Women's status in Rural Bangladesh: Exploitation and Empowerment

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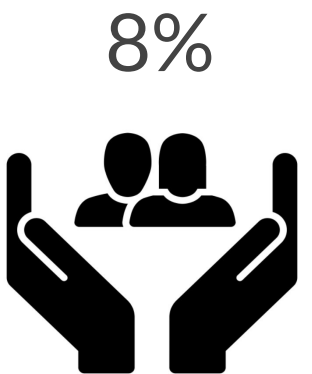# Content

What is definition of violence against women?

Violence Against Women

Physical, sexual, or **psychological harm** or suffering to women, including **threats of acts** such as coercion or arbitrary deprivation of liberty, whether occurring in public or in private life.

What is happening in Bangladesh?

Partner Violence in Bangladesh

8%

No violence

72.6%

At least once in lifetime

54.7%

Violence in previous year

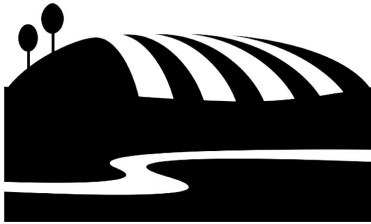Source: Violence Against Women Survey (2015)
The survey measured five forms of partner violence-- physical, sexual, emotional and controlling behaviour.

Rural v.s. Urban

Rates of lifetime partner violence (any form)

74.8%

(of ever-married women)

54.4%

Rural

Urban

Source: Violence Against Women Survey (2015)
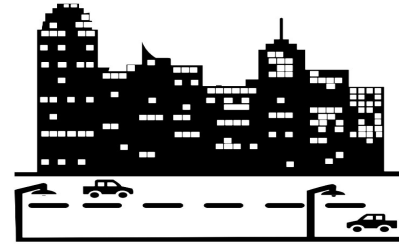
Research Question

"What are the key determinants of domestic violence in rural Bangladesh?"

- What is the impact of **age at first marriage** on the likelihood that women suffer from **domestic violence** after marriage?

- Is **women's empowerment** protective against, or instead a contributing factor, to **domestic violence** against them?

Literature Review

Domestic Violence: Determinants

Community Level Factors	Household/Individual Level Factors
Socio-economic development	Socio-economic status
Gender Inequality	Life cycle factors
Cultural norms	Intergenerational exposure to violence
	Individual attitudes

Age at First Marriage and Domestic Violence

- Jejeebhoy & Cook (1997) found women's **higher age** at marriage to be significantly **inversely** associated with **violence**.
- Srinivasan & Bedi (2007) found a **positive association** between a woman's **age at marriage** and her risk of experiencing **intimate partner violence** (IPV).
- Yount et al. (2016) found the likely **protective effect** of marrying later (**18 or older**) be **negated** in villages where very early child marriage was prevalent.
- Speizer (2011) found **non-significant** relationship between **IPV** and **early marriage** in Bihar (India) but significant results for another state, Rajasthan.

Female Empowerment and Domestic Violence

- Schuler & Hashemi (1994) reported **higher** incidence of **gender-based violence** among women who were members of **microcredit groups**.
- Koenig et al (2003) found that **women's empowerment** and short-term membership in credit groups were associated with **elevated risk** of **IPV** in more culturally conservative areas, whereas in less culturally conservative areas individual-level women's status indicators were **unrelated** to risk of violence.
- Ahmed (2008) & White (1997) reported that women's empowerment in the form of **greater income** may also **increase domestic violence** as some men perceive their status as family provider demolished through higher income capacity of their wives, prompting them to resort to **violence** to **regain** their **power**.

Data

Bangladesh Integrated Household Survey (BIHS): 2015
(International Food Policy Research Institute--IFPRI)

- 6500 households, in 325 primary sampling units

- Nationally representative survey of *rural* Bangladesh.
  Each of the seven administrative divisions of the country: Barisal, Chittagong, Dhaka, Khulna, Rajshahi, Rangpur, and Sylhet.

Incidence of Domestic Violence

Type of Violence	Rural Bangladesh (% Reported)	Number
Physical Abuse	11.61	5,988
Verbal Abuse	36.20	6,000
Threats of Divorce	5.05	5,743
Threats of taking another wife	4.75	5,742

by husband, his family member, or household residence

Note: Data taken from BIHS 2015

We explore the relationship between domestic violence and:

- Age at first marriage

- Female empowerment

Female Empowerment Score

Domain	Indicator	Weight
Production	Input in productive decisions	1/10
	Autonomy in production	1/10
Resources	Ownership of assets	1/15
	Purchase, sale, or transfer of assets	1/15
	Access to and decisions about credit	1/15
Income	Control over use of income	1/5
Leadership	Group member	1/10
	Speaking in public	1/10
Time	Workload	1/10
	Leisure	1/10

Source: Alkire et al (2013), Women's Empowerment in Agriculture Index (WEAI)

Female Empowerment Score: Questions

Domain	Indicator	Number of Questions	Number of activities	Total Questions
Production	Input in productive decision	2	8 (4+4)	8
	Autonomy in production	3	3	9
Resource	Ownership	1	14	14
	Purchase, Sale or Transfer of asset	4	14	56
	Access to and Decision on Credit	2	5	10
Income	Control over use of income	2	9 (6+3)	9
Leadership	Group Membership	1	11	11
	Speak in Public	1	3	3
Time	Workload	1	-	1
	Leisure Time	1	-	1

Female Empowerment Score: Questions

Domain	Indicator	Number of Questions	Number of activities	Total Questions
Production	Input in productive decision	2	8 (4+4)	**8**

Q1. How much input did you have in making decisions ?   4 activities (e.g. farming, fishing)

Q2 To what extent do you feel you can make your own   4 activities (e.g. types of crops, who selling them)
     personal decision?

> If she answers at least 2 among 8 activities, we consider she is empowered (coding: 1)
> If she answers less than 2 among 8 activities, we consider she is unempowered (coding: 0)

Female Empowerment Score: Computation

Empowerment Score= *Input in productive decision*$*1/10$ + *Autonomy in production*$*1/10$ + *Ownership*$*1/15$ + *Purchase, Sale or Transfer of asset*$*1/15$ + *Access to and Decision on Credit* $*1/15$ + *Control over use of income* $*1/5$ + *Group Membership* $* 1/10$ + *Speak in Public*$* 1/10$ + *workload*$*1/10$ + *Leisure Time* $*1/10$

Female Empowerment Score: Summary

Domain	Indicator	Mean	Standard Deviation
Production	Input in productive decision	0.249	0.433
	Autonomy in production	0.784	0.411
	Ownership	0.195	0.397
Resource	Purchase, Sale or Transfer of asset	0.445	0.497
	Access to and Decision on Credit	0.466	0.499
Income	Control over use of income	0.216	0.412
Leadership	Group Membership	0.697	0.460
	Speak in Public	0.407	0.491
Time	Workload	0.313	0.464
	Leisure Time	0.210	0.408
Overall Empowerment Score		0.627	0.171

Note: Data taken from BIHS 2015

Summary of Key Statistics: Covariates

	Age at first marriage			Age at first Menstruation		
	All (1)	15 or younger (2)	Older than 15 (3)	11-12 (4)	13-14 (5)	15-17 (6)
Age	33.76	36.06	32.70	33.40	33.90	34.63
Height (cm)	150.74	150.50	150.86	150.49	150.87	151.62
Hindu	0.11	0.095	0.12	0.13	0.12	0.14
Muslim	0.81	0.86	0.79	0.87	0.88	0.86
Electricity (yes/no)	0.61	0.59	0.61	0.59	0.62	0.56
Drinking water at home	0.66	0.67	0.66	0.66	0.67	0.62
Years of father's education	2.87	2.64	2.98	2.71	2.96	3.12
Years of mother's education	1.24	1.05	1.32	1.14	1.29	1.35
Size of father's cultivable land (decimal)	205.48	202.15	207.02	189.99	213.98	243.27
Age at first marriage				16.92	16.962	17.493
Observations	6,258	2,006	4,252	2,419	3,415	340

Note: Data taken from BIHS 2015

Methodology
Instrumental Variable Approach

Relationship between Domestic Violence and Age at first marriage

Dependent variable: *Domestic Violence*

Independent variable: *Age at first marriage*

Covariates
- Age of female, height, dummy for whether woman is pregnant, religion of household (Muslim/Hindu), current socio-economic status (dummy for whether the household has access to electricity & dummy for whether household's source of drinking water is in their own home), years of father's and mother's education, size of father's land
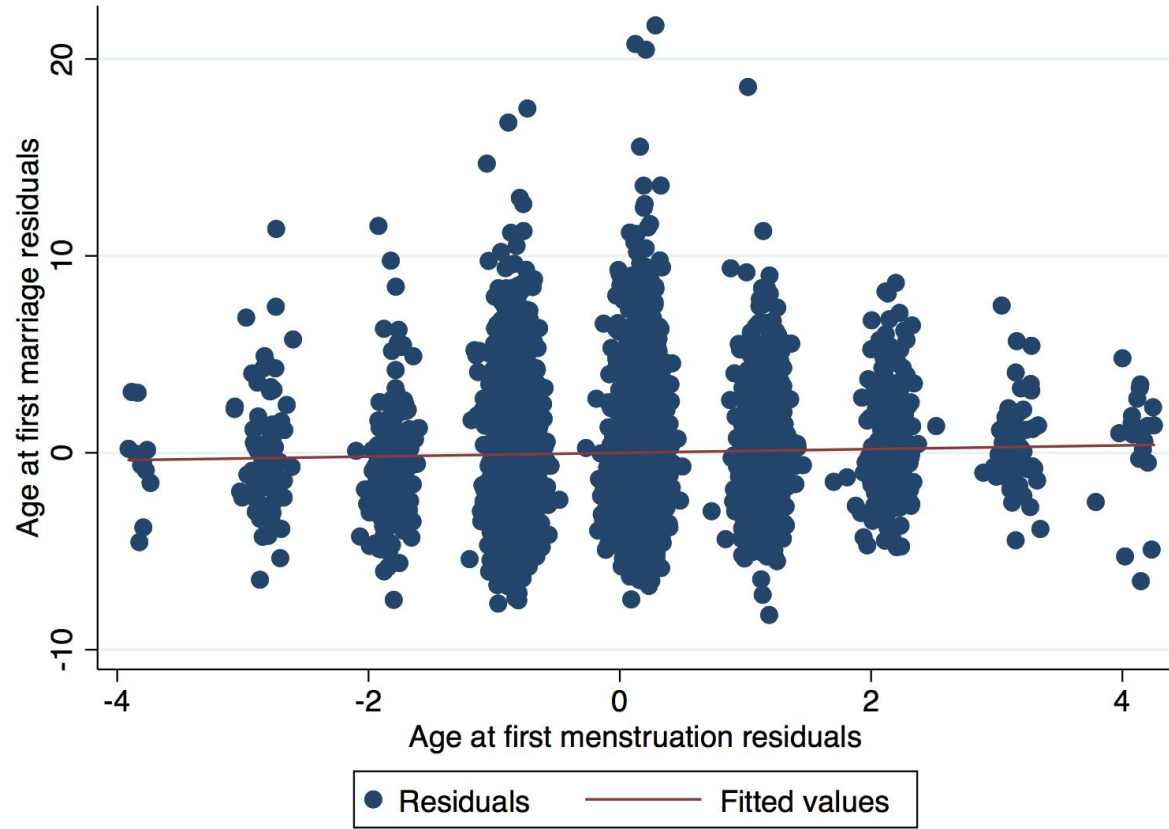
Village fixed effects

Instrument for Age at first marriage
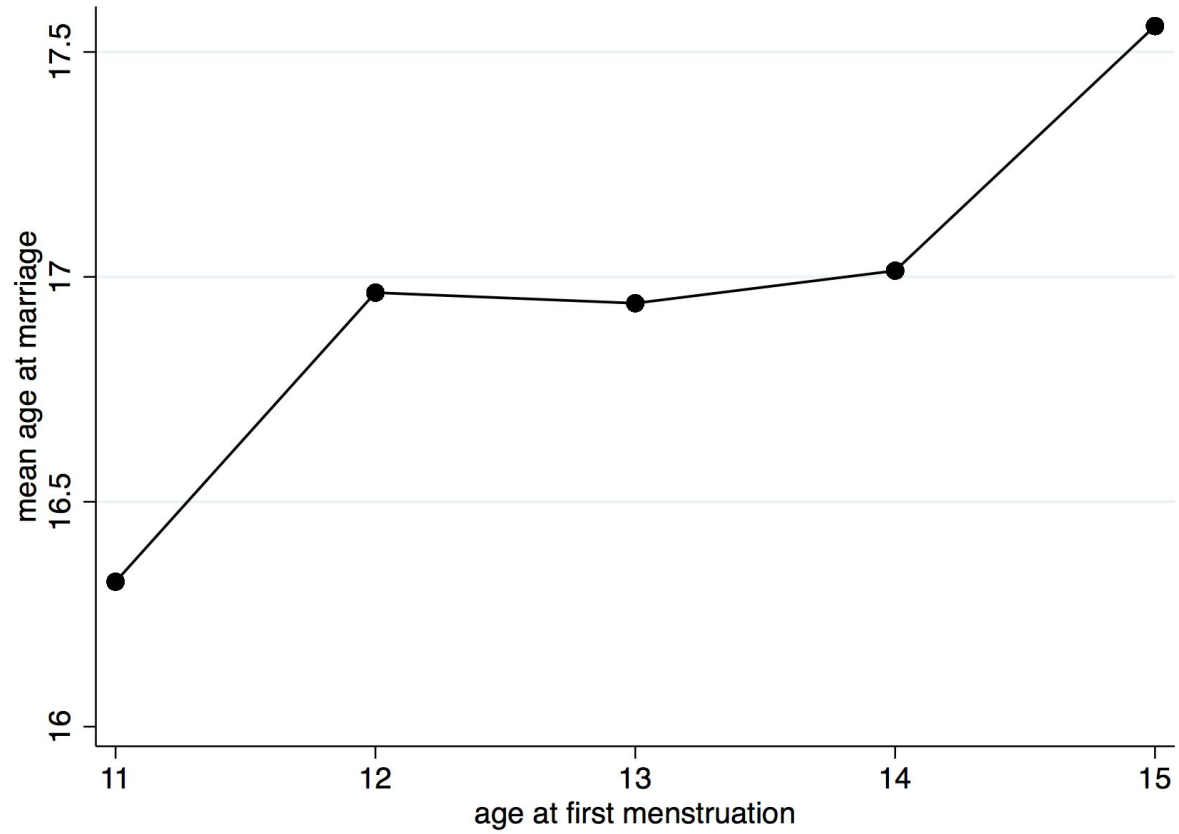
- **Age at First Menstruation**

  Relevance: Girls are typically only able to be married off after the onset of puberty. (Field et al., 2008)

  Therefore, age at menstruation and age at first marriage interact with each other.

Partial regression scatterplot of age at first marriage and age at first menstruation

Mean of age at first marriage on mean of age at first menstruation

Instrument for Age at first marriage

- **Age at First Menstruation**

  Independence: Genetic factors are by far the strongest predictors of adolescent development and consequently age of first menstruation → not likely to be directly related to other socio-economic factors.

  However, there might be external influences on age at first menstruation → see whether differences in nutrition are large enough to delay pubescent development and cause stunting.

  We check if age at menstruation is negatively correlated to height as that would indicate possible stunting during childhood, threatening the exclusion assumption for our instrument.
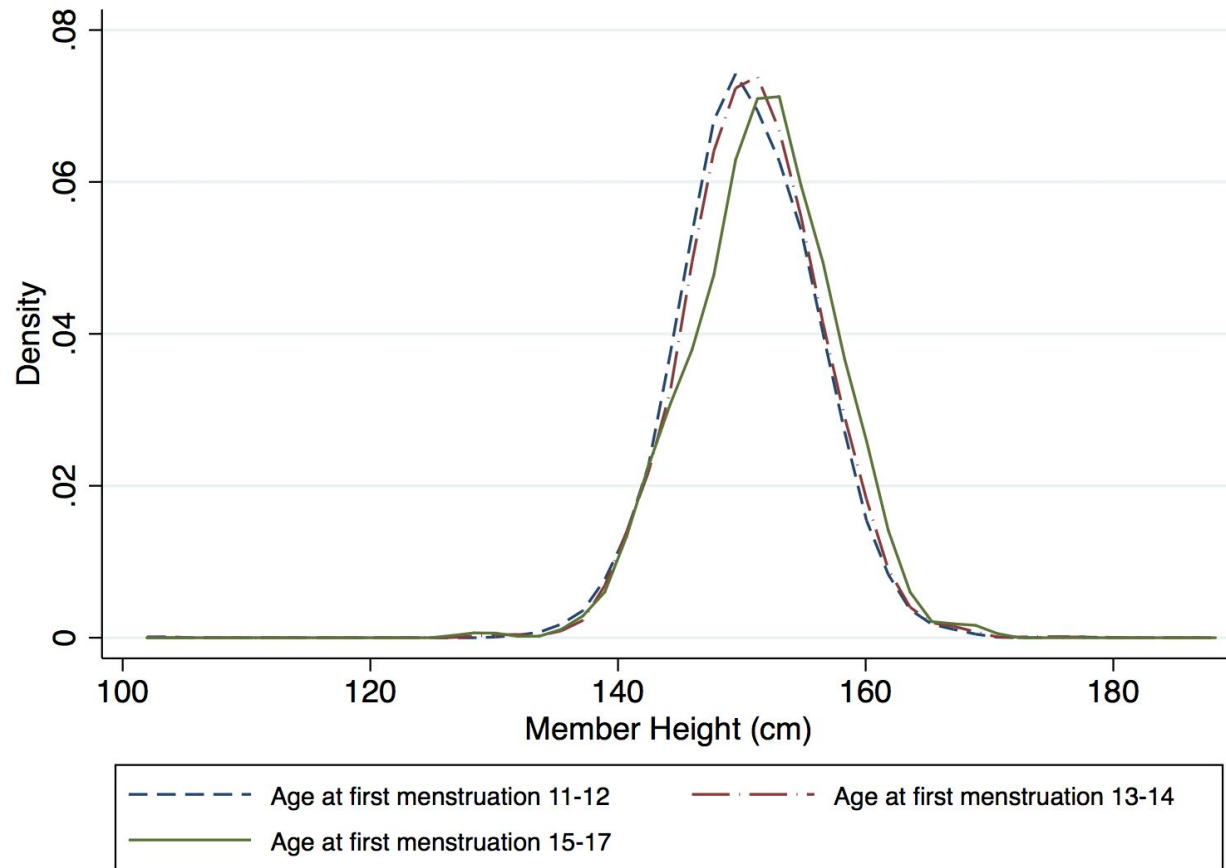
Kernel density of adult height with different subsamples with different age at first menstruation

Instrument for Age at first marriage

- **Extreme Weather Index**
  i.e. extreme weather intensity in a woman's district when she was aged 12-17

  Relevance: Extreme weather shocks are proxies for local income shocks, and stands to affect marriages since dowries--income and resource dependent--are common in Bangladesh

  Independence: Weather shocks are exogenous. Also, weather shocks are recorded when women are aged 12-17, whereas the dependent variable being used is the *current* domestic abuse experienced by the woman.

Yearly Extreme Weather Index at District level

Standard Deviation (from local mean)	Extreme Weather Index
0 - 0.375	0
0.375 - 1.125	1
1.125 - 1.875	2
1.875 - 2.625	3
> 2.625	4

Extreme Weather Index

Extreme weather events ages 12-17	Frequency	Percent
0	15	0.22
1	54	0.81
2	321	4.79
3	845	12.62
4	1301	19.43
5	1088	16.25
6	1095	16.35
7	869	12.98
8	522	7.80
9	287	4.29
10	161	2.40
11	90	1.34
12	24	0.36
13	17	0.25
14	5	0.07
15	2	0.03
16-24	0	0

Note: Data taken from Bangladesh Meteorological Department in Zaman's (2018) paper.

Relationship between Female Empowerment and Domestic Violence

Dependent variable : *Domestic violence*

Independent variable: *Female Empowerment*
- It's a complex and dynamic concept which cannot be evaluated based on a single dimension. We give each domain equal weight, following the Women's Empowerment in Agriculture Index (WEAI) developed by Alkire et al. (2013).

Covariates
- Age of female, religion of household, current socio-economic status (dummy for whether the household has access to electricity & dummy for whether household's source of drinking water is in their own home), years of father's and mother's education, size of father's land

Village fixed effects

Instrument for Female Empowerment

- **Number of types of informal credit sources**

  Relevance: Influences the size of the informal credit market, which influences access to capital especially for women who may not have access to formal credit otherwise.
  Therefore, informal credit sources can be viewed as a sign of greater social capital within the community, influencing women's empowerment.

  Independence: Number of types of informal credit sources is not likely to be directly related to any form of violence experienced by women.

Results

Domestic Violence
on Age at first marriage

$$Age\ at\ first\ marriage_{i(v)} = \beta_0 + \beta_1 age\ at\ first\ menstruation_{i(v)} + \beta_2 X_i + \gamma_v + \varepsilon_{iv}$$

$Age\ at\ first\ marriage_{i(v)}$ — Age at first marriage for woman i living in village v

$age\ at\ first\ menstruation_{i(v)}$ — Age at first menstruation for woman i living in village v

X_i — Series of covariates for personal characteristics, husband's socioeconomic status, and parental background

γ_v — Village fixed effects

VARIABLES	(1) Age at first marriage	(2) Age at first marriage	(3) Age at first marriage	(4) Age at first marriage
Age at first menstruation	0.106***	0.105***	0.095***	0.097***
	(0.035)	(0.034)	(0.035)	(0.03)
Age	-0.015***	-0.015***	-0.014***	-0.014***
	(0.004)	(0.004)	(0.004)	(0.004)
Height (cm)	0.012*	0.0113	0.011	0.010
	(0.007)	(0.007)	(0.007)	(0.007)
Hindu	-1.037	-0.987	-0.867	-0.904
	(0.901)	(0.890)	(0.890)	(0.892)
Muslim	-1.834**	-1.797**	-1.623*	-1.675*
	(0.893)	(0.882)	(0.882)	(0.885)
Pregnant	0.580***	0.585***	0.591***	0.586***
	(0.185)	(0.185)	(0.184)	(0.183)
Electricity		0.141*	0.101	0.076
		(0.077)	(0.077)	(0.078)
Drinking water at home		-0.074	-0.080	-0.050
		(0.078)	(0.078)	(0.079)
Years of father's education			0.022*	0.022*
			(0.011)	(0.011)
Years of mother's education			0.063***	0.061***
			(0.019)	(0.019)
Size of father's cultivable land (decimal)			0.000	0.000
			(0.000)	(0.000)
Village Fixed Effects	No	No	No	Yes
Constant	16.00***	16.03***	15.93***	16.11***
	(1.437)	(1.430)	(1.428)	(1.429)
Observations	6,258	6,258	6,238	6,238
R-squared	0.015	0.016	0.021	0.029
F-Statistic	9.485	9.293	7.597	8.058

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

1st Stage Regression: Age at first marriage on Extreme Weather Index

$$Age\ at\ first\ marriage_{i(vdk)} = \beta_0 + \beta_1 extremeweather_{kd} + \beta_2 X_i + \gamma_v + \varepsilon_{ivdk}$$

$Age\ at\ first\ marriage_{i(vdk)}$ — Age at first marriage for a woman i, born in cohort k, living in village v in district d

$extremeweather_{kd}$ — Extreme weather index for a woman living in district d born in cohort k

X_i — Series of covariates for personal characteristics, husband's socioeconomic status, and family background

γ_v — Village fixed effects

1st Stage Regression: Age at first marriage on Extreme Weather Index

VARIABLES	(1) Age at first marriage	(2) Age at first marriage	(3) Age at first marriage	(4) Age at first marriage
Extreme weather events ages 12-17	0.028	0.028	0.034*	0.040**
	(0.019)	(0.019)	(0.019)	(0.019)
Age at first menstruation	0.068*	0.066*	0.058	0.060*
	(0.036)	(0.036)	(0.036)	(0.036)
Age	-0.018***	-0.018***	-0.018***	-0.019***
	(0.004)	(0.004)	(0.004)	(0.004)
Height (cm)	0.014*	0.014*	0.013*	0.012*
	(0.007)	(0.007)	(0.007)	(0.007)
Hindu	-1.512*	-1.455*	-1.340	-1.371
	(0.831)	(0.823)	(0.834)	(0.836)
Muslim	-2.268***	-2.225***	-2.057**	-2.101**
	(0.822)	(0.815)	(0.826)	(0.827)
Pregnant	0.754***	0.762***	0.746***	0.740***
	(0.194)	(0.194)	(0.193)	(0.193)
Electricity		0.142*	0.100	0.071
		(0.0798)	(0.080)	(0.082)
Drinking water at home		-0.061	-0.074	-0.047
		(0.082)	(0.082)	(0.082)
Years of father's education			0.027**	0.028**
			(0.012)	(0.012)
Years of mother's education			0.052***	0.049**
			(0.019)	(0.019)
Size of father's cultivable land (decimal)			0.000	0.000
			(0.00)	(0.00)
Village Fixed Effects	No	No	No	Yes
Constant	16.64***	16.65***	16.49***	16.65***
	(1.429)	(1.426)	(1.430)	(1.431)
Observations	5,778	5,778	5,759	5,759
R-squared	0.017	0.017	0.022	0.029
F-statistic	2.058	2.095	3.186	4.321

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

2nd Stage Regression

$$Domestic\ Violence_{i(vd)} = \beta_0 + \beta_1 age\ at\ first\ \widehat{marriage}_{i(vd)} + \beta_2 X_i + \gamma_v + \varepsilon_{ivdt}$$

2nd Stage Regression: Domestic Violence on Age at first marriage

VARIABLES	(1) OLS	(2) IV– age at first menstruation	(3) IV – age at first menstruation	(4) IV – extreme weather	(5) IV – extreme weather
Age at first marriage	0.001	0.097	0.105	0.213	0.212*
	(0.002)	(0.072)	(0.071)	(0.144)	(0.125)
Age	-0.002***	-0.000	-0.000	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.003)	(0.002)
Height (cm)	-0.003**	-0.004**	-0.004**	-0.006**	-0.006**
	(0.001)	(0.002)	(0.002)	(0.003)	(0.002)
Hindu	0.023	0.104	0.120	0.355	0.364
	(0.123)	(0.198)	(0.205)	(0.326)	(0.313)
Muslim	0.014	0.170	0.191	0.503	0.512
	(0.122)	(0.221)	(0.228)	(0.395)	(0.369)
Pregnant	-0.063**	-0.121**	-0.125**	-0.228*	-0.226**
	(0.030)	(0.056)	(0.056)	(0.121)	(0.107)
Electricity	-0.060***	-0.066***	-0.068***	-0.081***	-0.079***
	(0.013)	(0.017)	(0.016)	(0.026)	(0.024)
Drinking water at home	0.002	0.007	0.008	0.006	0.003
	(0.013)	(0.016)	(0.016)	(0.024)	(0.023)
Years of father's education	-0.008***	-0.010***	-0.010***	-0.014***	-0.014***
	(0.002)	(0.003)	(0.003)	(0.005)	(0.005)
Years of mother's education	-0.005	-0.011*	-0.011**	-0.015	-0.014*
	(0.003)	(0.006)	(0.006)	(0.009)	(0.008)
Size of father's cultivable land (decimal)	0.000**	0.000**	0.000**	0.000**	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Village Fixed Effects	Yes	No	Yes	No	Yes
Constant	0.892***	-0.764	-0.902	-2.790	-2.793
	(0.211)	(1.253)	(1.260)	(2.522)	(2.210)
Observations	6,238	6,238	6,238	5,759	5,759
R-squared	0.027				

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

VARIABLES	(1) Years of female's education
Years of father's education	0.105***
	(0.013)
Years of mother's education	0.319***
	(0.019)
Constant	4.661***
	(0.055)
Observations	4,382
R-squared	0.141

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Results

Domestic Violence on Empowerment score

$$Empowerment_{i(cv)} = \beta_0 + \beta_1 informalcredits_c + \beta_2 X_i + \gamma_v + \varepsilon_{icv}$$

$Empowerment_{i(cv)}$ — Empowerment of woman *i* living in community *c*, in village *v*. The empowerment score falls on a scale from 0 to 1, with 1 implying the most empowered.

$informalcredits_c$ — Number of types of informal credit sources in each **community** *c*, where there are a few communities per village.

X_i — Series of covariates for personal characteristics, husband's socioeconomic status, and family background

γ_v — Village fixed effects

1st Stage Regression: Empowerment score on Informal credit sources

VARIABLES	(1) Empowerment score	(2) Empowerment score	(3) Empowerment score	(4) Empowerment score
Types of informal credit sources in community	0.016***	0.016***	0.016***	0.015***
	(0.002)	(0.002)	(0.002)	(0.002)
Age	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Hindu	-0.162***	-0.164***	-0.167***	-0.168***
	(0.046)	(0.046)	(0.046)	(0.0459)
Muslim	-0.115**	-0.119***	-0.122***	-0.121***
	(0.045)	(0.045)	(0.045)	(0.0454)
Pregnant	0.004	0.00383	0.003	0.00302
	(0.012)	(0.012)	(0.012)	(0.0119)
Years of education	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Electricity		0.001	0.002	0.002
		(0.006)	(0.006)	(0.006)
Drinking water at home		0.007	0.006	0.005
		(0.005)	(0.006)	(0.005)
Years of father's education			0.000	0.000
			(0.001)	(0.001)
Years of mother's education			-0.001	-0.001
			(0.001)	(0.001)
Size of father's cultivable land (decimal)			0.000	0.000
			(0.000)	(0.000)
Constant	0.675***	0.673***	0.677***	0.679***
	(0.047)	(0.047)	(0.047)	(0.047)
Village Fixed Effects	No	No	No	Yes
Observations	4,391	4,391	4,377	4,377
R-squared	0.038	0.038	0.038	0.048
F-statistic	108.1	107.6	106.6	91.63

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

2nd Stage Regression

$$Domestic\ Violence_{i(cv)} = \beta_0 + \beta_1 \widehat{empowerment}_{i(cv)} + \beta_2 X_i + \gamma_v + \varepsilon_{icv}$$

2nd Stage Regression: Domestic Violence on Empowerment

VARIABLES	(1) OLS	(2) IV	(3) IV
Empowerment score	-0.0270	1.296***	1.125***
	(0.043)	(0.297)	(0.316)
Age	-0.003***	-0.004***	-0.004***
	(0.001)	(0.001)	(0.001)
Hindu	0.136	0.363***	0.330**
	(0.118)	(0.140)	(0.138)
Muslim	0.137	0.307**	0.282**
	(0.116)	(0.134)	(0.132)
Pregnant	-0.038	-0.051	-0.046
	(0.032)	(0.036)	(0.035)
Years of education	-0.005*	-0.005	-0.00479*
	(0.003)	(0.003)	(0.003)
Electricity	-0.051***	-0.053***	-0.055***
	(0.016)	(0.018)	(0.017)
Drinking water at home	0.012	0.001	0.006
	(0.016)	(0.018)	(0.017)
Years of father's education	-0.006***	-0.007***	-0.007***
	(0.002)	(0.002)	(0.002)
Years of mother's education	-0.004	-0.002	-0.003
	(0.003)	(0.004)	(0.003)
Size of father's cultivable land (decimal)	0.000**	0.000*	0.000*
	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
Constant	0.424***	-0.538**	-0.401
	(0.125)	(0.252)	(0.263)
Village Fixed Effects	Yes	No	Yes
Observations	4,377	4,377	4,377
R-squared	0.032		

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Concluding Remarks

Limitations

- Potential bias:
  - Systematic differential reporting of domestic violence by women
  - Age at first marriage → women who marry when they are older may under-report their age at first marriage

- Random measurement error → attenuate estimates

- Empowerment Score: May not capture finer nuances of female empowerment

- Extreme weather based on current residential district, not natal district

Conclusion

- Positive and statistically significant relationships between age at first marriage and domestic violence; and empowerment and domestic violence.

- Complexity of the nature of domestic violence in a highly conservative setting like rural Bangladesh.

- Empowerment and violence against women may follow an inverted U-shaped curve → currently at the positive slope.

- Crucial to understand traditional cultural norms and how the interplay of various socio-economic factors contribute to violence against women.

Thank you!

We welcome questions.