

Supplementary Materials

Pooled multilevel logistic regression models – women aged 20 to 24 years

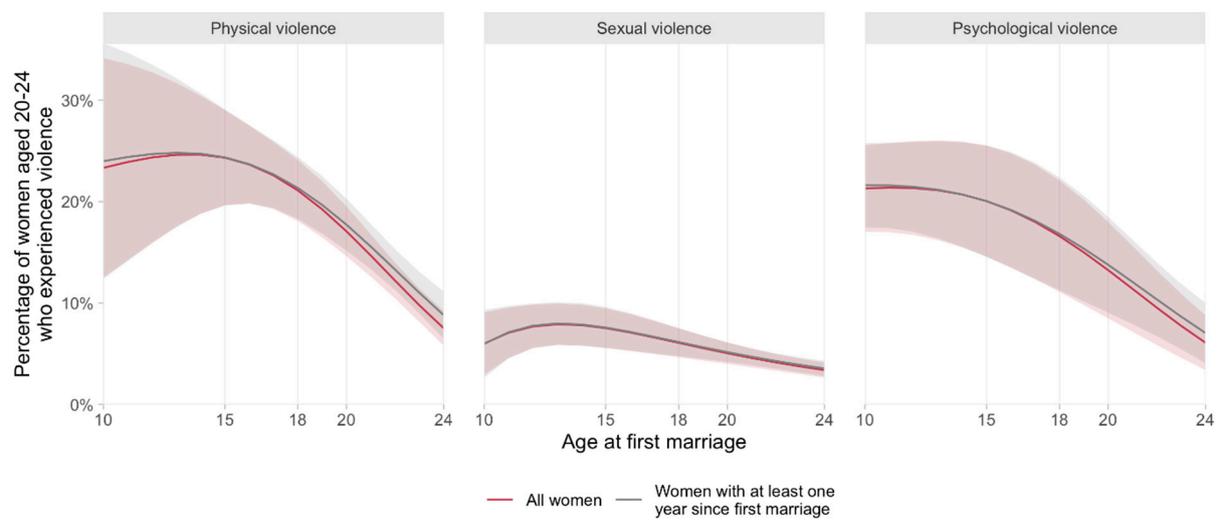
We used fractional polynomials with two powers to determine the best parametrization for the age at the first marriage in the pooled multilevel logistic regression models. The two powers with the best fit selected by the `fp` command in Stata are presented in Supplementary Table 1. The default powers tested by Stata are -2, -1, -0.5, 0, 0.5, 1, 2, and 3. Further information about the `fp` command is available in <https://www.stata.com/manuals13/rfp.pdf>. For all models, 55,886 women had information available for all variables. The average number of women in each country was 1,164, ranging from 161 to 8,694. Supplementary Table 2 shows the regression coefficients for each power.

Supplementary Table S1. Selected powers for the pooled multilevel logistic regression models for women aged 20 to 24 years. Each model corresponds to one type of IPV.

IPV type	First power	Second power
Physical	$(\text{age at first marriage})^2$	$(\text{age at first marriage})^3$
Sexual	$(\text{age at first marriage})^{-1}$	$(\text{age at first marriage})^{-1} \times \ln(\text{age at first marriage})$
Psychological	$(\text{age at first marriage})^3$	$(\text{age at first marriage})^3 \times \ln(\text{age at first marriage})$

Supplementary Table S2. Regression coefficients for the selected powers of the pooled multilevel logistic regression models for women aged 20 to 24 years. Each model corresponds to one type of IPV.

IPV type	Coefficient of the first power (95% CI)	Coefficient of the second power (95% CI)
Physical	0.008 (-0.002; 0.019)	-0.000 (-0.001; -0.000)
Sexual	-151.7 (-261.1; -42.4)	96.2 (34.7; 157.8)
Psychological	0.001 (-0.000; 0.001)	-0.000 (-0.000; 0.000)



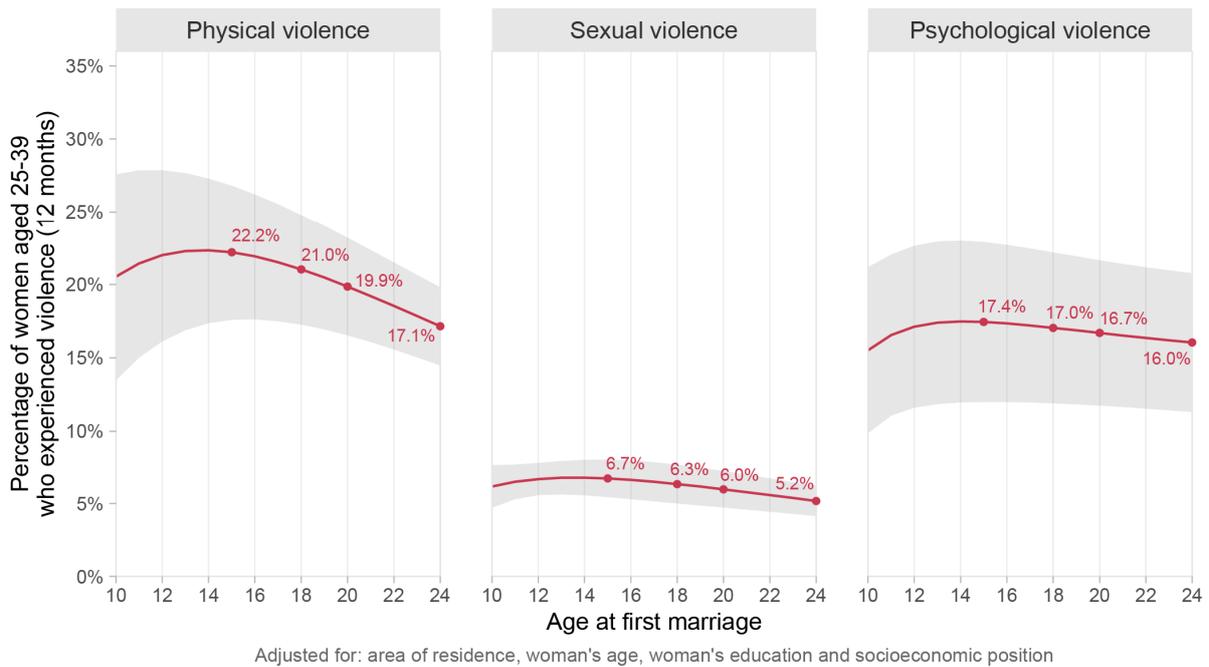
Supplementary Figure S1. Sensitivity analysis comparing the results for all women with women who had been married for at least one year.

Supplementary Table S3. Country specific differences on the prevalence of IPV.

Country	Physical IPV			N women who reported IPV	Sexual IPV			N women who reported IPV	Psychological IPV			
	Difference	95%CI			Difference	95%CI			Difference	95%CI		
		Lower limit	Upper limit			Lower limit	Upper limit			Lower limit	Upper limit	
Afghanistan	27.9	16.3	39.5	1446	4.7	1.6	7.8	254	23.6	14.4	32.8	1024
Angola	9.5	-7.0	25.9	432	3.2	-12.2	18.5	143	8.9	-6.9	24.8	352
Armenia	16.1	-25.0	57.3	7	0.0	0.0	0.0	---	15.4	-12.4	43.2	18
Benin	9.9	3.7	16.1	60	-0.5	-8.5	7.5	42	13.1	-5.5	31.8	179
Burkina_Faso	11.5	7.3	15.7	197	2.3	0.9	3.7	35	7.6	3.8	11.4	154
Burundi	12.3	-0.8	25.3	267	3.6	-9.9	17.0	253	6.3	-7.7	20.3	220
Cambodia	9.1	2.7	15.5	38	8.3	-0.2	16.7	15	14.2	5.7	22.7	61
Cameroon	-2.5	-19.9	15.0	145	0.7	-10.6	11.9	54	9.6	-5.1	24.2	137
Chad	-13.1	-34.0	7.8	99	2.3	-13.2	17.9	50	-12.8	-35.9	10.3	106
Colombia	17.0	7.2	26.8	1095	6.0	2.9	9.1	149	24.5	15.9	33.2	973
Comoros	-5.8	-42.8	31.1	29	-24.8	-74.7	25.0	8	3.6	-3.1	10.2	32
Congo_Democratic_Republic	22.9	6.5	39.2	410	3.4	-27.3	34.2	234	23.3	8.2	38.5	362
Cote_dIvoire	1.0	-13.4	15.5	212	4.5	-2.5	11.5	49	-7.4	-21.3	6.5	122
Dominican_Republic	12.8	3.1	22.5	142	1.9	-3.7	7.4	42	21.8	7.2	36.5	253
Egypt	10.1	-1.3	21.6	164	-0.4	-5.9	5.0	31	12.8	4.0	21.5	122
Ethiopia	4.2	-15.6	23.9	130	5.4	-6.0	16.9	41	-15.1	-63.7	33.5	145
Gabon	14.7	-7.5	36.8	239	7.3	-5.2	19.8	72	30.4	16.6	44.3	180
Gambia	6.7	2.4	11.0	60	0.0	-1.1	1.0	11	5.0	-0.7	10.7	71
Guatemala	4.2	-6.5	15.0	101	2.9	-2.1	7.9	25	14.2	1.3	27.1	174
Haiti	17.2	5.4	29.0	68	-4.9	-18.4	8.6	43	0.6	-20.4	21.6	100
Honduras	9.2	2.4	16.1	258	2.1	-1.2	5.3	62	23.9	17.1	30.8	469
India	18.0	13.1	22.8	1923	2.2	0.0	4.3	456	10.0	6.8	13.3	846

Jordan	3.7	-11.8	19.2	66	0.2	-2.7	3.1	15	16.1	-2.9	35.1	97
Kenya	20.1	3.4	36.7	169	6.2	-6.1	18.5	63	30.8	20.7	40.8	167
Kyrgyzstan	4.9	-4.5	14.3	98	6.1	-8.2	20.4	19	-1.2	-6.9	4.5	47
Liberia	-16.2	-53.1	20.7	168	-14.8	-46.3	16.6	33	-14.9	-54.4	24.6	149
Malawi	16.8	7.9	25.7	199	19.9	14.5	25.4	187	10.4	-6.0	26.9	245
Maldives	9.2	-40.9	59.2	21	0.0	0.0	0.0	4	-0.3	-2.2	1.6	22
Mali	3.8	-15.2	22.9	110	-4.3	-32.1	23.6	49	14.9	-0.5	30.3	157
Mozambique	9.4	-3.0	21.7	323	0.9	-6.8	8.7	92	-10.9	-37.2	15.5	384
Myanmar	9.5	-3.8	22.8	48	1.8	-4.2	7.7	15	6.5	-0.5	13.5	48
Namibia	6.3	-18.8	31.3	42	2.5	-16.7	21.6	8	-6.2	-43.4	30.9	37
Nepal	8.0	-10.5	26.5	65	1.8	-13.1	16.8	36	4.7	-3.6	13.0	39
Nigeria	13.2	8.7	17.6	204	11.0	6.0	16.0	100	21.3	9.9	32.7	385
Pakistan	9.1	-1.2	19.5	86	3.5	-5.1	12.2	17	23.9	13.2	34.6	120
Papua_New_Guinea	44.6	29.8	59.4	290	18.4	1.0	35.9	143	46.6	33.3	60.0	270
Peru	4.4	-8.9	17.7	395	3.5	0.2	6.9	77	7.0	2.7	11.4	292
Philippines	6.0	-1.2	13.3	114	-2.4	-19.5	14.8	46	2.5	-7.0	11.9	129
Rwanda	30.5	-2.2	63.1	49	16.8	-12.1	45.7	23	27.6	-9.6	64.8	46
Senegal	7.7	2.3	13.0	18	0.3	-9.5	10.2	8	10.0	-2.7	22.8	16
Sierra_Leone	5.1	-15.9	26.1	263	-0.4	-10.2	9.4	40	9.8	-18.0	37.7	262
Tajikistan	15.1	-0.8	31.1	128	2.2	-3.6	8.1	10	6.0	-7.0	19.0	88
Tanzania	30.3	21.4	39.2	380	11.1	3.5	18.6	151	25.5	14.9	36.2	349
Timor_Leste	-25.9	-60.7	8.8	137	-7.9	-28.7	12.9	24	6.6	-0.8	13.9	36
Togo	6.7	-1.4	14.7	102	-21.3	-52.2	9.6	43	1.8	-12.1	15.6	181
Uganda	21.4	12.2	30.6	439	8.9	-4.4	22.2	293	20.8	9.4	32.2	507
Zambia	14.7	3.1	26.3	326	11.1	3.3	18.9	164	15.5	4.6	26.4	308
Zimbabwe	4.4	-8.9	17.8	216	10.6	1.8	19.3	101	16.1	3.2	29.0	256
Pooled	16.9	13.3	20.5	11978	5.9	3.4	8.4	3831	10.6	7.7	13.6	10737

*Prevalence difference derived from logistic regression with fractional polynomials, controlling for covariates. We calculated the average adjusted IPV prevalence for girls first married at 15 years of age and 20 years of age with margins command.



Supplementary Figure S2. Average adjusted IPV prevalence according to age at first marriage for women aged 25 to 39 years. Pooled results for 48 low- and middle-income countries obtained from a multilevel logistic regression model. The red line represents the continuous IPV estimate from ages 10 to 24 years at first marriage. The grey area represents the respective confidence interval. IPV estimates for the ages 15, 18, 20, and 24 years are highlighted.

Pooled multilevel logistic regression models – women aged 25 to 39 years

We repeated the same analysis for women aged 25 to 39 years. The two powers with the best fit selected by the `fp` command in Stata are presented in Supplementary Table 3. For all models, 205,927 women had information available for all variables. The average number of women in each country was 4,209, ranging from 770 to 37,449. Supplementary Table 4 shows the regression coefficients for each power. Supplementary Figure 2 shows the average adjusted IPV prevalence according to age at first marriage for these models.

Supplementary Table S4. Selected powers for the pooled multilevel logistic regression models for women aged 25 to 39 years. Each model corresponds to one type of IPV.

IPV type	First power	Second power
Physical	$\ln(\text{age at first marriage})$	$\ln(\text{age at first marriage}) \times \ln(\text{age at first marriage})$
Sexual	$(\text{age at first marriage})^{-1/2}$	$\ln(\text{age at first marriage})$
Psychological	$(\text{age at first marriage})^{-2}$	$(\text{age at first marriage})^{-2} \times \ln(\text{age at first marriage})$

Supplementary Table S5. Regression coefficients for the selected powers of the pooled multilevel logistic regression models for women aged 25 to 39 years. Each model corresponds to one type of IPV.

IPV type	Coefficient of the first power (95% CI)	Coefficient of the second power (95% CI)
Physical	5.6 (3.0; 8.2)	-1.1 (-1.5; -0.7)
Sexual	-29.3 (-56.7; -1.9)	-4.0 (-7.2; -0.7)
Psychological	-318.6 (-749.3; 112.1)	148.1 (-49.4; 345.6)