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Women's informal group participation and intimate partner violence in Mwanza, Tanzania: A longitudinal study

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ABSTRACT

Introduction: Women's groups have emerged as an essential platform for implementing violence prevention interventions across diverse settings because they can serve as a powerful catalyst for promoting gender equality, empowering women, and providing a safe space for them. Given the limited empirical evidence on the impact of women's informal group participation on male-perpetrated intimate partner violence, this longitudinal study examines how such participation influences women's experiences of physical, emotional, sexual, and economic IPV in Mwanza, Tanzania.

Methods: Data from four waves of the MAISHA study, which followed up the control groups (n = 1122) of the two MAISHA trials, were analysed. Women aged 18–70 who had been in a relationship within the last 12 months were included. Using mixed effects logistic regression models, we examined the association between women's active participation in religious, ethnic, microcredit, street and support groups and community meetings, with four types of IPV, adjusting for cohabitation status, age and enrolment in previous MAISHA trials. Participants' unique identification number was used as a random effect variable, and dummies for each survey round were used to account for time.

Results: The prevalence of religious, ethnic, microcredit, support and street groups, and community meeting participation at baseline were 41.8%, 17.5%, 41.1%, 20.1%, 42.9%, and 20.1%, respectively. Adjusted multivariable models showed that participants who engaged in community meetings reported lower odds of experiencing economic IPV (AOR = 0.68, CI: 0.56–0.82) and higher odds of experiencing emotional IPV (AOR = 1.21, CI: 1.00–1.46). Further, active participants of support groups reported lower odds of experiencing both economic (AOR = 0.77, CI: 0.60–0.99) and sexual IPV (AOR = 0.72, CI: 0.58–0.90). Participants in ethnic groups also reported lower odds of economic IPV (AOR = 0.79, CI: 0.62–1.00). No predictor was associated with physical IPV.

Conclusion: This study underscores the potential of informal community group participation to mitigate sexual and economic IPV among women in Mwanza, Tanzania, while also indicating a possible increase in the risk of emotional IPV. It emphasises the necessity for tailored, context-sensitive, and gender-transformative interventions to address power imbalances and restrictive norms effectively. Future research should delve into nuanced measures of group participation, including attendance, meeting frequency and duration, participants' influence within groups, the strength of social ties, and their implications for IPV experiences.

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1. Introduction

Intimate partner violence (IPV) is a critical issue cutting across human rights, health, social and economic domains of the lives of girls and women worldwide. It is defined as any behaviour within an intimate relationship that causes physical, psychological, or sexual harm to those in the relationship (World Health Organization, 2013). IPV can have various short- and long-term consequences, including injuries, unintended pregnancies, sexually transmitted diseases, poor maternal and child health, economic insecurity, social isolation, mental health problems and, in extreme cases, suicide and homicide (Kafka et al., 2022; Ogbe et al., 2020; Spencer et al., 2023; Stubbs and Szoeke, 2022). Recent global estimates show that 27% of ever-partnered women aged 15–49 years have experienced physical and/or sexual IPV in their lives (Sardinha et al., 2022). These prevalence rates are higher in low- and middle-income countries (LMICs). For example, lifetime IPV prevalence in central sub-Saharan Africa is 44% and in eastern sub-Saharan Africa is 38% (Sardinha et al., 2022). Specifically, in Tanzania, about 44% of ever-married women have experienced physical and/or sexual violence (Kapiga et al., 2017).

IPV results from complex interactions among individual, familial, community, and societal risk factors (Heise, 1998). Growing evidence on IPV prevention shows that interventions, including economic transfers and combined economic and social empowerment programmes, couples interventions, and community mobilisation interventions to change unequal gender norms, successfully reduce IPV (Bourey et al., 2015; Keith et al., 2023; Kerr-Wilson et al., 2020). For example, a combined microfinance and gender transformative intervention, IMAGE, led to a 55% reduction in physical IPV among women who received the intervention two years after baseline in South Africa (Pronyk et al., 2006). Another community activism programme based in Uganda showed a 20% reduction in past year physical and sexual IPV experiences among women three years after baseline (Wagman et al., 2015). Notably, these interventions and several others often organise women into groups to implement the intervention activities. Women's groups are often categorised as empowerment collectives, livelihoods, microfinance, self-help, or savings groups and are used as vehicles for social, political, and economic change (Desai et al., 2023).

Participation in groups can serve as a powerful catalyst for promoting gender equality, empowering women, and providing a safe space for them to address IPV-related concerns by supporting women in building strong support networks. Studies often highlight the positive outcomes of women's groups, such as empowerment, asset building, and health (Brody et al., 2015; Desai et al., 2021; Kumar et al., 2019). For instance, Brody et al. (2017) demonstrate how women's economic self-help groups (SHGs) can significantly impact economic and political empowerment, mobility, and control over family planning. However, recent research in India found conflicting results, with short-term self-help group participation reducing IPV frequency while longer-term participation increasing it (Sato et al., 2022). This mixed evidence raises new questions about how women's group participation influences IPV dynamics. Qualitative studies, such as Morales-Campos et al. (2009), shed light on the positive effects of support groups on enhancing coping strategies, social support, and empowerment among Hispanic women facing IPV.

While much of the published literature on the impact of group-based interventions on IPV measures women's empowerment at the community level based on aggregate responses on the justification of IPV and harmful gender norms (Abramsky et al., 2016; Benebo et al., 2018; Clark et al., 2018; VanderEnde et al., 2012), recent evidence from agriculture and nutrition interventions has used nuanced measures of individual empowerment to asses their impact (Hillesland et al., 2022; Kumar et al., 2021; Quisumbing et al., 2021, 2024; Waid et al., 2022). These include active group membership, membership in influential groups, attitudes about intimate partner violence, respect among household members, work balance, mobility, control over resources and decision making to name a few (Malapit et al., 2019). For example, two interventions in Bangladesh showed that participation in formal groups increased social support and skills, leading to reduced IPV (Roy et al., 2019; Waid et al., 2022). Nevertheless, existing research, especially impact evaluations, focuses on formal groups (Desai et al., 2023). This leaves a gap in the evidence to measure the effect of participation in autonomously created informal groups or networks on women's IPV experience. Even the project-level Women's Empowerment in Agriculture Index (pro-WEAI), one of the most comprehensive empowerment indices available, has only two questions on group membership, excluding other potential pathways such as non-institutional community projects or social support in the community (Yount et al., 2019).

Sociological theories offer valuable insights into the pathways through which group participation may be associated with IPV. Social network theory highlights the role of social connections and networks in transmitting information, norms, and support. Participating in meetings may provide opportunities for social interaction and support, thus influencing attitudes towards violence and access to resources that may mitigate IPV (Daoud et al., 2017; DeKeseredy, 1988). Next, community cohesion theories, such as social cohesion and collective efficacy, highlight the importance of close connections fostered through frequent interactions. This may enhance social control mechanisms and support systems, reducing the likelihood of IPV (Browning, 2002; Poix et al., 2022). Lastly, social bond theory emphasises the role of social integration, attachment, commitment, and belief systems in deterring deviant behaviour. Group memberships that foster strong social bonds and commitment to prosocial norms may protect against IPV by promoting healthy relationship dynamics and mutual respect (Benson et al., 2003; Meyer et al., 2023).

This longitudinal observational study aims to bridge existing gaps in the literature by exploring the effect of informal group participation on IPV, particularly in an LMIC context. While studies on women's groups span various LMICs, the features of the groups vary widely, limiting the transferability of insights across contexts (Desai et al., 2023). To this end, we investigate the effect of women's participation in various informal community groups, e.g., religious, ethnic, street, and support groups, and community meetings, as well as one formal group – microcredit, on experiences of male-perpetrated physical, emotional, sexual, and economic IPV in Mwanza, Tanzania, over five years. While physical and sexual IPV are commonly studied, emotional and economic IPV are often overlooked despite their prevalence and significant associations with other forms of IPV (Carney and Barner, 2012; Palmer et al., 2024; Postmus et al., 2020; Stark and Hester, 2019; Stylianou, 2018; *Violence against women prevalence estimates, 2021*; Yount et al., 2022). Based on sociological theories, we hypothesise that women actively participating in groups would have a lower prevalence of IPV.

2. Methods

This study was conducted in Mwanza City, located in northwest Tanzania. We utilized data from the MAISHA longitudinal study, which combined the control group of women from two cluster randomized controlled trials (CRTs) and followed up with them again across two time points. The two trials, MAISHA CRT01 and MAISHA CRT02 evaluated the impact of a social empowerment intervention on women's experiences of IPV. Full details of the study and MAISHA intervention have been reported elsewhere (Harvey et al., 2018, 2021; Kapiga et al., 2019).

In CRT01, 66 existing microfinance groups, comprising 1049 women were enrolled. In CRT02, 66 neighbourhood groups (1265 women) were formed, including women not part of any microfinance schemes in the past year (Harvey et al., 2021; Kapiga et al., 2019). Baseline interviews were conducted as Wave 1. The first follow-up was conducted two years after the baseline (Wave 2). After Wave 2, the control group women were asked if they would participate in a follow-up study. Those who agreed were interviewed at 41 and 53 months (Wave 3 and Wave 4).

Only women in the control groups were included in this analysis.

Data was collected through face-to-face interviews by trained female interviewers fluent in Swahili at a private place. The survey instrument, developed in English and translated into Swahili, covered various domains, including household details, income, relationships, health, experiences of IPV, social support networks, and group participation in several groups common in their region. Data was uploaded daily to ensure data integrity. All interviews were conducted privately and lasted approximately 1.5–2 h.

This analysis includes women in the control group in all four waves who indicated being in a relationship in the last 12 months. The assessment of past-year IPV exposure was limited to this subgroup. Women were asked: *"Are you married or presently cohabiting with a man?"*. If the response was negative, they were asked, *"Have you been in a relationship with a man within the past* 12 months*?"* The study adhered to ethical guidelines recommended by the World Health Organization (WHO) for researching violence against women (Watts, C et al., 2001).

2.1. Measures

The IPV outcome measures were based on standardised measures adapted from the WHO Multi-Country Study Instrument (García-Moreno et al., 2005). We assessed women's experiences of male partner-perpetrated physical, sexual, economic, and emotional IPV in the past 12 months. Table 1 describes the operationalisation of these variables. Throughout the study, respondents who reported experiencing IPV were provided with information and referrals to support services within their communities, ensuring ethical considerations regarding participant well-being.

We assessed women's involvement and roles within seven informal community groups and one formal group. Participants were questioned about their membership in religious, ethnic, non-financial support, non-financial women's, celebration/burial, and street (mtaa) groups, and their attendance of community meetings addressing local issues, as well as microcredit group. Those indicating participation in any group were further asked about their role, categorised as attending member, active member, or leader. We operationalised non-financial support and non-financial women's group as support group, and celebration/burial and mtaa groups as street group. These decisions were made in consultation with the field team to account for overlapping attributes measured within the population and these groups. We consolidated six binary dummy variables to represent active group participation, which were included in the analysis. Table 1 describes the operationalisation of the six group variables, and the supplementary file provides details on the group characteristics in greater detail.

Several socio-demographic variables were examined as covariates and possible confounding factors in examining the link between active group participation and IPV. These variables included women's age, cohabitation status, and whether the participant belonged to the control group of CRT01 or CRT02 (Kumar et al., 2019; Mannell et al., 2022). While we initially examined socio-economic status, it was not significantly associated with IPV types. Therefore, it was not included in the subsequent models.

2.2. Statistical analysis

The analysis was conducted using R statistical programming (R Core Team, n.d.). Descriptive statistics were computed to compare the proportion of the six group participation variables and IPV outcomes. The prevalence of group participation at each wave was determined and tested for differences in proportions across waves using McNemar's chi-square test. Bivariate mixed-effects logistic regressions were performed for each group participation and IPV variable.

The final models employed a mixed-effects logistic regression framework, incorporating both fixed and random effects to explore relationships between group participation predictors and IPV outcomes.

Table 1
Operationalisation of variables.

Measure and Definition	Questions asked	Operationalisation
Intimate partner violence outcomes		
1. Physical IPV	Has your current partner or any other partner ever done any of the following to you in the past 12 months? (Yes/No) • Slapped you or thrown something at you that could hurt you? • Pushed you or shoved you or pulled your hair? • Hit you with his fist or with something else that could hurt you? • Kicked you, dragged you or beaten you up? • Choked or burnt you on purpose • Threatened to use or actually used a gun, knife or other weapon against you?	Current physical IPV was operationalised as 1: if any of the questions were answered as yes 0: if all the questions were answered as no
2. Sexual IPV	Has any of the following happened to you in the past 12 months? (Yes/No) • Has your current husband/partner or any other partner forced you to have sexual intercourse by threatening you, holding you down or hurting you in some way? • Have you had sexual intercourse when you did not want to because you were afraid that your partner would hurt you or someone you cared about if you refused? • Have you had sexual intercourse when you did not want to because you were afraid that your partner would leave you or take another girlfriend if you refused?	Current sexual IPV was operationalised as 1: if any of the questions were answered as yes 0: if all the questions were answered as no
3. Emotional IPV	Has any of the following happened to you in the past 12 months? (Yes/No) Has your current or last husband/partner: • Insulted you or made you feel bad about yourself? • Belittled or humiliated you in front of other people? • Done things to scare or intimidate you on purpose (e.g. by the way he looked at you,	Current emotional IPV was operationalised as 1: if any of the questions were answered as yes 0: if all the questions were answered as no

(*continued on next page*)

Table 1 (*continued*)

Measure and Definition	Questions asked	Operationalisation
	by yelling and smashing things)? • Verbally threatened to hurt you or someone you care about?	
4. Economic IPV	Has any of the following happened to you in the past 12 months? (Yes/No) Has your current or last husband/partner: • Has refused to give you enough money for household expenses, even when he had money for other things? • Has taken money that you have earned away from you • Has made important financial decisions without consulting you	Current economic IPV was operationalised as 1: if any of the questions were answered as yes 0: if all the questions were answered as no
Informal groups in the communities		
1. Religious group This informal group brings together participants based on their religion.	Please tell me if you are part of this community group. • Yes • No Please tell me your role in the group • Attending sometimes • Actively contributing • Leading some of the group activities	Active religious group participants operationalised as 1: answering yes to group attendance and actively contributing or leading some group activities as their role. 0: answering no to group attendance or answering yes to group attendance and attending the group sometimes.
2. Ethnic/cultural group This informal group brings together participants based on their ethnicity or tribe.	Please tell me if you are part of this community group. • Yes • No Please tell me your role in the group • Attending sometimes • Actively contributing • Leading some of the group activities	Active ethnic group participants operationalised as 1: answering yes to group attendance and actively contributing or leading some group activities as their role. 0: answering no to group attendance or answering yes to group attendance and attending the group sometimes.
3. Support group A combination of • **Support group (non-financial) and** • **Women's group (non-financial)** Support group (non-financial) is an informal group that is self-initiated by participants in their community to discuss economic issues and help each other with weddings, funerals or other needs. Women's group is an informal group that is self-initiated by participants in their community to support each other and discuss issues concerning them.	Please tell me if you are part of this community group. • Yes • No Please tell me your role in the group • Attending sometimes • Actively contributing • Leading some of the group activities	Active support group participants operationalised as combined participation in the Support group and the Women's support group: 1: answering yes to group attendance and actively contributing or leading some group activities as their role. 0: answering no to group attendance or answering yes to group attendance and attending the group sometimes.
4. Street group A combination of • **Mtaa based group (street group) and** • **Celebration/Burial group** Mtaa is an informal group that is self-initiated by participants living on the same street to discuss issues in their neighbourhood. Celebration/Burial informal group is self-initiated by participants living on the same street to help each other during a funeral, wedding, or other event by organising the event, cooking, contributing money, or doing anything else the community might need.	Please tell me if you are part of this community group. • Yes • No Please tell me your role in the group • Attending sometimes • Actively contributing • Leading some of the group activities	Active street group participants operationalised as combined participation in the Mtaa group and the Celebration/Burial group: 1: answering yes to group attendance and actively contributing or leading some group activities as their role. 0: answering no to group attendance or answering yes to group attendance and attending the group sometimes.
5. Credit/Finance group This formal group is usually initiated by an external organisation like an NGO, government, or intervention team to provide participants with small loans. These may include empowerment collectives, livelihoods, microfinance, self-help, or savings groups.	Please tell me if you are part of this community group. • Yes • No Please tell me your role in the group • Attending sometimes • Actively contributing • Leading some of the group activities	Active microcredit group participants operationalised as 1: answering yes to group attendance and actively contributing or leading some group activities as their role. 0: answering no to group attendance or answering yes to group attendance and attending the group sometimes.
6. Participation in community meetings These meetings are also informal and are organised in a commonplace in the community so that members can attend them and get information on various schemes, exchange news, or get involved in awareness activities.	In the past year, have you participated in a meeting or gathering to raise awareness and mobilise people around an important issue in your community? For example, HIV, rights for albinos or women, etc.	Active community meeting participation operationalised as 1 for attending 0 for not attending

Random effects accounted for correlations among observations within the same participant, with participant ID included as a random effect to capture individual-level variability. Fixed effects, including time dummies for survey rounds and predictors, allowed us to assess how changes in these predictors were associated with IPV outcomes while controlling for random effects.

3. Results

The sample size was 1004 ever-partnered women at Wave 1, 892 women at Wave 2, 867 women at Wave 3, and 836 women at Wave 4. Among these women, 41.2% were enrolled in CRT01, and 58.7% were enrolled in CRT02. Table 2 shows the socio-demographic characteristics and number of groups women participated in for the included sample. Women included in the analysis were aged between 18 and 70 years (mean = 37.4; SD = 9.01).

At baseline, religious, ethnic, microcredit, street, and support groups and community meeting participation rates were 41.8%, 17.5%, 41.1%, 20.1%, 42.9%, and 20.1%, respectively. Depending on the type of group,

Table 2
Socio-demographic characteristics.

Characteristics	Overall, N = 3,599[a]	Wave 1, N = 1,004[a]	2, N = 892[a]	3, N = 867[a]	4, N = 836[a]
Age Mean(SD)	37.4 (9.0)	35.2 (8.8)	37.3 (8.7)	38.1 (8.8)	39.4 (9.0)
Enrolment					
Control group in CRT01	1486 (41.2%)	428 (42.6%)	375 (42.0%)	342 (39.4%)	341 (40.7%)
Control group in CRT02	2113 (58.7%)	576 (57.3%)	517 (57.9%)	525 (60.5%)	495 (59.2%)
Married/Co-habiting					
Yes	3039 (84.4%)	859 (85.6%)	755 (84.6%)	736 (84.9%)	689 (82.4%)
No	560 (15.6%)	145 (14.4%)	137 (15.4%)	131 (15.1%)	147 (17.6%)
Sex of head of household					
Female	669 (18.6%)	154 (15.3%)	140 (15.7%)	197 (22.7%)	178 (21.3%)
Male	2930 (81.4%)	850 (84.6%)	752 (84.3%)	670 (77.2%)	658 (78.7%)
Social Economic Status Quantile Score					
First quantile (lowest)	690 (19.1%)	199 (19.8%)	170 (19.0%)	163 (18.8%)	158 (18.9%)
Second quantile	722 (20.0%)	202 (20.1%)	179 (20.0%)	174 (20.0%)	167 (20.0%)
Third quantile	696 (19.3%)	201 (20.0%)	173 (19.4%)	165 (19.0%)	157 (18.8%)
Fourth quantile	692 (19.2%)	200 (19.9%)	169 (18.2%)	160 (18.5%)	163 (19.5%)
Fifth quantile	709 (19.6%)	202 (20.1%)	175 (19.6%)	168 (19.4%)	164 (19.6%)
Number of groups women participated in					
0 groups	446 (12.4%)	173 (17.2%)	164 (18.3%)	58 (6.7%)	51 (6.1%)
1–2 groups	1306 (36.2%)	367 (36.6%)	319 (35.8%)	318 (36.7%)	302 (36.1%)
3–4 groups	976 (27.1%)	213 (21.2%)	177 (19.8%)	285 (32.9%)	301 (36.0%)
5–6 groups	213 (5.9%)	61 (6.0%)	21 (2.4%)	82 (9.5%)	49 (5.9%)

[a] Count (n) or Frequency (%).

Table 3
Prevalence of group participation.

	Wave 1, N = 1,004[b]	2, N = 892[b]	3, N = 867[b]	4, N = 836[b]
Religious group	420 (41.8%)	**318 (35.6%)**[a]	**490 (56.5%)**[a]	**450 (53.8%)**[a]
Ethnic group	176 (17.5%)	**121 (13.6%)**[a]	**227 (26.1%)**[a]	**216 (25.8%)**[a]
Microcredit group	413 (41.1%)	**251 (28.1%)**[a]	**233 (26.9%)**[a]	**191 (22.8%)**[a]
Street group	431 (42.9%)	358 (40.1%)	**561 (64.7%)**[a]	**568 (68%)**[a]
Support group	202 (20.1%)	**83 (9.3%)**[a]	157 (18.1%)	**119 (14.2%)**[a]
Community meetings	202 (20.1%)	218 (24.4%)	**390 (45%)**[a]	**372 (44.5%)**[a]

Note:
[a] Boldface indicate McNemar's X^2 test at p-value <0.01.
[b] Count (n) or Frequency (%).

Table 4
Prevalence of IPV.

IPV in previous 12 months	Wave 1, N = 1,004[b]	2, N = 892[b]	3, N = 867[b]	4, N = 836[b]
Emotional	449 (44.7%)	413 (46.3%)	416 (48%)	**449 (53.7%)**[a]
Economic	389 (38.7%)	**382 (42.8%)**[a]	**380 (43.8%)**[a]	339 (40.6%)
Physical	239 (23.8%)	199 (22.3%)	**150 (17.3%)**[a]	**108 (13%)**[a]
Sexual	207 (20.6%)	196 (22%)	**130 (15%)**[a]	**108 (13%)**[a]

Note:
[a] Boldface indicate McNemar's X^2 test at p-value <0.01.
[b] Count (n) or Frequency (%).

participation rates varied between follow-ups, where some group participation rates were fairly stable, and others were increasing. The exception was participation in microcredit groups, where membership declined. Based on informal field observations, women often mentioned that the rigid structure of repaying the loans and related sanctions prevented them from participating in formal microfinance groups. Further, reasons like not needing loans or not making a profit from loans also led women to leave.

There was a difference in the proportion of group participation between baseline (Wave 1) and follow-up waves (Waves 2, 3, 4) (Table 3). It should be noted that women automatically belonged to one group, the control arm of either CRT01 or CRT02. The number of groups women participated in also varied between waves (Table 2). Similarly, Table 4 displays the prevalence of emotional, economic, physical and sexual IPV in all four waves, respectively, with differences in the proportion of IPV types between baseline and follow-up waves.

For group participation variables, bivariate regression analysis showed that ethnic, street and religious group participation was significantly associated with a lower prevalence of physical IPV; microcredit, street, ethnic and support group was significantly associated with a lower prevalence of sexual IPV; microcredit group was significantly associated with a lower prevalence of emotional IPV and meeting participation was significantly associated with a higher prevalence of emotional IPV; and support and ethnic group, and community meeting participation was significantly associated with a lower prevalence of economic IPV (Appendix Table 1). Further, bivariate regression for the number of groups women participated in highlighted that participation in 3–4 and 5–6 groups were significantly associated with a lower prevalence of sexual IPV and participation in 5–6 groups was significantly associated with a lower prevalence of physical, emotional and economic IPV (Appendix Table 2). Unadjusted multivariable analyses were further applied to identify significant relationships between the group variables and IPV types to be included in the adjusted model (Appendix Table 3).

Table 5 displays results from the multivariable mixed effects model, controlling for wave, participant age, cohabitation status, and participation in CRT01 or CRT02. We found that participants who engaged in community meetings reported lower odds of experiencing economic IPV (AOR = 0.68, CI: 0.56–0.82) and higher odds of experiencing emotional IPV (AOR = 1.21, CI: 1.00–1.46) and active participants of support groups reported lower odds of experiencing both economic (AOR = 0.77, CI: 0.60–0.99) and sexual IPV (AOR = 0.72, CI: 0.58–0.90). Further, participants active in ethnic groups reported lower odds of economic IPV as well (AOR = 0.79, CI: 0.62–1.00). No predictor was associated with physical IPV in adjusted models. The ICCs ranged from 0.53 to 0.70, consistent with a strong correlation in IPV over time. Approximately 70% of the overall variance in physical IPV, 64% in economic IPV, 63% in emotional IPV and 53% in sexual IPV is between participants, suggesting a strong to moderate correlation in IPV over time. Additionally, 30%–47% variation in IPV over time was at the within-person level. Additional sensitivity analysis with number of groups women participated in and covariates showed that participation in 5–6 groups was associated with a lower risk of sexual IPV (AOR = 0.38, CI: 0.19–0.78) and economic IPV (AOR = 0.54, CI: 0.34–0.84).

Table 5
Longitudinal associations across all 4 waves between group participation variables and IPV outcomes.

	Physical IPV		Sexual IPV		Emotional IPV		Economic IPV	
Characteristic	AOR[a] (95% CI)[a]	p-value	AOR[a] (95% CI)[a]	p-value	AOR[a] (95% CI)[a]	p-value	AOR[a] (95% CI)[a]	p-value
Active participation in ethnic group	0.82 (0.59, 1.14)	0.2	0.9 (0.73, 1.11)	0.3	*NSPV*		0.79 (0.62, 1.00)	0.047
Active participation in religious group	0.8 (0.61, 1.04)	0.1	*NSPV*		*NSPV*		*NSPV*	
Active participation in the street group	1.12 (0.85, 1.47)	0.4	0.91 (0.76, 1.07)	0.2	*NSPV*		*NSPV*	
Active participation in microcredit group	*NSPV*		0.81 (0.63, 1.04)	0.1	1.06 (0.81, 1.40)	0.7	*NSPV*	
Active participation in support group	*NSPV*		0.72 (0.58, 0.90)	0.003	*NSPV*		0.77 (0.60, 0.99)	0.04
Active participation in community meetings	*NSPV*		*NSPV*		1.21 (1.00, 1.46)	0.045	0.68 (0.56, 0.82)	<0.001
ICC	0.7		0.53		0.63		0.64	
AIC	2726.95		2659.18		4583.46		4414.51	
Deviance	1780.6		1536.13		3314.99		3147.63	
Sensitivity analysis								
Participation in 5–6 groups	*NSPV*		0.38 (0.19–0.78)	0.008	*NSPV*		0.54 (0.34–0.84)	0.007

The goodness of fit reported as AIC (Akaike information criterion) and Deviance.
Dummy variable for Wave is included as a fixed effect.
Note: NSPV (non-significant P-values) indicates that the association between the given group variable and IPV was not significant in bivariate regressions as shown in Appendix Table 3. Therefore these group variables were not included in the final adjusted regression models.
[a] AOR = Adjusted Odds Ratio, CI = Confidence Interval, *Controlled for Age, Enrolment and Cohabitation status*.

4. Discussion

This longitudinal study investigated how participation in five informal community groups and one formal community group affects the risk of physical, sexual, emotional, and economic IPV among women in Mwanza, Tanzania, over five years. We found that while participation in support and ethnic groups is associated with reducing the risk of sexual IPV and economic IPV, participation in community meetings is associated with an increased risk of emotional IPV but a reduced risk of economic IPV among participants. We also show that participation in a higher number of groups is also associated with a lower risk of sexual and economic IPV.

Group memberships may impact IPV through various levels of influence, including individual attitudes and behaviours, relationship dynamics, community norms, and broader societal structures (Abramsky et al., 2016; Benebo et al., 2018). Our study did not find any association between group participation and physical IPV. Since the majority of the groups studied were informal and self-organised, it is possible that they lacked the resources or expertise to address physical IPV-related issues. Further, members might have similar beliefs like acceptance of physical IPV, stigma surrounding IPV disclosure, traditional gender roles and maintenance of family privacy and honour, which discouraged women from speaking about it and seeking support from other members (Güler et al., 2023; Overstreet and Quinn, 2013). Based on social network and social bond theories, the lack of structure and resources in groups may not have fostered strong bonds and commitments around prosocial norms and beliefs regarding physical violence. Instead, the previously held patriarchal beliefs that justify physical IPV continued. Subsequently, if these norms are not changed, women might not feel empowered to speak out or seek help, thus limiting the effectiveness of social bonds in deterring physical IPV. Related to this, a previous study in Tanzania found that married girls were more likely to exhibit attitudinal acceptance of IPV through possible channels of seeking advice from one another or aligning with perceived social norms (Meinhart et al., 2020). In contrast, a study in Bangladesh showed that when women participating in microcredit groups had access to and control over credit, the risk of physical IPV was reduced. This speaks to empowerment and bargaining theory, which aids the reduction in IPV experience (Aktaruzzaman and Farooq, 2020; Meyer et al., 2024). Future interventions could include a gender-transformative approach to discussing the power imbalances in household decision-making to increase women's control over resources.

Contrary to our hypothesis, we found that active participation in community meetings was associated with a higher risk of emotional IPV. In our setting, community meetings organised by local government officials or community leaders serve as a forum for residents to exchange news, raise concerns, and engage with pressing topics affecting the street. These meetings are strategically utilized by both the government and NGOs as a medium to promote their initiatives, such as women's empowerment, health services expansion, and other social welfare schemes. As a result, they may attract participants who wish to stay informed and actively participate in shaping their neighbourhood. Participation in these community forums may, in turn, challenge traditional gender roles, leading to the participants facing an emotional backlash within their relationships. A previous study with men in the same community highlighted that when women spent most of their time in public spaces, engaged in economic activities, and disagreed with their partner's opinions, male partners perceived a loss of control, power, and decision-making capacity (Mshana et al., 2022). Further, in this context, where men are expected to be the leaders and breadwinners in the household, women's increased social networks and social status could potentially lead to an increase in emotional abuse (Mshana et al., 2022). Other studies with the same population have emphasised that when women have increased visibility in the community, or when they come home late or leave home without their husband's permission, men have increased feelings of romantic jealousy (Aloyce et al., 2023, 2024). Applying hegemonic masculinity theory in this context highlights that men may use emotional IPV as a way to regain power or control through which they can assert their lost dominance over their wives (Jewkes et al., 2015). Similar to the case of physical IPV, it is possible that the cultural ideal of manhood, like authority, control, and power over women, has not been challenged in the informal group setting. This could result in male partners perpetrating emotional IPV and female partners accepting it. Interventions focusing on empowerment and IPV could actively involve men in dialogue in their inception phase to tackle and break these restrictive norms.

In our analysis, the strongest association emerged with economic IPV. Participation in ethnic groups, support groups and community meetings was associated with a lower risk of economic IPV. Further, women participating in five to six groups also potentially had a lower risk of economic IPV. As the study of factors associated with economic IPV is a fairly new field, there is limited evidence on how it may be affected by group participation. However, literature on women's empowerment and microcredit groups can offer some potential pathways of action. A study from the MAISHA microfinance trial showed that there were no clear associations between income and economic abuse among participating women 29 months after the trial. Authors also highlighted that higher income was associated with potential pathways to reduced IPV, including reduced household hardship, fewer arguments and improved relationship dynamics (Abramsky et al., 2019). Further, qualitative findings from another microcredit and nutrition intervention in Tanzania highlighted that participating women experienced

increased collective agency, perceived group membership as key to empowerment and experienced less IPV (Krause B. et al., 2020; Krause B. et al., 2018). A Bangladeshi study showed that women's participation in microfinance had a positive effect on multiple dimensions of their agency but non-significant effects on multiple forms of IPV (Yount et al., 2021). Similarly, Brody et al. (2017) highlight that while participation in SHGs increased women's economic and political empowerment, it did not have any adverse effects on any form of IPV. This might indicate that participation in community groups positively affects women's confidence, mobility and economic independence. In our context, ethnic groups and support groups connect participants who share a common heritage, live in close residence, and share day-to-day experiences and economic interests to foster a sense of shared identity. Applying social network and social bond theories, group membership may expose women to non-kin-based networks that enhance their social capital and access to information, foster a sense of belonging, provide them with safe spaces to seek help and enable them to begin economic activities (Nandi and Kashyap, 2020; Schuler and Nazneen, 2018). Further, increased cohesion among women might lead them to intervene or provide support when they witness economic IPV. As a result, economic violence by partners may be reduced because of an increase in women's social status at home and in the community and the enhancement of social control mechanisms that deter violent behaviours. Further research is needed to understand the community-level predictors of economic IPV and potential channels to reduce it.

Lastly, our findings suggest that women who actively participate in support groups tend to have a lower risk of sexual IPV. Sensitivity analysis also indicated that participating in five to six groups was associated with a lower risk of sexual IPV. Based on the sociological theories discussed above, it is possible that actively attending support groups helps women make stronger social bonds, fosters a sense of solidarity, decreases isolation, provides them with a safe space, increases their visibility in the community and challenges negative norms. This can support women to ask for help when required and deter partners from abusive behaviour due to increased social scrutiny. In the communities we collected data in, support groups, even though formed in an ad-hoc needs-based manner, were an important space for women to assist each other with personal and community needs, such as weddings, funerals, and general advice on family matters, parenting, and relationships. To this end, a community mobilisation intervention to prevent violence, SASA!, showed that women experiencing violence in intervention communities were more likely to receive supportive community responses. As a result, sexual IPV was significantly reduced (Abramsky et al., 2014). Additionally, a recent meta-analysis on group-based interventions for preventing IPV showed that these interventions can reduce both the experience and perpetration of sexual IPV (Leight et al., 2023).

The study has some limitations. First, this analysis cannot provide causal certainty, given the nature of the data. To address this, we hypothesised pathways based on sociological theories and for which existing evidence supports causal mechanisms. Second, we used self-reported measures of group participation in self-formed informal groups with limited details on their day-to-day activities, functions and goals. For example, women in support and street groups might also help each other financially by loaning small amounts of money to others in need, for example, for weddings or burials. Our study did not collect information on these activities. Future studies can collect qualitative data to asses group quality, types of activities and how they impact relationship dynamics between partners. Since the data used in this study was not collected to examine the effect of these attributes on IPV, our measures do not fully capture the complex dynamics of participation in these groups. Future studies can include validated measures of social networks, community participation, freedom of movement, intra-household respect and circle of influence to understand the association better as they are all important for women to participate in various groups (Quisumbing et al., 2024). One example could be the degree of influence that women have in community groups (Lombardini et al., 2017). Third, given the unique setting of Mwanza, Tanzania, our findings may not be more widely generalisable. Despite these limitations, unlike cross-sectional studies on participation in only microcredit groups and IPV experiences, this longitudinal study provides evidence of women's participation in a range of informal groups in addition to microcredit groups and IPV experiences. Further, this study expands the existing research base to include the effects on emotional and economic IPV. Lastly, we also expand the geographical evidence base as previous studies have solely focussed on microcredit or SHG participation in the South Asian context, especially in India and Bangladesh (Hillesland et al., 2022). This analysis thereby adds to our understanding of how women's social networks may affect different forms of violence in myriad ways.

5. Conclusion

In conclusion, this longitudinal study provides valuable insights into the impact of informal community group participation on the risk of physical, sexual, emotional, and economic IPV among women in Mwanza, Tanzania, spanning five years. We find that while participation in some groups significantly lowers the risk of sexual and economic IPV, others may increase the risk of emotional IPV. These findings carry important implications for IPV research and intervention strategies. Firstly, the study underscores the need for tailored interventions that acknowledge and address the distinct dynamics of each type of IPV. Such targeted approaches can enhance the effectiveness of prevention and support initiatives. Secondly, it highlights the potential of informal community group participation to foster social ties, build social capital, and empower individuals, thereby mitigating violence. However, the observed increase in emotional IPV linked to community meeting participation underscores the complexity of empowerment efforts and emphasises the importance of considering potential backlash and context-specific program design. Future interventions should anticipate such complexities and incorporate strategies to mitigate unintended consequences while promoting positive outcomes for community members.

CRediT authorship contribution statement

Shruti Shukla: Writing – review & editing, Writing – original draft, Visualization, Validation, Methodology, Investigation, Formal analysis, Conceptualization. **Neema R. Mosha:** Writing – review & editing, Supervision, Data curation. **Sarah R. Meyer:** Writing – review & editing. **Sheila Harvey:** Writing – review & editing. **Shelley Lees:** Writing – review & editing. **Gerry Mshana:** Writing – review & editing, Conceptualization. **Heidi Stöckl:** Writing – review & editing, Supervision, Funding acquisition, Conceptualization.

Ethics

Ethical approval for both trials and the MAISHA longitudinal study was obtained from the Tanzanian National Health Research Ethics Committee (Ref: NIMR/HQ/R.8a/Vol.IX/1512), the London School of Hygiene and Tropical Medicine ethics committee (Ref: 11642) and the LMU Ethics Committee.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.socscimed.2024.117513.

Data availability

The authors do not have permission to share data.

References

Abramsky, T., Devries, K., Kiss, L., Nakuti, J., Kyegombe, N., Starmann, E., Cundill, B., Francisco, L., Kaye, D., Musuya, T., Michau, L., Watts, C., 2014. Findings from the SASA! Study: a cluster randomized controlled trial to assess the impact of a community mobilization intervention to prevent violence against women and reduce HIV risk in Kampala, Uganda. BMC Med. 12, 122. https://doi.org/10.1186/s12916-014-0122-5.

Abramsky, T., Devries, K.M., Michau, L., Nakuti, J., Musuya, T., Kiss, L., Kyegombe, N., Watts, C., 2016. Ecological pathways to prevention: how does the SASA! community mobilisation model work to prevent physical intimate partner violence against women? BMC Publ. Health 16, 339. https://doi.org/10.1186/s12889-016-3018-9.

Abramsky, T., Lees, S., Stöckl, H., Harvey, S., Kapinga, I., Ranganathan, M., Mshana, G., Kapiga, S., 2019. Women's income and risk of intimate partner violence: secondary findings from the MAISHA cluster randomised trial in North-Western Tanzania. BMC Publ. Health 19, 1108. https://doi.org/10.1186/s12889-019-7454-1.

Aktaruzzaman, K., Farooq, O., 2020. Microfinance and domestic violence. JAP 22, 333–351. https://doi.org/10.1108/JAP-05-2020-0014.

Aloyce, D., Mshana, G., Peter, E., Malibwa, D., Buller, A.M., Mchome, Z., Kapiga, S., Stöckl, H., 2024. Pathways of romantic jealousy to intimate partner violence in Mwanza, northern Tanzania. Fam. Relat. 73, 843–857. https://doi.org/10.1111/fare.12880.

Aloyce, D., Stöckl, H., Malibwa, D., Peter, E., Mchome, Z., Dwarumpudi, A., Buller, A.M., Kapiga, S., Mshana, G., 2023. Men's Reflections on romantic jealousy and intimate partner violence in Mwanza, Tanzania. Violence Against Women 29, 1299–1318. https://doi.org/10.1177/10778012221108421.

Benebo, F.O., Schumann, B., Vaezghasemi, M., 2018. Intimate partner violence against women in Nigeria: a multilevel study investigating the effect of women's status and community norms. BMC Wom. Health 18, 136. https://doi.org/10.1186/s12905-018-0628-7.

Benson, M.L., Fox, G.L., DeMaris, A., Van Wyk, J., 2003. Neighborhood disadvantage, individual economic distress and violence against women in intimate relationships. J. Quant. Criminol. 19, 207–235. https://doi.org/10.1023/A:1024930208331.

Bourey, C., Williams, W., Bernstein, E.E., Stephenson, R., 2015. Systematic review of structural interventions for intimate partner violence in low- and middle-income countries: organizing evidence for prevention. BMC Publ. Health 15, 1165. https://doi.org/10.1186/s12889-015-2460-4.

Brody, C., De Hoop, T., Vojtkova, M., Warnock, R., Dunbar, M., Murthy, P., Dworkin, S. L., 2015. Economic self-help group programs for improving women's empowerment: a systematic review. Campbell Systematic Reviews 11, 1–182. https://doi.org/10.4073/csr.2015.19.

Brody, C., Hoop, T.D., Vojtkova, M., Warnock, R., Dunbar, M., Murthy, P., Dworkin, S.L., 2017. Can self-help group programs improve women's empowerment? A systematic review. J. Dev. Effect. 9, 15–40. https://doi.org/10.1080/19439342.2016.1206607.

Browning, C.R., 2002. The span of collective efficacy: extending social disorganization theory to partner violence. J. Marriage Fam. 64, 833–850. https://doi.org/10.1111/j.1741-3737.2002.00833.x.

Carney, M.M., Barner, J.R., 2012. Prevalence of partner abuse: rates of emotional abuse and control. Partner Abuse 3, 286–335. https://doi.org/10.1891/1946-6560.3.3.286.

Clark, C.J., Ferguson, G., Shrestha, B., Shrestha, P.N., Oakes, J.M., Gupta, J., McGhee, S., Cheong, Y.F., Yount, K.M., 2018. Social norms and women's risk of intimate partner violence in Nepal. Soc. Sci. Med. 202, 162–169. https://doi.org/10.1016/j.socscimed.2018.02.017.

Daoud, N., Sergienko, R., O'Campo, P., Shoham-Vardi, I., 2017. Disorganization theory, neighborhood social capital, and ethnic inequalities in intimate partner violence between arab and jewish women citizens of Israel. J. Urban Health 94, 648–665. https://doi.org/10.1007/s11524-017-0196-4.

DeKeseredy, W.S., 1988. Woman abuse in dating relationships: the relevance of social support theory. J. Fam. Violence 3, 1–13. https://doi.org/10.1007/BF00994662.

Desai, S., De Hoop, T., Leigh Anderson, C., Barooah, B., Mulyampiti, T., Obuku, E., Prost, A., White, H., 2023. Improving evidence on women's groups: a proposed typology and common reporting indicators. Dev. Pract. 33, 489–499. https://doi.org/10.1080/09614524.2022.2135685.

Desai, S., Gram, L., Kumar, N., Prost, A., 2021. Evaluating the Effects of Interventions with Women's Groups on Health Outcomes: Resources for Programme Planners and Evaluators. Evidence Consortium on Women's Group (ECWG).

García-Moreno, Claudia, Jansen, H.A., Ellsberg, M., Heise, L., Watts, C., 2005. WHO Multi-Country Study on Women's Health and Domestic Violence against Women: Initial Results on Prevalence, Health Outcomes and Women's Responses. World Health Organization, Geneva,Switzerland.

Güler, A., Lee, R.C., Rojas-Guyler, L., Lambert, J., Smith, C.R., 2023. The influences of sociocultural norms on women's decision to disclose intimate partner violence: integrative review. Nurs. Inq. 30, e12589. https://doi.org/10.1111/nin.12589.

Harvey, S., Abramsky, T., Mshana, G., Hansen, C.H., Mtolela, G.J., Madaha, F., Hashim, R., Kapinga, I., Watts, C., Lees, S., Kapiga, S., 2021. A cluster randomised controlled trial to evaluate the impact of a gender transformative intervention on intimate partner violence against women in newly formed neighbourhood groups in Tanzania. BMJ Glob. Health 6, e004555. https://doi.org/10.1136/bmjgh-2020-004555.

Harvey, S., Lees, S., Mshana, G., Pilger, D., Hansen, C., Kapiga, S., Watts, C., 2018. A cluster randomized controlled trial to assess the impact on intimate partner violence of a 10-session participatory gender training curriculum delivered to women taking part in a group-based microfinance loan scheme in Tanzania (MAISHA CRT01): study protocol. BMC Wom. Health 18, 55. https://doi.org/10.1186/s12905-018-0546-8.

Heise, L.L., 1998. Violence against women: an integrated, ecological framework. Violence Against Women 4, 262–290. https://doi.org/10.1177/1077801298004003002.

Hillesland, M., Kaaria, S., Mane, E., Alemu, M., Slavchevska, V., 2022. Does a joint United Nations microfinance 'plus' program empower female farmers in rural Ethiopia? Evidence using the pro-WEAI. World Dev. 156, 105909. https://doi.org/10.1016/j.worlddev.2022.105909.

Jewkes, R., Morrell, R., Hearn, J., Lundqvist, E., Blackbeard, D., Lindegger, G., Quayle, M., Sikweyiya, Y., Gottzén, L., 2015. Hegemonic masculinity: combining theory and practice in gender interventions. Cult. Health Sex. 17, 112–127. https://doi.org/10.1080/13691058.2015.1085094.

Kafka, J.M., Moracco, K., Beth, E., Taheri, C., Young, B.-R., Graham, L.M., Macy, R.J., Proescholdbell, S., 2022. Intimate partner violence victimization and perpetration as precursors to suicide. SSM - Population Health 18, 101079. https://doi.org/10.1016/j.ssmph.2022.101079.

Kapiga, S., Harvey, S., Mshana, G., Hansen, C.H., Mtolela, G.J., Madaha, F., Hashim, R., Kapinga, I., Mosha, N., Abramsky, T., Lees, S., Watts, C., 2019. A social empowerment intervention to prevent intimate partner violence against women in a microfinance scheme in Tanzania: findings from the MAISHA cluster randomised controlled trial. Lancet Global Health 7, e1423–e1434. https://doi.org/10.1016/S2214-109X(19)30316-X.

Kapiga, S., Harvey, S., Muhammad, A.K., Stöckl, H., Mshana, G., Hashim, R., Hansen, C., Lees, S., Watts, C., 2017. Prevalence of intimate partner violence and abuse and associated factors among women enrolled into a cluster randomised trial in northwestern Tanzania. BMC Publ. Health 17, 190. https://doi.org/10.1186/s12889-017-4119-9.

Keith, T., Hyslop, F., Richmond, R., 2023. A systematic review of interventions to reduce gender-based violence among women and girls in sub-saharan Africa. Trauma Violence Abuse 24, 1443–1464. https://doi.org/10.1177/15248380211068136.

Kerr-Wilson, A., Gibbs, A., McAslan Fraser, E., Ramsoomar, L., Parke, A., Khuwaja, H.M. A., Jewkes, R., 2020. A Rigorous Global Evidence Review of Interventions to Prevent Violence against Women and Girls, what Works to Prevent Violence against Women and Girls Global Programme, Pretoria, South Africa. What Works to Prevent Violence against Women and Girls Global Programme. Pretoria, South Africa.

Krause, B., James, S., McCarthy, A., Bellemare, M., 2018. Livestock-enhanced project women's empowerment in agriculture index (Pro-WEAI) baseline report for trias and Maisha Bora: Maisha bora/trias program for women's. Food Secur. Maasai Households (Unpublished Manuscript).

Krause, B., McCarthy, A.S., James, S., 2020. Pastoralists and Power: the Impact of a Food Security Program on Women's Agency in Northern Tanzania. Unpublished Manuscript.

Kumar, N., Raghunathan, K., Arrieta, A., Jilani, A., Chakrabarti, S., Menon, P., Quisumbing, A.R., 2019. Social networks, mobility, and political participation: the potential for women's self-help groups to improve access and use of public entitlement schemes in India. World Dev. 114, 28–41. https://doi.org/10.1016/j.worlddev.2018.09.023.

Kumar, N., Raghunathan, K., Arrieta, A., Jilani, A., Pandey, S., 2021. The power of the collective empowers women: evidence from self-help groups in India. World Dev. 146, 105579. https://doi.org/10.1016/j.worlddev.2021.105579.

Leight, J., Cullen, C., Ranganathan, M., Yakubovich, A., 2023. Effectiveness of community mobilisation and group-based interventions for preventing intimate partner violence against women in low- and middle-income countries: a systematic review and meta-analysis. J Glob Health 13, 04115. https://doi.org/10.7189/jogh.13.04115.

Lombardini, S., Bowman, K., Garwood, R., 2017. A 'how to' guide to measuring women's empowerment: sharing experience from Oxfam's impact evaluations. Oxfam GB. https://doi.org/10.21201/2017.9750.

Malapit, H., Quisumbing, A., Meinzen-Dick, R., Seymour, G., Martinez, E.M., Heckert, J., Rubin, D., Vaz, A., Yount, K.M., 2019. Development of the project-level women's empowerment in agriculture index (pro-WEAI). World Dev. 122, 675–692. https://doi.org/10.1016/j.worlddev.2019.06.018.

Mannell, J., Lowe, H., Brown, L., Mukerji, R., Devakumar, D., Gram, L., Jansen, H.A.F.M., Minckas, N., Osrin, D., Prost, A., Shannon, G., Vyas, S., 2022. Risk factors for violence against women in high-prevalence settings: a mixed-methods systematic review and meta-synthesis. BMJ Glob. Health 7, e007704. https://doi.org/10.1136/bmjgh-2021-007704.

Meinhart, M., Seff, I., Darmstadt, G.L., Weber, A.M., Stark, L., 2020. Attitudinal acceptance of intimate partner violence among adolescents and young adults in Nigeria and Tanzania: an exploration into target reference groups. J. Adolesc. Health 66, S3–S8. https://doi.org/10.1016/j.jadohealth.2019.10.006.

Meyer, S.R., Hardt, S., Brambilla, R., Page, S., Stöckl, H., 2024. Explaining intimate partner violence through economic theories: a systematic review and narrative synthesis. Aggress. Violent Behav. 77, 101929. https://doi.org/10.1016/j.avb.2024.101929.

Meyer, S.R., Hardt, S., Brambilla, R., Shukla, S., Stöckl, H., 2023. Sociological theories to explain intimate partner violence: a systematic review and narrative synthesis. Trauma, Violence, & Abuse 15248380231210939. https://doi.org/10.1177/15248380231210939.

Morales-Campos, D.Y., Casillas, M., McCurdy, S.A., 2009. From isolation to connection: understanding a support group for Hispanic women living with gender-based violence in Houston, Texas. J. Immigr. Minority Health 11, 57–65. https://doi.org/10.1007/s10903-008-9153-3.

Mshana, G., Peter, E., Malibwa, D., Aloyce, D., Kapiga, S., Stöckl, H., 2022. Masculinity, power and structural constraints: men's conceptualization of emotional abuse in Mwanza, Tanzania. Soc. Sci. Med. 292, 114606. https://doi.org/10.1016/j.socscimed.2021.114606.

Nandi, S., Kashyap, A., 2020. Unpacking the role of women's collectives in addressing intimate partner violence in South Asia. South Asian journal of law. Policy, and Social Research 1.

Ogbe, E., Harmon, S., Van Den Bergh, R., Degomme, O., 2020. A systematic review of intimate partner violence interventions focused on improving social support and/mental health outcomes of survivors. PLoS One 15, e0235177. https://doi.org/10.1371/journal.pone.0235177.

Overstreet, N.M., Quinn, D.M., 2013. The intimate partner violence stigmatization model and barriers to help seeking. Basic Appl. Soc. Psychol. 35, 109–122. https://doi.org/10.1080/01973533.2012.746599.

Palmer, M.L., Keilholtz, B.M., Vail, S.L., Spencer, C.M., 2024. The relationship between emotional intimate partner violence and other forms of violence: a metaanalytic review. Family Process famp, 12992. https://doi.org/10.1111/famp.12992.

Poix, S., Ibrahim, N., Scriver, S., Raghavendra, S., Duvvury, N., Elmusharaf, K., 2022. Community cohesion and violence against women in Ghana, Pakistan, and South Sudan: a secondary data analysis. Womens Health (Lond Engl) 18, 174550572211239. https://doi.org/10.1177/17455057221123998.

Postmus, J.L., Hoge, G.L., Breckenridge, J., Sharp-Jeffs, N., Chung, D., 2020. Economic abuse as an invisible form of domestic violence: a multicountry review. Trauma Violence Abuse 21, 261–283. https://doi.org/10.1177/1524838018764160.

Pronyk, P.M., Hargreaves, J.R., Kim, J.C., Morison, L.A., Phetla, G., Watts, C., Busza, J., Porter, J.D., 2006. Effect of a structural intervention for the prevention of intimate-partner violence and HIV in rural South Africa: a cluster randomised trial. Lancet 368, 1973–1983. https://doi.org/10.1016/S0140-6736(06)69744-4.

Quisumbing, A., Ahmed, A., Hoddinott, J., Pereira, A., Roy, S., 2021. Designing for empowerment impact in agricultural development projects: experimental evidence from the Agriculture, Nutrition, and Gender Linkages (ANGeL) project in Bangladesh. World Dev. 146, 105622. https://doi.org/10.1016/j.worlddev.2021.105622.

Quisumbing, A.R., Meinzen-Dick, R., Malapit, H.J., Seymour, G., Heckert, J., Doss, C., Johnson, N., Rubin, D., Thai, G., Ramani, G., Myers, E., Quisumbing, A., Meinzen-Dick, R., Malapit, H., Dione, M., Heckert, J., Malapit, H., Martinez, E.M., Pereira, A., Seymour, G., Van Biljon, C., Vaz, A., Elias, M., Meinzen-Dick, R., Mulema, A., Myers, E., Rubin, D., Go, A., Argento, F., Ahmed, A., Hannan, A., Roy, S., Younus, M., Brauw, A.D., Dey, A., Kramer, B., Murphy, M., Crookston, B., Gash, M., Gray, B., Benali, M., Schreinemachers, P., Sobgui, C., Janzen, S., Joshi, N., Magnan, N., Pradhan, R., Sharma, S., Theis, S., Bellemare, M., Casier, B., James, S., Krause, B., Lardinois, M., McCarthy, A., Gabrysch, S., Sinharoy, S., Waid, J., Wendt, A., Josué, Awonon, Ganaba, R., Gelli, A., Martinez, E., Pedehombga, A., Sanou, A., Zougouri, S., Alonso, S., Galiè, A., Kakota, T., Leroy, J., Palloni, G., Bryan, E., Mekonnen, D., Miah, M., Kumar, N., Siraj, S., Alemu, M., Boonabaana, B., Paula De La Ocampo, A., Kaaria, S., Hillesland, M., Mane, E., Slavchevska, V., Choudhury, A., Khetan, M., Kumar, N., Raghunathan, K., Thai, G., 2024. Enhancing agency and empowerment in agricultural development projects: a synthesis of mixed methods impact evaluations from the Gender, Agriculture, and Assets Project, Phase 2 (GAAP2). J. Rural Stud. 108, 103295. https://doi.org/10.1016/j.jrurstud.2024.103295.

R Core Team, n.d. R: A Language and Environment for Statistical Computing. R Foundation for Statistical Computing, Vienna, Austria. <https://www.R-project.org/>.

Roy, S., Hidrobo, M., Hoddinott, J., Ahmed, A., 2019. Transfers, behavior change communication, and intimate partner violence: postprogram evidence from rural Bangladesh. Rev. Econ. Stat. 101, 865–877. https://doi.org/10.1162/rest_a_00791.

Sardinha, L., Maheu-Giroux, M., Stöckl, H., Meyer, S.R., García-Moreno, C., 2022. Global, regional, and national prevalence estimates of physical or sexual, or both, intimate partner violence against women in 2018. Lancet 399, 803–813. https://doi.org/10.1016/S0140-6736(21)02664-7.

Sato, N., Shimamura, Y., Lastarria-Cornhiel, S., 2022. The effects of women's self-help group participation on domestic violence in Andhra Pradesh, India. Fem. Econ. 28, 29–55. https://doi.org/10.1080/13545701.2021.1987499.

Schuler, S.R., Nazneen, S., 2018. Does intimate partner violence decline as women's empowerment becomes normative? Perspectives of Bangladeshi women. World Dev. 101, 284–292. https://doi.org/10.1016/j.worlddev.2017.09.005.

Spencer, C.N., Khalil, M., Herbert, M., Aravkin, A.Y., Arrieta, A., Baeza, M.J., Bustreo, F., Cagney, J., Calderon-Anyosa, R.J.C., Carr, S., Chandan, J.K., Coll, C.V.N., De Andrade, F.M.D., De Andrade, G.N., Debure, A.N., Flor, L.S., Hammond, B., Hay, S.I., Knaul, F.N., Lim, R.Q.H., McLaughlin, S.A., Minhas, S., Mohr, J.K., Mullany, E.C., Murray, C.J.L., O'Connell, E.M., Patwardhan, V., Reinach, S., Scott, D., Sorenson, R.J.D., Stein, C., Stöckl, H., Twalibu, A., Vasconcelos, N., Zheng, P., Metheny, N., Chandan, J.S., Gakidou, E., 2023. Health effects associated with exposure to intimate partner violence against women and childhood sexual abuse: a Burden of Proof study. Nat. Med. 29, 3243–3258. https://doi.org/10.1038/s41591-023-02629-5.

Stark, E., Hester, M., 2019. Coercive control: update and review. Violence Against Women 25, 81–104. https://doi.org/10.1177/1077801218816191.

Stubbs, A., Szoeke, C., 2022. The effect of intimate partner violence on the physical health and health-related behaviors of women: a systematic review of the literature. Trauma Violence Abuse 23, 1157–1172. https://doi.org/10.1177/1524838020985541.

Stylianou, A.M., 2018. Economic abuse within intimate partner violence: a review of the literature. Violence Vict. 33, 3–22. https://doi.org/10.1891/0886-6708, 33.1.3.

VanderEnde, K.E., Yount, K.M., Dynes, M.M., Sibley, L.M., 2012. Community-level correlates of intimate partner violence against women globally: a systematic review. Soc. Sci. Med. 75, 1143–1155. https://doi.org/10.1016/j.socscimed.2012.05.027.

Violence against women prevalence estimates, 2021. 2018: Global, Regional and National Prevalence Estimates for Intimate Partner Violence against Women and Global and Regional Prevalence Estimates for Non-partner Sexual Violence against Women : Executive Summary. World Health Organization, Geneva.

Wagman, J.A., Gray, R.H., Campbell, J.C., Thoma, M., Ndyanabo, A., Ssekasanvu, J., Nalugoda, F., Kagaayi, J., Nakigozi, G., Serwadda, D., Brahmbhatt, H., 2015. Effectiveness of an integrated intimate partner violence and HIV prevention intervention in Rakai, Uganda: analysis of an intervention in an existing cluster randomised cohort. Lancet Global Health 3, e23–e33. https://doi.org/10.1016/S2214-109X(14)70344-4.

Waid, J.L., Wendt, A.S., Sinharoy, S.S., Kader, A., Gabrysch, S., 2022. Impact of a homestead food production program on women's empowerment: pro-WEAI results from the FAARM trial in Bangladesh. World Dev. 158, 106001. https://doi.org/10.1016/j.worlddev.2022.106001.

Watts, C., Heise, L., Ellsberg, M., Garcia-Moreno, C., 2001. Putting Women First: Ethical and Safety Recommendations for Research on Domestic Violence against Women. World Health Organization (No. WHO/FCH/GWH/01.1).

World Health Organization, 2013. Global and Regional Estimates of Violence against Women: Prevalence and Health Effects of Intimate Partner Violence and Non-partner Sexual Violence. World Health Organization, Geneva.

Yount, K.M., Cheong, Y.F., Khan, Z., Miedema, S.S., Naved, R.T., 2021. Women's participation in microfinance: effects on Women's agency, exposure to partner violence, and mental health. Soc. Sci. Med. 270, 113686. https://doi.org/10.1016/j.socscimed.2021.113686.

Yount, K.M., Cheong, Y.F., Maxwell, L., Heckert, J., Martinez, E.M., Seymour, G., 2019. Measurement properties of the project-level women's empowerment in agriculture index. World Dev. 124, 104639. https://doi.org/10.1016/j.worlddev.2019.104639.

Yount, K.M., Cheong, Y.F., Miedema, S., Naved, R.T., 2022. Development and validation of the economic Coercion Scale 36 (ECS-36) in rural Bangladesh. J. Interpers Violence 37, NP10726–NP10757. https://doi.org/10.1177/0886260520987812.