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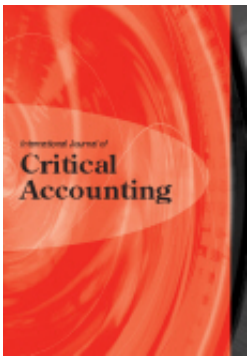

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Solving the ambiguity of microfinance and intimate partner violence: a PRISMA-compliant meta-analysis study

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Solving the ambiguity of microfinance and intimate partner violence: a PRISMA-compliant meta-analysis study

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Abstract: For last two decades empirical debate exists whether microfinance, as an empowerment intervention, reduces violence faced by women. In an attempt to contribute to the solution of this ambiguity, we conducted a meta-analysis using forest-plot and sub-group analysis. We identified 1,659 studies in total, out of which 129 were found relevant after abstract screening. The methodological contribution of this study is the use of PRISMA. The results yield the following findings: microfinance participation by women reduces partner violence with a statistically significant combined effect size, Hedge's g of 0.22, 95% CI (0.08, 0.36). On sub-group regional analysis, statistically significant and positive association was found between microfinance intervention and reduction of IPV with acceptable heterogeneity proportions (less than 75%) in South Asian region with CI (0.01, 0.17), Hedge's g (0.12) and I2 (58.75%), and in African region with CI (0.14, 0.60), Hedge's g (0.37) and I2 (73.18%) whereas no such statistically significant association was found in Latin American region.

Keywords: microfinance; intimate partner violence; domestic violence; meta-analysis; PRISMA.

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1 Introduction

The doxa that legitimises wife-beating as a valid medium of venting out of male-frustration within their households has been challenged through multiple feminist theories and empowerment interventions. Although intimate partner violence (IPV) occurs across all socio-economic groups but it disproportionately affects low-income, poor women (Tankard and Iyengar, 2018). Poverty has always had gendered consequences as is statistically reflected in multiple studies conducted at international level. 60% of chronically hunger people are women and girls and the gap in poverty between male and females widen the most in the age group of 25–34 years (Puri, 2017). High proportion of women of reproductive age in rural north-east Bangladesh reported having experienced physical or sexual violence by their spouse (Stake et al., 2010). Solution-centric investigation of feminised poverty and its consequences made microfinance as one of most sought tools for eradication of poverty and empowerment of women and as a result, approximately 80% of its clientele is that of women (World Economic Forum, 2021). For last four decades, microfinance has been an instrumental intervention for poverty-alleviation and women empowerment. Kabeer (1999) defines *empowerment* as a process where those who have been denied the ability to take strategic choices, acquire such ability. Microfinance facilitates economic, social and psychological empowerment of its women participants which affects the dynamics of the partner-relation and enables women to leave or avoid the abusive relationship and therefore reduce occurrence of domestic violence (Matjasko et al., 2013).

Research in microfinance has been a consistent feedback system of its success or failure and its future potential. Traditional credit and saving services to women and their income benefits gained recognition in 1970s (Kaushal et al., 2021) with the revolutionary establishment of Grameen Bank in Bangladesh. Modern microfinance as a holistic women-empowerment tool got global recognition with Nobel Prize awarded to Mohd. Younus and Grameen Bank in 2006. It has been located at the prime position in all developmental discourses, including sustainable development goals (SDGs) and millennium development goals (MDGs), as facilitator of financial inclusion and women empowerment. In the existing research epistemology, some studies laud contribution of microfinance in women empowerment with valid empirical backing (Pitt and Khandker, 1998; Chan and Abdul Ghani, 2011; Kumar et al., 2012) while as some critically delve deeper and highlight the neo-liberal challenges associated with microfinance and its forced influence on women (Paramanand, 2021; Ranabahu and Tanima, 2021). To ensure that microfinance is able to fulfil its promise of women empowerment, researchers need to focus on strategies within the ambit of microfinance that can support transformation of gender-relations (Hunt and Kasynathan, 2001).

As quoted by Cheston and Kuhn (2001), empowerment is about change, choice and power. It is a process of change by which individuals or groups with no or little power, gain the power and ability to make choices that affect their lives. Authority to make strategic life choices is a key to an empowered life and microfinance intervention lends this authority to its beneficiaries through financial independence, self-confidence, and social capital. When women gain self-confidence and increase their social participation, they are able to take equal role in their household and resist violence against them (Mayoux and Hartl, 2009). One of the major reasons of domestic violence in poor household is lack of money, and when women beneficiaries are able to contribute to household income, it relieves household stress and reduces incidents of domestic violence. While on one hand, microfinance intervention appears to help in reducing domestic violence, on the other hand, some studies also show increase in domestic violence as a result of microfinance participation (Dalal et al., 2013; Tsai, 2016). Angelucci (2008) explains the positive association between microfinance participation and domestic violence through a positive functional relationship between husband's demand for violence and his income share in household (status). As wife surpasses in contribution to household income, husband feels threatened and to reassert his dominance, he resorts to violence. Therefore, as long as wife's contribution to household income is lesser than that of husband, microfinance helps in curbing violence but as man starts losing his major share in household income to his wife, violence is kindled.

1.1 Rationale of the study

Zooming in from holistic empowerment to violence reduction/prevention via microfinance, studies reflect mixed results (Tankard and Iyengar, 2018; De and Christian, 2019). While some studies empirically found reduction in domestic violence occurrence as a result of microfinance (Cepeda et al., 2017; Gordon, 2016), others found quite opposite (Angelucci, 2008; Murshid, 2016; Eze Eze, 2017). Considering this duality, this study is an attempt to conduct meta-analysis in order to find the combined effect size of microfinance on domestic violence in order to get an overview of the impact and harvest theoretical and practical implications for researchers and policy makers. The study uses Meta Essential by Suurmond et al. (2017) to conduct the analysis.

The structure of the paper is as follows: Section 2 reviews the existing literature, Section 3 presents the research methodology, Section 4 presents the results of analysis and its visualisation, Section 5 discusses the findings along with their implications and Section 6 concludes the paper.

2 Review of literature

Inspired by theory of marital bargaining, advocates of positive impact of microfinance on domestic violence argue that microfinance reduces domestic/partner violence because of improved bargaining power of women that increases their options outside marriage (Blumberg, 1991; Agarwal, 1997; Eze Eze, 2017). Higher level of financial freedom of

choice may increase social and psychological empowerment and reduce IPV (Tankard and Iyengar, 2018). An African study by Pronyk et al. (2006) finds that IPV experiences of women were reduced by 55% after microfinance participation of one year. Women's productive role as a result of micro-credit intervention improves their position in households and also significantly reduces mental torture and physical assault against her (Hadi, 2005). Gordon (2016) states that a microfinance initiative by Rojiroti in Bihar (India) is successful in reducing rate of domestic violence among its women participants. The group model of microfinance such as self-help groups (SHGs) provides support system and advisory services to women participants, which helps in social empowerment of women. Knight et al. (2019) find that occurrences of IPV decreases, as women receive more support services or advices from their group members and women participants are less likely to justify domestic violence by their partners (Kapiga et al., 2019). Srivastava (2005) and Angelucci (2008) portray reduction in alcohol abuse and domestic violence as an additional benefit of microfinance. While reduction in IPV will come over long-run through economic and psychological empowerment, microfinance also enables women confidence and avenue to seek help against domestic violence which will eventually mediate in reduction of IPV. Sayem et al. (2013) and Murshid (2018b) conclude that majority of the microfinance participants in their study were likely to seek help from formal and informal sources in case of IPV. Microfinance participation doesn't only help in reduction in experience of IPV faced by women but also help in reducing perpetration of violence by male participants partners (Glass et al., 2017). In other study by Cepeda et al. (2017), findings reflect a negative and statistically significant association between microfinance and economic, and emotional violence. Combining intervention programmes like microfinance, business training and IPV support possess synergistic benefits and helps in disrupting the devastating cycle of IPV (Sarnquist et al., 2018). Another study by Aktaruzzaman and Farooq (2020) in Malaysia reports significantly lower physical violence against women who have control over their credit.

In a patriarchal setup where women's options outside marriage are weakened due to socio-cultural factors such as education, pregnancies and child-rearing responsibilities, women's financial improvement challenge the social norms of male dominance and to restore authority and reassert their power in such a situation, husband may resort to domestic violence. This is known as theory of men backlash. In an empirical study conducted by Dalal et al. (2013), educated women who were equal with their spouses in terms of decision making, increased their exposure to IPV by membership in microfinance programmes. Tsai (2016) demonstrates that women managing finances independently experience significantly more severe IPV from their partners as compared to those women who manage finances jointly with their husbands. In urban settings in Bangladesh, wives' participation in microfinance were positively associated with men's justification of IPV, empirically corroborated by Murshid (2016). Several qualitative studies have been conducted in Bangladesh using in-depth semi-structured interviews indicated that domestic violence is used as a tool to restrain women from entering into entrepreneurship (Goetz and Gupta, 1996; Schuler et al., 1998; Kabeer, 1999); similar findings are corroborated by Shahriar and Shepherd (2019).

While microfinance originated as an alternative model to cover up the failure of mainstream financial institution in serving the needs of poor, it has itself been criticised for its collective failure without much evidences of individual institution's failure (Siwale

and Ritchie, 2013). Microfinance has been unable to provide a clear success picture and instead past studies have revealed a mixed impact of microfinance. The association between microfinance and IPV reduction is heterogeneous as there are significant as well as non-significant associations and positive as well as risk associations between the two (Vyas and Watts, 2009). Those MFIs which focus exclusively on loan making have no association with either increasing or decreasing violence in a significant way (De and Christian, 2019). The conflicting association between microfinance and domestic violence doesn't only exist between countries but also within countries. Vyas et al. (2015) conducted study in two areas of Tanzania; Dar es Salaam and Mbeya and found significant association between women's access to economic resources via business ownership and risk of violence in Dar es Salaam whereas no such association was found in Mbeya. Luetke et al. (2020) highlights the fact that age moderates' association between microfinance and IPV; in older women microfinance reduces IPV while as in case of younger women participants, such association is absent. Women who experience domestic violence prior to intervention programme are less likely to initiate a new business due to fear of failure and reduced entrepreneurial self-efficacy (Shahriar and Shepherd, 2019). This identifies the potential participants and highlights the need for targeted violence-prevention efforts through microfinance intervention. One interesting finding by Harvey et al. (2018) illustrates that on providing 24-month gender-training to participants of microfinance loan scheme in Tanzania, it was found that reporting of IPV and disclosure of IPV to others increased. The psychological empowerment resulting from microfinance participation boosts women's confidence to report IPV and therefore, explains positive association between microfinance intervention and IPV reporting.

2.1 Objective of the study

The existing body of literature on microfinance and its association with intimate partner violence reflects that the area is still not well-explored. There is a need of more comprehensive empirical studies analysing the association through different mediators and moderators in order to provide conclusive implications to policy makers, researchers and other stakeholders. As far as systematic reviews are concerned, there are smaller numbers of studies, which are mostly qualitative and narrative literature reviews (Brody et al., 2016; Schwab-Reese and Renner, 2018; Tankard and Iyengar, 2018). Considering this deficiency, this paper attempts to conduct a systematic literature review using meta-analysis to provide a quantitative overview of the effectiveness of microfinance intervention in reducing IPV among its female participants. Reduction in IPV includes both reduction in 'prevalence' and 'justification' of violence.

3 Methodology

In this study we review empirical studies on microfinance impact on intimate partner violence. We adapted PRISMA (Liberati et al., 2009) which provides a 27-items checklist and a four-phase flow diagram deemed essential for transparent reporting of systematic review and it is given in Table 1. The relevant literature was selected using a systematic approach, explained in the following sections.

Table 1 PRISMA check-list of items used in this study

Section/topic	*Item no.*	*Checklist Item*	*Reported on page no.*
Title			
Title	1	Identify the report as a systematic review, meta-analysis, or both	1
Abstract			
Structured summary	2	Provide a structured summary including, as applicable, background, objectives, data sources, study eligibility criteria, participants, interventions, study appraisal and synthesis methods, results, limitations, conclusions and implications of key findings	1
Introduction			
Rationale	3	Describe the rationale for the review in the context of what is already known	2
Objectives	4	provide an explicit statement of questions being addressed	4
Methods			
Protocol and registration	5	Indicate if a review protocol exists	NA
Eligibility criteria	6	Specify study characteristics (such as PICOS, length of follow-up) and report characteristics (such as years considered, language, publication status) used as criteria for eligibility, giving rationale	6
Information sources	7	Describe all information sources in the search and date last searched	6
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated	6
Study selection	9	State the process for selecting studies	4
Data collection process	10	Describe method of data extraction from reports	4
Data items	11	List and define all variables for which data were sought	4
Risk of bias in individual studies	12	Describe the method used for assessing risk of bias in individual studies	11
Summary Measures	13	State principal summary measures	7
Synthesis of results	14	Describe the method of combining results of studies	7
Risk of bias across studies	15	Statement of any assessment of risk of bias	7
Additional analysis	16	Describe methods of additional analysis	9

Table 1 PRISMA check-list of items used in this study (continued)

Section/topic	*Item no.*	*Checklist Item*	*Reported on page no.*
Results			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram	6
Study characteristics	18	For each study, present characteristics for which data were extracted	8
Risk of bias within studies	19	Present risk of bias on each study, if available	11
Result of individual studies	20	Summary data for each outcomes studied	8
Synthesis of results	21	Present result of each meta-analysis done	7–11
Risk of bias across studies	22	Present result of any assessment of risk of bias across studies	11
Additional analysis	23	Give result of additional analysis, if done	11
Discussion			
Summary of evidence	24	Summarise the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (such as healthcare providers, users, and policy makers)	12–13
Limitations	25	Discuss limitations at study and outcome level (such as risk of bias), and at review level (such as incomplete retrieval of identified research, reporting bias)	13
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research	12
Funding			
Funding	27	Describe sources of funding for the systematic review and other support (such as supply of data) and role of funders for the systematic review	13

3.1 Identification of potential studies – inclusion criteria

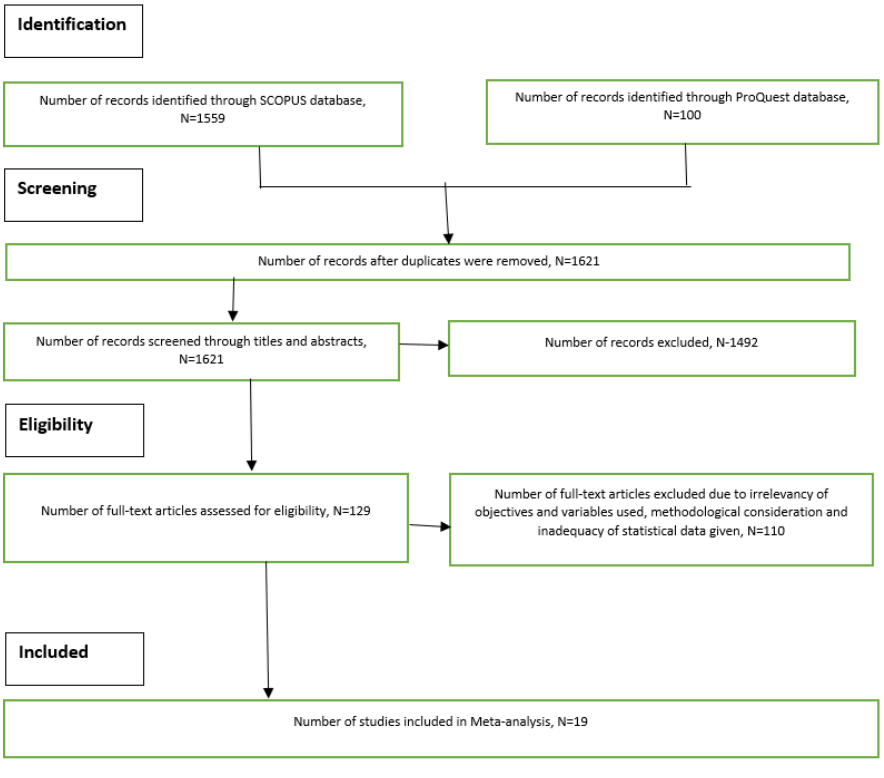
- Intervention: we included all those studies that evaluate any model of microfinance intervention like micro-credit lending, training programme, SHG models and Grameen models.
- Countries: we included all studies irrespective of their base country due to lack of large amount of literature but due to inherent inclusion characteristic of microfinance intervention, the papers majorly belonged to low-income and less-developed African and South Asian regions.

- Methods: we included only those studies which had used either randomised controlled trials or quasi-experimental designs.
- Publication status: all those studies that were openly accessible on multiple search engines were included, comprising of research papers, conference papers and working papers.

3.2 Identification of potential studies – search strategy

We collected database from SCOPUS and ProQuest by doing advanced string search – 'TITLE-ABS-KEY' of ('microfinance' OR 'micro-finance' OR 'microcredit' OR 'micro-credit') AND ('women*' OR 'empowerment'), including all; research articles, working papers, book chapters, and conference papers in all languages. We found total record of 11,659 documents and all the records were in English language only. After removing 38 duplicate studies, titles and abstracts of remaining 1,621 studies were screened and 129 were short-listed for full-text analysis. On analysis of full text, 34 were found relevant. On further thorough evaluation, 15 papers either did not meet the methodological considerations or did not provide the needed statistical information. This resulted in final inclusion of 19 papers that matched the criteria in our meta-analysis. Flow-diagram of our study selection, adapted from Liberati e al. (2009) is given in Figure 1.

Figure 1 Flow-diagram of our study selection adapted from Liberati et al. (2009) (see online version for colours)



3.3 Analytical method

To give a reliable overview, and identify the overall effect, we performed meta-analysis using *Meta Essential* workbook by Suurmond et al. (2017). The workbook gave flexibility to use different statistical outcomes to calculate effect size. We calculated Standardised Mean Difference using t or F statistics, Odds ratios and sample sizes given in the studies. Odds ratio was converted to Cohen's d using formula (1):

$$LOR = \sqrt{3}/\pi \tag{1}$$

When no information on sample size of controlled and treatment group was given, we assumed equal sample size. We conducted regressions using moderator variables such as age, business ownership, however, results were not robust to inclusion of moderator variables, which may be due to limited number of studies. We therefore decided to not include these results.

4 Results

As this study evaluates work conducted across multiple regions with different models of microfinance intervention, the heterogeneity is inherent and therefore we used 'random-effect model' in our analysis. We calculated combined effect size through forest plot. Table 2 gives details of individual studies included, their effect size including confidence interval. CI of 11 studies reflects significant association whereas eight studies reflect non-significant association between microfinance interventions. As per Cohen (1992) rule, Vyas et al. (2015), Hadi (2005) and Kapiga et al. (2019) have effect size lying between 0.3–0.5 and therefore reflecting medium effect. Cepeda et al. (2017), Vyas et al. (2015) and Stake et al. (2020) have effect size greater than 0.5 reflecting large effect or stronger association between microfinance and women empowerment. Remaining studies reflect small effect size, lesser than 0.3.

4.1 Forest plot

Main outcome of meta-analysis plot is forest plot, as shown in Figure 2, a graphical display where x-axis forms the effect size scale, plotted on the top of the pot. Each row except the bottom one represents individual study's effect size estimate in the form 95% confidence interval and point estimate represented by bullet where the relative size of the bullet reflects study's weight in the generation of meta-analytic results (Suurmond et al., 2017). The bottom row represents the meta-analysis result in the form of bullet representing weighted average effect or combined effect size and smaller, black interval represents confidence interval and larger, green interval represents prediction interval.

In Figure 2, ten studies' interval (4, 8, 9, 10, 11, 12, 14, 15, 18, 19) fall entirely on the right side, reflecting positive and significant association between microfinance and reduction in IPV while only 16th study's intervals (Eze Eze, 2017) are falling entirely on negative side reflecting increase in violence prevalence as a result of microfinance participation. Remaining eight studies reflect non-significant effect.

Table 2 Statistical details of individual studies

S. no.	*Paper*	*Country*	*Effect size (Hedge's g)*	*Confidence interval*	*Weight*
1	Angelucci (2008)	Mexico	–0.02	–0.20, 0.16	5.22%
2	Murshid (2018b)	Bangladesh	–0.01	–0.06, 0.05	5.92%
3	Murshid (2016)	Bangladesh	0.10	–0.11, 0.30	5.03%
4	Tsai (2016)	Philippines	0.15	0.04, 0.27	5.67%
5	Glass et al. (2017)	Congo	0.13	–0.06, 0.32	5.15%
6	Dalal et al. (2013)	Bangladesh	0.04	–0.15, 0.22	5.20%
7	De and Christian (2019)	Bangladesh	0.01	–0.19, 0.21	5.11%
8	Cepeda et al. (2017)	Gautemala	0.67	0.53, 0.81	5.53%
9	Murshid (2016)	Bangladesh	0.12	0.05, 0.19	5.85%
10	Vyas et al. (2015)	Dar es Salaam	0.88	0.64, 1.12	4.73%
11	Vyas et al. (2015)	Mbeya	0.40	0.07, 0.73	4.02%
12	Knight et al. (2019)	South Africa	0.15	0.01, 0.28	5.54%
13	Luetke et al. (2020)	Haiti	0.05	–0.17, 0.28	4.87%
14	Pronyk et al. (2006)	South Africa	0.25	0.11, 0.38	5.53%
15	Hadi (2005)	Bangladesh	0.41	0.20, 0.63	4.96%
16	Eze Eze (2017)	Cameroon	–0.24	–0.46, –0.02	4.92%
17	Bajracharya and Amin (2013)	Bangladesh	0.03	–0.09, 0.15	5.61%
18	Kapiga et al. (2019)	Tanzania	0.35	0.22, 0.48	5.56%
19	Stake et al. (2020)	South Africa	0.76	0.63, 0.89	5.55%

Table 3 Synthesis of results

Hedges' g (combined effect size)	*0.22*
Standard error	0.07
CI Lower limit	0.08
CI Upper limit	0.36
PI Lower limit	–0.30
PI Upper limit	0.74
Z-value	3.33
One-tailed p-value	0.000
Two-tailed p-value	0.001
Number of incl. studies	19

The magnitude of the combined effect measured using Hedge's g is equal to 0.22, which is low as per Cohen's (1992) rule and explains 5% of the total variance. Hedge's g is most appropriate measure when sample sizes are unequal. The combined effect interval (last row in Figure 1) doesn't contain zero, meaning p-value is less than 0.05 which can also be seen in Table 3 with z value – 3.33, CI 0.08–0.36. It can be reliably concluded that the combined effect is low but significant and positive. In other words, increased microfinance participation leads to increase in reduction of IPV prevalence and IPV

justification. This solves the ambiguity between multiple individual studies and implies that overall microfinance does help in reducing intimate partner violence, provided there is a joint involvement of both partners (Vyas et al., 2015).

4.2 Estimating the heterogeneity

The population domains evaluated in meta-analysis is heterogenous, it consists of sub-domains each with different 'true' effect size (Suurmond et al., 2017). I^2 is the measure of heterogeneity that measures the proportion of observed variance that reflects real differences in effect size (Borenstein et al., 2009). Lower I^2 means no considerable heterogeneity while as high I^2 means otherwise and thereafter, demands sub-group analysis or moderator-analysis. In our meta-analysis, I^2 is 92.75% which reflects very large heterogeneity as a result of which we also conducted sub-group analysis. We did not perform moderator-analysis as adequate relevant data is not available from the studies included.

4.3 Sub-group analysis

As Figure 2 and I^2 reflect, there are sub-groups in the domain that have different true effect size. As far as our understanding of individual studies, the studies belong majorly to three different regions: South Asia, Latin America and Africa. The heterogeneity across regions is well-explained by the fact that models of microfinance used across regions are different, whereas within regions are similar, though not identical. Other reasons could be credited to difference in ethnicity and patriarchal norms across regions. This validates the difference in effect size of microfinance on IPV across regions. Hence, to conduct sub-group analysis, we made three sub-groups based on the region; two studies belonged to Latin America (named as AA), eight to South Asia (named as BB) and nine to Africa (named as CC). The forest plot in Figure 3 shows point estimate and confidence intervals of effect size for individual studies (blue intervals) as well as three sub-groups (red intervals).

Figure 2 Forest plot of the study derived from meta essential (see online version for colours)

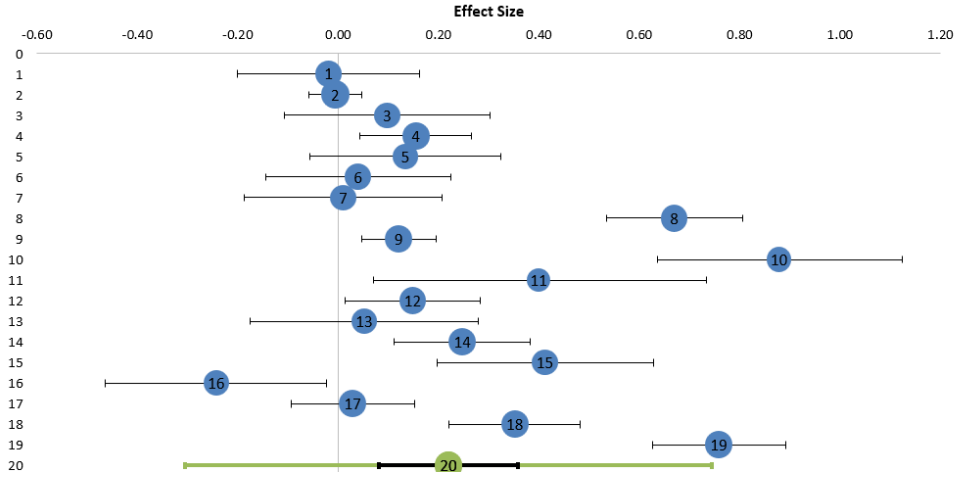
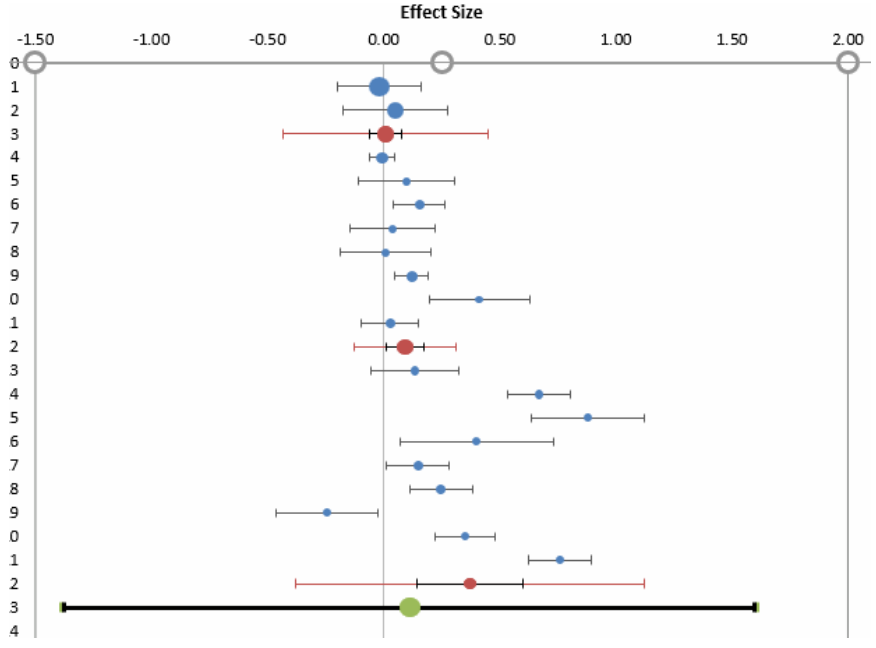


Figure 3 Forest plot of sub-group analysis (see online version for colours)



The difference in the combined effect size or weighted average effect of Figures 2 and 3 can be explained by the fact that average effect and intervals in Figure 1 (0.22) are calculated from original studies (N = 19) whereas those in Figure 2 (0.11) are calculated from sub-group effect (N = 3). As per Suurmond et al. (2017), it is not recommended to use combined effect and its intervals from sub-group analysis and therefore, we ignored it in our analysis and focussed on effect size of separate sub-groups only.

As can be seen from Table 4, the heterogeneity within each sub-group has reduced to an acceptable level. In group AA representing Latin American studies, Hedge's g is 0.01 which reflects very low effect (Cohen, 1992) and its confidence interval (–0.06, 0.08) contains zero implying no statistically significant association between microfinance and reduction of IPV. I^2 for AA is 0% reflecting consistency. In group BB representing South Asian studies, Hedge's g is 0.12 which reflects low effect size and explains 1.5% of the total variance and its confidence interval (0.01, 0.17) lies entirely on right side of zero implying statistically significant and positive association between microfinance and reduction of IPV. I^2 for BB is 58.75% reflecting acceptable heterogeneity. In group CC representing African studies, Hedge's g is 0.37 which reflects medium effect, explaining 14% of the total variance and its confidence interval (0.14, 0.60) lies entirely on right side of zero implying statistically significant and positive association between microfinance participation and reduction of IPV among women. I^2 for CC is 73.18% reflecting acceptable heterogeneity.

Table 4 Sub-group analysis table sourced from our analysis.

S. no.	*Study*	*Region*	*Hedge's g*	*CI*	*Weight*	I^2	*PI*
1	Angelucci (2008)		–0.02	–0.20, 0.16	61.01%		
2	Luetke et al. (2020)		0.05	–0.17, 0.28	38.99%		
	AA	*Latin America*	*0.01*	*–0.06, 0.08*	*41.19%*	*0.00%*	*–0.43, 0.45*
3	Murshid (2018b)		–0.01	–0.06, 0.05	19.37%		
4	Murshid (2016)		0.10	–0.11, 0.30	8.33%		
5	Tsai (2016)		0.15	0.04, 0.27	14.65%		
6	Dalal et al. (2013)		0.04	–0.15, 0.22	9.47%		
7	De and Christian (2019)		0.01	–0.19, 0.21	8.83%		
8	Murshid (2016)		0.12	0.05, 0.19	17.76%		
9	Hadi (2005)		0.41	0.20, 0.63	7.87%		
10	Bajracharya and Amin (2013)		0.03	–0.09, 0.15	13.71%		
	BB	*South Asia*	*0.12*	*0.01, 0.17*	*39.34%*	*58.75%*	*–0.13, 0.31*
11	Glass et al. (2017)		0.13	–0.06, 0.32	11.11%		
12	Cepeda et al. (2017)		0.67	0.53, 0.81	11.63%		
13	Vyas et al. (2015)		0.88	0.63, 1.12	10.50%		
14	Vyas et al. (2015)		0.40	0.07, 0.73	9.38%		
15	Knight et al. (2019)		0.15	0.01, 0.28	11.65%		
16	Pronyk et al. (2006)		0.25	0.11, 0.38	11.63%		
17	Eze Eze (2017)		–0.24	–0.46, –0.02	10.78%		
18	Kapiga et al. (2019)		0.35	0.22, 0.48	11.67%		
19	Stake et al. (2020)		0.76	0.62, 0.89	11.65%		
	CC	*Africa*	*0.37*	*0.14, 0.60*	*19.46%*	*73.18%*	*–0.38, 1.12*
	Combined effect size		*0.11*	*–1.37, 1.60*		*92.75%*	*–1.39, 1.61*

4.4 Selection bias and publication bias

The set of studies conducted in any field is likely to be biased in many ways (Suurmond et al., 2017). In most of our studies included, one of the most common biases; selection bias was controlled using propensity score matching (PSM) method. The other type of common possible bias is publication bias which means that statistically significant studies are published more as compared to statistically non-significant studies, as a result of which combined effect size may appear larger than it is in reality. In our study, however, studies were symmetrically distributed with eleven significant studies and nine non-significant studies. Due to already existing symmetry and higher heterogeneity in set of effect sizes, publication analysis results cannot be interpreted well, therefore we did not include it in our studies.

5 Discussion

While financial inclusion has been a central theme to alleviate poverty and empower women, especially economic empowerment (Tankard and Iyengar, 2018), in all major developmental discourses since late twentieth century, such financial interventions are also expected to help its women participants to leave situations of abuse in their relationship (Vyas et al., 2015). Till date, there is ambiguity due to mixed evidences in respect of having both positive as well as negative and significant as well as non-significant relationship between microfinance and intimate partner violence (Vyas and Watts, 2009). Keeping this in view, we meta-analytically evaluate the empirical literature to find an overview of effectiveness of microfinance on reduction of IPV. Giving credit to the inherent heterogeneity expected between existing literature due to difference in population domain, models of microfinance and ethnographical and epistemological difference, we used 'random-effect model' and found combined effect size to be 0.22, which is statistically significant as p-value is less than 0.05 with CI of 95% but as per Cohen's (1992) rule is a low-effect size. It can be interpreted that microfinance has lower but statistically significant and positive impact on reduction of emotional, physical and sexual violence experience of its women participants.

As per I^2, which describes the percentage of variation across studies that is due to heterogeneity rather than chance (Higgins and Thompson, 2002), there was high heterogeneity of 92.75% in our studies. Therefore, we also conducted sub-group analysis based on regions of the study, to find combined effect size of each sub-group. We found that there is no statistically significant association between microfinance programmes and IPV in Latin American region, AA with CI (–0.06, 0.08), Hedge's g (0.01) and I^2 (0.00%). In case of other two sub-groups, we found statistically significant and positive relationship between microfinance intervention and reduction of IPV with acceptable heterogeneity proportions (less than 75%); South-Asian region, BB [CI (0.01, 0.17), Hedge's g (0.12) and I^2 (58.75%)]; African region, CC [CI (0.14, 0.60), Hedge's g (0.37) and I^2 (73.18%)]. We can precisely conclude that microfinance programmes lead to reduction in IPV in African and South Asian regions while as there is no such association in Latin American regions.

5.1 Policy implications

1 Group model of microfinance programmes, which is more prevalent in South Asian regions seem to be more effective in helping reduction of IPV as it provides services beyond credit, in the form of advices, sensitisation and shared experience of violence.

2 Saving programmes within microfinance model provides a financial security to participants and increase independence and socio-economic survival options outside marriage for women along-with smooth protection in the times of unexpected financial shocks (Hoff and Stiglitz, 2016) like recent COVID-19 pandemic.

3 Microfinance combined with gender and health training programmes has stronger association in reducing not only physical but sexual and emotional violence too. Thus, from policy orientation, holistic restructuring of microfinance programmes beyond lending of credit and integration of microfinance with other social and

developmental interventions has huge potential to reduce gendered violence within intimate and domestic spaces.

5.2 Research implication

The mixed empirical evidences regarding positive and negative association between microfinance and intimate partner violence demands more comprehensive evaluation between these two variables.

1 The moderating and mediating role of possible variables like participants characteristics (ethnicity, education, socio-economic status, psychological understanding of the violence), microfinance designs (group-model, loan control and loan-usage tracking, integrated training interventions) and, epistemological deconstruction of domestic violence (physical, verbal, emotional and sexual violence) needs to be well incorporated and compared in future studies.

2 Areas like Latin-America, India, Pakistan need to be evaluated more as there is lack of evidence from these countries, in order to establish more inclusive and informed association between microfinance and IPV. In our South Asian sub-group, most of the studies are conducted in Bangladesh only.

3 Multiple evaluation methods need to be incorporated in future research on impact assessment to control the methodological-biases.

6 Conclusions

Economic and financial approaches can be useful in preventing IPV against women because they mainly target population of lower income status, who experience greater rate of IPV (Capaldi et al., 2012; Tankard and Iyengar, 2018). Such interventions enable economic and psychological empowerment of women which widen options for women outside marriage, which, in turn, leads to less perpetration of violence by male partners, known as *theory of marital bargaining* (Eze Eze, 2017). Overall microfinance appears to have positive association with reduction in IPV, particularly in South Asian and African regions, however, there needs to be more empirical evaluations across various regions to enable more informed interpretation of the impact in order to draw better theoretical and practical implications.

6.1 Contribution and future scope

This study is a unique contribution to the literature as it empirically attempts to assess previous research studies on impact of microfinance intervention on reduction of domestic violence and derive consolidated conclusion. The ambiguity existing in the association between microfinance and partner violence, as a result of conflicting findings of the previous studies, guided us to have a comprehensive examination of this association. Identifying the differences in previous results and understanding their causes is important from a policy perspective. We used forest-plot and conducted a sub-group analysis to examine this association. Social structures defining gender roles vary across

regions and this explains our findings that microfinance interventions yield different results, in respect of domestic violence experience of women, contingent upon the regions. Methodological contribution of this study is using PRISMA by Liberati et al. (2009) which has helped us to follow a systematic protocol to ensure transparency and reciprocity of our work.

On the basis of our findings, we can conclude that microfinance programmes help in effectively combating domestic violence issues in South Asian and African regions whereas in Latin America, the partner violence issue needs to be examined further and microfinance, as a defence strategy, also needs to be restructured. Defying policy rhetoric of microfinance as a magic tool to wipe out all gender inequalities and subjugation faced by women, there is a need of advanced understanding of the causes of violence faced by women from both women's and men's perspective in order to enable comprehensive microfinance strategy which not only address access to finance but also use of utilisation of finance for holistic welfare of women.

6.2 Limitations

The study is limited to empirical evaluation of only 19 studies due to quantitative dearth of number of relevant comprehensive studies on intimate partner violence faced by microfinance participants. Most of the studies reflecting that increase in microfinance participation increases IPV did not qualify for meta-analysis of our study due to statistical inadequacies. This increased the scope of selection bias in our study and hence may have influenced the combined effect size as well. Therefore, inclusion of an increased number of studies in future meta-evaluation by accessing grey literature as well as unpublished studies could present more informed and homogenous results. Moderation analysis must be conducted in future researches in order to better understand the link between microfinance intervention and intimate partner violence through different pathways. The methodological limitation of assuming equal sample sizes where enough information on treatment and control group was not given, and manual calculation of Cohen's d from log odds ratio can also be addressed in future researches.

Disclaimer

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