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Longitudinal Analysis of the Impact of Economic Empowerment on Risk for Intimate Partner Violence among Married Women in Rural Maharashtra, India

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Abstract

The purpose of this study was to assess via longitudinal analysis whether women's economic empowerment and financial inclusion predicts incident IPV. This prospective study involved analysis of three waves of survey data collected from rural young married women (n=853 women) in Maharashtra at baseline and 9&18 month follow-ups. This study, which was in the field from 2012 to 2014, was conducted as part of a larger family planning evaluation study unrelated to economic empowerment. Participants were surveyed on economic empowerment, as measured by items on women's income generation and joint decision-making of husband's income, and financial inclusion, as measured by bank account ownership. Women's land ownership and participation in microloan programs were also assessed but were too rare (2–3% reporting) to be included in analyses. Longitudinal regression models assessed whether women's economic empowerment predicted incident IPV at follow-up. At Wave 1 (baseline), one in ten women reported IPV in the past six months; 23% reported income generation; 58% reported having their own money; 61% reported joint control over husband's money, and 10% reported bank ownership. Women's income generation and having their own money did not predict IPV over time. However, women maintaining joint control over their husband's income were at a 60% reduced risk for subsequent incident IPV (AOR=.40; 95% CI=0.18, 0.90), and women gaining joint control over time were at a 70% reduced risk for subsequent incident IPV (AOR=0.30; 95% CI=0.13, 0.72), relative to women whose husbands maintained sole control over his income. Women who initiated a new bank account by Wave 3 also had a 56% reduced likelihood of reporting incident IPV in this same wave (AOR=0.44; 95% CI=0.22, 0.93), relative to those who maintained no bank account at

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Waves 1 and 3. These findings suggest that women's joint control over husband's income and her financial inclusion as indicated by bank ownership appear to reduce risk for IPV, whereas her income generation or control over her own income do not. Awareness of and participation in financial inclusion services may help reduce women's risk for IPV in rural India and elsewhere.

Keywords

IPV; economic empowerment; financial inclusion; social norms; India

INTRODUCTION

Intimate partner violence (IPV) affects more than one in four married women in India, a decline from a decade ago, when one in three married women reported IPV from their husband.¹ While this decline is welcome, the prevalence of IPV remains too high. Many have advocated for more focus on economic empowerment of women as a means to achieve reductions in IPV, but there is inadequate research to guide this work. This study involves longitudinal analysis of the impact of women's economic empowerment on IPV among rural married couples in Thane district, Maharashtra in India to support considerations of whether women's economic empowerment approaches might prevent IPV, and if so what sorts of programs would be the most effective.

Numerous cross-sectional studies using data from multiple countries have found that, while economic development in general appears to be protective against IPV, associations between women's economic empowerment indicators, such as income generation, control over income, participation in credit or other development programs, and asset ownership, and IPV are inconsistent across countries.²⁻⁸ Social norms related to IPV acceptability and to acceptability of women's employment also differ by country and context, and appear to affect observed associations between economic empowerment and IPV. For example, women's income generation in contexts where norms do not support women's employment may not be protective against IPV.³ While insightful, many of the studies are ecological, such that we cannot assume that the findings would hold true at the individual level. Additionally, cross-sectional analyses, impede conclusions about causality.

Individual-level longitudinal research on this topic has primarily been limited to within country randomized controlled trials evaluating the impact of microfinance and micro-loan programs on IPV in Africa. These studies suggests that programs for women which combine microfinance with gender equity counseling, relative to no program⁹ or relative to microfinance alone,¹⁰ can reduce risk for IPV, but microfinance programs per se were not found to reduce risk for IPV.¹¹ Evaluation of a poverty alleviation program in Latin America found that provision of cash or food transfers, relative to no transfer, did reduce women's risk for IPV, with stronger effects observed for women with lesser decision-making control at baseline.¹² Overall, the existing evidence suggests that women's economic empowerment, via financial services or cash transfer programs, can reduce risk for IPV, particularly if bolstered with efforts to change gender equity norms.

While longitudinal research on this topic for India is lacking, cross-sectional analysis of nationally representative data^{8, 13, 14} and state-specific studies,^{15–17} document that women's income generation or their higher earning than men are associated with *increased* rather than decreased risk for IPV. Relatively few women are in paid work, and the decade-long stagnation in women's labor force participation (holding at 25%),^{1, 18} has attracted increasing policy interest.^{19, 20} This is consistent with prior research documenting a U-shaped cross country pattern in labor force participation across countries – that women's economic participation rates are high at both very low and high levels of per capita national income but decline as countries become on average better off, as women who are able to withdraw from arduous and unpleasant jobs that characterize low levels of development.²¹ In rural India, women working outside the home may be a marker for financially stressed households.^{13–15, 17} Both qualitative and quantitative research from India document that household financial stressors increase women's risk for IPV, and impoverished women are more likely than middle and higher income women to work only to alleviate these financial stressors.^{15, 17, 22} Financial inclusion services, such as bank account ownership or microloan use, may hold promise for reducing risk for IPV, as indicated by the above described intervention studies, but research has not examined associations of these services with IPV in India. Financial inclusion has increased dramatically in India since 2015, when the Prime Minister's Pradhan Mantri Jan-Dhan Yojana initiative was launched to support bank account ownership in India.²³ Two-thirds of Indians now own a bank account,²⁴ a more than four-fold increase over the past decade.¹ However, women remain less likely than men both to have and use a bank account.²⁴

This study involves longitudinal analyses of women's economic autonomy (income generation, sole control of her own money, joint control of husband's income) and access to/use of financial inclusion services (bank account, microloan) and their associations with subsequent incident IPV, among married women in rural Maharashtra. We also explore whether observed associations are affected by husbands' gender norms, specifically gender equity ideologies and attitudes regarding the acceptability of IPV, as these are related to IPV in India.^{22, 25, 26}

METHOD

Study Design and Data

Current analyses used longitudinal survey data from young married couples (N=1091) participating in the CHARM evaluation study. The study involved a two-armed randomized controlled trial to evaluate the CHARM intervention, a three session family planning plus gender equity counseling intervention delivered by male health providers to husbands (sessions 1&2) and then couples (session 3). Study participants were randomized to receive either CHARM or a control condition in which women were provided with basic information regarding available public health family planning services. Women's economic empowerment was not a focus of the intervention. Couples were surveyed in three waves at baseline (wave 1), 9 month follow up (wave 2), and 18 month follow-up (wave 3). Further details on the study and its treatment conditions are described elsewhere, in prior publications.^{27, 28}

Recruitment and Sample

Trained research staff recruited married couples (N=1081) from households in rural areas of Thane district, Maharashtra, India from March to December 2012. Eligible couples were required to be Marathi-fluent, aged 18–30 years for the husband and aged 15+ years for the wife, and residing together for the past three months with no intent to relocate in the next 2 years. Couples reporting infertility, surgical sterilization, or exhibiting serious cognitive or health impairment were excluded. Data were available from 83.1% (n=898) of couples at 9 month follow-up, and from 82.4% (n=891) of couples at 18-month follow-up, with a total of 871 complete observations on women at all 3 waves, and 801 complete observations of couples at all 3 waves. After removing respondents with missing data, our final sample for the current analyses consisted of n=853 for women level observations and n=760 couple level observations.

Measures

The outcome measure was physical IPV, taken from India's National Family Health Survey (NFHS).²⁹ Women were asked to report whether in the last 6 months her husband had ever slapped her; twisted her arm or pulled her hair; pulled her, shook her, or thrown something at her; kicked her, dragged her, or beat her up; choked her or tried to burn her on purpose; or threatened to attack her with a knife, gun, or any other weapon. Responses of yes to any of these items were coded as positive for IPV. This study did assess sexual IPV but this was not a focus of the study because prior research on this sample found that sexual IPV was influenced by the CHARM intervention where physical IPV was not.²⁸

Our primary independent variables were collected from women only at each wave of study and measured women's economic autonomy (i.e., income generation, has money she herself controls, joint control over husband's money) and access to and use of financial inclusion services (bank account, microloan). All items were taken from NFHS.²⁹ *Women's income generation* was assessed by a single yes/no item asking whether they were currently earning an income. Control over money was assessed using two items: 1) *woman has money of her own*, that she alone could decide how to use, yes/no, and 2) *woman has influence over husband's income*, based on an item which asked women who controls the money their husbands have earned- husband's sole control, husband/wife joint control (which included wife's sole control), others' control, or husband does not have a job. Regression analyses included a further collapsed variable: husband's sole control, husband/wife joint control, or other. Financial inclusion was assessed via a single yes/no item assessed whether the woman *has her own bank account*. While we hoped to assess for use of microloan services and women's land ownership as well, these variables were too rare (2–3% prevalence) to be included in the longitudinal analyses.

Covariates for adjusted analyses included continuous measures of *women's age* and *women's education*, *number of living children*, and *marital duration* in years; *caste* was included as a categorical variable (scheduled caste, scheduled tribe, other backwards caste, or other). We included *treatment group* as a covariate, to adjust for any potential effects of the intervention.

Data from men on their social norms related to gender were included in secondary analyses. *Men's Gender Equity Beliefs* was measured using the Gender Equitable Men (GEM) Scale.²⁶ The GEM Scale was originally developed in Brazil but has been adapted for use in India.^{26, 30} Men were read 24 statements related to sexual and reproductive health, sexual relations, domestic violence, domestic responsibilities, and homophobia and asked if they “agree,” “partially agree,” or “do not agree” with the statement. We eliminated those questions that did not contribute to the internal reliability of the scale based on the Cronbach's alpha coefficient function in the psych package in R, which includes the overall alpha if a variable is omitted. Our final measure consisted of 12 items, listed in Supplemental Table 1. Items on acceptability of IPV, male dominance in the household, female gender roles related to domestic and family planning responsibilities, and male hypersexuality were retained; items on acceptability of male sexual infidelity and gender role norms related to female sexuality, fertility and HIV prevention were dropped based on this statistical approach. For the final selected items, we scored the least equitable response as 1 and the most equitable responses as 3 (and moderately equitable responses as 2), thus resulting in a possible range of 12–36 (least equitable to most equitable). The 12 item scale had a high internal consistency (Cronbach's alpha = 0.87). *Men's attitudes of acceptability of IPV* were measured using the following questions from NFHS²⁹: “In your opinion, is a husband/companion justified in hitting or beating his wife/companion in the following situations: (a) If she leaves the house without telling him? (b) Neglects the children? (c) Argues with him? (d) Burns the food? (e) Cheats on him? Answer choices were either yes or no. Consistent with previous research we coded a person as positive on IPV acceptance if they answered positively to any of the five questions.³¹ As men's alcohol use is also strongly associated with male IPV perpetration in India,³² *husband's alcohol consumption in the past 30 days* was also included as a covariate in these secondary models.

Statistical methods

Cross-sectional bivariate analyses assessed associations between women's economic empowerment and IPV in each wave of data. All economic empowerment variables significantly associated with IPV in cross-sectional bivariate analyses were included in longitudinal multivariate analyses. For the multivariate models, we ran two types of longitudinal models (model a and model b) for each measure of economic empowerment to ensure the validity of our results. Model 1a used Wave 1 to Wave 3 change variables for each economic empowerment variable to predict IPV at Wave 3, controlling for Wave 1 covariates and Wave 1 IPV. Model 1b used a stacked dataset of Wave 1-Wave 2 observations and Wave 2-Wave 3 observations of economic empowerment to predict IPV at the subsequent wave, again controlling for previous wave covariates and previous wave IPV and also controlling for wave level fixed effects. By stacking the observations in one dataset, we were able to maximize the sample while maintaining a consistent analysis of the effect of the previous wave predictors on the subsequent wave outcomes. This could be important as our previous work uncovered a possible exogenous shock that impacted the reporting of IPV after Wave 1.²⁵ For both sets of models, we added a second set of analyses (models 2a and 2b) to test whether the inclusion of men's data on social norms related to gender equity affected associations observed models 1a and 1b (i.e., testing for mediation). All analyses were conducted using R version 3.3.0.

RESULTS

Descriptive statistics

Mean age of participants was 22.6 years (std dev 2.4), and mean age of husbands 26.3 years (std dev 2.7). Women had on average 6.8 years of education (std dev=4.1), and men had on average 7.5 years of education (std dev=3.6). Couples were married for an average of 3.9 years (std dev=2.6), and had an average of 1.15 children (std dev=.87). Most participants were from a scheduled tribe (66%) or other backward caste (26%).

One in 10 women reported experiencing physical IPV in the previous 6 months in Wave 1, and reports of physical IPV increased across waves. We reported these results in a prior paper, in which we hypothesized that an endogenous shock, nationwide attention to a high profile rape case, increased awareness of violence against women in India potentially increasing reports of IPV across the study population.³³ Income generation showed slight improvement from Wave 1 to Wave 3 (increasing from 23% to 27%). Other economic empowerment indicators showed more marked improvement (women having own money to control: increasing from 58% to 86%; women's joint control of husband's money: increasing from 61% to 86%). Bank ownership doubled over time from 10% to 20%. While not a variable of focus, we also saw an alteration in awareness of local women's micro-loan programs, from 31% at baseline to 26% at 9 month follow-up and 44% at 18 month follow-up. Fluctuation may indicate shifts in available programs or inconsistencies in reports of awareness; this variable was thus not considered in further analyses. [See Table 1.]

Cross-sectional bivariate associations

Cross-sectional bivariate associations between each economic empowerment variable and IPV were conducted within each wave of study and revealed mixed findings. Women's income generation was marginally associated with increased risk for IPV in Wave 1 and significantly associated with it in Wave 2, but no association was seen in Wave 3. We did not find that women's control of own money was associated with IPV in any wave. However, women's joint control of husband's income (compared to husband only control), having a bank account (versus not), and having heard of women's loan programs (versus not) were all negatively associated with IPV in Waves 2 and 3, though not in Wave 1. [See Table 2.]

Longitudinal multivariate analyses

We next ran 2 sets of prospective multivariate analyses. The first set (model 1a) tested separate models for three measures of change in economic empowerment, from Wave 1 to Wave 3 that were found to be significant in the bivariate analysis. The second set (model 1b) tested Wave 1 to Wave 2 measures simultaneously with Wave 2 to Wave 3 measures (stacked model). For model 1a, Wave 1 and Wave 3 are indicated by Time 1 and Time 2, respectively. For model 1b, Wave 1 to Wave 2 are indicated by Time 1 and Time 2, respectively, and Wave 2 to Wave 3 indicated by Time 1 and Time 2, respectively. The variable assessing if the woman has money she alone controls was excluded from analyses since no effects were observed in the bivariate associations.

Longitudinal analyses indicated no effects for income generation; this variable was not considered in further analyses. Effects were seen for the control over husband's money variable. As seen in model 1a of Table 3, women who maintain joint control over husband's money at Waves 1 and 3 ($p=.03$), and those who gain that control at Wave 3 ($p=.01$), relative to those who report husband's sole control over his money maintained at Waves 1 and 3, are significantly less likely to report incident IPV. Using odds ratios calculated from the betas presented in Table 3, these findings reveal a 70% reduced likelihood of reporting IPV among women able to gain joint control of husband's income at Wave 3 (AOR=0.30; 95% CI=0.13, 0.72), and a 60% reduced likelihood of reporting IPV among women maintaining joint control of husband's income at Waves 1 and 3 (AOR=.40; 95% CI=0.18, 0.90), relative to those where husband's maintained sole control. The stacked model (model 1b) also demonstrates a marginal effect of women's maintained joint control over husband's income as reducing risk for incident IPV ($p=.07$). We then examined the probability of reporting incident IPV at Time 2 based on control over husband's income at Time 1, using the stacked observation dataset (model 1b). [See Fig 1, corresponding to Table 3.] The probability of reporting incident IPV over time is highest among those reporting that husband has initiated sole control over his income over time; second highest probability of IPV is among those reporting husband's maintained control over his income across time [See Fig 1. Plot 1.] Based on higher risk for IPV in the group where there is initially joint control and then husbands have sole control of their income, we conducted an exploratory analysis to see if shifting the referent group to this category (women lose joint control over husband's income). Significant effects were then observed in the stacked data set (i.e., model 1b). Incident IPV at Time 2 was less likely to be reported by women who gained to joint control of husband's income from Time 1 to Time 2 ($\beta=-0.89$, SE=0.28, $p<.001$) and by women who maintained joint control of husband's income from Time 1 to Time 2 ($\beta=-0.99$, SE=0.25, $p<.001$), relative to women reporting a loss of joint control over husband's income over time. [See Supplemental Table 2.]

In terms of financial inclusion, women who gain a bank account by Wave 3, relative to those who report having no bank account at Waves 1 and 3, are significantly less likely to report incident IPV (model 1a). Using odds ratios calculated from the betas presented in Table 3, these findings indicate a 56% reduced likelihood of reporting IPV among women who opened a new bank account at Wave 3 (AOR=0.44; 95% CI=0.22, 0.93), relative to those who maintained no bank account at both Waves 1 and 3. The stacked model (model 1b) for this outcome also demonstrates marginal effects of women's newly acquired bank account over time ($p=.06$) as well as women's maintained bank account ownership over time ($p=.08$) reducing women's risk for incident IPV at Time 2. We again examined the probability of reporting incident IPV at Time 2, but this time based on whether women had a bank account at Time 1, using the stacked observation dataset (model 1b). Women who report losing a bank account at Time 2, and those reporting having no bank account across time, having the highest probability of incident IPV at Time 2. [See Fig 1. Plot 2.]

Longitudinal multivariate analyses adjusting for husband's gender equity ideologies and attitudes toward IPV

We ran a second set of analyses (model 2a and 2b) to assess if men's reports on their gender equity beliefs and IPV attitudes affected observed associations from model 1a and 1b analyses. Models focused solely on joint control over husband's income and bank account ownership, as these were the only variables showing effects in prior analyses. A large change in the beta coefficient or p-value between our first set of models (1a and 1b) and these models (2a and 2b) would suggest mediation. We found no such change, suggesting that men's gender equity and men's IPV attitudes do not mediate the relationship between women's economic empowerment and IPV. [See Tables 3 and 4.]

DISCUSSION

Findings from this longitudinal study suggest that women's financial inclusion in the form of bank account ownership can reduce the risk of IPV among married women in this Indian context. Women with bank accounts are less likely to report subsequent incident IPV relative to those who do not report use of or access to these services. As bank accounts become more common through the government's financial inclusion campaign, *Pradhan Mantri Jan Dhan Yojana* (the current study was conducted before the launch of *Jan Dhan Yojana* in 2015), which has supported 290 million bank accounts in India as of July 2017,²³ monitoring its value for women's empowerment and safety from IPV will be needed. Further, given research from Africa indicating that financial inclusion services, such as microfinance, require inclusion of gender equity counseling to support an impact on IPV,¹⁰ consideration of the role of gender equity norms is likely needed. While our analyses did not indicate that husband's gender norms mediated observed associations between economic empowerment and IPV, lack of effects may be attributable to limited norms data- only having male and not female or community norms, and having no norms related to women's financial inclusion. Future study with more comprehensive gender equity norms measures is needed.

Women's economic autonomy, as indicated by her having a paid job or having money she alone controls, demonstrated no longitudinal impact on risk for IPV, though as seen in prior national research^{8, 13, 14} and state-specific studies,¹⁵⁻¹⁷ women's income generation was associated with increased risk for IPV in cross-sectional baseline analyses. These findings suggest neither causal risk for IPV nor protective benefits due to having a job, per se. These findings are counter to prior cross-sectional research from India which has demonstrated that, among women reporting income generation, those reporting greater control over the money they generate are less likely to report IPV.¹³ This may be partly because the poor rural women in our sample are only undertaking paid work due to financial stress, and also because we only looked at having a job, not the level of pay per se, or the difference in income generation between men and women. It may be that a decently remunerated job among women does make a difference, but these are not the typical jobs identified by our measure of income generation. Future research should include assessment of quality of employment as well as income generation to better understand this issue in India and elsewhere.

Our strongest effects were observed for women's joint control over husband's income, with women who lost joint control at greater risk for IPV than those who never had control. These findings may be indicative of husbands' use of economic abuse to control their wives; studies document men's use of financial control as linked to or part of their violence against female partners.³⁴⁻³⁹ Hence, while on one hand, women's joint control over husband's income in contexts where few women are in paid work is an important means of economic autonomy, this strategy risks keeping abusive men in greater position of economic control over wives. Financial services may provide opportunities to support more equitable household management of husband's income in cases where women are not generating or otherwise controlling income. More research is needed on the issue of economic abuse; future research might assess the pathways between economic empowerment, spousal economic abuse and IPV.

While this study offers important insights, it does have some limitations. Measures rely on self-reporting that are subject to social desirability and recall biases. As noted above, comprehensive measures of norms are lacking, as are comprehensive measures of financial inclusion, including use of bank accounts and capacities to engage in banking transactions. Too few women engaged in microloans to allow for our analysis of this form of financial inclusion, and we did not assess utilization of other forms of loans or financial schemes and entitlements. Details on income generation, in terms of quality and enjoyment of work and amount earned were not included in this study. We also lacked data on women's assets other than land ownership, which was again too rare to allow for analysis. The poverty and traditional norms that characterized this community are reflected in the very low rates of female landownership. A broader and more generalizable sample may offer greater opportunity for insight into patterns of economic opportunities, asset ownership, as well as participation in women's micro-loan programs, and would allow for more generalizable findings. Assessment of economic abuse may also help clarify mechanisms explaining observed associations.

Conclusion

Longitudinal analysis of the impact of economic autonomy and financial inclusion indicators on incident IPV among married young women in rural India documents mixed findings. Financial inclusion services, indicated by owning a bank account, appears to reduce risk for IPV, where women's income generation and their having sole control over money shows no effect. Women's joint control over male income is also associated with significantly lower risk for subsequent IPV. The findings also indicate that women's lack of control or loss of control over husband's income is an important risk factor, which may be due to men's economic abuse as part of the constellation of violence against women, a phenomenon seen in prior studies.³⁴⁻³⁹ The findings point to the need for further research, especially in the area of economic abuse, but they also show the promise of financial inclusion services as part of comprehensive efforts to eliminate women's risks for IPV in India and potentially elsewhere.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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HIGHLIGHTS

We studied longitudinal effects of economic empowerment on IPV in rural India

Women's earning did not predict IPV; joint control of husband's income reduced IPV

Women's bank account ownerships reduced IPV, but was reported by only 10%

Financial inclusion may help reduce women's risk for IPV in rural India.

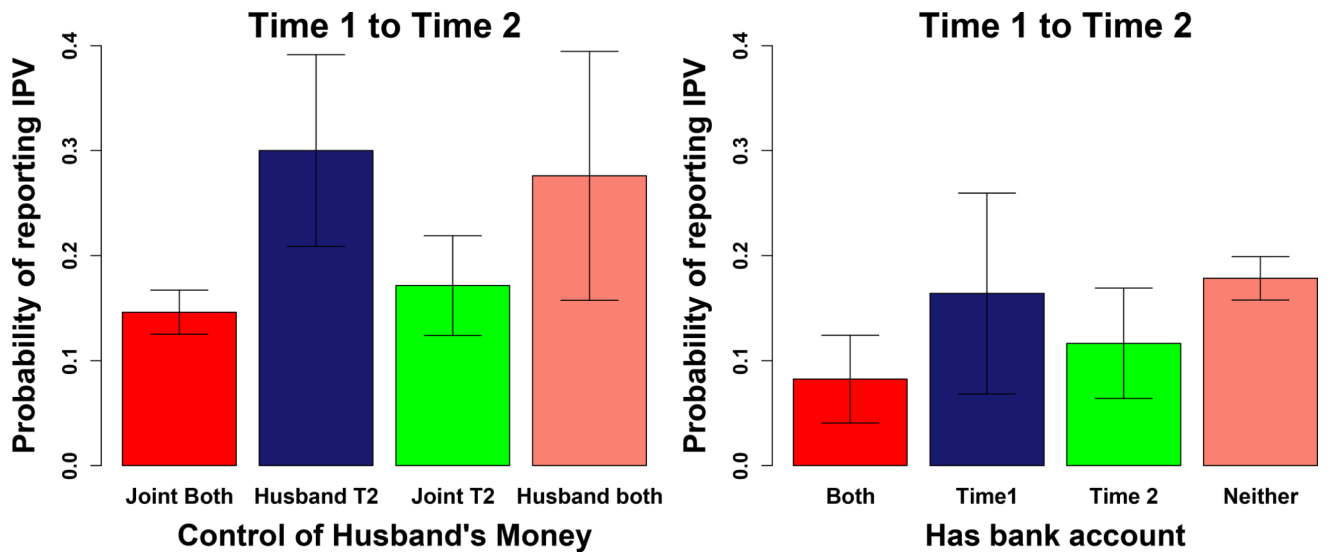


Figure 1.
 Probability of reporting IPV at Time 2 by reports of economic empowerment at Time 1, using the stacked observation dataset (model 1b).

Table 1

Women's experience of IPV and indicators of economic empowerment and financial inclusion, three waves, married women in rural Maharashtra (n=853 women).

	Wave 1	Wave 2	Wave 3
IPV within past 6 months	10%	16%	17%
Women's income generation	23%	32%	27%
Woman has money she alone controls	58%	78%	86%
Control over husband's income			
Husband control	27%	11%	9%
Joint control	61%	83%	86%
Others' control	10%	5%	4%
Husband does not work	2%	1%	1%
Woman has bank account	10%	17%	20%
Land ownership ¹			
Family owns land	56%	-	-
Woman owns land	2%	-	-

¹Variable only assessed in Wave 1.

Cross-sectional bivariate associations between women's economic empowerment indicators and IPV within each wave, with married women in rural Maharashtra (n=853 women).

Table 2

	Wave 1			Wave 2			Wave 3		
	Beta	SE	p-value	Beta	SE	p-value	Beta	SE	p-value
Women's income generation (vs not)	0.39	0.25	0.12	0.38	0.19	0.05	0.19	0.21	0.36
Has money she alone controls	-0.09	0.23	0.71	0.14	0.23	0.55	0.37	0.30	0.22
Control over husband's income									
Husband control (ref)									
Joint control	-0.20	0.26	0.43	-0.88	0.25	<0.001	-1.08	0.26	<0.001
Others control	-0.16	0.43	0.70	-1.04	0.53	0.05	-0.86	0.51	0.09
Husband does not work ^a	-0.14	0.77	0.86	0.03	0.73	0.97	-	-	-
Has Bank account (vs not)	-0.26	0.41	0.53	-0.89	0.32	<0.001	-0.52	0.26	0.05

^aNot enough observations in Wave 3

Table 3

Longitudinal analysis of the effects of women's economic empowerment on IPV at Time 2 using longitudinal models (model 1a¹) and stacked longitudinal models (model 1b²), with married women in rural Maharashtra (n=853)

	Model 1a ²			Model 1b ²		
	Beta	SE	p-value	Beta	SE	p-value
Women's income generation (no income at Time 1 or Time 2- ref)						
Income generation Time 1 only	0.31	0.30	0.31	-0.08	0.19	0.67
Income generation Time 2 only	-0.22	0.30	0.47	0.03	0.24	0.92
Income generation Time 1 and Time 2	0.26	0.29	0.37	-0.12	0.24	0.62
Control of husband's money (Husband's control at both times- ref ³)						
Joint control Time 1 and Husband's control Time 2	0.04	0.54	0.94	-0.40	0.40	0.31
Husband's sole control at Time 1 and Joint control at Time 2 only	-1.19	0.44	0.01	-0.49	0.37	0.18
Joint control at Time 1 and Time 2	-0.91	0.41	0.03	-0.60	0.32	0.07
Bank account (no bank account at Time 1 or Time 2- ref)						
Bank account at Time 1 only	-0.71	0.76	0.55	0.08	0.37	0.84
Bank account a Time 2 only	-0.80	0.37	0.03	-0.51	0.29	0.08
Bank account at Time 1 and Time 2	0.13	0.41	0.75	-0.56	0.30	0.06

[#]The woman has own money she controls variable was not included in these longitudinal analyses as it was not associated with IPV in the cross-sectional bivariate analyses.

¹Note: For model 1a, Wave 1 and Wave 3 change scores will be indicated by Time 1 and Time 2, respectively. For model 1b, Wave 1 to Wave 2 will be indicated by Time 1 and Time 2, respectively, and Wave 2 to Wave 3 will also be indicated by Time 1 and Time 2, respectively.

²All models are adjusted for wave 1 measures of women's age, education, caste, marital duration, number of children, IPV at Time 1, and intervention group.

³Women who reported other's control of husband's income, or those whose husbands did not work in either Wave were categorized as other. Results from these categories are not shown.

Longitudinal analysis of the effects of women's economic empowerment on IPV at Time 2 using Wave 1 to Wave 3 longitudinal models (model 2a¹) and stacked longitudinal models (model 2b¹), adjusting for male gender norms, with married couples in rural Maharashtra (n=760).

Table 4

	Model 2a ²			Model 2b ²		
	Beta	SE	p-value	Beta	SE	p-value
Control of husband's money (Husband's control at both times- ref ³)						
Joint control Time 1 and Husband's control Time 2	0.03	0.57	0.96	0.49	0.43	0.25
Husband's sole control at Time 1 and Joint control at Time 2 only	-1.25	0.49	0.01	-0.34	0.40	0.39
Joint control at Time 1 and Time 2	-0.79	0.44	0.07	-0.46	0.37	0.19
Male Gender Equity Beliefs at Time 1	0.05	0.03	0.09	0.02	0.02	0.11
Male Attitudes Toward IPV at Time 1	0.02	0.24	0.94	0.48	0.16	<0.001
Bank account (no bank account at Time 1 or Time 2- ref)						
Bank account at Time 1 only	-0.54	0.77	0.49	-0.14	0.42	0.74
Bank account at Time 2 only	-0.81	0.41	0.05	-0.53	0.31	0.09
Bank account at Time 1 and Time 2	-0.41	0.42	0.33	-0.45	0.30	0.13
Male Gender Equity Beliefs at Time 1	0.04	0.03	0.12	0.03	0.01	0.05
Male Attitudes Toward IPV at Time 1	0.01	0.23	0.98	0.48	0.16	<0.001

[#]The woman has own money she controls variable was not included in these longitudinal analyses as it was not associated with IPV in the cross-sectional bivariate analyses.

¹Note: For model 1a, Wave 1 and Wave 3 change scores will be indicated by Time 1 and Time 2, respectively. For model 1b, Wave 1 to Wave 2 will be indicated by Time 1 and Time 2, respectively, and Wave 2 to Wave 3 will also be indicated by Time 1 and Time 2, respectively.

²All models are adjusted for wave 1 measures of women's age, education, caste, marital duration, number of children, IPV at Time 1, and intervention group.

³Women who reported other's control of husband's income, or those whose husbands did not work in either Wave were categorized as other. Results from these categories are not shown.