# Women's Empowerment and Intimate Partner Violence: Evidence from a Multidimensional Policy in India[*]

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Abstract

In this paper, we study a multidimensional women empowerment program from India to estimate its effects on intimate partner violence faced by women. We exploit plausibly exogenous geographical variation in the implementation of the program and cohort-variation generated by eligibility rules to estimate our effects. Using a reduced form difference-in-difference design, we find evidence of lesser emotional and physical violence for women potentially exposed to the program. Overall, women face lesser intimate partner violence as well as controlling behavior on account of the empowerment intervention. We conjecture that improved anthropometric outcomes, higher literacy, and better labor market opportunities serve as potential mechanisms causing this effect.

1   Introduction

Nearly 30% of women around the world have experienced intimate partner violence (physical or sexual) during their lifetime(Devries 2013).[1] While intimate partner violence (IPV) is a pervasive problem, there is considerable regional variation in its incidence (Garcia-Moreno et al. 2005; Devries et al. 2013). For instance, in Central Sub-Saharan Africa, the percentage of women experiencing intimate partner violence is around 65% when compared to East Asia where the percentage is below 20%. Apart from being a major public health concern by itself, IPV can lead to several other health and behavioral problems ranging from mental and neurological disorders to substance abuse problems, sexual and reproductive health problems like low birth weight, as well as pregnancy termination and HIV contraction (Coker et al. 2002; Lipsky et al. 2003; Ackerson and Subramanian 2008; Ellsberg et al 2008; Okuda et al. 2011; Ghosh et al. 2011; Pallitto et al. 2013; Langdon et al. 2014). There is considerable ambiguity regarding the appropriate choice of policy efforts in reduction of IPV; some that have been tried include educating the youth, creating adult awareness, early childhood interventions, strengthening household financial security, and supporting survivors through victim centered services (see Niolon et al. 2017 for a detailed account of these policies).

In this paper, we study a large scale multifaceted women empowerment intervention introduced in India in the year 2010 - *Rajiv Gandhi Scheme for Empowerment of Adolescent Girls* or *SABLA* - to understand its effects on intimate partner violence faced by women. While SABLA program's stated objective was not necessarily targeting reduction in intimate partner violence, we conjecture that multidimensional support provided under the program could lead to better health and human capital outcomes which could potentially affect intimate partner violence faced by women. Specifically, the program provided simultaneous support to adolescent girls across multiple dimensions in the form of supplementary nutrition, iron and folic acid tablets, nutrition and health education, life skills training, sexual and reproductive health education, information on accessing public services and vocational

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[1]Refer to: www.who.int/news-room/fact-sheets/detail/violence-against-women

training. The components of the program have been designed on the lines of 'life course approach' which seeks to promote timely investments in health and human capital for girls in order to improve their later life outcomes[2][3] (Stuckelberger 2010; Chaudhary 2013; Administrative Staff College of India, 2013). As such, the findings of this paper may be considered as evidence of the unintended (positive) consequences of the program potentially documenting spillovers in the impacts of the policy.

In order to econometrically estimate our effects, we exploit plausibly exogenous cohort and geographic variation generated by the eligibility norms and administrative rollout of the program. Our results based on intent-to-treat (ITT) measures suggest that potential exposure to the program resulted in lower intimate partner violence among affected women. We also find that affected women faced lesser emotional and physical violence, coupled with experiences of lesser controlling behavior from their partner. Consistent with our conjecture above, we find that these effects on intimate partner violence may operationalize through improved anthropometric health outcomes as well as higher literacy and positive labor market effects for women. Additionally, we find that women have better *say* in their own earnings due to the program, thereby suggesting a potential improvement in their bargaining power. Our findings for IPV remain robust to a variety of checks, including using placebo tests, correcting for potential under-reporting, and an alternate identification strategy using intensity of exposure.

We use data from the National Family Health Survey (NFHS) - Round 4 conducted in 2015-16 covering information on almost 700 thousand women from India. Specifically, we rely on information provided for 'ever-married' women under the domestic violence module of the survey that gives us a sample of 22,168 women in accordance with our identification strategy. We use a dummy to indicate cohort variation (*ever vs. never exposed*) in treatment assignment based on eligibility status using actual years of exposure to the policy interacted with district level treatment status based on administrative guidelines on rollout of the program in our identification strategy. Due to unavailability of district identifiers we are

[2]https://www.who.int/ageing/publications/lifecourse/alc_lifecourse_training_en.pdf
[3]https://www.euro.who.int/en/health-topics/Life-stages

unable to use the prior round of the NFHS i.e. NFHS Round 3 conducted during 2005-2006 for our empirical strategy. We stand to lose out on a couple of things as a result. First, we could have potentially tracked changes and exploited the timing of the reform to get more robust identification. Currently, we have to depend on a difference-in-difference design based on two cross-sectional sources of variation. Although it is econometrically not any different in terms of execution or implication, we stand to lose out on some statistical power and other potentially interesting outcomes such as changing notions about domestic violence (Banerjee et al. 2019). Second, we are unable to provide support for the counterfactual identification assumption using common pre-trends in outcomes for treated and untreated units using the prior round. While there is no obvious way to get around the first problem, we use an even earlier round of NFHS i.e. NFHS Round 2 conducted during 1998-1999 along with another alternate data source to try and address the second issue.[4] We also perform tests of exact randomization by simulating treatment assignment as part of of falsification exercises to support our identification strategy.

1.1 Related Literature and Contributions

Our paper contributes to several strands of the existing literature. First, we contribute to the extensive literature on the set of interventions which help address IPV related issues. For instance, cash transfers (or other economic transfers) to women have been found to be an effective tool in reducing IPV (Angelucci 2008; Bobonis et al. 2013; Hidrobo et al. 2016; Haushofer et al. 2018; Buller et al. 2018). However, the effect of such transfers can vary with the individual characteristics of women, such as their education level (Hidrobo and Fernald 2013). Similarly, programs that combine economic transfers with behavioral or awareness training components have generally resulted in reduction of violence (Pronyk 2006; Kim et al. 2007; Roy et al. 2019). Innovative interventions exposing women to *edutainment* or

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[4]The reason for not being able to use any other dataset but NFHS for the main analysis have been described in detail in the Data section that follows. Even though the NFHS Round 2 survey was conducted nearly two decades prior to the latest NFHS survey round, it still provides us some insight into the existence of parallel trends between SABLA and Non-SABLA districts. We also collect administrative data from the National Crime Records Bureau (NCRB) of India which provides aggregate district level women related crime data over the years. Comparing the aggregate crime rates for women related crimes in SABLA districts with other districts over the years, we do not find any significant differential trends providing support to the identification design.

participatory theatre programs have been found to potentially change the attitude or norm towards intimate partner violence resulting in lower IPV incidence (Banerjee et al. 2019; Green et al. 2020; Hoff et al. 2020).

Second, we contribute to the literature on interventions that aim to empower women through the provision of education, life skills, vocational training, or by generating awareness, to which our study is more closely related. Since these programs improve investment in women's human capital and make them economically as well as socially empowered, it is quite possible that they potentially affect IPV. However, most of the research on such programs in the economic literature has not focused explicitly on IPV or related outcomes. While existing evidence shows that provision of negotiation skills or soft skills training can help improve women's human capital and productivity (Ashraf et al. 2020; Adhvaryu et al. 2018), imparting awareness on gender equality can reshape gender attitudes among women and men (Dhar et al. 2019), providing vocational or business training to women can result in better labor market prospects (Attanasio et al. 2011, Attanasio et al. 2017; Green et al. 2015; Maitra and Mani 2017; McKenzie 2017) and multifaceted interventions, similar to SABLA, providing simultaneous support across multiple dimensions have positive effects on various women-centric outcomes (Duflo et al. 2015; Acevedo et al. 2017; Buchmann et al. 2017; Bandiera et al. 2020; Edmonds et al. 2020), only very few studies look at the impact of empowerment on IPV.[5]

Even among the few notable exceptions, the empirical results are somewhat mixed. On the one hand, Green et al. (2015) show that exposure to a business training program improved business ownership and income among women participants but did not find any impact on intimate partner violence. On the other hand, Bulte and Lensink (2019) show that provision of gender and business training to women resulted in higher intimate partner violence despite the program having positive impacts for women's relational empowerment (Huis et al. 2017). Again, Bandiera et al. (2019) find that providing reproductive and health information, and vocational training in a 'safe space' environment (Empowerment

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[5]On the contrary, Groh et al. (2016) do not find any significant impact of soft skills training program on labor market outcomes of young women.

and Livelihood for Adolescents (ELA) intervention) can result in lower sexual violence for adolescent girls[6].

Such inconclusive evidence on the impact of women empowerment programs on IPV is understandable due to challenges in identifying potential mediating channels (Green et al. 2015; Bulte and Lensink 2019; Angelucci and Heath 2020). For instance, an empowerment program that provides jobs to women may result in higher intimate partner violence as a husband might seek to control monetary resources brought in by the wife (Tauchen et al. 1991; Eswaran and Malhotra, 2011). Higher intimate partner violence may also occur if the husband feels that his status as the sole breadwinner has been threatened with his wife now having a relatively higher status (Angelucci 2008). However, better earnings and overall higher income resulting from the wife's job can lead to reduced scarcity and higher bargaining power for the wife (Farmer and Tiefenthaler 1997; Angelucci and Heath 2020). This may, in turn, lead to lower intimate partner violence. Furthermore, violence can also reduce as the wife now spends a longer time outside the house on account of her job leading to lesser exposure to her husband (Chin 2012). Thus, different empowerment programs might work differently depending on how they change the behavior of those concerned[7].

In providing novel evidence on the scant studied relation between women empowerment and IPV, we corroborate most of the findings above and show that *on-net* IPV seems to be lower with exposure to a multidimensional empowerment program. The mediating channels appear to be higher bargaining power of women and potentially better human capital accumulation leading to superior labor market prospects. The additional channel of improved anthropometric outcomes due to SABLA exposure may be motivated by the strand of literature which suggests that men are less likely to engage in violence on women of better physical stature (Eswaran and Malhotra 2011). In this connection, our paper is unique in three other ways. First, we study most types of IPV as documented in the literature and

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[6]Apart from the literature mentioned above, studies in the domain of adolescent health also analyze IPV prevention interventions conducted through Randomized Controlled Trials in a developed country context (Foshee et al. 2004; Foshee et al. 2005; Jaycox et al. 2006; Jewkes et al. 2006; Wolfe et al. 2009; Taylor et al. 2011; Miller et al. 2012). See De Koker et al. (2013) for a review of these studies. Systematic review for interventions aimed at reducing IPV and gender based violence in low and middle income countries is also available in Bourey et al. (2015) and Yount et al. (2017).

[7]In context of the above discussion, Bloch and Rao (2002) suggest that violence can also increase if husband tries to extract monetary transfers from the wife or her family

dataset, i.e., emotional, sexual, and physical, which is in contrast to the few existing studies on multifaceted women empowerment interventions such as Bandiera et al. (2019) which do not consider all these IPV aspects with such great detail.

Second, other multifaceted programs such as the gender and business training program (Bulte and Lensink 2019) have a relatively limited set of 'disempowerment' dimensions compared to SABLA. SABLA targeted a wide set of dimensions with support in the form of supplementary nutrition, health education, life skills, reproductive and sexual health awareness, and vocational training. To our knowledge, no other empowerment program is as comprehensive as the SABLA with the closest being the ELA program studied in Bandiera et al. (2019), which however does not have the supplementary nutrition component as in SABLA. This is fairly important in explaining the anthropometric channel of lower IPV.

Third, and perhaps most importantly, we use a large-scale government program to understand our effects as opposed to existing studies which have largely relied on interventions conducted by non-governmental organizations (NGOs) on a smaller scale. Using a large scale government program not only gives us confidence in the generalizability of our results but also helps us to account for issues related to the implementation of such empowerment programs (Peters et al. 2018). It also makes our results immune to potential bias arising out of statistically significant *NGO effect* (Usmani et al. 2019).

2   Rajiv Gandhi Scheme for Empowerment of Adolescent Girls or *SABLA*

The Rajiv Gandhi Scheme for Empowerment of Adolescent Girls (or SABLA) is a multi-dimensional women empowerment program introduced by the Government of India in late 2010[8]. The program seeks to achieve self-development and empowerment of adolescent girls aged 11-18 by providing them simultaneous support across multiple dimensions. The girls eligible for the program are provided this support in the form of supplementary nutrition,

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[8]For details: wcd.nic.in/sites/default/files/1-SABLAscheme_0.pdf

iron and folic acid tablets, nutrition and health education, life skills training, vocational training, information related to accessing public services, and guidance on family welfare, reproductive and sexual health, child care practices, and home management. The aim of the program is to create productive individuals who are educated, aware and economically empowered.

The SABLA program was introduced as a pilot project in 205 districts spread throughout the country[9] (Figure 1). This was in the backdrop of government appraisal of two erstwhile schemes, Kishori Shakti Yojana (KSY) and Nutrition Program for Adolescent Girls, which had shown less than desired impact and which also faced issues with respect to limited financial assistance and coverage. The two schemes were, thus, replaced by a single comprehensive program with new content as well as improved funding and coverage in 205 districts of the country. KSY, however, remained operational in all the remaining districts of the country. While KSY itself was a multifaceted intervention, SABLA program was a significant improvement as it offered richer content as well as better funding and coverage. For instance, SABLA had a per project outlay of Rs 3,80,000 per annum compared to the KSY's project outlay of Rs. 1,10,000 per project per annum. In terms of coverage too, SABLA had a wider reach when compared to KSY. For instance, performance audits for Uttar Pradesh (largest state of India by population) show that SABLA covered more than 70% of the adolescent girls under its nutritional support component during the period 2011-2015[10]. This compares favorably to KSY, which covered only around 5% of the adolescent girls during the period 2012-2015. The performance audit also outlines that apart from the implementation deficiencies, this difference was also on account of restrictive coverage of KSY - only 60 adolescent girls per *block* were eligible - when compared to SABLA, which covered all the adolescent girls. The audit highlights potentially little to no impacts of KSY on adolescent girls.

The 205 districts selected under the SABLA program were chosen based on a composite

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[9]In 2017-18, the coverage of the program was expanded to include 303 additional districts

[10]See: cag.gov.in/sites/default/files/audit_report_files/Uttar_Pradesh_Performance_Audit_on_Empowerment_of_Women_Report_3_2016.pdf

Figure 1: Map of India with SABLA districts
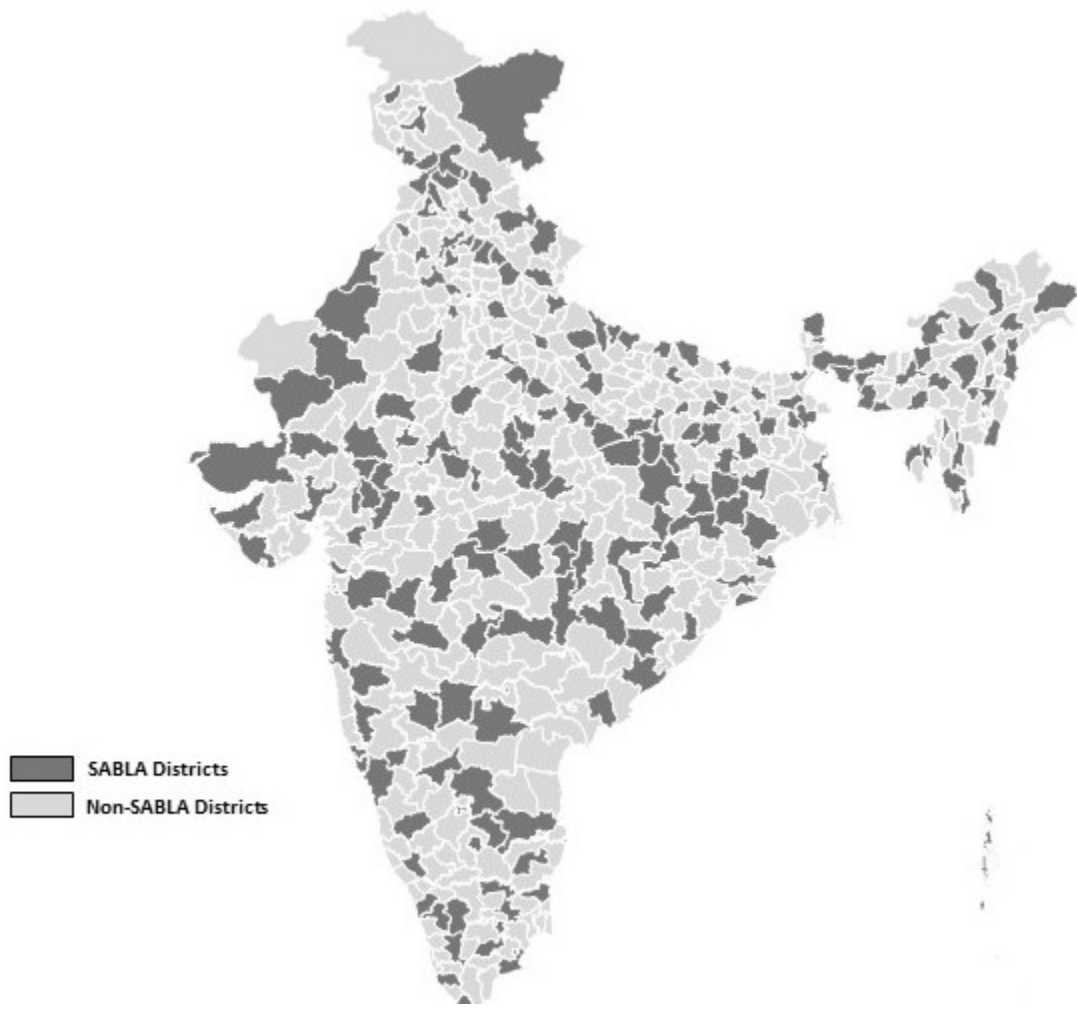
weighted index for four different criterion related to adolescent girls: drop out rate of females from school (50%), female literacy rate (20%), girls married before the age of 18 years (20%) and female work participation (10%). The selected districts were a combination of good, moderate and poor performing districts based on the above methodology. This was done primarily to test the implementation of the scheme in the pilot districts before its expansion to other districts.

The SABLA program is implemented using the infrastructure provided by Integrated Child Development Services Scheme i.e., Anganwadi Centres (AWCs)[11]. Under the program, a group of 15-25 girls called *Kishori Samooh* is formed at each AWC. It is within this *Kishori Samooh* that the activities/ training related to the program such as life skills education, nutrition and health education, and legal awareness are undertaken. Each group is headed by a *Sakhi* assisted by two *Sahelis*, selected from within the group on a rotational basis. Both the *Sakhi* and the *Sahelis* play an important leadership role within the group and facilitate peer to peer learning. This is also helpful considering that adolescent girls might be uncomfortable discussing certain matters with teachers in a classroom setting (Gallant and Maticka-Tyndale 2004; Ross, Dick, and Ferguson 2006; Bandiera et al. 2020). Other components of the program such as the provision of 'Take Home Ration' or hot cooked meal for girls as well as iron and folic acid supplementation and health check-ups are also facilitated mainly through AWCs. This is with the exception of the vocational training component of the program which is facilitated by resources under National Skill Development Program.

The benefits provided under the SABLA program also differ based on the age and the schooling status of the adolescent girls. For instance, vocational training under the program was only provided to out of school girls. Similarly, nutrition and health education was provided 2-3 times a week to out of school girls whereas the same was provided to in-school girls 2 times a month. Furthermore, to address age-specific concerns and provide age-appropriate attention to girls, modules on family planning, sexual health and child care

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[11]Anganwadi Centres are an important part of public healthcare system in India and are responsible to provide basic healthcare services inside a village. Apart from their role as providers of basic healthcare services, they also serve as child care centers in rural India

practices were planned differently for age groups 11-14 years and 15-18 years. Table 1 provides a snapshot of the SABLA program.

Table 1: Components of SABLA program

	Frequency	Age group
Out of school girls		
Take home ration or hot cooked meal (atleast 600 calories and 18 gms protein)	300 days/ year	11-18
Iron Folic Acid Supplements	2-3 times/week	11-18
Health Check-up	2-3 times/ week	11-18
Nutrition and Health Education	2-3 times/ week	11-18
Counseling on family welfare, reproductive and sexual health, and child care practices	2-3 times/ week	11-18
Life Skills Education	2-3 times/ week	11-18
Vocational training	2-3 times/ week	16-18
In-school girls		
Take home ration or hot cooked meal (atleast 600 calories and 18 gms protein)	300 days/ year	14-18
Nutrition and Health Education	2 times/ month	11-18
Counseling on family welfare, reproductive and sexual health, and child care practices	2 times/ month	11-18
Life Skill Education	2 times/ month	11-18

Notes: Policy components as per the implementation guidelines provided to state governments and union territory administrators. For more information see: `https://wcd.nic.in/sites/default/files/1-SABLAscheme_0.pdf`.

Since its implementation in 2011, the SABLA program has covered over 10 million beneficiaries annually under its nutritional component (till 2014-2015)[12]. The program has also provided iron and folic acid supplementation to over 4 million adolescent girls along with vocational training to around 0.2 million adolescent girls, annually till 2014-2015. The average annual expenditure on the program was \$83 million till the year 2014-2015[13][14]. This

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[12]See: https://wcd.nic.in/sites/default/files/Physical%20Progress-RGSEAG%20-%20Sabla.pdf
[13]See: https://wcd.nic.in/sites/default/files/Financial%20Progress-RGSEAG%20-%20Sabla.pdf
[14]1 USD = 73.6086 INR as on 21st September 2020; Conversion rate from xe.com

was nearly 17 times the annual expenditure incurred under the KSY scheme during the year 2009-2010. The difference between the outlay becomes even more drastic when we observe that the number of districts under KSY in 2009-2010 were around three times the number of districts under the SABLA program (205 at the time of introduction). An evaluation of the SABLA program conducted for the Government of India during the year 2013 showed that the scheme has progressed steadily in terms of coverage of beneficiaries since its inception (Administrative Staff College of India, 2013). The nutritional component of the program was found to be implemented most consistently whereas the success of non-nutritional components varied at the state level.

The SABLA program resembles multifaceted women empowerment interventions based on a 'safe space' concept conducted in other settings. For instance, the Empowerment and Livelihood for Adolescents (ELA) program conducted by NGO BRAC in Africa (Bandiera et al. 2019; 2020), ISHRAQ program in Eqypt conducted by Population Council (Brady et al. 2007), or Safe Spaces program in Bangladesh conducted by Save the Children (Buchmann et al. 2017). However, differences exist in terms of program components. For instance, the SABLA program has a major nutrition component attached to it which was missing in the above programs. This is important considering that the nutrition component under SABLA can form up to 80% of the financial allocations to the program (Administrative Staff College of India, 2013). Another major difference is that the SABLA program is a large scale government-led intervention when compared to the above-mentioned programs which were conducted by non-governmental agencies on a much smaller scale. This gives SABLA a wider canvas which helps to account for issues related to the implementation of such multifaceted interventions as well as the generalizability of results coming out of their evaluation.

3 Empirical Framework

3.1 Identification Strategy

In trying to understand the impact of women empowerment on intimate partner violence, we are essentially looking at the following functional relation:

$$Y = f(Women\_Empowerment, X_{obs}, X_{unobs})$$

This suggests that intimate partner violence (Y) is a function of women empowerment as well as other observed and unobserved individual and household level characteristics. The empirical estimation of the above functional relation using OLS can therefore be problematic for several reasons. For instance, the presence of unobservables (X_{unobs}) can bias our estimates as women who are empowered might be characteristically different from those who are not. Reverse causality may also be a potential concern as the absence of intimate partner violence can itself make women feel empowered. Hence, using OLS to understand the effect of empowerment on intimate partner violence is not likely to be appropriate on account of concerns regarding biased estimates. We, therefore, make use of a quasi-experimental design that seeks to exploit the exogenous variation generated on account of a multifaceted women empowerment program to study these effects.

The institutional features of implementing SABLA, provide us with interesting sources of geographic and cohort variation. We exploit these features by using a difference-in-difference (DID) design to estimate the effect of women empowerment on intimate partner violence. The first dimension of our DID framework comes from the geographic variation in the implementation of the program. As discussed in the background section, the SABLA program was initially introduced only in 205 pilot districts and did not have a national roll-out, thereby giving us a classification of 'SABLA Districts' i.e. districts where the program was introduced and 'Non-SABLA Districts' for where it wasn't. The second dimension of our DID framework comes from the cohort variation generated on account of the program's age eligibility rules. Only girls aged 11-18 were eligible for the program support. With the pro-

gram introduced at the end of the year 2010 (or beginning 2011) and the survey years for our data being 2015 and 2016 (more on this in the data section), tracking girls exposed to the program takes the highest current age of the affected cohort to 22 years. This can be understood more clearly through Table 2.

Table 2: Tracking Cohorts

Age in Survey Year	15	16	17	18	19	20	21	22	23 and above
Interviewed in 2015									
Age in Policy Year	11	12	13	14	15	16	17	18	19
Years of Exposure	4	4	4	4	3	2	1	0	0
Eligibility	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Interviewed in 2016									
Age in Policy Year	10	11	12	13	14	15	16	17	18
Years of Exposure	4	5	5	5	4	3	2	1	0
Eligibility	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

Notes: Since the intervention was introduced near the end of the year 2010, the policy year has been taken as 2011.

In Table 2, we map the age of the girls in the survey year to their age when the policy came into action. This helps us to determine their eligibility for the program. Since SABLA is a multidimensional program spread over the years, we also potentially track the number of years a girl was exposed to the program. For instance, we observe that girls aged 22 in the survey year 2016 belonged to the first cohort that was exposed to the program for at least an year. Girls aged 23 and above remained unexposed to SABLA. So for the purpose of our analysis, we take girls in the age group of 23-28 as the unaffected cohort who serve as the potential control group for our study. Here, it's important to note that there is nothing particularly special about age 28 that serves as the upper bound of the unexposed cohort. We simply choose age 28 in order to ensure that the identification remains tight and that we also have enough sample size for our estimates. However, this choice of the upper bound of unexposed cohort does not bias our estimates as later checked in the robustness section.

Table 3: Identification Strategy

	Non-SABLA District	SABLA District
Unexposed Cohort (23-28 Years)	Not Eligible	Not Eligible
Exposed Cohort (15-22 Years)	Not Eligible	Eligible

We compare the cohort-based differences in the outcomes of the 'Exposed' and 'Unexposed' women in the districts where the SABLA program was implemented or 'SABLA districts' to cohort-based differences in outcomes of the 'Exposed' and 'Unexposed' women in the districts where it was not or the 'Non-SABLA districts'. The identifying assumption for our double-difference framework is that the difference in the means of the outcomes for 'Exposed' cohort in a SABLA and Non-SABLA district would be no different from the difference in the mean of same outcomes for 'Non-Exposed' cohort in a SABLA and Non-SABLA district, in the absence of the SABLA policy program.

While trying to estimate the causal impact of women empowerment on intimate partner violence, we also take care of several other observable and unobservable differences between these cross-sections so as to ensure that any effect picked up by our identification design is due to exposure to the SABLA program. Table 3 represents our identification strategy and shows that only women in the age cohort of 15-22 years residing in the SABLA districts were eligible for the program.

We propose to study the effect of the SABLA program on intimate partner violence faced by women using an intent to treat analysis. For this, we run the following regression specification for individual i belonging to household h in district d:

$$Y_{i,h,d} = \alpha_d + \alpha_a + \alpha_{s,a} + \beta_1 \cdot (Ever\_Exposed_i \times SABLA\_District_d) + \gamma_1 \cdot X_i + \gamma_2 \cdot X_h + \epsilon_{i,h,d}$$

$$(1)$$

where $Ever\_Exposed_i$ is a dummy variable which takes the value 1 for the 'Exposed Cohort'. We also generate a dummy variable $SABLA\_District_d$ which takes the value 1 for districts where the SABLA program was implemented. The coefficient β_1 for the interaction of the 2 cross-sectional dummy variables, $Ever\_Exposed_i \times SABLA\_District_d$ captures the effect of exposure to SABLA on Y. We also include the controls for education, religion, caste, relative education, husband's education, number of children in the household, size of the household, age of the household head, sex of the household head, rural vs urban residence, and wealth index which are represented by X. These controls at the individual and household level are captured by X_i and X_h, respectively. District fixed effects are given by α_d and age fixed effects by α_a. We also include State x Age fixed effect interactions to our regressions given by $\alpha_{s,a}$ (Heath and Tan 2020; Calvi 2019). We cluster standard errors at the level of program eligibility i.e., District x Age (Abadie et al. 2017).

Using the identification strategy outlined above, we try to estimate the effect of exposure to SABLA program on intimate partner violence faced by women. We study pure reduced form effects of the program as estimated in an ITT framework. Considering that take-up or non-compliance for the intervention can be a potential concern, we believe that the ITT design is suitable as it will provide us a conservative estimate of the effects.

We also conduct checks for the existence of parallel trends for intimate partner violence using pre-period data from NFHS - Round 2 conducted during 1998-1999. The graph for the same is depicted in Figure A.1. While, ideally, we would like to use data from NFHS - Round 3 conducted during 2005-06 for this check but the survey data set does not provide district identifiers that are critical for our analysis. We also conduct a check to ensure that the program was not endogenously placed. Here, we try to find if the SABLA status of a district was correlated with individual and household level characteristics aggregated at the district level. The results for this check are provided in Table A.1. We do not find any evidence of endogenous program placement.

3.2 Data

We rely on data from the National Family Health Survey (NFHS) Round 4 conducted during 2015-16 to study the impact of SABLA on intimate partner violence faced by women. The National Family Health Survey refers to the Demographic and Health Survey (DHS) data for India. It is a multi-round survey that provides nationally representative information over a large sample of population for the country. For instance, NFHS-Round 4 conducted in 2015-16 surveyed 601,509 households across India coupled with individual-level information on 699,686 women. For the purpose of our study, we use information from the survey's domestic violence module and restrict ourselves to the sample of ever-married women. As our identification strategy only includes women aged 15-28, this gives us a final sample of 22,168 women which we use for the purpose of our analysis.

The domestic violence module of the survey provides detailed information on our outcomes of interest. It provides mainly dis-aggregated information on different types of intimate partner violence that women are subjected to. For instance, information on emotional violence includes instances of being humiliated, threatened or insulted by husband. Similarly, information on sexual violence includes instances of being physically forced into unwanted sex, forced into unwanted sexual acts, and physically forced to perform unwanted sexual acts by the husband. The survey also provides information on physical violence faced by women which includes instances of being pushed, slapped, kicked, arm-twisted, punched, strangled or threatened with a weapon by the husband. We present detailed questions asked as a part of the survey on this subject in the appendix section.

Using the dis-aggregated information provided in the survey, we construct two aggregate measures for each specific type of intimate partner violence. The first measure is of form, 'Faced a particular type of intimate partner violence' which is a dummy variable taking value 1 if the woman faced a particular type of violence and zero, otherwise. For instance, in case of emotional violence, the variable 'Faced Emotional Violence' will take value 1 if a woman has experienced any of the instances related to humiliation, threatening, and insulting on part of the husband. The variable takes value zero if a woman have not experienced any

of these three instances. The indicator for sexual and physical violence have been created in a similar manner. The second aggregate measure that we create is of form, 'Index of a particular type of intimate partner violence', which is a continuous variable measuring the number of questions on a particular type of violence answered in the affirmative (Yes). For instance, the 'Emotional Violence Index' variable takes the value 2 if a woman was threatened and insulted but not humiliated by the husband. Again, the indicators for sexual and physical violence have been created in a similar manner. We also construct these two aggregate measures for intimate partner violence as a whole. Here we include information on all the three types of intimate partner violence. So, if a woman answers 'yes' to being humiliated by the husband, the dummy variable 'Faced IPV' would take value 1. Similarly, if the woman answers 'yes' to being 'insulted' and 'pushed' by the husband, the continuous variable 'IPV Index' would take value 2.

We primarily rely on these aggregated measures for our analysis as women may be subjected to different types of behaviorally specific violence and might be more or less likely to disclose certain acts. Thus, aggregation provides a more credible measure of violence due to potential under-reporting for specific violent acts. However, for interested readers, we also provide estimates for the impact of the SABLA program on dis-aggregated measures of intimate partner violence in the appendix section.

Apart from looking at direct measures of intimate partner violence, we also study the effect of the program on controlling behaviors faced by women. This makes sense as controlling behavior by husband can be seen as risk factors and sometimes even as forms of psychological violence themselves (Graham-Kevan 2008; Antai 2011; Aizpurua 2017). Our survey data set provides information on the husband's controlling behavior through a set of 6 questions. The information covered includes the husband's controlling behavior in terms of wanting to know the respondent's location, limiting her family contact, accusing her of unfaithfulness, expressing jealousy if she talks to men, not trusting her with money, and limiting her contact with female friends. We use these measures of controlling behaviors to conduct our analysis.

Table 4 provides summary statistics for our outcome variables of interest. We first look at

		All (1)	Eligible (2)	Ineligible (3)	Ineligible (4)	Ineligible (5)
Intimate Partner Violence						
Faced Intimate Partner Violence	No=0 Yes=1	0.299 (0.457)	0.261 (0.439)	0.272 (0.445)	0.306 (0.461)	0.309 (0.462)
Intimate Partner Violence Index	Count of Questions Answered Yes	0.908 (1.950)	0.738 (1.729)	0.839 (1.888)	0.953 (2.011)	0.933 (1.968)
Faced Emotional Violence	No=0 Yes=1	0.118 (0.323)	0.101 (0.302)	0.113 (0.317)	0.126 (0.332)	0.118 (0.323)
Emotional Violence Index	Count of Questions Answered Yes	0.195 (0.594)	0.160 (0.530)	0.185 (0.577)	0.215 (0.631)	0.194 (0.591)
Faced Sexual Violence	No=0 Yes=1	0.066 (0.249)	0.064 (0.245)	0.067 (0.250)	0.069 (0.255)	0.065 (0.248)
Sexual Violence Index	Count of Questions Answered Yes	0.113 (0.470)	0.097 (0.415)	0.110 (0.455)	0.116 (0.473)	0.114 (0.480)
Faced Physical Violence	No=0 Yes=1	0.263 (0.440)	0.216 (0.412)	0.237 (0.425)	0.269 (0.443)	0.275 (0.446)
Physical Violence Index	Count of Questions Answered Yes	0.599 (1.268)	0.480 (1.140)	0.543 (1.217)	0.621 (1.301)	0.623 (1.284)
Controlling Behavior						
Husband limits family contact	No=0 Yes=1	0.153 (0.360)	0.144 (0.351)	0.170 (0.375)	0.150 (0.357)	0.151 (0.358)
Husband wants to know location	No=0 Yes=1	0.214 (0.410)	0.234 (0.424)	0.241 (0.428)	0.205 (0.404)	0.207 (0.405)
Husband doesn't trust with money	No=0 Yes=1	0.245 (0.430)	0.240 (0.427)	0.267 (0.443)	0.241 (0.428)	0.240 (0.427)
Husband jealous when talking to men	No=0 Yes=1	0.277 (0.447)	0.302 (0.459)	0.304 (0.460)	0.267 (0.442)	0.269 (0.443)
Husband accuses unfaithfulness	No=0 Yes=1	0.081 (0.273)	0.081 (0.272)	0.089 (0.284)	0.081 (0.274)	0.079 (0.269)
Husband doesn't allow meeting female friends	No=0 Yes=1	0.207 (0.405)	0.214 (0.410)	0.223 (0.416)	0.197 (0.397)	0.214 (0.410)
Age			15-22	15-22	23-28	23-28
SABLA Age Eligibility			Yes	Yes	No	No
SABLA District			Yes	No	Yes	No

	Description	All (1)	Eligible (2)	Ineligible (3)	Ineligible (4)	Ineligible (5)
Place of Residence	0=Rural, 1=Urban	0.256 (0.437)	0.232 (0.422)	0.199 (0.399)	0.301 (0.459)	0.258 (0.437)
Education in Single Years	Continuous Variable	7.080 (4.908)	7.089 (4.283)	7.071 (4.402)	7.203 (5.040)	7.025 (5.079)
Household Size	Continuous Variable	5.281 (2.255)	5.156 (2.303)	5.280 (2.442)	5.234 (2.199)	5.321 (2.210)
Children below 5years in household	Continuous Variable	1.136 (0.937)	0.841 (0.855)	0.845 (0.878)	1.205 (0.935)	1.240 (0.940)
Wealth Index	1=Poorest, 2=Poorer 3=Middle, 4=Richer 5=Richest	2.809 (1.350)	2.571 (1.314)	2.590 (1.256)	2.920 (1.387)	2.863 (1.355)
Age of house-hold head	Continuous Variable	43.568 (16.170)	44.407 (16.807)	45.031 (16.587)	43.130 (15.873)	43.179 (16.047)
Sex of house-hold head	0=Male 1=Female	0.131 (0.338)	0.135 (0.342)	0.129 (0.335)	0.132 (0.339)	0.131 (0.337)
Current Age	Continuous Variable	24.186 (2.919)	20.081 (1.500)	20.055 (1.499)	25.544 (1.840)	25.468 (1.851)
Religion	1=Hindu 0=Other Religion	0.763 (0.426)	0.790 (0.407)	0.764 (0.424)	0.759 (0.428)	0.760 (0.427)
Caste	1= SC/ST 0=Others	0.392 (0.488)	0.448 (0.497)	0.423 (0.494)	0.392 (0.488)	0.374 (0.484)
Husband's education in Single Years	Continuous Variable	8.097 (4.703)	7.998 (4.347)	7.905 (4.415)	8.284 (4.765)	8.087 (4.808)
Relative Education (Wife's schooling-Husband's Schooling)	Continuous Variable	-1.012 (4.154)	-0.916 (3.825)	-0.830 (4.152)	-1.081 (4.121)	-1.053 (4.211)
Age			15-22	15-22	23-28	23-28
SABLA Age Eligibility			Yes	Yes	No	No
SABLA District			Yes	No	Yes	No

Table 5: Sample Means : Control Variables

intimate partner violence. We observe that around 30% of women experienced some form of intimate partner violence in India. This is equal to the global incidence of intimate partner violence (30%) but lesser than that of South Asia (42%) (Devries et al. 2013). Nearly 26% of women in the country have experienced some form of physical violence which is higher than the proportion of women who have experienced emotional violence i.e., 12%. Around 7% of women were also exposed to sexual violence of some kind. Coming to the Index variables, we see that women in the sample were likely to answer at least one question on intimate partner violence experience in affirmative (Mean = 0.908). For physical violence, we observe that on an average around 0.6 questions were answered in the affirmative among the sampled women. The mean number of questions answered in affirmative for emotional and sexual violence was around 0.2 questions and 0.1 questions, respectively. When we look at the sub-sample characteristics, we observe that the women eligible for the program experienced lesser intimate partner violence when compared to the women who not eligible for the program on account of age or district criteria. However, as we can't rely on a simple means comparison analysis of eligible and ineligible groups due to endogeneity issues, these results only serve as a precursor to our actual findings. When we look at the summary statistics for controlling behaviors, we find that husbands of 15% of women limited their contact with the family. Also, 21% of women have experienced husbands' controlling behavior in the form of wanting to know her location and limiting her contact with female friends. Around 25% of women do not have husband's trust with regards to money, whereas 8% of women were accused of unfaithfulness by their husbands. These statistics show that women do experience considerable controlling behavior.

We also report sample means for individual and household level control variables used in our analysis in Table 5. We observe that around 26% of our respondents reside in urban areas. They were likely to have 7 years of education on an average with mean spousal education at a slightly higher level (8 years). A vast majority of our respondents (around 76%) belong to Hindu religion. Also, around 40% of respondents belonged to marginalized communities (scheduled caste and scheduled tribes). The mean age of sampled women respondents stood

at around 24 years. With respect to household characteristics, we observe that respondents resided in an average household size of 5.3 members. They were likely to have 1 child below 5 years at their house. Only a small proportion of households (around 13%) had a female head with the average age of a household head standing at 43.5 years. On observation we also see that the sub-sample characteristics are not very different across eligible and ineligible households. Some differences, however, can be observed in 'Current age' and 'Children below five years of age' categories which are only on account of our identification strategy and should ideally not present a threat for our analysis.

4   Results

We report the results from our regressions in this section. First, we analyze the results for the impact of women's empowerment on intimate partner violence followed by its impact on the husband's controlling behavior. The results here present estimates of β_1 from equation 1.

4.1   Intimate Partner Violence

<div align="center">Table 6: Effect on Intimate Partner Violence</div>

	Intimate Partner Violence		Emotional Violence		Sexual Violence		Physical Violence	
	Faced IPV	IPV Index	Faced EV	EV Index	Faced SV	SV Index	Faced PV	PV Index
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SABLA Effect	-0.017	-0.171***	-0.020*	-0.054***	-0.007	-0.021	-0.031**	-0.096**
	(0.015)	(0.063)	(0.011)	(0.019)	(0.008)	(0.015)	(0.014)	(0.041)
R^2	0.16	0.13	0.10	0.09	0.09	0.08	0.16	0.14
Observations	21,111	21,111	21,111	21,111	21,111	21,111	21,111	21,111

Notes: All columns represent different regressions for 'ever-married women' based on domestic violence module of the NFHS-IV dataset. The point estimates for the coefficient of interest is the estimated β_1 from equation 1. It represents the impact of exposure to SABLA on outcomes of interest. All regressions results use district-fixed effects, age fixed effects and state by age fixed effects. Additional variables in the regression model include both individual and household level controls such as religion, caste, education, relative education, husband's education, age of household head, sex of household head, family size, number of children below or equal to 5 years of age in household, wealth index and type of place of residence (rural or urban). Robust standard errors clustered at (district x age) level are reported in parentheses. *** $p<0.01$ **$p<0.05$ *$p<0.1$

Table 6 reports the results for the impact of SABLA on intimate partner violence. We first look at the effect of the program on overall incidence of intimate partner violence in Column 1 and Column 2. The results show that women impacted by the program were less likely to have faced intimate partner violence and were also likely to answer 19% lesser questions in affirmative on the subject. Overall, women potentially exposed to the program were positively impacted as they now experienced lower intimate partner violence. Analyzing the results for more specific types of intimate partner violence, we observe that the exposed women were 17% less likely to have faced emotional violence and also answered 28% lesser questions in affirmative on the subject (Column 3 and Column 4). The estimates for sexual violence turn out to be imprecise, however, the direction of the coefficients suggests a lower incidence of sexual violence for the exposed women (Column 5 and Column 6). When we analyze the results for physical violence, we again find that the women exposed to the program were 12% less likely to have faced intimate partner violence and also answered 16% lesser questions in the affirmative on the subject (Column 7 and Column 8). Overall, the results show that the women potentially exposed to the SABLA program experienced lesser intimate partner violence (overall as well as of specific type) when compared to the unexposed women.

We also report dis-aggregated results for each type of intimate partner violence in the appendix section (Table A.2, Table A.3 and Table A.4). The dis-aggregated results are much in line with our overall analysis. We also conduct a falsification test using the pre-program survey round of NFHS with results reported in Appendix Table A.5. As expected, we find that the SABLA program introduced in 2010 did not have any significant effects on physical violence experienced by women in pre-program years.

4.2   Husband's Controlling Behavior

Controlling behavior exerted by the husband can act as a precursor risk factor for intimate partner violence faced by women. Studies have shown that women experiencing controlling behavior have an increased likelihood of experiencing intimate partner violence (Garcia-

Moreno et al. 2006; Graham-Kevan 2008; Antai 2011; Aizpurua et al. 2017). Controlling behavior by husband can itself act as a form of psychological violence in some contexts. This is possible as controlling behavior on its own can be the first expression of mistreatment by the husband (Domenech Del Rio and Sirvent Garcia del Valle 2017). However, sometimes women may be subjected to intimate partner violence by the husband in order to increase his control. Thus, on account of this close association between intimate partner violence and husband's controlling behavior, we also try to understand the impact of the SABLA program on controlling behavior exerted by the husband.

Table 7: Effect on Husband's Controlling Behavior

	Limits Family Contact (1)	Wants to know Location (2)	No Trust with Money (3)	Jealous when talk to Men (4)	Accuses Unfaith-fulness (5)	Does not allow meeting Female friends (6)
SABLA Effect	-0.028**	0.002	-0.035**	-0.001	-0.005	-0.012
	(0.013)	(0.014)	(0.015)	(0.015)	(0.010)	(0.014)
R^2	0.10	0.13	0.16	0.13	0.09	0.12
Observations	21,063	21,053	21,042	20,998	21,062	21,069

Notes: All columns represent different regressions for 'ever-married women' based on domestic violence module of the NFHS-IV dataset. The point estimates for the coefficient of interest is the estimated β_1 from equation 1. It represents the impact of exposure to SABLA on outcomes of interest. All regressions results use district-fixed effects, age fixed effects and state by age fixed effects. Additional variables in the regression model include both individual and household level controls such as religion, caste, education, relative education, husband's education, age of household head, sex of household head, family size, number of children below or equal to 5 years of age in household, wealth index and type of place of residence (rural or urban). Robust standard errors clustered at (district x age) level are reported in parentheses. *** $p<0.01$ **$p<0.05$ *$p<0.1$

Table 7 reports these results. We find that women potentially exposed to SABLA were less likely to experience controlling behavior by the husband. Specifically, husbands of exposed women were 18% less likely to limit their contact with their own family. They were also more likely to trust them with money. While the estimates for some other measures of husband's controlling behavior are imprecise, the general direction of the coefficients suggests that SABLA had a positive impact on lowering the controlling behavior experienced by the exposed women.

4.3 Sub-sample analysis: Rural vs. Urban

Some existing evidence in the domain of intimate partner violence suggests that women in rural areas face a higher burden of violence when compared to women in the urban areas (Peek-Asa et al. 2011; Leonard et al. 2014; Reckdenwald 2017). Even in the Indian context, women in rural areas have been found to experience a higher level of intimate partner violence when compared to their urban counterparts (International Institute for Population Sciences and ICF 2017). This could be on account of several factors such as physical and social isolation, patriarchal attitudes, economic stress, and public visibility which form an important part of rural life and cause domination of men over women (Riddell 2008). Other factors, such as lack of access to services that can help prevent or intervene at the time of violence in rural areas, can also be important in this context (Peek-Asa et al. 2011). We, therefore, try to understand the impact of the SABLA program by place of residence of women i.e. rural or urban.

Table 8 reports the results of the sub-sample analysis for rural and urban areas. We find that our primary estimates, which show lower intimate partner violence for women exposed to the program, are driven by the effect of the program in rural areas. This indicates that women in the rural areas were likely to be the chief beneficiaries of the the SABLA empowerment program. This is possible as women in rural areas are likely to face a higher level of structural constraints which can potentially hamper their ability to improve their lives (UN WomenWatch 2012). For instance, it has been observed that rural women fare worse in comparison to urban women for every Millennium Development Goal indicator (UN WomenWatch 2012). SABLA, by providing multifaceted program support to the rural women, can help to reduce these persistent constraints. Since rural women are also likely to face higher levels of intimate partner violence when compared to urban women, loosening of structural constraints on account of the SABLA program can also help to reduce intimate partner violence to some extent.

Table 8: Sub-sample Analysis: Rural vs Urban

	Rural (1)	Urban (2)
Faced	-0.030*	0.012
IPV	(0.017)	(0.033)
IPV	-0.225***	0.028
Index	(0.074)	(0.125)
Faced Emotional	-0.018	-0.018
Violence	(0.012)	(0.022)
Emotional Violence	-0.056**	-0.007
Index	(0.023)	(0.038)
Faced Sexual	-0.011	-0.001
Violence	(0.010)	(0.017)
Sexual Violence	-0.036*	0.004
Index	(0.019)	(0.029)
Faced Physical	-0.047***	0.012
Violence	(0.016)	(0.032)
Physical Violence	-0.133***	0.030
Index	(0.048)	(0.087)
Observations	15,686	5,425

Notes: All columns represent different regressions for 'ever-married women' based on domestic violence module of the NFHS-IV dataset. The point estimates for the coefficient of interest is the estimated β_1 from equation 1. It represents the impact of exposure to SABLA on outcomes of interest. All regressions results use district-fixed effects, age fixed effects and state by age fixed effects. Additional variables in the regression model include both individual and household level controls such as religion, caste, education, relative education, husband's education, age of household head, sex of household head, family size, number of children below or equal to 5 years of age in household, wealth index and type of place of residence (rural or urban). Robust standard errors clustered at (district x age) level are reported in parentheses. *** p<0.01 **p<0.05 *p<0.1

5 Potential Mechanisms

In the preceding section, we found that women potentially exposed to the SABLA empowerment program were likely to experience lesser intimate partner violence as well as lesser controlling behavior. This may be a direct impact of the program itself as SABLA has modules which impart gender sensitivity training and discuss issues related to domestic violence and marital rape. The program also imparts legal awareness which includes specific information on provisions of Domestic Violence Act, 2005. Government communications, in recent times, have also acknowledged that legal awareness generated among women by the SABLA program might be one of the reasons behind lower domestic violence cases (during 2012-2014)[15].

While it's possible that such direct program impacts exist, in this section, we also explore some other potential mechanisms that are more closely aligned with components of the policy program. For instance, health and nutrition was an important focus area of the program as it provided take-home ration or hot cooked meals to the eligible adolescent girls. This was supplemented by the provision of nutrition and health education as well as regular health checkups for these girls. It's possible that improved health and nutrition on account of SABLA might be a potential reason for lower intimate partner violence. Similarly, the program has also focused on life skills education as well as vocational training which might be the empowering factors leading to lower intimate partner violence for exposed women. In this section, we, therefore, focus on anthropometric health outcomes as well as human capital and labor market outcomes as potential channels that might result in lesser domestic violence for women exposed to SABLA.

5.1 Anthropometric health outcomes

Under the SABLA program, all the eligible adolescent girls were provided with a hot cooked meal/ take-home ration in order to take care of their nutritional needs. The 'supplementary nutrition' provided under the program contained 600 calories and was rich in proteins and

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[15]https://pib.gov.in/newsite/printrelease.aspx?relid=117005

micronutrients. Each adolescent girl was provided with this supplementary nutrition every day for 300 days in a year. Along with the nutritious food, girls were also provided nutrition and health-related education with an aim to improve their overall health status. Quarterly health checkups were also organized in order to keep track of anthropometric health outcomes of enrolled girls.

It's possible that improved anthropometric health outcomes on account of better nutrition provided under SABLA serves as a potential mechanism that leads to lesser intimate partner violence for exposed women. As Eswaran and Malhotra (2011) conjecture, there is a higher likelihood of a husband engaging in intimate partner violence if he feels that his wife can be physically overpowered. The physical stature of a woman can therefore play an important role in determining the incidence of intimate partner violence faced by her (Dutton and Goodman 2005). In order to explore this potential mechanism, we try to understand the impact of SABLA on anthropometric outcomes such as height, weight and Body Mass Index (BMI) of exposed women. Table 9 presents these results. We find that women potentially exposed to the SABLA program were likely to have significantly higher height as well as higher weight when compared to women who were not exposed to the program. The coefficient for BMI is also in the positive direction, although imprecise. Improved physical stature due to the nutritional component of the SABLA program can therefore be a potential mechanism through which domestic violence for exposed women goes down. These results also show us that the SABLA program has helped to improve the nutritional intake of adolescent girls, at least to some extent.

However, a potential concern here is that the weight of a woman might in fact be affected by the intimate partner violence faced by her. Studies have largely shown that intimate partner violence can lead to undernourishment for women causing them to be underweight (Ackerson and Subramanian 2008; Rahman et al. 2012; Lentz 2018). Thus, lower intimate partner violence on account of SABLA can also lead to higher weight for a woman. But while such concerns are plausible for weight, they do not stand much ground in context of height of a woman. The height of a woman is largely determined prior to the age of marriage

Table 9: Effect on anthropometric health outcomes

	Height (1)	Weight (2)	BMI (3)
SABLA Effect	0.540***	0.674**	0.131
	(0.198)	(0.291)	(0.112)
R^2	0.19	0.25	0.19
Observations	20,796	20,800	20,784

Notes: All columns represent different regressions for 'ever-married women' based on domestic violence module of the NFHS-IV dataset. The point estimates for the coefficient of interest is the estimated β_1 from equation 1. It represents the impact of exposure to SABLA on outcomes of interest. All regressions results use district-fixed effects, age fixed effects and state by age fixed effects. Additional variables in the regression model include both individual and household level controls such as religion, caste, education, relative education, husband's education, age of household head, sex of household head, family size, number of children below or equal to 5 years of age in household, wealth index and type of place of residence (rural or urban). Robust standard errors clustered at (district x age) level are reported in parentheses. *** p<0.01 **p<0.05 *p<0.1

and is also likely to be exogenous to intimate partner violence (Eswaran and Malhotra 2011). Although there can be a selection issue here as aggressive men might want to marry women with smaller physical stature so that its easier to intimidate her. However, with arranged marriages (groom/ bride chosen by parents) being the most common way of spousal choice in India (especially in rural areas), this concern is unlikely to be of much importance (Eswaran and Malhotra 2011; Allendorf and Pandian 2016).

5.2 Effect on literacy and labor market outcomes

The SABLA program includes 'Life skills' module under its components with the objective of imparting problem solving, critical thinking, communication and self awareness skills to adolescent girls. It also seeks to impart functional literacy which can help to achieve these objectives. While literacy itself can affect the incidence of intimate partner violence, empirical evidence on the same has remained limited (Ackerson et al. 2008; Deyessa et al. 2010). Another way in which literacy can impact intimate partner violence is through its effect on labor market outcomes. Empirical evidence suggests that literacy can often be a prerequisite for entering the labor market (Blunch and Verner 1999) and can also improve the associated outcomes (McIntosh and Vignoles 2001, Green and Riddell 2003; Vignoles et al. 2011; Finnie and Meng 2010; de Baldini Rocha and Ponczek 2011). These improved labor

market opportunities especially paid work can then result in lower intimate partner violence for women if it improves their bargaining power in the household or reduces their exposure to their husband (Tauchen et al. 1991, Farmer and Tiefenthaler 1996; Aizer 2010; Chin 2012; Bhattacharyya et al. 2011). Alternatively, it is also possible that women now face backlash from husband on account of joining the workforce which can increase the risk of intimate partner violence (Hjort and Villanger 2011; Guarnieri and Rainer 2018; Bhalotra et al. 2020). It, therefore, makes sense for us to understand the impact of the SABLA program on literacy and employment. Studying the labor market effects of the program is also appropriate considering that the vocational training module of the program imparts necessary skills in order to ensure the employability of adolescent girls. Thus, instead of operating through the literacy channel, SABLA can also directly impact labor market outcomes through its specific program component of 'vocational training'.

Table 10: Literacy and Labor Market Effects

| | | | Pay scheme: Work for | | |
	Literacy	Employed	No Pay	Only Cash	Other
SABLA Effect	0.032**	0.021*	0.001	0.047	-0.048
	(0.016)	(0.012)	(0.036)	(0.039)	(0.031)
R^2	0.73	0.14	0.33	0.35	0.27
Observations	21,027	21,111	4,968	4,968	4,968

Notes: All columns represent different regressions for 'ever-married women' based on domestic violence module of the NFHS-IV dataset. The point estimates for the coefficient of interest is the estimated β_1 from equation 1. It represents the impact of exposure to SABLA on outcomes of interest. All regressions results use district-fixed effects, age fixed effects and state by age fixed effects. Additional variables in the regression model include both individual and household level controls such as religion, caste, education, relative education, husband's education, age of household head, sex of household head, family size, number of children below or equal to 5 years of age in household, wealth index and type of place of residence (rural or urban). Robust standard errors clustered at (district x age) level are reported in parentheses. *** p<0.01 **p<0.05 *p<0.1

Table 10 reports the results for the impact of the program on literacy and labor market outcomes. We find that the women exposed to the SABLA program were more likely to be literate when compared to those women who were not exposed to the program. Thus, SABLA had a positive effect in improving literacy among enrolled women. For labor market outcomes, we find that women potentially exposed to the program were more likely to be

employed when compared to those who were not exposed to the program. This effect might be the result of higher literacy on account of the policy or simply the direct effect of SABLA's vocational training component. When we look at the results for the payment scheme of women's work, we do not find program effects to be significant at the conventional levels. The direction of the coefficients, however, suggests that 'Only Cash' payments might have been higher (p-value=0.23) whereas 'Others' which include 'in-kind' as well as a combination of 'cash and in-kind' payments might have been lower (p-value=0.12). 'No pay' turns out to be highly insignificant (p-value=0.968).

Table 11: Women's say in earnings

	Say in:	
	Own earnings	Husband's earnings
SABLA Effect	0.099**	0.020
	(0.049)	(0.016)
R^2	0.33	0.11
Observations	3,512	20,630

Notes: All columns represent different regressions for 'ever-married women' based on domestic violence module of the NFHS-IV dataset. The point estimates for the coefficient of interest is the estimated β_1 from equation 1. It represents the impact of exposure to SABLA on outcomes of interest. All regressions results use district-fixed effects, age fixed effects and state by age fixed effects. Additional variables in the regression model include both individual and household level controls such as religion, caste, education, relative education, husband's education, age of household head, sex of household head, family size, number of children below or equal to 5 years of age in household, wealth index and type of place of residence (rural or urban). Robust standard errors clustered at (district x age) level are reported in parentheses. *** p<0.01 **p<0.05 *p<0.1

The above results suggest that improvement in employment opportunities for women coupled with higher literacy might have resulted in lesser intimate partner violence for exposed women. However, the employment of exposed women can potentially lead to lower violence on account of both higher bargaining power as well as lower exposure to the husband. While it is difficult to segregate the effects of the two, we try to get some understanding of it through an empirical exercise in Table 11. We try to find out the impact of the program on women's say in their own earning and compare it with the impact of the program on their say in husband's earnings (Seymour and Peterman 2018). Here, we code women's say in earnings as 1 if they take a decision on earnings alone or jointly with their husband and

zero, otherwise. Results in Table 11 show that women exposed to the program had higher say in their own earnings when compared to women who were not exposed to the program. The coefficient is significant as well as the effect size is also much bigger (12.5%) for say in own earnings when compared to say in the husband's earnings (2.96%). This observation gives us an indication that improved bargaining power rather than reduced exposure to the husband, might be the dominant mechanism that helps to explain the positive effects of higher employment on intimate partner violence.

6 Robustness Check

In this section, we try to find additional evidence to ensure that the reduced form results generated by our identification strategy actually represents the true causal effect of SABLA. This is important in order to make sure that our identification strategy represented by an interaction of SABLA cohort and SABLA district actually makes sense and is not giving us a spurious result.

6.1 Test of Exact Randomization

We first perform a test for random simulation of treatment status or exact randomization (Bharadwaj et al. 2014, Chatterjee and Poddar 2019). To perform the test we run two specific simulations. For the first simulation, we randomly assign districts a SABLA and Non-SABLA status instead of using the SABLA districts as mentioned under the program guidelines. We then run the regression as stated in equation 1 for one of our primary outcome variables, for instance, physical violence. We repeat this exercise 1000 times and record the results. If the critical identifying assumption of our empirical analysis holds, then apart from the effect of SABLA, the difference between eligible age cohort and non-eligible age cohort should not be different across SABLA - Non-SABLA districts. If this happens then most of the results from this randomization of districts into SABLA and Non-SABLA category should yield us insignificant or imprecise results. Coupled with that, the effect sizes (even for

imprecise estimates) would likely be smaller in magnitude. This is because these estimates do not represent the true effect of SABLA and merely serve as a placebo experiment.

When we calculate the results for the above simulation we find that for our outcome variable *Faced Physical Violence* only 7.3% of the results come out to be significant at 95% confidence intervals. This is only a small as well as expected proportion and gives us some confidence that our identification design is actually picking up the true causal effect and not giving us a spurious result. We further observe the distribution of coefficients from this exercise as presented in Figure 2 and find that most of the coefficients are centered around zero and are much smaller in magnitude compared to our estimated coefficient of -0.031 (represented by a solid red line). For our other outcome variable for physical violence, *Physical Violence Index*, we again observe similar results. We find that only 5.6% of results turn out to be significant at a 95% confidence interval. This is again on expected lines and does not cast any doubt on our identification strategy. The distribution of coefficients also show that our true causal estimate, -0.096, is much larger and in the right direction when compared to the simulated coefficients which are mainly centered around zero.

For the second simulation, we randomize the eligibility for SABLA instead of assigning it in accordance with the administrative norms. So, under this simulation, some women who were not originally eligible for the policy would be assigned a SABLA status. Similarly, some women who were originally eligible for the policy were now assigned a Non-SABLA status. We then run the regression stated in Equation1 for our outcome variable, physical violence, and again repeat this process 1000 times. Again, if our critical identifying assumption is true then most of the results from the randomization of women into SABLA eligible and SABLA non-eligible status would give us imprecise results which should also be much smaller in magnitude as compared to our true causal estimate.

When we analyze the results for the outcome variable *Faced Physical Violence*, we find

Figure 2: Physical Violence: District Randomization
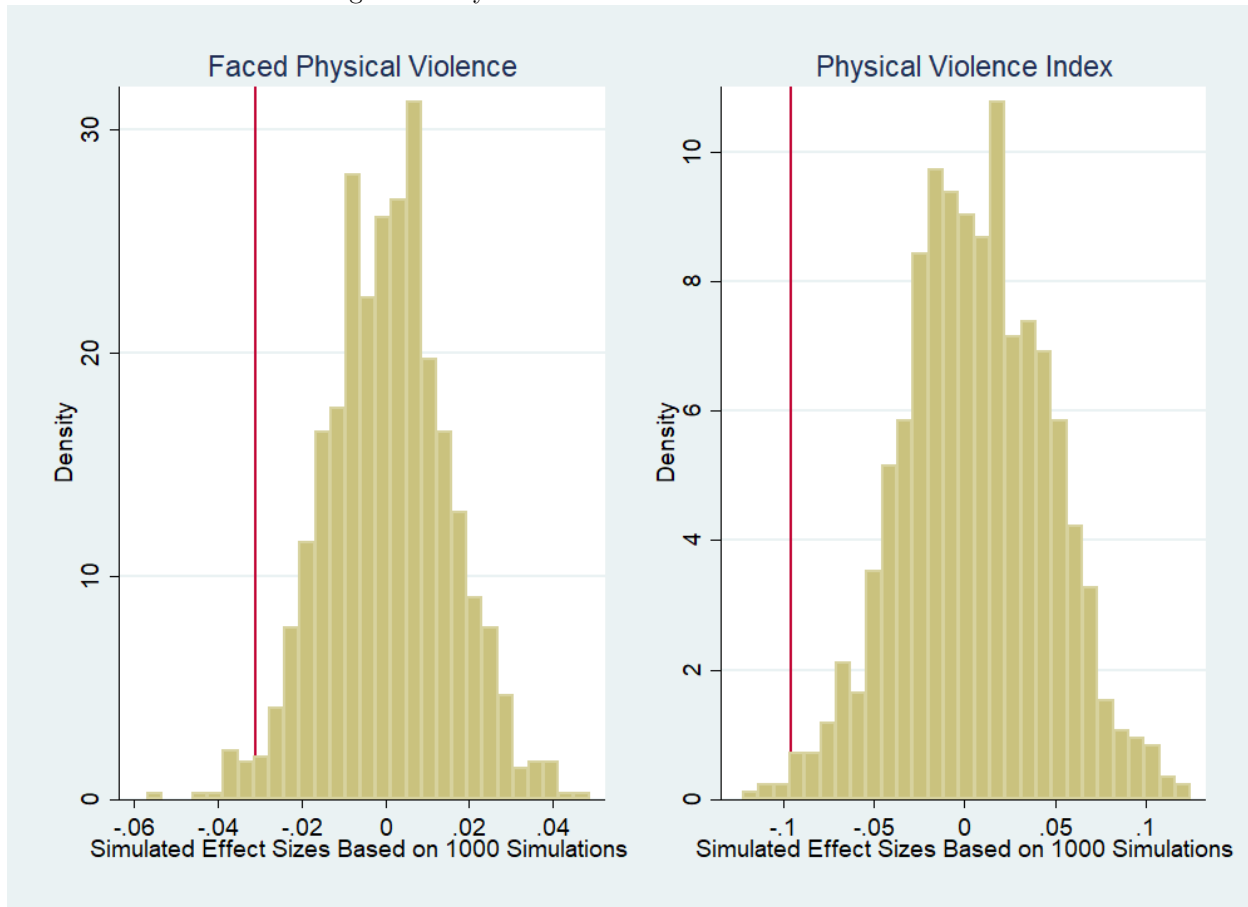
Notes: The figure reports the distribution of coefficients from the regressions based on 1000 simulations which randomly assign SABLA and Non-SABLA status to the districts. We see that most of the coefficients are centered around zero and also have a smaller magnitude when compared to the true causal estimate (marked with red solid line). The above exercise gives us confidence that our identification strategy is picking up the true effects rather than giving us a spurious result.

Figure 3: Physical Violence: Eligibility Randomization
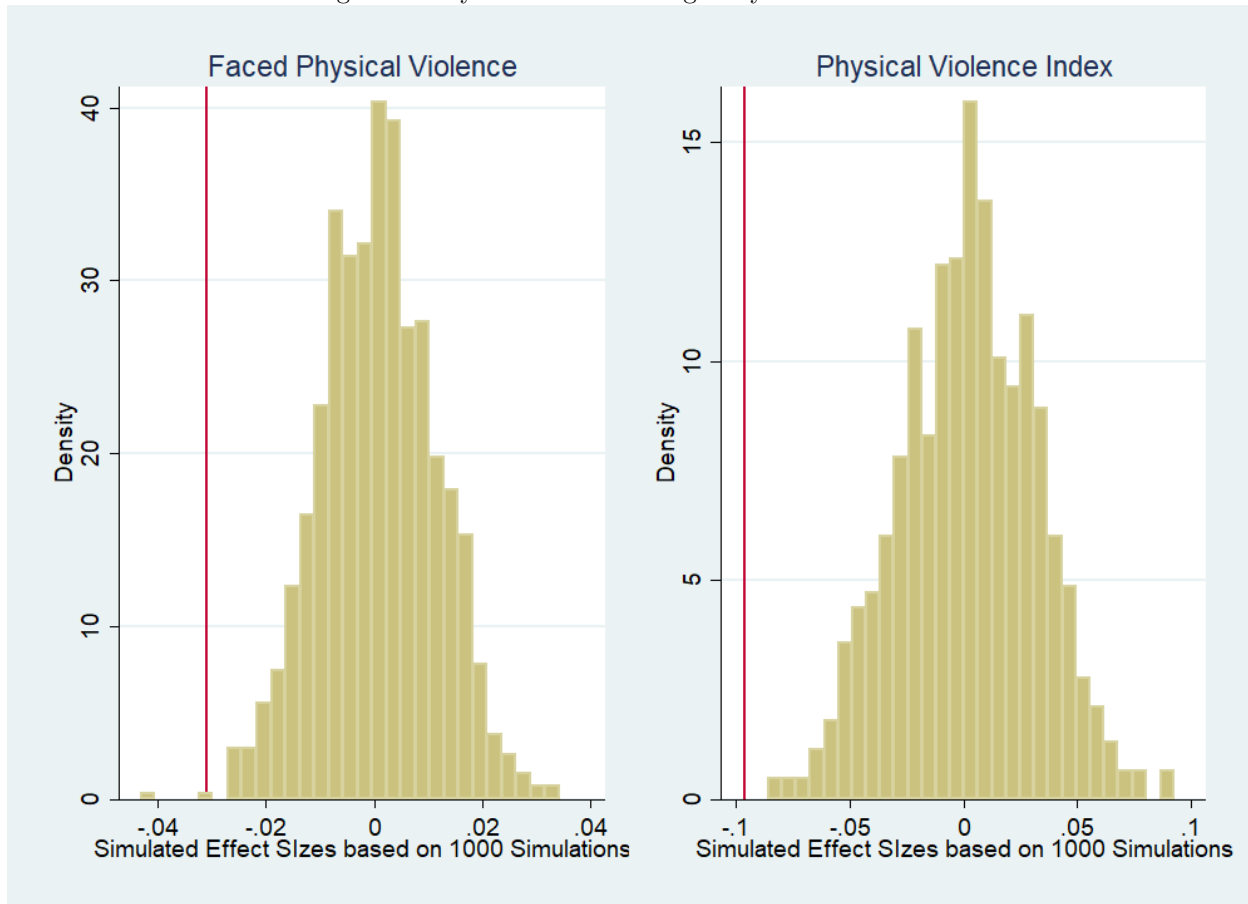
Notes: The figure reports the distribution of coefficients from the regressions based on 1000 simulations which randomly assign eligibility for SABLA among women. We see that most of the coefficients are centered around zero and also have a smaller magnitude when compared to the true causal estimate (marked with red solid line). The above exercise gives us confidence that our identification strategy is picking up the true effects rather than giving us a spurious result.

that only 5.3% of the simulated results come out to be significant at a 95% confidence interval. This is on expected lines and adds to the confidence in our identification strategy. Also, when we observe the distribution of simulated coefficients given in Figure 3 we find that nearly all the coefficients are smaller than the true causal estimate of -0.031. The distribution is also largely centered around zero. We observe similar results for our other outcome variable for physical violence i.e., *Physical Violence Index*, where only 4% of the results turn out to be significant at a 95% confidence level. The true causal estimate is again much larger and in the right direction when compared with the distribution of coefficients given in Figure 3.

The robustness exercise given above helps us to ensure that our identification design, which exploits cohort eligibility and SABLA - Non SABLA status of a district to pick the effects of the program, is actually giving us a true causal estimate and not some spurious result. This is because a random allocation to the treated group in the form of a treated individual *or* a treated district generates largely insignificant results which are centered around zero and are smaller in effect size.

6.2 Alternative Identification Strategy: Years of Exposure

Using the tracking exercise conducted in Table 2, we can potentially know the number of years an adolescent girl would have been exposed to the program. These 'years of exposure to the program' being exogenous in nature, can potentially be used in the form of an alternative identification strategy that can help us to check the robustness of our estimates. We propose the following alternative identification strategy:

$$Y_{i,h,d} = \theta_d + \theta_y + \theta_a + \theta_{s,a} + \phi_1 \cdot (Years\_Exposed_i \times SABLA\_District_d) + \omega_1 \cdot X_i + \omega_2 \cdot X_h + \epsilon_{i,h,d}$$

$$(2)$$

where, $Years\_Exposed_i$ is a continuous variable measuring the number of years an adolescent girl was exposed to the program. The maximum value this variable can take is 5

with the minimum being 0. $SABLA\_District_d$ is a dummy variable which takes the value 1 for SABLA District. The interaction of $Years\_Exposed_i$ and $SABLA\_District_d$, provides us with our coefficient of interest i.e. ϕ_1. We use the same control variables as employed in Equation 1. θ_d is for district fixed effects, θ_y is for 'years of exposure' fixed effects and θ_a is for age fixed effects. $\theta_{s,a}$ represents State x Age fixed effects. Standard errors have been clustered at District x Age level.

Table 12: Effect on Intimate Partner Violence: Years of Exposure specification

	Intimate Partner Violence		Emotional Violence		Sexual Violence		Physical Violence	
	Faced IPV	IPV Index	Faced EV	EV Index	Faced SV	SV Index	Faced PV	PV Index
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SABLA Effect	-0.008	-0.048**	-0.005	-0.014**	-0.004	-0.009*	-0.012**	-0.025*
	(0.005)	(0.023)	(0.004)	(0.008)	(0.003)	(0.005)	(0.005)	(0.014)
R^2	0.16	0.13	0.10	0.09	0.09	0.08	0.16	0.14
Observations	21,111	21,111	21,111	21,111	21,111	21,111	21,111	21,111

Notes: All columns represent different regressions for 'ever-married women' based on domestic violence module of the NFHS-IV dataset. The point estimates for the coefficient of interest is the estimated ϕ_1 from equation 2. It represents the impact of exposure to SABLA on outcomes of interest. All regressions results use district-fixed effects, years of exposure fixed effects, age fixed effects and state by age fixed effects. Additional variables in the regression model include both individual and household level controls such as age, religion, caste, education, relative education, husband's education, age of household head, sex of household head, family size, number of children below or equal to 5 years of age in household, wealth index and type of place of residence. Robust standard errors clustered at (district x age) level are reported in parentheses. *** p<0.01 **p<0.05 *p<0.1

Table 12 presents the results for this alternative identification strategy. We find that SABLA program resulted in lower emotional, sexual and physical violence for the exposed cohort (as measured by different indicators). We also find evidence for overall lower intimate partner violence as measured by the intimate partner violence index. As the direction of effect is much in line with our primary estimates, the exercise gives us some confidence in the findings of our study.

6.3   Concerns related to Under-reporting

Since intimate partner violence is an extremely sensitive issue, one natural concern with our study is that the estimates may be confounded by self-reported bias. This is possible as

women might under-report intimate partner violence faced at home. However, the use of National Family Health Survey (NFHS) data helps us in this regard. The survey follows international guidelines for the ethical collection of data on intimate partner violence faced by women[16] (Golder et al. 2016). The field staff for the survey is also provided special training in administering the domestic violence module of the survey. The information under the module is only collected if complete privacy of the respondent can be ensured. This should ideally help women to answer questions freely and without fear of repercussions, as privacy serves as one of the most important factors influencing disclosure (Ellsberg et al. 2001, Hidrobo and Fernald 2013). However, even with these checks, it is difficult to do away with concerns related to under-reporting completely. So, if women under-report intimate partner violence but this under-reporting is not associated with the treatment then a classical measurement error would occur and our estimates would be lower bound in nature. On the other hand, if under-reporting is associated with treatment i.e. if women affected by SABLA are more likely to under-report violence then our estimates would be biased away from zero. However, there are no plausible reasons to expect that as SABLA, in effect, is a women empowerment program and hence should ideally not cause women to under-report intimate partner violence. Also, the bias resulting from classical measurement error, if any, is likely to be small on account of privacy and confidentiality ensured by the interviewers at the time of the survey.

Even though we can't do away with the issue of under-reporting completely, we try to get a sense of its impact on our estimates through some robustness checks. First, we restrict our sample only to uninterrupted interviews and try to see if our estimates change much. As the NFHS data suggests an interview may face interruptions one or more times on account of the presence of the husband, an adult male or an adult female. This might potentially impact the respondent's answer to intimate partner violence questions as she might fear repercussions for answering in a particular way. Thus, it helps to check if our estimates change much with the sample of uninterrupted interviews. Table 13 reports these results.

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[16]The survey follows guidelines from World Health Organizations. refer: https://dhsprogram.com/topics/gender-Corner/upload/DHS_Domestic_Violence_Module_Ethical_Guidelines.pdf

We find that estimates from the uninterrupted sample are not very different from our main estimates. The coefficients are in fact a bit larger when compared to our main estimates, giving us the confidence that under-reporting might not be a major issue for our analysis.

Table 13: Under-reporting of Domestic Violence: Uninterrupted interviews sub-sample

	Intimate Partner Violence		Emotional Violence		Sexual Violence		Physical Violence	
	Faced IPV	IPV Index	Faced EV	EV Index	Faced SV	SV Index	Faced PV	PV Index
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SABLA Effect	-0.027	-0.196***	-0.019*	-0.047**	-0.009	-0.031*	-0.039**	-0.117***
	(0.016)	(0.068)	(0.011)	(0.021)	(0.010)	(0.016)	(0.015)	(0.045)
R^2	0.17	0.15	0.11	0.10	0.10	0.09	0.17	0.15
Observations	17,348	17,348	17,348	17,348	17,348	17,348	17,348	17,348

Notes: All columns represent different regressions for 'ever-married women' based on domestic violence module of the NFHS-IV dataset. The point estimates for the coefficient of interest is the estimated β_1 from equation 1. It represents the impact of exposure to SABLA on outcomes of interest. All regressions results use district-fixed effects, age fixed effects and state by age fixed effects. Additional variables in the regression model include both individual and household level controls such as religion, caste, education, relative education, husband's education, age of household head, sex of household head, family size, number of children below or equal to 5 years of age in household, wealth index and type of place of residence (rural or urban). Robust standard errors clustered at (district x age) level are reported in parentheses. *** p<0.01 **p<0.05 *p<0.1

We supplement the above analysis with an additional robustness check. Respondents in the NFHS survey provide information on intimate partner violence (IPV) faced by their mothers[17]. This information is recorded as a dummy variable taking value 1 if the mother faced intimate partner violence and zero, otherwise. We include this variable as an additional control in our regressions for the main sample and try to understand its impact on our estimates. We include this additional variable based on the understanding that respondents answering in affirmative to the above question are less likely to be socially conservative and hence should be more likely to report the true level of intimate partner violence. The results for this robustness check are provided in Appendix Table A.7. We find that the *Mother faced Intimate Partner Violence* variable turns out to be positive and significant in all the cases implying that women who are less socially conservative do report a higher level of violence[18]. However, the inclusion of this additional control does not change our original estimates for

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[17]The survey question is framed as *'Whether their father ever beat her mother?'*

[18]Another possible explanation can be that a woman whose father ever beat her mother is more likely to report (or experience) a higher level of domestic violence herself.

intimate partner violence a lot.

6.4   Sensitivity Check for Upper Bound of the Unexposed Cohort

Table 14: Robustness Check for Upper Bound of the Unexposed Cohort

Age Group→	(15-23)	(15-24)	(15-25)	(15-26)	(15-27)	(15-28)
	(1)	(2)	(3)	(4)	(5)	(6)
Faced	-0.025	-0.015	-0.018	-0.023	-0.023	-0.017
IPV	(0.022)	(0.018)	(0.016)	(0.016)	(0.015)	(0.015)
IPV	-0.224**	-0.197**	-0.185***	-0.192***	-0.181***	-0.171***
Index	(0.096)	(0.079)	(0.068)	(0.066)	(0.064)	(0.063)
Faced Emotional	-0.017	-0.021	-0.024**	-0.025**	-0.026**	-0.020*
Violence	(0.015)	(0.013)	(0.012)	(0.011)	(0.011)	(0.011)
Emotional Violence	-0.068**	-0.066***	-0.068***	-0.067***	-0.064***	-0.054***
Index	(0.029)	(0.024)	(0.021)	(0.021)	(0.020)	(0.019)
Faced Sexual	-0.009	-0.011	-0.012	-0.010	-0.006	-0.007
Violence	(0.012)	(0.010)	(0.009)	(0.009)	(0.009)	(0.008)
Sexual Violence	-0.031	-0.033*	-0.027	-0.026	-0.021	-0.021
Index	(0.024)	(0.019)	(0.016)	(0.016)	(0.016)	(0.015)
Faced Physical	-0.054***	-0.033*	-0.033**	-0.038***	-0.037***	-0.031**
Violence	(0.021)	(0.017)	(0.015)	(0.015)	(0.014)	(0.014)
Physical Violence	-0.124**	-0.098*	-0.090**	-0.099**	-0.096**	-0.096**
Index	(0.061)	(0.051)	(0.044)	(0.042)	(0.042)	(0.041)
Observations	7,953	10,009	13,151	15,591	18,004	22,111

Notes: All columns represent different regressions for 'ever-married women' based on domestic violence module of the NFHS-IV dataset. The point estimates for the coefficient of interest is the estimated β_1 from equation 1. It represents the impact of exposure to SABLA on outcomes of interest. All regressions results use district-fixed effects, age fixed effects and state by age fixed effects. Additional variables in the regression model include both individual and household level controls such as religion, caste, education, relative education, husband's education, age of household head, sex of household head, family size, number of children below or equal to 5 years of age in household, wealth index and type of place of residence (rural or urban). Robust standard errors clustered at (district x age) level are reported in parentheses. *** p<0.01 **p<0.05 *p<0.1

Under our identification strategy section, we mention that we choose 28 as the upper bound of age for the unexposed cohort as it helps to keep our identification tight and also gives us enough sample observations to work with. There is nothing particularly special about age 28 that we choose for our analysis. However, this gives rise to a potential concern that our estimates might be sensitive to this choice of upper age bound of the unexposed cohort. This is possible as different age groups might behave differently. To allay these

concerns, we try to check the robustness of our estimates to the varying upper bounds of age for the unexposed cohort.

Table 14 reports the results for this exercise. The age group for exposed cohort is 15-22 whereas the age group for unexposed cohort ranges from 23-28. So in Column 1 we start with age 23 as the upper bound of the unexposed cohort. We keep adding a year to this upper bound till Column 6 where this upper bound is 28. Column 6 also represents our main estimates. On observing the results, we find that our estimates do not change much and remain largely robust to the choice of upper bound of age for the unexposed cohort. Thus, the choice of age 28 as the upper bound for the unexposed cohort does not seem to bias our estimates in any manner.

6.5   Placebo Test: Effect on Men

The targeted beneficiaries for the SABLA program were adolescent girls aged 11-18 years old. As boys in the same age group were not eligible, ideally, the program should not have any direct impact on them. We can therefore conduct a placebo test to identify the effects of the program on men, which will also serve as a robustness check for our identification strategy. If we do find any direct effects of the program on men, it would imply that some geographic trend is potentially biasing our estimates. We, therefore, try to check if the SABLA program had any effect for men on the potential pathways through which we conjecture the effect on intimate partner violence for women. Although we would like to check these effects for both anthropometric health outcomes as well as literacy and labor market outcomes, the survey data on men only provides us information on the latter.

Table 15 reports the results for our placebo test exercise. We observe that the SABLA program did not have any significant effects on literacy as well as the employment of men. This is expected considering that adolescent boys were not the targeted beneficiaries of the program. It also increases our confidence that our identification strategy is not picking up the effect of some geographic trend.

Table 15: Placebo Test: Literacy and Labor Market Outcomes

	Literacy (1)	Employed (2)
SABLA Effect	0.002 (0.008)	0.006 (0.008)
R^2	0.54	0.36
Observations	46,550	46,688

Notes: All columns represent different regressions based on the men's file of the NFHS-IV dataset. The point estimates for the coefficient of interest is the estimated β_1 from equation 1. It represents the impact of exposure to SABLA on outcomes of interest. All regressions results use district-fixed effects, age fixed effects and state by age fixed effects. Additional variables in the regression model include both individual and household level controls such as religion, caste, education, age of household head, sex of household head, family size, wealth index and type of place of residence (rural or urban). Robust standard errors clustered at (district x age) level are reported in parentheses. *** p<0.01 **p<0.05 *p<0.1

6.6 Multiple Hypothesis Testing

In our study, we try to understand the impact of the SABLA program on different types of as well overall intimate partner violence experienced by women. Since this gives rise to a potentially large number of outcomes variables (8 in total), we try to adjust for multiple hypothesis testing. This is important as with a large number of outcomes, some outcomes can display significant results even when no true effect exists (Anderson 2008). Thus, to account for these concerns, we conduct multiple inference adjustments using the method of sharpened False Discovery Rate (FDR) q-values as suggested by Anderson (2008). The FDR refers to the expected proportion of rejections that are false discoveries or type 1 errors (Anderson 2008)[19]. Table 16 reports the results for sharpened FDR q values which adjusts p-values for multiple hypothesis testing. We find that even though sharpened q-values are larger than original p-values are estimates still remain significant.

7 Conclusion

The primary objective of this paper is to provide evidence for the impact of a multidimensional women empowerment program - SABLA - on intimate partner violence experienced by

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[19]Also See: https://blogs.worldbank.org/impactevaluations/overview-multiple-hypothesis-testing-commands-stata

	Intimate Partner Violence		Emotional Violence		Sexual Violence		Physical Violence	
	Faced IPV	IPV Index	Faced EV	EV Index	Faced SV	SV Index	Faced PV	PV Index
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SABLA Effect	-0.017	-0.171***	-0.020*	-0.054***	-0.007	-0.021	-0.031**	-0.096**
p-value	0.254	0.006	0.060	0.005	0.403	0.162	0.030	0.019
False Discovery Rate q-value	0.123	0.025	0.064	0.025	0.179	0.107	0.048	0.040
Observations	21,111	21,111	21,111	21,111	21,111	21,111	21,111	21,111

Notes: The table shows results for multiple hypothesis testing using method of sharpened q values as suggested by Anderson (2008).

women post-marriage in India. Using a difference-in-difference design, we find that women who were exposed to the program as adolescent girls were likely to experience lesser emotional and physical violence. The overall level of intimate partner violence experienced by these women is also likely to be lower when compared to women who didn't benefit from the program at an adolescent age. Furthermore, sub-sample analysis suggests that our results are driven by program benefits for potentially vulnerable group of rural women when compared to urban women. We conjecture that the lower intimate partner violence experienced by SABLA women is on account of program benefits which lead to better anthropometric health outcomes, higher literacy as well as better labor market opportunities for exposed women.

In performing the above analysis, we provide an early evidence for the impact of multi-dimensional women empowerment programs on intimate partner violence. We also add to the limited literature on the effects of multifaceted women empowerment interventions on women welfare. The literature on government programs that can impact intimate partner violence has remained limited to cash transfer interventions which can reduce scarcity at the household level and could also potentially improve the bargaining power of women. Our analysis based on SABLA program suggests that even without the cash transfer, empowering

women can potentially reduce intimate partner violence. This is important as cash transfers are usually *one-shot* in nature which makes it likely that there effect on intimate partner violence may disappear in the long term. On the contrary, the benefits of a multifaceted women empowerment program like SABLA which focuses on the overall development of adolescent girls are much more likely to be long term in nature.

References

Abadie, A., Athey, S., Imbens, G. W., & Wooldridge, J. (2017, November). *When Should You Adjust Standard Errors for Clustering?* (Working Paper No. 24003). National Bureau of Economic Research. Retrieved 2020-09-17, from `http://www.nber.org/papers/w24003` (Series: Working Paper Series) doi: 10.3386/w24003

Acevedo, P., Cruces, G., Gertler, P., & Martinez, S. (2017, March). *Living up to expectations: How job training made women better off and men worse off* (Working Paper No. 23264). National Bureau of Economic Research. Retrieved from `http://www.nber.org/papers/w23264` doi: 10.3386/w23264

Ackerson, L. K., Kawachi, I., Barbeau, E. M., & Subramanian, S. (2008, March). Effects of Individual and Proximate Educational Context on Intimate Partner Violence: A Population-Based Study of Women in India. *American Journal of Public Health*, *98*(3), 507–514. Retrieved 2020-09-13, from `https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2253590/` doi: 10.2105/AJPH.2007.113738

Ackerson, L. K., & Subramanian, S. V. (2008, May). Domestic Violence and Chronic Malnutrition among Women and Children in India. *American Journal of Epidemiology*, *167*(10), 1188–1196. Retrieved 2020-09-12, from `https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2789268/` doi: 10.1093/aje/kwn049

Adhvaryu, A., Kala, N., & Nyshadham, A. (2018, February). *The skills to pay the bills: Returns to on-the-job soft skills training* (Working Paper No. 24313). National Bureau of Economic Research. Retrieved from `http://www.nber.org/papers/w24313` doi: 10.3386/w24313

Administrative Staff College of India. (2013). Evaluation of SABLA Scheme.

Aizer, A. (2010, September). The gender wage gap and domestic violence. *American Economic Review*, *100*(4), 1847-59. Retrieved from `https://www.aeaweb.org/articles?id=10.1257/aer.100.4.1847` doi: 10.1257/aer.100.4.1847

Aizpurua, E., Copp, J., Ricarte, J. J., & Vázquez, D. (2017, August). Controlling Behaviors and Intimate Partner Violence Among Women in Spain: An Examination of Individual, Partner, and Relationship

Risk Factors for Physical and Psychological Abuse:. *Journal of Interpersonal Violence*. Retrieved 2020-09-11, from `https://journals.sagepub.com/doi/10.1177/0886260517723744` (Publisher: SAGE PublicationsSage CA: Los Angeles, CA) doi: 10.1177/0886260517723744

Allendorf, K., & Pandian, R. K. (2016, September). The Decline of Arranged Marriage? Marital Change and Continuity in India. *Population and development review*, *42*(3), 435–464. Retrieved 2020-09-12, from `https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5362258/` doi: 10.1111/j.1728-4457.2016 .00149.x

Anderson, M. L. (2008, December). Multiple Inference and Gender Differences in the Effects of Early Intervention: A Reevaluation of the Abecedarian, Perry Preschool, and Early Training Projects. *Journal of the American Statistical Association*, *103*(484), 1481–1495. Retrieved 2020-09-15, from `https://amstat.tandfonline.com/doi/abs/10.1198/016214508000000841` (Publisher: Taylor & Francis) doi: 10.1198/016214508000000841

Angelucci, M. (2008). Love on the rocks: Domestic violence and alcohol abuse in rural mexico. *The BE Journal of Economic Analysis & Policy*, *8*(1).

Angelucci, M., & Heath, R. (2020, May). Women empowerment programs and intimate partner violence. *AEA Papers and Proceedings*, *110*, 610-14. Retrieved from `https://www.aeaweb.org/articles?id=10.1257/pandp.20201047` doi: 10.1257/pandp.20201047

Antai, D. (2011, June). Controlling behavior, power relations within intimate relationships and intimate partner physical and sexual violence against women in Nigeria. *BMC Public Health*, *11*, 511. Retrieved 2020-09-11, from `https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3161889/` doi: 10.1186/1471 -2458-11-511

Ashraf, N., Bau, N., Low, C., & McGinn, K. (2020, May). Negotiating a Better Future: How Interpersonal Skills Facilitate Intergenerational Investment. *The Quarterly Journal of Economics*, *135*(2), 1095–1151. Retrieved 2020-09-25, from `https://academic.oup.com/qje/article/135/2/1095/5698825` (Publisher: Oxford Academic) doi: 10.1093/qje/qjz039

Attanasio, O., Guarín, A., Medina, C., & Meghir, C. (2017, April). Vocational training for disadvantaged youth in colombia: A long-term follow-up. *American Economic Journal: Applied Economics*, *9*(2), 131-43. Retrieved from `https://www.aeaweb.org/articles?id=10.1257/app.20150554` doi: 10.1257/ app.20150554

Attanasio, O., Kugler, A., & Meghir, C. (2011, July). Subsidizing vocational training for disadvantaged youth in colombia: Evidence from a randomized trial. *American Economic Journal: Applied Economics*, *3*(3), 188-220. Retrieved from `https://www.aeaweb.org/articles?id=10.1257/app.3.3.188` doi: 10.1257/app.3.3.188

Bandiera, O., Buehren, N., Burgess, R., Goldstein, M., Gulesci, S., Rasul, I., & Sulaiman, M. (2020, January). Women's Empowerment in Action: Evidence from a Randomized Control Trial in Africa. *American Economic Journal: Applied Economics*, *12*(1), 210–259. Retrieved 2020-09-21, from `https://www.aeaweb.org/articles?id=10.1257/app.20170416&&from=f` doi: 10.1257/app.20170416

Bandiera, O., Buehren, N., Goldstein, M. P., Rasul, I., & Smurra, A. (2019). *The economic lives of young women in the time of ebola: Lessons from an empowerment program.* The World Bank.

Banerjee, A., Ferrara, E. L., & Orozco, V. (2019, May). Entertainment, education, and attitudes toward domestic violence. *AEA Papers and Proceedings*, *109*, 133-37. Retrieved from `http://www.aeaweb.org/articles?id=10.1257/pandp.20191073` doi: 10.1257/pandp.20191073

Bhalotra, S., Kambhampati, U., Rawlings, S., & Siddique, Z. (2020). *Intimate Partner Violence: The Influence of Job Opportunities for Men and Women.* The World Bank. Retrieved 2020-09-14, from `https://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-9118` doi: 10.1596/1813-9450-9118

Bharadwaj, P., Johnsen, J. V., & Løken, K. V. (2014). Smoking bans, maternal smoking and birth outcomes. *Journal of Public Economics*, *115*, 72 – 93. Retrieved from `http://www.sciencedirect.com/science/article/pii/S0047272714000905` doi: https://doi.org/10.1016/j.jpubeco.2014.04.008

Bhattacharyya, M., Bedi, A. S., & Chhachhi, A. (2011, September). Marital Violence and Women's Employment and Property Status: Evidence from North Indian Villages. *World Development*, *39*(9), 1676–1689. Retrieved 2020-09-13, from `http://www.sciencedirect.com/science/article/pii/S0305750X11000209` doi: 10.1016/j.worlddev.2011.02.001

Bloch, F., & Rao, V. (2002, September). Terror as a bargaining instrument: A case study of dowry violence in rural india. *American Economic Review*, *92*(4), 1029-1043. Retrieved from `http://www.aeaweb.org/articles?id=10.1257/00028280260344588` doi: 10.1257/00028280260344588

Bobonis, G. J., González-Brenes, M., & Castro, R. (2013, February). Public transfers and domestic violence: The roles of private information and spousal control. *American Economic Journal: Economic Policy*, *5*(1), 179-205. Retrieved from `http://www.aeaweb.org/articles?id=10.1257/pol.5.1.179` doi: 10.1257/pol.5.1.179

Bourey, C., Williams, W., Bernstein, E. E., & Stephenson, R. (2015, November). Systematic review of structural interventions for intimate partner violence in low- and middle-income countries: organizing evidence for prevention. *BMC Public Health*, *15*(1), 1165. Retrieved 2020-09-29, from `https://doi.org/10.1186/s12889-015-2460-4` doi: 10.1186/s12889-015-2460-4

Brady, M., Assaad, R., Ibrahim, B. L., Salem, A., Salem, R., & Zibani, N. (2007). Providing new opportunities to adolescent girls in socially conservative settings: The ishraq program in rural upper egypt—full report.

Buchmann, N., Field, E., Glennerster, R., Nazneen, S., Pimkina, S., & Sen, I. (2017). Power vs money: Alternative approaches to reducing child marriage in bangladesh, a randomized control trial. *Unpublished Manuscript*.

Buller, A. M., Peterman, A., Ranganathan, M., Bleile, A., Hidrobo, M., & Heise, L. (2018). A mixed-method review of cash transfers and intimate partner violence in low-and middle-income countries. *The World Bank Research Observer*, *33*(2), 218–258.

Bulte, E., & Lensink, R. (2019). Women's empowerment and domestic abuse: Experimental evidence from vietnam. *European Economic Review*, *115*, 172 - 191. Retrieved from `http://www.sciencedirect.com/science/article/pii/S0014292119300431` doi: https://doi.org/10.1016/j.euroecorev.2019.03.003

Calvi, R. (2019, October). Why Are Older Women Missing in India? The Age Profile of Bargaining Power and Poverty. *Journal of Political Economy*, *128*(7), 2453–2501. Retrieved 2020-09-17, from `https://www.journals.uchicago.edu/doi/10.1086/706983` (Publisher: The University of Chicago Press) doi: 10.1086/706983

Chatterjee, S., & Poddar, P. (2019). *Maternal Health, Children Education and Women Empowerment: Quasi-Experimental Evidence from India* (GLO Discussion Paper No. 332). Essen: Global Labor Organization (GLO). Retrieved from `http://hdl.handle.net/10419/193687`

Chaudhuri, S. (2013). A Life Course Model of Human Rights Realization, Female Empowerment, and Gender Inequality in India. *World Development*, *52*, 55 – 70. Retrieved from `http://www.sciencedirect.com/science/article/pii/S0305750X13001630` doi: https://doi.org/10.1016/j.worlddev.2013.07.001

Chin, Y.-M. (2012, Jan 01). Male backlash, bargaining, or exposure reduction?: women's working status and physical spousal violence in india. *Journal of Population Economics*, *25*(1), 175–200. Retrieved from `https://doi.org/10.1007/s00148-011-0382-8` doi: 10.1007/s00148-011-0382-8

Coker, A. L., Davis, K. E., Arias, I., Desai, S., Sanderson, M., Brandt, H. M., & Smith, P. H. (2002). Physical and mental health effects of intimate partner violence for men and women. *American journal of preventive medicine*, *23*(4), 260–268.

de Baldini Rocha, M. S., & Ponczek, V. (2011, August). The effects of adult literacy on earnings and employment. *Economics of Education Review*, *30*(4), 755–764. Retrieved 2020-09-13, from `http://www.sciencedirect.com/science/article/pii/S0272775711000483` doi: 10.1016/j.econedurev.2011.03.005

De Koker, P., Mathews, C., Zuch, M., Bastien, S., & Mason-Jones, A. J. (2014). A systematic review of interventions for preventing adolescent intimate partner violence. *Journal of Adolescent Health*, *54*(1),

3–13.

Devries, K. M., Mak, J. Y. T., García-Moreno, C., Petzold, M., Child, J. C., Falder, G., . . . Watts, C. H. (2013, June). The Global Prevalence of Intimate Partner Violence Against Women. *Science*, *340*(6140), 1527–1528. Retrieved 2020-09-16, from `https://science.sciencemag.org/content/340/6140/1527` (Publisher: American Association for the Advancement of Science Section: Policy Forum) doi: 10.1126/science.1240937

Deyessa, N., Berhane, Y., Ellsberg, M., Emmelin, M., Kullgren, G., & Högberg, U. (2010, February). Violence against women in relation to literacy and area of residence in Ethiopia. *Global Health Action*, *3*. Retrieved 2020-09-13, from `https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2830802/` doi: 10.3402/gha.v3i0.2070

Dhar, D., Jain, T., & Jayachandran, S. (2019). Intergenerational transmission of gender attitudes: Evidence from india. *The Journal of Development Studies*, *55*(12), 2572-2592. Retrieved from `https://doi.org/10.1080/00220388.2018.1520214` doi: 10.1080/00220388.2018.1520214

Domenech del Rio, I., & Sirvent Garcia del Valle, E. (2017, December). The Consequences of Intimate Partner Violence on Health: A Further Disaggregation of Psychological Violence—Evidence From Spain. *Violence Against Women*, *23*(14), 1771–1789. Retrieved 2020-09-11, from `https://doi.org/10.1177/1077801216671220` (Publisher: SAGE Publications Inc) doi: 10.1177/1077801216671220

Duflo, E., Dupas, P., & Kremer, M. (2015, September). Education, hiv, and early fertility: Experimental evidence from kenya. *American Economic Review*, *105*(9), 2757-97. Retrieved from `http://www.aeaweb.org/articles?id=10.1257/aer.20121607` doi: 10.1257/aer.20121607

Dutton, M. A., & Goodman, L. A. (2005). Coercion in intimate partner violence: Toward a new conceptualization. *Sex roles*, *52*(11-12), 743–756.

Edmonds, E. V., Feigenberg, B., & Leight, J. (2020). *Advancing the agency of adolescent girls* (Tech. Rep.). National Bureau of Economic Research.

Ellsberg, M., Heise, L., Pena, R., Agurto, S., & Winkvist, A. (2001). Researching domestic violence against women: methodological and ethical considerations. *Studies in family planning*, *32*(1), 1–16.

Ellsberg, M., Jansen, H. A., Heise, L., Watts, C. H., Garcia-Moreno, C., et al. (2008). Intimate partner violence and women's physical and mental health in the who multi-country study on women's health and domestic violence: an observational study. *The lancet*, *371*(9619), 1165–1172.

Eswaran, M., & Malhotra, N. (2011). Domestic violence and women's autonomy in developing countries: theory and evidence. *Canadian Journal of Economics/Revue canadienne d'économique*, *44*(4), 1222–1263. Retrieved 2020-09-12, from `https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1540-5982.2011.01673.x` (_eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1540-5982.2011.01673.x)

doi: 10.1111/j.1540-5982.2011.01673.x

Farmer, A., & Tiefenthaler, J. (1997). An economic analysis of domestic violence. *Review of Social Economy*, *55*(3), 337-358. Retrieved from `https://doi.org/10.1080/00346769700000004` doi: 10.1080/00346769700000004

Finnie, R., & Meng, R. (2001, October). Cognitive skills and the youth labour market. *Applied Economics Letters*, *8*(10), 675–679. Retrieved 2020-09-13, from `https://doi.org/10.1080/13504850110037877` (Publisher: Routledge _eprint: https://doi.org/10.1080/13504850110037877) doi: 10.1080/13504850110037877

Foshee, V. A., Bauman, K. E., Ennett, S. T., Linder, G. F., Benefield, T., & Suchindran, C. (2004). Assessing the long-term effects of the safe dates program and a booster in preventing and reducing adolescent dating violence victimization and perpetration. *American journal of public health*, *94*(4), 619–624.

Foshee, V. A., Bauman, K. E., Ennett, S. T., Suchindran, C., Benefield, T., & Linder, G. F. (2005). Assessing the effects of the dating violence prevention program "safe dates" using random coefficientregression modeling. *Prevention Science*, *6*(3), 245.

Gallant, M., & Maticka-Tyndale, E. (2004, April). School-based HIV prevention programmes for African youth. *Social Science & Medicine (1982)*, *58*(7), 1337–1351. doi: 10.1016/S0277-9536(03)00331-9

García-Moreno, C., Jansen, H. A., Ellsberg, M., Heise, L., Watts, C., et al. (2005). *Who multi-country study on women's health and domestic violence against women.* World Health Organization.

Garcia-Moreno, C., Jansen, H. A., Ellsberg, M., Heise, L., & Watts, C. H. (2006). Prevalence of intimate partner violence: findings from the WHO multi-country study on women's health and domestic violence. *The Lancet*, *368*(9543), 1260 – 1269. Retrieved from `http://www.sciencedirect.com/science/article/pii/S0140673606695238` doi: https://doi.org/10.1016/S0140-6736(06)69523-8

Ghosh, P., Arah, O., Talukdar, A., Sur, D., Babu, G., Sengupta, P., & Detels, R. (2011). Factors associated with hiv infection among indian women. *International journal of STD & AIDS*, *22*(3), 140–145.

Golder, S., Agrawal, N., Bhogal, R. K., Tada, P. R., Menon, R. R., Thekkudan, J., . . . Laddha, R. (2016). Measurement of Domestic Violence in NFHS Surveys and Some Evidence. *Oxfam Working Papers*, 8.

Graham-Kevan, N., & Archer, J. (2008). Does controlling behavior predict physical aggression and violence to partners? *Journal of Family Violence*, *23*(7), 539.

Green, D. A., & Craig Riddell, W. (2003, April). Literacy and earnings: an investigation of the interaction of cognitive and unobserved skills in earnings generation. *Labour Economics*, *10*(2), 165–184. Retrieved 2020-09-13, from `http://www.sciencedirect.com/science/article/pii/S0927537103000083` doi: 10.1016/S0927-5371(03)00008-3

Green, D. P., Wilke, A. M., & Cooper, J. (2020, December). Countering Violence Against Women by Encour-

aging Disclosure: A Mass Media Experiment in Rural Uganda. *Comparative Political Studies*, *53*(14), 2283–2320. Retrieved 2020-09-28, from `https://doi.org/10.1177/0010414020912275` (Publisher: SAGE Publications Inc) doi: 10.1177/0010414020912275

Green, E. P., Blattman, C., Jamison, J., & Annan, J. (2015, May). Women's entrepreneurship and intimate partner violence: A cluster randomized trial of microenterprise assistance and partner participation in post-conflict Uganda (SSM-D-14-01580R1). *Social Science & Medicine (1982)*, *133*, 177–188. doi: 10.1016/j.socscimed.2015.03.042

Groh, M., Krishnan, N., McKenzie, D., & Vishwanath, T. (2016). The impact of soft skills training on female youth employment: evidence from a randomized experiment in jordan. *IZA Journal of Labor & Development*, *5*(1), 9.

Guarnieri, E., & Rainer, H. (2018, May). *Female Empowerment and Male Backlash* (SSRN Scholarly Paper No. ID 3198483). Rochester, NY: Social Science Research Network. Retrieved 2020-09-14, from `https://papers.ssrn.com/abstract=3198483`

Haushofer, J., Ringdal, C., Shapiro, J. P., & Wang, X. Y. (2019, March). *Income changes and intimate partner violence: Evidence from unconditional cash transfers in kenya* (Working Paper No. 25627). National Bureau of Economic Research. Retrieved from `http://www.nber.org/papers/w25627` doi: 10.3386/w25627

Heath, R., & Tan, X. (2019). Intrahousehold Bargaining, Female Autonomy, and Labor Supply: Theory and Evidence from India. *Journal of the European Economic Association*, *18*(4), 1928–1968. Retrieved from `https://doi.org/10.1093/jeea/jvz026` (_eprint: https://academic.oup.com/jeea/article-pdf/18/4/1928/33680031/jvz026.pdf) doi: 10.1093/jeea/jvz026

Hidrobo, M., & Fernald, L. (2013). Cash transfers and domestic violence. *Journal of health economics*, *32*(1), 304–319.

Hidrobo, M., Peterman, A., & Heise, L. (2016, July). The effect of cash, vouchers, and food transfers on intimate partner violence: Evidence from a randomized experiment in northern ecuador. *American Economic Journal: Applied Economics*, *8*(3), 284-303. Retrieved from `http://www.aeaweb.org/articles?id=10.1257/app.20150048` doi: 10.1257/app.20150048

Hjort, J., & Villanger, E. (2011). Backlash: Female employment and domestic violence. *Unpublished manuscript*.

Hoff, K., Jalan, J., & Santra, S. (2020). Participatory theater empowers women: Evidence from india.

Huis, M. A., Hansen, N., Otten, S., & Lensink, R. (2017). A three-dimensional model of women's empowerment: Implications in the field of microfinance and future directions. *Frontiers in psychology*, *8*, 1678.

International Institute for Population Sciences, & ICF. (2017, December). India National Family Health Survey NFHS-4 2015-16 [Dataset].

International Institute for Population Sciences, & ICF. (2017). *National Family Health Survey (NFHS-4), 2015–16.*

International Institute for Population Sciences, & O. R. C. Macro. (2000, October). India National Family Health Survey (NFHS-2) 1998–99 [Dataset].

Jaycox, L. H., McCaffrey, D., Eiseman, B., Aronoff, J., Shelley, G. A., Collins, R. L., & Marshall, G. N. (2006). Impact of a school-based dating violence prevention program among latino teens: Randomized controlled effectiveness trial. *Journal of Adolescent Health*, *39*(5), 694–704.

Jewkes, R., Nduna, M., Levin, J., Jama, N., Dunkle, K., Khuzwayo, N., ... Duvvury, N. (2006). A cluster randomized-controlled trial to determine the effectiveness of stepping stones in preventing hiv infections and promoting safer sexual behaviour amongst youth in the rural eastern cape, south africa: trial design, methods and baseline findings. *Tropical Medicine & International Health*, *11*(1), 3–16.

Kim, J. C., Watts, C. H., Hargreaves, J. R., Ndhlovu, L. X., Phetla, G., Morison, L. A., ... Pronyk, P. (2007). Understanding the impact of a microfinance-based intervention on women's empowerment and the reduction of intimate partner violence in south africa. *American journal of public health*, *97*(10), 1794–1802.

Lagdon, S., Armour, C., & Stringer, M. (2014). Adult experience of mental health outcomes as a result of intimate partner violence victimisation: a systematic review. *European journal of psychotraumatology*, *5*(1), 24794.

Lentz, E. C. (2018, April). Complicating narratives of women's food and nutrition insecurity: Domestic violence in rural Bangladesh. *World Development*, *104*, 271–280. Retrieved 2020-09-12, from `http://www.sciencedirect.com/science/article/pii/S0305750X17303819` doi: 10.1016/j.worlddev.2017.11.019

Leonard, A., Iyoke, C., Nkwo, P., Nwakoby, B., & Ezeonu, P. (2014, 10). Comparison of domestic violence against women in urban versus rural areas of southeast nigeria. *International journal of womens health*, *2014*, 865-872. doi: 10.2147/IJWH.S70706

Lipsky, S., Holt, V. L., Easterling, T. R., & Critchlow, C. W. (2003). Impact of police-reported intimate partner violence during pregnancy on birth outcomes. *Obstetrics & Gynecology*, *102*(3), 557–564.

Maitra, P., & Mani, S. (2017, April). Learning and earning: Evidence from a randomized evaluation in India. *Labour Economics*, *45*, 116–130. Retrieved 2020-09-28, from `http://www.sciencedirect.com/science/article/pii/S0927537116303384` doi: 10.1016/j.labeco.2016.11.007

McIntosh, S., & Vignoles, A. (2001, July). Measuring and assessing the impact of basic skills on labour

market outcomes. *Oxford Economic Papers*, *53*(3), 453–481. Retrieved 2020-09-13, from `https://academic.oup.com/oep/article/53/3/453/2361808` (Publisher: Oxford Academic) doi: 10.1093/oep/53.3.453

McKenzie, D. (2017, August). How Effective Are Active Labor Market Policies in Developing Countries? A Critical Review of Recent Evidence. *The World Bank Research Observer*, *32*(2), 127–154. Retrieved 2020-09-30, from `https://academic.oup.com/wbro/article/32/2/127/4064175` (Publisher: Oxford Academic) doi: 10.1093/wbro/lkx001

Miller, E., Tancredi, D. J., McCauley, H. L., Decker, M. R., Virata, M. C. D., Anderson, H. A., . . . Silverman, J. G. (2012). "coaching boys into men": A cluster-randomized controlled trial of a dating violence prevention program. *Journal of Adolescent Health*, *51*(5), 431–438.

Niolon, P. H., for Disease Control, C., Prevention, et al. (2017). *Preventing intimate partner violence across the lifespan: A technical package of programs, policies, and practices.* Government Printing Office.

Okuda, M., Olfson, M., Hasin, D., Grant, B. F., Lin, K.-H., & Blanco, C. (2011). Mental health of victims of intimate partner violence: results from a national epidemiologic survey. *Psychiatric Services*, *62*(8), 959–962.

Pallitto, C. C., García-Moreno, C., Jansen, H. A., Heise, L., Ellsberg, M., Watts, C., et al. (2013). Intimate partner violence, abortion, and unintended pregnancy: results from the who multi-country study on women's health and domestic violence. *International Journal of Gynecology & Obstetrics*, *120*(1), 3–9.

Peek-Asa, C., Wallis, A., Harland, K., Beyer, K., Dickey, P., & Saftlas, A. (2011, November). Rural Disparity in Domestic Violence Prevalence and Access to Resources. *Journal of Women's Health*, *20*(11), 1743–1749. Retrieved 2020-09-18, from `https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3216064/` doi: 10.1089/jwh.2011.2891

Peters, J., Langbein, J., & Roberts, G. (2018). Generalization in the Tropics – Development Policy, Randomized Controlled Trials, and External Validity. *The World Bank Research Observer*, *33*(1), 34–64. Retrieved from `https://doi.org/10.1093/wbro/lkx005` doi: 10.1093/wbro/lkx005

Pronyk, P. M., Hargreaves, J. R., Kim, J. C., Morison, L. A., Phetla, G., Watts, C., . . . Porter, J. D. (2006, December). Effect of a structural intervention for the prevention of intimate-partner violence and HIV in rural South Africa: a cluster randomised trial. *The Lancet*, *368*(9551), 1973–1983. Retrieved 2020-09-25, from `http://www.sciencedirect.com/science/article/pii/S0140673606697444` doi: 10.1016/S0140-6736(06)69744-4

Rahman, M., Nakamura, K., Seino, K., & Kizuki, M. (2013, March). Intimate partner violence and chronic undernutrition among married Bangladeshi women of reproductive age: are the poor uniquely disadvantaged? *European Journal of Clinical Nutrition*, *67*(3), 301–307. Retrieved 2020-09-12, from

https://www.nature.com/articles/ejcn2012202 (Number: 3 Publisher: Nature Publishing Group) doi: 10.1038/ejcn.2012.202

Ray, D., & Robson, A. (2018, February). Certified random: A new order for coauthorship. *American Economic Review*, *108*(2), 489-520. Retrieved from `http://www.aeaweb.org/articles?id=10.1257/aer.20161492` doi: 10.1257/aer.20161492

Reckdenwald, A., Yohros, A., & Szalewski, A. (2018, May). Health Care Professionals, Rurality, and Intimate Femicide. *Homicide Studies*, *22*(2), 161–187. Retrieved 2020-09-18, from `https://doi.org/10.1177/1088767917744592` (Publisher: SAGE Publications Inc) doi: 10.1177/1088767917744592

Riddell, T., Ford-Gilboe, M., & Leipert, B. (2009). Strategies used by rural women to stop, avoid, or escape from intimate partner violence. *Health Care for Women International*, *30*(1-2), 134-159. Retrieved from `https://doi.org/10.1080/07399330802523774` (PMID: 19116826) doi: 10.1080/07399330802523774

Ross, D. A., Dick, B., & Ferguson, J. (2006). *Preventing HIV/AIDS in young people : a systematic review of the evidence from developing countries.* World Health Organization. Retrieved 2020-09-21, from `https://apps.who.int/iris/handle/10665/43453` (Accepted: 2012-06-16T14:46:31Z)

Roy, S., Hidrobo, M., Hoddinott, J., & Ahmed, A. (2018, November). Transfers, Behavior Change Communication, and Intimate Partner Violence: Postprogram Evidence from Rural Bangladesh. *The Review of Economics and Statistics*, *101*(5), 865–877. Retrieved 2020-09-25, from `https://doi.org/10.1162/rest_a_00791` (Publisher: MIT Press) doi: 10.1162/rest_a_00791

Seymour, G., & Peterman, A. (2018, November). Context and measurement: An analysis of the relationship between intrahousehold decision making and autonomy. *World Development*, *111*, 97–112. Retrieved 2020-09-28, from `http://www.sciencedirect.com/science/article/pii/S0305750X18302195` doi: 10.1016/j.worlddev.2018.06.027

Stuckelberger, A. (2010). Why the life course approach to gender empowerment is important. *Promoting Empowerment of Women in Arab countries. United Nations*, 40–58.

Tauchen, H. V., Witte, A. D., & Long, S. K. (1991). Domestic Violence: A Nonrandom Affair. *International Economic Review*, *32*(2), 491–511. Retrieved from `http://www.jstor.org/stable/2526888` doi: 10.2307/2526888

Taylor, B., Woods, D., & Mumford, E. (2011). Shifting boundaries: Final report on an experimental evaluation of a youth dating violence prevention program in new york city middle schools..

UN Womenwatch. (2012). *Rural Women - Facts & Figures: Rural Women and the Millennium Development Goals.* Retrieved 2020-09-19, from `https://www.un.org/womenwatch/feature/ruralwomen/facts-figures.html`

Usmani, F., Jeuland, M., & Pattanayak, S. K. (2018). *Ngos and the effectiveness of interventions* (Tech. Rep.). World Institute for Development Economic Research (UNU-WIDER).

Verner, D., & Blunch, N.-H. (1999). *Is functional literacy a prerequisite for entering the labor market? an analysis of determinants of adult literacy and earnings in ghana*. The World Bank.

Vignoles, A., De Coulon, A., & Marcenaro-Gutierrez, O. (2011, January). The value of basic skills in the British labour market. *Oxford Economic Papers*, *63*(1), 27–48. Retrieved 2020-09-13, from `https://academic.oup.com/oep/article/63/1/27/2362023` (Publisher: Oxford Academic) doi: 10.1093/oep/gpq012

Wolfe, D. A., Crooks, C., Jaffe, P., Chiodo, D., Hughes, R., Ellis, W., . . . Donner, A. (2009). A school-based program to prevent adolescent dating violence: A cluster randomized trial. *Archives of pediatrics & adolescent medicine*, *163*(8), 692–699.

Yount, K. M., Krause, K. H., & Miedema, S. S. (2017). Preventing gender-based violence victimization in adolescent girls in lower-income countries: Systematic review of reviews. *Social Science & Medicine*, *192*, 1–13.

A   Appendix Tables

Figure A.1: Parallel Trends for SABLA vs Non-SABLA districts: NFHS 2
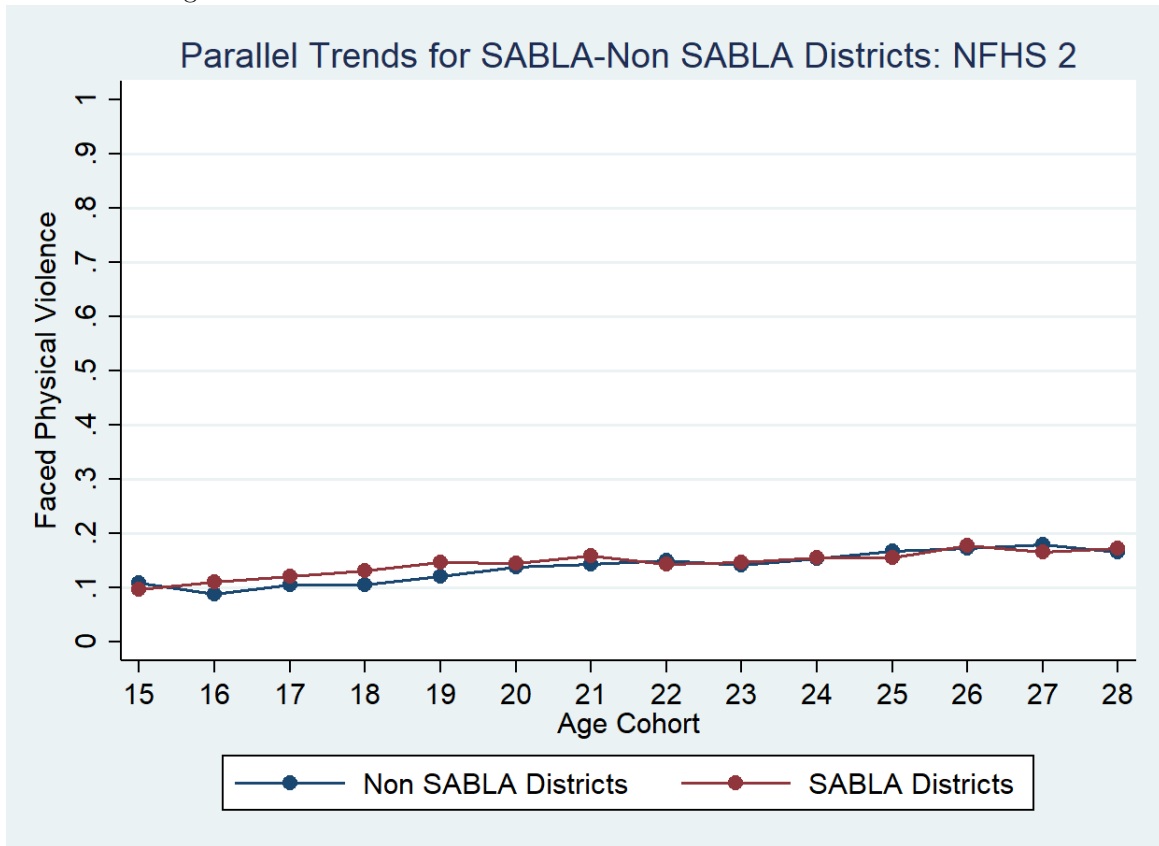
Notes: Data from National Family Health Survey (NFHS) Round 2 conducted during 1998-1999 has been used for the analysis. The 'Faced Physical Violence' variable here has been generated from the question 'whether husband has beaten the respondent (wife)?', as questions equivalent to NFHS Round 4 are not available for analysis.

Table A.1: Correlates of SABLA District

	SABLA District	SABLA District
Individual Characteristics		
Education	0.0019	0.0045
in single years	(0.011)	(0.014)
Age at First	0.0001	0.0502
Birth	(0.001)	(0.040)
Age at First	-0.0225	-0.0501
Cohabitation	(0.027)	(0.036)
Age at First	-0.0031	-0.0001
Sex	(0.026)	(0.001)
Currently	-0.0111	-0.0960
Employed	(0.127)	(0.170)
Owns land	0.0406	-0.0099
(Alone/Jointly)	(0.079)	(0.116)
Owns house	-0.0684	-0.0431
(Alone/Jointly)	(0.074)	(0.105)
Household Characteristics		
Gender of	-0.1061	0.0193
Household Head	(0.135)	(0.199)
Age of	-0.0034	-0.0017
Household Head	(0.003)	(0.005)
Household has	0.1421	0.0298
Telephone	(0.115)	(0.148)
Household has	-0.1783	-0.1546
Electricity	(0.127)	(0.156)
Household	-0.0042	-0.0173
Size	(0.021)	(0.036)
Wealth Index	0.000	0.000
Score	(0.000)	(0.000)
Observations	618	640
Sample	Eligible Age Cohort	Full Sample

Notes: The table shows the estimated OLS coefficients from a regression of the SABLA district dummy on various district level variables, aggregated from the NFHS-IV dataset. The coefficients calculated are for mean values of the variables. *** $p<0.01$ **$p<0.05$ *$p<0.1$

Table A.2: Effect on Emotional Violence: Disaggregated measures

	Humiliated by husband (1)	Threatened by husband (2)	Insulted by husband (3)
Coefficient	-0.015* (0.010)	-0.013* (0.007)	-0.026*** (0.009)
R^2	0.08	0.08	0.08
Observations	21,111	21,111	21,111

Notes: All columns represent different regressions for 'ever-married women' based on domestic violence module of the NFHS-IV dataset. The point estimates for the coefficient of interest is the estimated β_1 from equation 1. It represents the impact of exposure to SABLA on outcomes of interest. All regressions results use district-fixed effects, age fixed effects and state by age fixed effects. Additional variables in the regression model include both individual and household level controls such as religion, caste, education, relative education, husband's education, age of household head, sex of household head, family size, number of children below or equal to 5 years of age in household, wealth index and type of place of residence (rural or urban). Robust standard errors clustered at (district x age) level are reported in parentheses. *** $p<0.01$ **$p<0.05$ *$p<0.1$

Table A.3: Effect on Sexual Violence: Disaggregated measures

	Physically forced into unwanted sex (1)	Forced into unwanted sexual acts (2)	Physically forced into sexual acts (3)
SABLA Effect	-0.002 (0.008)	-0.009* (0.005)	-0.010* (0.006)
R^2	0.08	0.07	0.07
Observations	21,111	21,111	21,111

Notes: All columns represent different regressions for 'ever-married women' based on domestic violence module of the NFHS-IV dataset. The point estimates for the coefficient of interest is the estimated β_1 from equation 1. It represents the impact of exposure to SABLA on outcomes of interest. All regressions results use district-fixed effects, age fixed effects and state by age fixed effects. Additional variables in the regression model include both individual and household level controls such as religion, caste, education, relative education, husband's education, age of household head, sex of household head, family size, number of children below or equal to 5 years of age in household, wealth index and type of place of residence (rural or urban). Robust standard errors clustered at (district x age) level are reported in parentheses. *** $p<0.01$ **$p<0.05$ *$p<0.1$

Table A.4: Effect on Physical Violence: Disaggregated measures

	Pushed by husband (1)	Slapped by husband (2)	Punched by husband (3)	Arm Twisted by husband (4)	Kicked by husband (5)	Strangled by husband (6)	Threatened with gun/knife (7)
$Coefficient$	-0.028*** (0.010)	-0.024* (0.013)	-0.006 (0.009)	-0.025*** (0.011)	-0.007 (0.008)	-0.005 (0.004)	0.0002 (0.003)
R^2	0.10	0.15	0.10	0.11	0.09	0.06	0.05
Observations	21,111	21,111	21,111	21,111	21,111	21,111	21,111

Notes: All columns represent different regressions for 'ever-married women' based on domestic violence module of the NFHS-IV dataset. The point estimates for the coefficient of interest is the estimated β_1 from equation 1. It represents the impact of exposure to SABLA on outcomes of interest. All regressions results use district-fixed effects, age fixed effects and state by age fixed effects. Additional variables in the regression model include both individual and household level controls such as religion, caste, education, relative education, husband's education, age of household head, sex of household head, family size, number of children below or equal to 5 years of age in household, wealth index and type of place of residence (rural or urban). Robust standard errors clustered at (district x age) level are reported in parentheses. *** p<0.01 **p<0.05 *p<0.1

Table A.5: Falsification Test: Effect of SABLA using NFHS 2 dataset

	Faced Physical Violence
$SABLA\ Effect$	0.005 (0.007)
R^2	0.11
Observations	36,395

Notes: All columns represent different regressions for 'ever-married women' of the NFHS-II dataset. The point estimates for the coefficient of interest is the estimated β_1 from equation 1. It represents the impact of exposure to SABLA on outcomes of interest. All regressions results use district-fixed effects, age fixed effects and state by age fixed effects. Additional variables in the regression model include both individual and household level controls such as religion, caste, education, relative education, husband's education, age of household head, sex of household head, family size, number of children below or equal to 5 years of age in household, wealth index and type of place of residence (rural or urban). Robust standard errors clustered at (district x age) level are reported in parentheses. *** p<0.01 **p<0.05 *p<0.1

Table A.6: Survey Questions

	Response
Emotional Violence	
1) Spouse ever humiliated you?	No=0, Yes=1
2) Spouse ever threatened you with harm?	No=0, Yes=1
3) Spouse ever insulted you?	No=0, Yes=1
Sexual Violence	
1) Spouse ever physically forced sex when not wanted?	No=0, Yes=1
2) Spouse ever physically forced to perform sexual acts you didn't want to?	No=0, Yes=1
3) Spouse ever forced other sexual acts when not wanted?	No=0, Yes=1
Physical Violence	
1) Spouse ever pushed, shook or threw something?	No=0, Yes=1
2) Spouse ever slapped?	No=0, Yes=1
3) Spouse ever punched with fist or something harmful?	No=0, Yes=1
4) Spouse ever kicked or dragged?	No=0, Yes=1
5) Spouse ever tried to strangle or burn?	No=0, Yes=1
6) Spouse ever threatened with knife/gun or other weapon?	No=0, Yes=1
7) Spouse ever twisted her arm or pulled her hair?	No=0, Yes=1

Notes: Yes=1 if woman answers one of the following for experience of IPV: often, sometimes, in the past (but not in last 12 months).

Table A.7: Under-reporting of Domestic Violence: Mother faced IPV

	Intimate Partner Violence		Emotional Violence		Sexual Violence		Physical Violence	
	Faced IPV	IPV Index	Faced EV	EV Index	Faced SV	SV Index	Faced PV	PV Index
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SABLA Effect	-0.025*	-0.182***	-0.020*	-0.056***	-0.007	-0.020	-0.037***	-0.106***
	(0.015)	(0.064)	(0.011)	(0.020)	(0.009)	(0.016)	(0.014)	(0.041)
Mother faced Intimate Partner Violence	0.237***	0.868***	0.101***	0.169***	0.068***	0.119***	0.230***	0.580***
	(0.010)	(0.042)	(0.007)	(0.013)	(0.008)	(0.011)	(0.009)	(0.028)
R^2	0.20	0.16	0.11	0.10	0.10	0.09	0.20	0.17
Observations	20,276	20,276	20,276	20,276	20,276	20,276	20,276	20,276

Notes: All columns represent different regressions for 'ever-married women' based on domestic violence module of the NFHS-IV dataset. The point estimates for the coefficient of interest is the estimated β_1 from equation 1. It represents the impact of exposure to SABLA on outcomes of interest. All regressions results use district-fixed effects, age fixed effects and state by age fixed effects. Additional variables in the regression model include both individual and household level controls such as religion, caste, education, relative education, husband's education, age of household head, sex of household head, family size, number of children below or equal to 5 years of age in household, wealth index and type of place of residence (rural or urban). Robust standard errors clustered at (district x age) level are reported in parentheses. *** p<0.01 **p<0.05 *p<0.1

Table A.8: Effect of SABLA on Age at Marriage (Cohabitation)

	Age at marriage
SABLA Effect	-0.062
	(0.077)
R^2	0.32
Observations	20,733

Notes: All columns represent different regressions for 'ever-married women' of the NFHS-II dataset. The point estimates for the coefficient of interest is the estimated β_1 from equation 1. It represents the impact of exposure to SABLA on outcomes of interest. All regressions results use district-fixed effects, age fixed effects and state by age fixed effects. Additional variables in the regression model include both individual and household level controls such as religion, caste, education, relative education, husband's education, age of household head, sex of household head, family size, number of children below or equal to 5 years of age in household, wealth index and type of place of residence (rural or urban). Robust standard errors clustered at (district x age) level are reported in parentheses. *** p<0.01 **p<0.05 *p<0.1

Figure A.2: SABLA: Scheme Details

Rajiv Gandhi Scheme
For Empowerment of Adolescent Girls

Sabla

Enroll yourself for benefits under Sabla at the Anganwadi Centre of the village / mohalla if you are between 11 – 18 years.

Ministry of Women & Child Development
Government of India

नई सुबह की ओर
Towards a new dawn

→ Learning to access public services provided by:

● Post Office, Police Station, Bank: This will make you feel confident in using them at any point in the future.

● Government under different Schemes / Programmes / Facilities will empower the Adolescent Girls.

If you are below 14 years, you should be rightfully admitted to a nearby school under Right to Education.

☺ **Why are these services being provided:**

→ Nutrition provision:

● To improve your health and nutritional status: this nutrition is in addition to what you eat at home.

→ Iron Folic Acid (IFA) tablets:

● These are a must for you to improve:

  ➤ iron content in blood
  ➤ memory
  ➤ physical energy level
  ➤ dark circles under eyes

● Best time to have the IFA tablet is at night with dinner to avoid feelings of nausea, etc. which is experienced at times.

Conclusion: Don't give up consuming these tablets even if you have nausea for a while or excrete black stools as it is **essential** for the body.

Figure A.3: SABLA: Scheme Details

☺ **Under Sabla you will:**

- Get nutrition either as Take Home Ration or Hot Cooked Meal for 300 days in a year, if:
  - ➤ You are 11 – 14 years and out of school

    or

  - ➤ You are 14 -18 years irrespective of whether you are in school or not.
- Get iron and folic acid tablets on regular basis.
- Have your health check-up done, height, weight, BMI measured.
- Receive knowledge about nutrition & health, family welfare, reproductive health, child care practices, etc.
- Learn to face life situations, to communicate and manage stress, develop self esteem and leadership skills, make healthy and safe choices in life.
- Visit public service facilities like Post Office, Police Station, Bank, etc. and learn about their working for accessing them at any point of time in life.
- Be enrolled in vocational training under National Skill Development Programme if you are between 16 to 18 years.

States / UTs may add message

☺ **You will be a part of Kishori Samooh** if you are out of school:

- Wherein a group of 15 to 25 Adolescent Girls in the village / area of the AWC will be formed.
- 3 Peer Leaders – 1 Sakhi and 2 Sahelis will be selected yearly from amongst you.
- The Sakhi and Saheli will be trained as peer leaders and will be link between Service Providers and the Adolescent Girls.

☺ **There will be a Kit** for your use at the Anganwadi Centre:

- Which will have games, charts, flashcards, etc.
- Which will assist in understanding various health, nutrition, social and legal issues.

☺ **Kishori Diwas,** the special health day will be held **once** in three months at AWC in which:

- AWW, Medical Officer ANM and ASHA will be present.
- Following activities will be performed:
  - ➤ General health check-up of all Adolescent Girls.
  - ➤ Filling up of Kishori Card.
  - ➤ Health and Nutrition Education.
  - ➤ Any other relevant activity.

You can ask questions about growing up, health, personal hygiene, etc.

Table A.9: Effect on Intimate Partner Violence: No controls

	Intimate Partner Violence		Emotional Violence		Sexual Violence		Physical Violence	
	Faced IPV	IPV Index	Faced EV	EV Index	Faced SV	SV Index	Faced PV	PV Index
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SABLA Effect	-0.014	-0.161***	-0.019*	-0.053***	-0.007	-0.018	-0.029**	-0.089**
	(0.015)	(0.062)	(0.011)	(0.019)	(0.008)	(0.015)	(0.014)	(0.040)
R^2	0.11	0.10	0.08	0.08	0.08	0.07	0.12	0.11
Observations	22,168	22,168	22,168	22,168	22,168	22,168	22,168	22,168

Notes: All columns represent different regressions for 'ever-married women' based on domestic violence module of the NFHS-IV dataset. The point estimates for the coefficient of interest is the estimated β_1 from equation 1. It represents the impact of exposure to SABLA on outcomes of interest. All regressions results use district-fixed effects, age fixed effects and state by age fixed effects. Robust standard errors clustered at (district x age) level are reported in parentheses. *** p<0.01 **p<0.05 *p<0.1