup> These have employed a range of approaches, from knowledge raising, to screening and self-defence,<sup>29–32</sup> however only two randomised controlled trials have been conducted. Neither of these reported significant reductions in violence.<sup>28 32</sup> Moreover, with some exceptions,<sup>27</sup> the bulk of interventions do not focus on addressing gender inequalities which is a critical component of effective violence prevention interventions.<sup>33</sup> Additionally, interventions around IPV for women with disabilities are

often more focussed on identification and reporting of violence rather than preventing violence from occurring.

The body of work around violence response and prevention interventions for women with disabilities exists in stark contrast to the strong body of emerging evidence on effective IPV prevention among general population samples of women. A recent overview of the evidence for IPV prevention programmes in the general population found 97 different evaluations of interventions using high quality methodologies, either randomised controlled trials or quasi-experimental studies, of which 47 interventions showed positive impacts in reducing IPV.<sup>34</sup>

What remains unknown is the extent to which effective IPV prevention programmes for general populations of women are accessible to, and accessed by, women with disabilities, and whether they are as effective for participants with disabilities as they are for non-disabled participants. Women with disabilities may find it harder to attend interventions held in central locations because of mobility and access issues, and even if they do attend, sessions may not accommodate their access needs if they have visual, hearing or cognitive impairments. Economic empowerment and general health promotion strategies are often paired with IPV prevention activities,<sup>34 35</sup> and these too may not meet the specific needs of women with disabilities. While such factors plausibly limit the potential benefits of IPV prevention interventions for women with disabilities, it is possible that other elements common in many programmes, such as building awareness of gender norms, developing skills for healthy relationships and strengthening livelihoods may be very beneficial for women with certain disabilities.<sup>36</sup>

To begin to address these issues, we draw on data from randomised controlled trials (RCTs) of three IPV prevention interventions working with adult women in Afghanistan, South Africa and Rwanda conducted under the aegis of the What Works to Prevent Violence Against Women Global Programme (whatworks.co.za). As all three studies were conducted within a cooperative consortium, we were able to use matched outcome measurements for experiences of physical and sexual IPV. We were also able to use similar measurements to classify participants as disabled or non-disabled at baseline. In this paper, for each intervention, we first test for differential impact on three measures of IPV at the 22-month or 24-month trial endpoint by women's disability status at enrolment. We then test for differential impact by disability status at enrolment on key secondary outcomes related to (1) economic status and/or livelihoods and (2) health, mental health or substance use. These domains were chosen because all three trials had relevant prespecified secondary outcome measures and because they were areas where participants with and without disabilities most likely to differ at baseline.

## METHODS

The RCTs that provided the data used in these secondary analyses shared the following characteristics: (1) enrolled adult female participants with baseline assessments administered pre-intervention and final outcomes assessed at 22 or 24 months after study enrolment; (2) had no eligibility criteria related to health status or experience of violence at baseline; (3) used prevention of physical and/or sexual IPV as the primary trial outcome; (4) had secondary outcomes related to participants' economic and health status; and (5) had a positive impact (in the desired and hypothesised direction) on at least one outcome (primary or secondary) in the main trial findings.

### Studies included

#### Indashyikirwa Rwanda

##### Intervention

*Indashyikirwa* (meaning 'agents of change' in Kinyarwanda) ran across seven districts in Eastern, Northern, and Western provinces of Rwanda, in predominantly rural communities. It was implemented by CARE Rwanda, Rwanda Women's Network (RWN) and Rwanda Men's Resource Centre (RWAMREC) from August 2014 to August 2018.<sup>37–39</sup> The programme aimed to reduce IPV, improve the well-being of survivors and shift attitudes, behaviours and norms that support IPV among couples and communities. *Indashyikirwa* was composed of four interlocking components: (1) a 21 session couples' curriculum to build healthy, equitable relationships implemented with male–female couples where at least one person was a member of an existing village savings and loan association (VSLA), (2) activist training and community activism, (3) training and engagement of local opinion leaders and (4) community education, outreach and support for survivors offered through women's safe spaces.

##### Disability specific programme elements

None in the numerical findings from the couples' training analysed here; there were some disability-specific elements in the women's safe spaces and community work that were qualitatively assessed.<sup>36 40</sup>

##### Study design

A two-arm cluster-randomised control trial (n=28 clusters) with randomisation at the sector level comparing the couples receiving the full *Indashyikirwa* couples training to VSLA alone. Couples were 18 or older, either married and/or cohabiting for 6 months prior to study start and one (or both) were active in a VSLA.<sup>39</sup>

##### Data collection

By default, data were collected via ACASI (audio-enhanced computer-assisted self-interview) on tablets programmed for the study, with in-built logic and skip patterns. Same gender field staff were available to support participants or conduct face-to-face interviews if necessary. Further

details on the study rationale, setting, methods and intervention are available elsewhere.<sup>39</sup>

#### Stepping Stones and Creating Futures

##### Intervention

Stepping Stones and Creating Futures (SS-CF) is a participatory, facilitator-led intervention, comprising of 21 sessions, each ~3 hours long. Stepping Stones focusses on gender, relationships, violence, communication and sexual health. Creating Futures focusses on livelihood strategies, savings and getting and keeping jobs. In both manuals, sessions are focussed on encouraging discussion and reflection on people's circumstances. About 20 women are in each group, and there are parallel groups of men.<sup>41 42</sup>

##### Disability specific programme elements

None.

##### Study design

A cluster randomised controlled trial (n=34 clusters) in urban informal settlements in eThekweni Municipality (Durban), South Africa, with a pre-intervention baseline, and follow-up after approximately 24 months. Female participants were recruited in conjunction with Project Empower, the local NGO (non-governmental organisation) who delivered the intervention. Women had to be aged between 18 and 30, not in education or full-time work and able to consent to study involvement.<sup>41 42</sup>

##### Data collection

Women self-completed questionnaires on study cell-phones. Same gender field staff were available to support participants in the process if necessary. Further details on the study rationale, setting, methods and intervention are available elsewhere.<sup>41 42</sup>

#### Women for Women International Trial (WfWI)

##### Intervention

The Women for Women International Trial (WfWI) intervention was a 1 year economic and social empowerment programme to improve women's economic stability, health and well-being, family and community participation and decision-making and social networks, and therefore reduce IPV experienced. Women attended either 90 to 180 min of classes a week. Sessions included basic numeracy and literacy, as well as vocational training, with the topic of training agreed on by participants, as well as WfWI's own market surveys. Women were encouraged to form savings clubs. Social empowerment sessions included a focus on women's rights. Women also received US\$10/month for attendance.<sup>43 44</sup>

##### Disability specific programme elements

None.

##### Study design

An individually randomised controlled trial, with 1:1 randomisation in six communities in peri-urban and

urban centres, in two provinces (Kabul and Nangarhar) of Afghanistan. Data were collected at baseline and at 22 months (approximately 10 months after intervention completion). Communities were selected by WfWI, based on their programmatic focal priorities including: (1) having experienced war/conflict, (2) social vulnerability, including poorer than average and (3) economic vulnerability. Potential participants were identified via community and religious leaders. On the day of recruitment, women gathered at a women's centre and the research team applied their own, additional, eligibility criteria: (1) women should be aged 18 to 45 and able to provide informed consent for the research; (2) women should not come from the same household (for reasons of confidentiality); and (3) women had to agree to participate in the full programme.<sup>43 44</sup>

#### Data collection

Once enrolled and randomised, women did face-to-face structured interviews with trained female researchers in Dari or Pashto. At endline, we traced women, and verified basic information with them. In addition, we had independent monitors who verified this basic information with the baseline data and resolved discrepancies. More information on the methods for the trial are available elsewhere.<sup>43 44</sup>

#### Informed Consent

All participants in all studies provided documented informed consent affirmed via signature (Rwanda and South Africa) or thumbprint (Afghanistan).

#### Measures

**Disability:** To assess disability status we used questions from the Washington Group Short Set of Disability Questions (WG-SS).<sup>45</sup> These questions focus on respondents' functional limitations within specific domains. All studies asked about difficulty seeing, even if wearing glasses; hearing, even if using a hearing aid; walking or climbing steps; remembering or concentrating. SS-CF and WfWI studies also asked about communicating. Responses for each of these questions were: 'No difficulty'; 'Yes, some difficulty'; 'Yes, a lot of difficulty'; and 'Cannot do at all'. Responses were then re-categorised into disabled if they responded 'Yes, a lot of difficulty' or 'Cannot do at all' to one or more items.<sup>45</sup> Other women were categorised as non-disabled.

**Physical IPV:** Women were asked five questions based on the WHO Domestic Violence and Health Scale<sup>46</sup> about past year experiences of physical IPV from a husband, or partner (eg, In the past 12 months how many times has a current or previous husband or boyfriend ever hit you with a fist or with something else which could hurt you?). Response options were: 'never', 'once', 'a few times' and 'many times'. Women who responded once (or more) time to one (or more) items, were categorised as experiencing past year physical IPV. In Afghanistan this scale was only administered to currently married women.

**Sexual IPV:** In South Africa and Rwanda, women were asked three behaviourally specific questions, based on the WHO's Domestic Violence and Health Scale<sup>46</sup> about past year experiences of sexual IPV from a husband, or partner (eg, In the past 12 months, how many times has a current or previous husband or boyfriend ever physically forced you to have sex when you did not want to?). Response options were: 'never', 'once', 'a few times' and 'many times'. Women who responded once (or more) to one (or more) items, were categorised as experiencing past year physical IPV. In Afghanistan, during piloting of the questionnaire, sexual IPV was felt to be too sensitive, and was therefore not asked in the main trial.<sup>44</sup>

**Severe IPV:** A composite measure of severe IPV was assessed in all countries. In South Africa and Rwanda, this comprised the eight items of physical and sexual IPV; in Afghanistan, only the five items of physical IPV. Women were coded as experiencing severe IPV if they (1) responded 'a few times' or 'many times' to one item, or (2) if they responded 'once' to two (or more) items, or (3) any combination of these criteria.

Questions about economic outcomes were fitted to study context. In South Africa and Afghanistan, we used a 3-item scale to assess past month household food-insecurity, and in Rwanda we used 2-items of this scale;<sup>47</sup> these measures yielded scores with higher scores indicating more food insecurity. In all three studies we asked about cash earnings in the past month, and recoded this into none versus any; in South Africa we also assessed savings in the past month, recoded into none versus any.

We also assessed mental health and substance use. In all studies, depressive symptoms were assessed using the Centre for Epidemiologic Studies Depression (CES-D) scale;<sup>48</sup> in Afghanistan and South Africa we used the full scale (20 items) and in Rwanda we used the shorter CES-D 10.<sup>49</sup> Higher scores from these scales indicate more depressive symptoms. In South Africa, we assessed alcohol use, using the 10-item Alcohol Use Disorders Identification Test (AUDIT) scale,<sup>50</sup> which we summed and treated as a score, with higher scores indicating more alcohol use.

In all studies we also assessed age, education and relationship status using appropriate categories for local context.

#### Data analysis

We first describe the socio-demographic and relationship characteristics of the participants of each study overall, and then by disability status, providing numbers and percentages and using Pearson's  $\chi^2$  tests of association. For each study, we also report whether there were differences in disability status by study arm or loss to follow-up (number, percentage and  $\chi^2$  tests).

For each trial, we replicated analysis procedures used in the original trial analysis, taking into account study designs and covariate adjustment. Analysis for each study was done separately to account for differences in study designs. We tested for differences in intervention effect on outcomes due to women's disability status by including woman's baseline disability status and an interaction

term between disability status and intervention in the original data analysis models. All analysis were based on intention-to-treat.

In Rwanda, we used generalised linear mixed effects modelling (multilevel model for change) with a Gaussian link function to compare mean scores at endline for all continuous outcomes and a logit link function for binary outcomes.<sup>51</sup> All models in Rwanda included fixed effects terms for study arm, data collection wave and an interaction term for study arm and data collection wave. The district in which data were collected was also treated as a fixed; sector (the unit of randomisation) was added in as a random effects term. Models were adjusted for type of VSLA membership reported at baseline (self, partner or both); baseline asset scores; and experience of physical or sexual IPV from a previous partner. All models were adjusted for age and the baseline value of the outcome in question. For the South Africa study, we used generalised estimating equation model (binary outcomes) and mixed effects models (continuous outcomes) that adjusted for value of the outcome at baseline. For the Afghanistan study, we used logistic regression (binary outcomes) and generalised linear models (continuous outcomes). The models in the Afghanistan study adjusted for the value of the outcome variable at baseline and woman's age.

In all the three studies, estimates (adjusted risk ratios, OR or mean difference) for intervention effects among women with disability compared with those without disability were derived using a series of linear contrasts after fitting a model for each outcome. All comparisons and CIs were done at a 5% significance level.

### Indirect patient and public involvement

It was not relevant to directly include patient and public involvement (PPI) in this study, but the underlying individual projects were conducted with varying degrees of PPI and What Works' broader research uptake strategy includes widespread engagement with key stakeholder groups including women's rights organisations and disabled people's organisations.

## RESULTS

### Description of participants

In *Indashyikirwa*, 1659 women provided information for the study, of whom 434 (26.2%) reported a disability at baseline (table 1). There was no difference between study arms in the proportion of women with and without disabilities at baseline, and no difference in loss to follow-up at 24 months by disability status. Participants with disabilities were older and reported less education than women without disabilities, but both groups were equally likely to be legally married (table 2).

In SS-CF, 677 women were enrolled into the study at baseline, of whom 131 (19.4%) reported a disability (table 1). There was no difference between study arms in the proportion of women with disabilities at baseline, nor differential loss to follow-up at 24 months. At baseline, women with disabilities were older, had less education and were more likely to be married or living with their partner (table 2).

In WfWI, 1456 women provided information for the study (table 1). Among the overall sample, n=258 (17.7%) of women reported disability at baseline; this was similar to the figure among the married women for whom the IPV outcome was assessed (n=198, 20.3%). Among neither the overall sample nor the married women was there a difference in the proportion with a disability by study arm, nor a difference in loss to follow-up at 22 months. As with the other two studies, participants with disabilities tended to be both older and less educated than those without disabilities (table 2).

### Intervention impacts on IPV

Overall, as expected, women with disabilities in all three studies reported much higher rates of IPV than non-disabled participants at both baseline and endline. Nevertheless, in seven out of eight tests of possible intervention benefit on IPV outcomes, women with disabilities reported the same outcomes as women without disabilities, whether this was a comparable reduction, or no effect.

**Table 1** Prevalence of disability at baseline in the three included studies by study arm, with data on loss to follow-up at 24 months

Prevalence of disability at study enrolment	Control arm	Intervention arms	P value
	n (%)	n (%)	
<i>Indashyikirwa</i> , Rwanda	214 (25.8)	220 (26.6)	0.80
Stepping Stones and Creating Futures, South Africa	66 (19.53)	65 (19.17)	0.91
WfWI (all women), Afghanistan	136 (19.2)	122 (16.4)	0.16
WfWI (married women), Afghanistan	102 (22.6)	87 (18.1)	0.09
Participants lost to follow-up at 24 month follow-up	Non-disabled	Disabled	
<i>Indashyikirwa</i> , Rwanda	30 (2.5%)	13 (3%)	0.50
Stepping Stones and Creating Futures, South Africa	106 (19.4%)	26 (19.9%)	0.91
WfWI (all women), Afghanistan	32 (4.3%)	8 (4.2)	0.96

WfWI, Women for Women International.

**Table 2** Socio-demographic characteristics of participants and association with disability status at baseline**Indashyikirwa, Rwanda**

	All participants (n=1659)		Women without disabilities (n=1225)		Women with disabilities (n=434)		P value
	N	%	n	%	n	%	
<b>Age group</b>							
<20 years	21	1.3	18	1.5	3	0.7	<0.001
20–29 years	530	32	433	35.4	97	22.4	
30–39 years	834	50.3	616	50.3	218	50.3	
≥40 years	274	16.5	116	12.9	116	26.7	
<b>Education level</b>							
No school	1120	77.24	904	75.84	216	83.72	0.02
Any education	330	22.76	288	24.16	42	16.28	
<b>Current marital status</b>							
Married	1096	66.1	803	65.6	293	67.5	0.49
Living as married	563	33.9	422	34.5	141	32.5	

**Stepping Stones and Creating Futures, South Africa**

	All participants (n=677)		Women without disabilities (n=546)		Women with disabilities (n=131)		P value
	N	%	n	%	n	%	
<b>Age group</b>							
<20 years	85	12.56	66	12.09	19	14.5	0.05
20–24 years	303	44.76	258	47.25	45	34.35	
25–35 years	289	42.69	222	40.66	67	51.15	
<b>Education level</b>							
Primary only	56	8.27	38	6.96	18	13.74	0.02
Secondary but not completed	415	61.3	333	60.99	82	62.6	
Secondary completed	206	30.4	175	32.05	31	23.66	
<b>Current relationship status</b>							
Married/living together	123	18.17	88	16.12	35	26.72	0.02
Non-cohabiting boyfriend	430	63.52	355	65.02	75	57.25	
No relationship	124	18.32	103	18.86	21	16.03	

**Women for Women International, Afghanistan**

	All participants (n=1456)		Women without disabilities (n=1198)		Women with disabilities (n=258)		P value
	N	%	n	%	n	%	
<b>Age group</b>							
<20 years	246	16.9	228	19.03	18	6.98	<0.001
20–29 years	492	33.79	425	35.48	67	25.97	
30–39 years	416	28.57	318	26.54	98	37.98	
≥40 years	302	20.74	227	18.95	75	29.07	
<b>Education level</b>							
No school	1123	77.18	904	75.84	216	83.72	0.006
Any schooling	332	22.82	288	24.16	42	16.28	

In *Indashyikirwa* (table 3), the overall intervention showed a significant reduction in women's experiences of physical, sexual and severe IPV at endline. In the disaggregated analyses, the reduction in IPV remained statistically significant for all three outcomes for women without disability, but was only significantly reduced for physical

IPV among women with disabilities. However, reductions in sexual IPV and severe physical/sexual IPV at endline among the women with disabilities had point estimates identical to those for women without disabilities, and remained marginally significant at the  $p < 0.10$  level. It is worth noting that despite the evidence of intervention

**Table 3** Indashyikirwa: impact of the intervention on IPV and economic outcomes at 24-month endline assessment by disability status at baseline

	IPV prevalence among women without disabilities at baseline and endline				IPV prevalence among women with disabilities at baseline and endline				Effect among women with vs without disability	
	Baseline		Endline		Baseline		Endline		aRR/coefficient	P value
	n/mean	%/SD	n/mean	%/SD	n/mean	%/SD	n/mean	%/SD	aRR or B (95% CI)	P value
<b>IPV outcomes</b>										
Any physical IPV										
Control	189	31.1%	183	30.7%	83	39.1%	74	36.6%		
Intervention	246	40.5%	141	23.8%	108	49.1%	65	30.2%	<b>0.35 (0.19 to 0.66)</b>	<b>0.004</b>
Any sexual IPV										
Control	218	35.8%	219	36.9%	90	42.4%	84	41.6%		
Intervention	251	41.4%	175	29.5%	122	55.5%	86	40.0%	<b>0.48 (0.26 to 0.89)</b>	<b>0.07</b>
Physical and/or sexual IPV >1 type or occurrence										
Control	232	38.2%	241	40.4%	105	49.5%	93	45.6%		
Intervention	279	46.0%	189	31.6%	133	60.5%	94	43.3%	<b>0.52 (0.26 to 1.04)</b>	<b>0.09</b>
<b>Economic outcomes</b>										
Any income in the past month										
Control	370	61.0%	409	68.7%	112	52.8%	126	61.8%		
Intervention	296	48.8%	408	68.6%	113	51.4%	146	67.3%	<b>1.51 (0.86 to 2.66)</b>	<b>0.15</b>
Hunger (score)										
Control	4.67	0.09	4.93	0.08	5.01	0.16	5.35	0.14		
Intervention	4.90	0.10	4.62	0.10	5.08	0.11	4.77	0.11	<b>-0.48 (-0.77 to -0.19)</b>	<b>&lt;0.001</b>
<b>Mental and physical health outcomes</b>										
Depression (CES-D 10 score)										
Control	7.33	0.18	7.78	0.26	10.1	0.30	9.73	0.27		
Intervention	7.96	0.22	6.61	0.26	10.9	0.51	7.94	0.32	<b>-3.13 (-3.92 to -2.34)</b>	<b>&lt;0.001</b>
Self-rated health (good or excellent)										
Control	455	75.0%	397	66.5%	135	63.7%	109	54.0%		
Intervention	425	70.0%	429	71.7%	127	57.7%	148	68.2%	<b>3.03 (1.65 to 5.56)</b>	<b>&lt;0.001</b>

Bolded indicates significant at  $p < 0.05$ ; all models adjusted for VSLA membership reported at baseline (self, partner or both); baseline asset scores; experience of physical or sexual IPV from a previous partner; age, and the baseline value of the outcome variable.

aRR, adjusted risk ratio; CES-D, Centre for Epidemiologic Studies Depression; IPV, intimate partner violence; VSLA, village savings and loan association.

benefit for women with disabilities, the prevalence of all three measures of IPV were significantly higher for women with disabilities at baseline and endline, and that at endline 43.3% of women with disabilities in the intervention arm still reported severe physical/sexual IPV in the past 12 months (down from 60.5% at baseline).

In South Africa (table 4), women in SS-CF experienced no overall benefit on any measure of IPV, and there was no difference by baseline disability status. As with Rwanda, women with disabilities in both trial arms reported higher rates of IPV at both baseline and endline: 59.6% women with disabilities in the intervention arm reported severe physical/sexual IPV in the past 12 months at endline versus 44.2% of non-disabled intervention participants.

In Afghanistan (table 5), there was no overall benefit of the intervention on IPV. However, in the stratified analysis, we observed a significant reduction in severe physical IPV among women without disabilities only, with a statistically significant interaction with disability status at baseline and the impact of the intervention, with and aOR for reporting violence at follow-up among women with disabilities versus women without disabilities in the intervention arm=2.75 (95% CI: 1.09 to 7.00). Once again, women with disabilities in both trial arms reported higher rates of IPV at both baseline and endline; 28.8% of women with disabilities in the intervention arm reported severe physical IPV in the prior 12 months at endline versus 11.7% of non-disabled intervention participants.

### Impacts on livelihoods

In *Indashyikirwa*, the point estimates for increased likelihood of past month income were essentially equal for women with and without disabilities; while the point estimate for intervention impact was only statistically significant for women without disabilities, there was no significant interaction between the intervention and disability status. For household food insecurity, women with ( $\beta=-0.48$ ,  $p<0.001$ ) and without disabilities ( $\beta=-0.43$ ,  $p<0.001$ ) reported nearly identical reductions from the intervention.

In SS-CF, there were no differences by disability status in intervention impact on any of the economic outcomes. The intervention benefit with respect to earnings in the past month was only significant for women who reported no disability at baseline (aOR=2.12,  $p=0.001$ ); women with disability did not appear to see any benefit in the past month income (aOR=0.97,  $p=0.94$ ), however, the interaction between disability status and the intervention did not reach statistical significance ( $p=0.10$ ). In respect of the past month savings, only women without disability showed significant benefit (aOR=1.87,  $p=0.04$ ), but the point estimate for women with disabilities was similar (aOR=1.63,  $p=0.41$ ) and there was no interaction between disability and the intervention ( $p=0.80$ ). There was no significant reduction in hunger for either group.

In Afghanistan, women with disabilities reported significantly improved any earnings in the past month at endline (aOR=4.86,  $p=0.02$ ) that were not mirrored

among women without disability (aOR=1.49,  $p=0.10$ ), although the interaction between disability and the intervention did not reach statistical significance ( $p=0.10$ ). The point estimates for reductions in hunger were nearly identical for both groups. While the impact was only significant for women without disability ( $\beta=-0.47$ ,  $p<0.02$ ) and not women with disability ( $\beta=-0.48$ ,  $p=0.31$ ), there was no evidence of interaction between disability status and the intervention ( $p=0.99$ ), suggesting no real difference was seen.

### Health, mental health and substance use outcomes

In Rwanda both women with and without disabilities reported significantly improved health outcomes at endline, with clearly greater benefit to women with disabilities in reduction of depressive symptoms. Women with disabilities' depressive symptoms significantly reduced ( $\beta=-3.12$ ,  $p<0.001$ ), and while women without disabilities' symptoms also reduced ( $\beta=-1.57$ ,  $p<0.001$ ), there was a significantly greater benefit for women with disabilities whose scores were a mean 0.96 point lower ( $p=0.02$ ). Women's self-rated health improved among both groups of women, and while the point estimates were larger among women with (adjusted risk ratio (aRR)=3.03,  $p<0.001$ ) than without disabilities (aRR=1.64,  $p=0.004$ ), there was no significant interaction ( $p=0.97$ ).

In South Africa, there was a suggestion of differential benefits for women with disabilities in terms of depressive symptoms with a significant reduction ( $\beta=-4.61$ ,  $p=0.04$ ), that was not mirrored among women without disabilities ( $\beta=-0.81$ ,  $p=0.37$ ); however, the interaction term showed only weak evidence of difference between the groups ( $p=0.12$ ). In contrast, women with disabilities reported a borderline significant increase in overall alcohol use ( $\beta=3.42$ ,  $p=0.06$ ), in contrast to a non-significant decrease among women without disabilities ( $\beta=-1.14$ ,  $p=0.10$ ); while both of these measures were borderline on their own, there was a significant interaction between disability status and alcohol use, with women with disabilities in the intervention are scoring a mean 4.55 points higher ( $p=0.02$ ).

In Afghanistan, there was no differential impact on depressive symptoms by disability status.

### DISCUSSION

Our analysis of three existing IPV prevention trials shows that women with disabilities who were able to access and engage with these IPV prevention programmes benefited—or failed to benefit—in ways that mirrored the interventions' benefits or lack of benefits for participants without disabilities in terms of reducing rates of IPV incidence. Benefits for participants with versus without disabilities on secondary programme outcomes related to economic empowerment and health were somewhat more varied: women with disabilities sometimes benefited more, and sometimes less, than women without disabilities. These findings strongly suggest that women

**Table 4** Stepping Stone and Creating Futures: impact of the intervention on IPV and economic outcomes at 24-month endline assessment by disability status at baseline

	IPV prevalence among women without disabilities at baseline and endline						IPV prevalence among women with disabilities at baseline and endline						Effect among women with vs without disability		
	Baseline			Endline			Baseline			Endline			aOR/coefficient (95% CI)	P value	
	n/mean	%/SD	n/mean	%/SD	n/mean	%/SD	n/mean	%/SD	aOR or B (95% CI)	P value					
<b>IPV outcomes</b>															
Any physical IPV															
Control	163	59.9%	120	51.7%	40	60.6%	35	66.0%							
Intervention	155	56.6%	100	48.1%	45	69.2%	34	65.4%	0.91 (0.59 to 1.41)	0.68	0.91 (0.49 to 1.69)	0.91	1.00 (0.52 to 1.91)	0.99	
Any sexual IPV															
Control	78	28.7%	76	32.8%	24	36.4%	25	47.2%							
Intervention	73	26.6%	62	29.8%	25	38.5%	24	46.2%	0.88 (0.55 to 1.41)	0.59	1.05 (0.52 to 2.10)	0.90	1.19 (0.62 to 2.28)	0.92	
Physical and/or sexual IPV >1 type or occurrence															
Control	151	55.5%	112	48.3%	39	59.1%	33	62.3%							
Intervention	138	50.4%	92	44.2%	42	64.6%	31	59.6%	0.95 (0.66 to 1.37)	0.80	0.78 (0.42 to 1.46)	0.44	0.82 (0.44 to 1.53)	0.54	
<b>Economic outcomes</b>															
Any income in the past month															
Control	89	32.7%	90	38.8%	13	19.7%	26	49.1%							
Intervention	79	28.8%	117	56.3%	24	36.9%	27	51.9%	<b>2.12 (1.40 to 3.20)</b>	<0.001	0.97 (0.41 to 2.29)	0.94	0.46 (0.18 to 1.17)	0.10	
Any savings in past month															
Control	28	10.3%	26	11.2%	8	12.1%	7	13.2%							
Intervention	27	9.9%	39	18.8%	11	16.9%	11	21.2%	<b>1.87 (1.07 to 3.26)</b>	<b>0.03</b>	1.63 (0.51 to 5.17)	0.41	0.87 (0.30 to 2.52)	0.80	
Hunger (score)															
Control	3.2	1.5	2.8	1.5	3.2	1.6	3.1	1.7							
Intervention	2.8	1.7	2.5	1.6	3.1	1.8	2.8	1.8	-0.18 (-0.46 to 0.10)	0.20	-0.19 (-0.97 to 0.79)	0.64	0.00 (-0.80 to 0.79)	0.99	
<b>Mental health and substance use outcomes</b>															
Depression score (mean)															
Control	20.1	10.8	22	10	25.2	12.5	28	12							
Intervention	20	10	21.3	10.3	26.5	10.5	24.5	11.1	-0.81 (-2.58 to 0.87)	0.37	<b>-4.61 (-8.89 to -0.29)</b>	<b>0.04</b>	-3.81 (-8.64 to 1.03)	0.12	
Alcohol score (mean)															
Control	3.9	6	4.1	6.5	7.7	9.6	4	5.5							
Intervention	3.3	4.6	3.2	4.8	6.6	9.1	6.4	9.2	-1.14 (-2.50 to 0.23)	0.10	<b>3.42 (-0.12 to 6.98)</b>	<b>0.06</b>	<b>4.55 (0.86 to 8.24)</b>	<b>0.02</b>	

Bold indicates significant at p<0.05; endline models adjusted for the baseline value of the outcome variable.  
 aOR, adjusted OR; IPV, intimate partner violence.

**Table 5** Women for Women International: impact of the intervention on IPV and economic outcomes at 24-month endline assessment by disability status at baseline

	IPV prevalence among women without disabilities at baseline and endline				IPV prevalence among women with disabilities at baseline and endline				Effect among women with vs without disability	
	Baseline		Endline		Baseline		Endline		aOR/coefficient (95% CI)	P value
	n/mean	%/SD	n/mean	%/SD	n/mean	%/SD	n/mean	%/SD		
<b>IPV outcomes</b>										
Physical IPV										
Control	76	21.7%	67	24.8%	32	31.4%	25	31.7%		
Intervention	73	18.6%	82	22.3%	35	40.2%	23	31.5%	0.88 (0.44 to 1.76)	0.71
Physical IPV >1 type or occurrence										
Control	50	14.3%	52	19.3%	26	25.5%	15	19.0%		
Intervention	42	10.7%	43	11.7%	27	31.0%	21	28.8%	1.61 (0.71 to 3.63)	0.25
<b>Economic outcomes</b>										
Any earnings in past month										
Control	349	60.8%	27	6.4%	53	39.0%	3	2.8%		
Intervention	352	56.4%	52	9.2%	48	39.3%	13	12.4%	<b>4.86 (1.33 to 17.77)</b>	<b>0.02</b>
Hunger (mean)										
Control	5.1	2.7	5.8	3.4	6.4	3.2	6.4	3.7		
Intervention	5.3	2.8	5.4	3.1	6.7	3.1	5.8	3.2	-0.48 (-1.40 to 0.44)	0.31
<b>Mental health</b>										
Depression score (mean)										
Control	12.4	8	15.1	7.3	22.3	11.6	16.9	8.6		
Intervention	13.1	8.7	14.7	7.3	25	11.3	16.9	8.6	0.08 (-2.15 to 2.31)	0.95

Bold indicates significant at p<0.05; endline models adjusted for baseline value of the outcome variable and age. aOR, adjusted OR; IPV, intimate partner violence.

with disabilities who are able to attend existing public health interventions to prevent IPV can and do benefit, although routine monitoring of numbers of participants with disabilities and tracking potential differential impact is warranted to improve future service delivery.

All of the studies included here had prevention of physical and/or sexual IPV in male–female partnerships as their main trial outcome. In seven out of eight tests of these outcomes, women with disabilities reported the same outcomes as women without disabilities, either comparable reduction, or no effect, suggesting that women with disabilities are not differentially impacted by these IPV prevention programmes. In *Indashyikirwa*, there were significant reductions in IPV reported among both women with and without disabilities, and the magnitude of the reduction in relative risk was nearly identical in both groups. We conclude that the *Indashyikirwa* couples training was clearly of benefit to participants with disabilities (including a 65% reduction in the risk of physical IPV at endline relative to control). Stepping Stones and Creating Futures also had equivalent findings in respect of IPV prevention, with no benefit for either women with or without disabilities.<sup>42</sup> In contrast, while the Women for Women International intervention showed no overall reduction in IPV in the main trial,<sup>43</sup> women without disabilities saw a significant reduction in severe physical IPV, while women with disabilities saw a non-significant increase in the same outcome. There are no clear reasons why this was the case, however, it may have been that women with disabilities faced many challenges in translating the learnings and experiences from the intervention into action in their home lives, particularly around building respect and authority in the home, which was a potential pathway through which the intervention impacted on women's lives.<sup>52</sup> Or it may have been that women with disabilities struggled to participate in sessions, which were in central locations, often a distance from their homes.

The general lack of differential impact on IPV outcomes by disability is very important, yet in all three studies the past year prevalence of IPV among remained higher among women with disabilities than women without disabilities at endline. Even in *Indashyikirwa*, where women with disabilities in the intervention arm saw a statistically significant reduction in IPV, 43% of women with disabilities reported severe physical and/or sexual IPV in the past year at endline. This has important implications for IPV prevention programmes, as they may be equally effective in reducing the *proportionate* burden of IPV among women with and without disabilities, while still leaving women with disabilities with a much higher *absolute* burden of violence. Given this, further work needs to be done to make existing and future IPV prevention programmes even more effective for women with disabilities.

There were mixed findings regarding the impact of disability on secondary economic and livelihood outcomes in the three trials. In WfWI, women with disabilities were

more likely to benefit from increased earnings. The livelihood component of this programme focussed on work that could be done at home (eg, sewing and knitting, or basic animal husbandry), as Afghan women's mobility was limited outside the home by social norms. At baseline women with disabilities reported lower levels of such work than women without disabilities, and as such, had more room to benefit. In SS-CF, women with disabilities showed slightly weaker outcomes with respect to income compared with women without disabilities. In South African urban informal settlements, the primary work opportunities rely on physical mobility both for access to work sites, and for performing the types of work available (eg, domestic labour).<sup>53</sup> These factors could have limited the ability of women with disabilities to benefit from the livelihoods component of the intervention, which emphasised strategies for seeking such work. In *Indashyikirwa*, there was benefit of similar magnitude in terms of past 12-month earning and equivalent and significant benefits in food security for both women with and without disabilities. Participants in *Indashyikirwa* were part of established rural couples whose livelihoods were largely focussed on subsistence agriculture, and many reported at baseline that they and their male partners shared all of their work. As part of *Indashyikirwa* focussed on valuing women's economic contributions, resolving couple conflict around money, and increasing trust and mutual respect in relationships, these components may easily have been of equal benefit to participants with and without disabilities.

The analysis of the three studies showed a complex relationship of interventions to health outcomes. In *Indashyikirwa*, women with disabilities showed significantly greater reduction in depressive symptoms than women without disabilities, while in South Africa, women with disabilities reported a significant reduction in depressive symptoms which was not seen in the group without disabilities. It is likely in both cases that this was driven by the significantly worse starting points for depressive symptoms among women with disabilities, who therefore had more room to benefit more from being in a supportive intervention environment. The group-based nature of the interventions could also have provided social support that women with disabilities lacked in their daily lives, although this pattern was not observed in WfWI.

In South Africa, there was an increase in women with disabilities' overall alcohol use, with no indication of this in the group without disabilities, and this finding showed a clear differential effect. While women in both groups experienced exceedingly high levels of IPV, women's with disabilities reported significantly more violence, so the alcohol use may have response to higher rates of unresolved trauma.<sup>54 55</sup> Women with disabilities may also have used alcohol as self-medication,<sup>56 57</sup> as access to healthcare in urban informal settlements is very limited. However, the finding regarding alcohol use in SS-CF seems to be driven largely by a decrease in alcohol use among women with disabilities in the control arm as alcohol use

among women with disabilities in the intervention arm remained essentially identical from baseline to endline (although higher than their non-disabled peers at both time points). Additional research, both qualitative and quantitative, would be useful to understand why this may have occurred.

### Limitations

This secondary analysis has a number of limitations and a number of strengths. First, none of these studies planned a priori for analyses of differential impact by disability status and are thus underpowered for detecting intervention impact among women with disabilities or moderation effects on the intervention by disability status. We recognise that women with severe disabilities were likely excluded from these programmes because of barriers in the recruitment and intervention delivery phases. There was no specific recruitment of participants living with disabilities, and only limited efforts at specific accommodations,<sup>36</sup> so the women with disabilities who were present were those who were able to access the programme. Because of the small numbers of women with disabilities, we were unable to look at differential impact by type(s) of disability, such as mobility, visual or hearing impairments. We also did not address any disability-specific forms of IPV, such as withholding care or assistance devices, nor disability-specific perpetrators of violence such as personal aides.<sup>15–17 19</sup> These issues should be addressed in future research. As with all IPV research, key outcomes measures relied on self-report, making them subject to under-reporting and disclosure bias. We attempted to mitigate this possibility in Rwanda and South Africa through self-completion of questionnaires, but because of low literacy levels in Afghanistan this was not possible. Across all studies, social desirability effects were mitigated by using field researchers who were external to the programmes and emphasising the confidentiality of all answers.

Classifying participants' disability status using the WG-SS offered some advantages and disadvantages. The obvious advantage was use of a standardised measure and a commonly recommended cut-point designed to yield comparable metrics across diverse settings.<sup>45</sup> While the WG-SS can be used to group participants by severity of disability as we have done elsewhere with some of these data,<sup>11</sup> we lacked the statistical power to compare different levels of disability in these analyses. Differentiating programme impact by severity of disability when possible would benefit future work in this area. The WG-SS questions are limited in their ability to capture disabilities resulting from mental health conditions or chronic illness,<sup>58</sup> and they focus on functional limitations without explicit consideration of the disabling aspects of social contexts and built environments. It is likely that use of another measure of disability with a more nuanced assessment would have resulted in different classifications of some participants and it is unknown how this might impact the findings presented here. Future research in

this area should explore the advantages and disadvantages of different strategies for measuring disability, such as the WHO Disability Assessment Scale 2.0<sup>59</sup> and the Participation Scale<sup>60</sup> that more explicitly consider social context. We assessed participants' disability status only at baseline, without accounting for participants who either acquired disabilities or experienced improved functioning over the course of the programmes. Future work will greatly benefit from exploring how women's experiences of disability and IPV may co-vary and/or impact each other over time.

### CONCLUSION

Overall, this analysis of three different interventions working to prevent IPV among women showed that IPV prevention interventions in general populations have similar benefits—or similar null findings—for women with and without disabilities. This is important as it suggests that women with disabilities who are able to participate in such interventions can generally benefit. There was greater variation around whether interventions benefitted women with and without disabilities equally with respect to livelihood-related outcomes; these may have varied much more because of the economic and social contexts in which the interventions were implemented. Greater thought and planning needs to be given to effective livelihood strategies and plans for women with disabilities in places where labour markets and economic opportunities are generally not accessible. We also observed promising benefits in mental health outcomes for women with disabilities, suggesting that interventions which are not specifically therapeutic, may nonetheless enhance the mental health of women with disabilities through the reduced IPV and economic and social support that such interventions can generate.

While these findings are promising, more needs to be done to ensure all women, regardless disability, can live free from violence. IPV prevention trials should consider specific evaluation of intervention impact on participants with disabilities, while proactively affirming the right of people with disabilities to participate in such research. People implementing and evaluating IPV prevention programmes should strive to make their programmes as accessible as possible to women with a wide range of disabilities, track inclusion of participants with disabilities and monitor/evaluate whether programmes are equally effective for participants with disabilities, and explore whether changes in any changes in women's experience of disability over time are linked to changes in exposure to IPV.

**Contributors** KD was co-Principal Investigator (PI) on the Indashyikirwa study, conceptualised this paper, oversaw and participated in the data analysis and led interpretation of the findings and drafting the manuscript. AG was PI on the Stepping Stones and Creating Futures and co-I on Women for Women International, co-conceptualised this paper, participated in the data analysis, interpretation of the findings and drafting the manuscript. EC was a co-investigator and statistician for the Stepping Stones and Creating Futures and Women for Women International studies and supported analyses for Indashyikirwa; she additionally co-

conceptualised this paper, led the data analysis and participated in interpretation of the findings and drafting the manuscript. ES was co-PI on the Indashyikirwa study, co-conceptualised this paper and participated in interpretation of the findings and drafting the manuscript. IVDH performed the literature review for this manuscript, co-conceptualised this paper and participated in interpretation of the findings and drafting the manuscript. LW was co-I on the Stepping Stones Creating Futures study, co-conceptualised this paper and participated in interpretation of the findings and drafting the manuscript. All authors were affiliated with the What Works to Prevent Violence Against Women and Girls Global Programme.

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**Data availability statement** De-identified individual participant data for Stepping Stones and Creating Futures (South Africa) and Women for Women International (Afghanistan) are available to anyone who wishes to access the data for any purpose at <http://medat.samrc.ac.za/index.php/catalog/WWW>. De-identified individual participant data from the *Indashyikirwa* couples cohort (Rwanda) are available from the corresponding author, but may require permission from the Rwandan Ministry of Gender and Family Promotion (MIGEPROF) before transfer.

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