Ten Years of Relational Power: The Long-Run Effects of Teaching Negotiation Skills to Adolescent Girls

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Abstract

We evaluate the effects of teaching negotiation skills to adolescent girls in economically vulnerable communities in Lusaka, Zambia ten years later. Treated participants complete 0.23 more years of education. Consistent with greater relational empowerment, they also begin sexual activity later, have smaller age gaps with their husbands, and express less traditional gender attitudes. Using a surrogate approach, social benefits and costs from increased education alone suggest the intervention generated 7.6 dollars for every dollar spent and had a very high marginal value of public funds of 10.5. (*JEL* I12, I21, J24)

Women coming of age in sub-Saharan Africa, as in many low-income settings, navigate a host of challenges. Daughters receive less financial support and human capital investment than sons (Jayachandran, 2015). Withdrawing from school due to financial constraints is common, as is transactional sex (Konlan and Ganle, 2025; Mihretie et al., 2023), which exposes young women to HIV and early fertility (Dupas, 2011). Financial support helps young women stay in school, improving their and their children's outcomes, but is costly (Baird, McIntosh and Özler, 2011; Duflo et al., 2024). While most girls in sub-Saharan Africa aspire to both become educated and to marry and have children, the types of relationships they enter can constrain their flourishing rather than facilitate it.[1]

Relationships do not have to be constraining for women, however — even when gender norms are unequal. The critical window of vulnerability for young women coincides with a critical window

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[1] A large literature suggests that financial vulnerability can lead young women in sub-Saharan Africa to engage in transactional sexual relationships with older men, which can increase the risk of early marriage, HIV, IPV, unplanned pregnancies, and dropout (Dupas, 2011; Luke, 2003, 2006; Glynn et al., 2001; Gregson et al., 2002; Clark, 2004; Baird, McIntosh and Özler, 2011; Austrian et al., 2019).

of neural development in early adolescence, during which the ability to learn interpersonal skills, including how to stand up for one's interests while building a strong relationship, grows quickly (Choudhury, Blakemore and Charman, 2006). This paper examines whether teaching interpersonal communication skills during this window has long-run impacts: educational attainment, whether, when, and who girls marry, whether they are able to protect themselves against pregnancy, and gender attitudes.

We build on the initial findings of Ashraf et al. (2020) (hereafter, ABLM), who studied the effects of teaching negotiation skills to 8th-grade girls living in the low-income compounds of Lusaka, Zambia in a 2013 randomized controlled trial. These skills were taught as "relational empowerment," training girls to achieve their own interests in the context of building a relationship, and differ from the many types of "individual empowerment" programs often given to young girls. ABLM collect measures of educational attainment from Lusaka public schools up to three years later, when girls who were progressing through the school system on track would have been in 11th grade, and show that 11th grade enrollment rates were 4 ppt higher. In this paper, we track and resurvey the original sample 10 years later, collecting information on subsequent educational attainment, as well as sexual behavior, fertility, self-reported health, and gender attitudes. Despite substantial increases in education in both the treatment and control, treatment effects persist and even compound. Girls in the negotiation treatment obtain 0.23 more years of education and are 5.2 ppt (24%) more likely to graduate college. If years of education is a surrogate (Athey et al., 2019) for longer-run outcomes, estimates of the benefits from female education in Ghana by Duflo et al. (2024) imply a social benefit-cost ratio of 7.6 from just improvements in education.

The training also marginally significantly reduces the likelihood of marrying below the median age (23) and engaging in sexual activity below the median age (19). The likelihood of marriage eventually converges, in line with preferences for earlier marriage in sub-Saharan Africa, and there are no effects on childbirth. Consistent with starting sexual activity later, women appear less likely to have a substantially older husband (32% less likely to be married with a ≥ 5 year age gap) and report a directionally lower likelihood of having HIV, albeit not statistically significantly. Given that most women in this context want to marry and have large families, marriage delay — accompanied by a change in partner match — but not marriage reduction is likely the preferred outcome for participants.[2] Finally, negotiation girls report substantially less traditional gender attitudes, consistent with the "relational empowerment" goals of the program, which sought to help young women view their relationships as collaborative interactions between equals. These systematic improvements in well-being and attitude outcomes suggest that our program generates additional social benefits beyond those associated with higher educational attainment.

Because the program increased education, it is difficult to determine what can be attributed to relational skills themselves versus the downstream effects of schooling. We first compare the impact of the negotiation treatment, which entails both negotiation skills and empowerment, to that of a

[2]The mean ideal number of children for women is 4 in our sample and 4.6 in the 2018 Zambian DHS (Zambia Statistics Agency, 2019).

"safe space" empowerment treatment. In the original RCT, girls were randomly assigned to one of these treatments or a control. Our results show that, while the safe space treatment similarly increases educational attainment at the secondary-level, it does not significantly affect marriage, sexual behavior, health, or gender attitudes. This is consistent with the idea that the longer-term, broader effects of negotiation training are attributable to the skills component and are not explained by schooling alone. Second, we observe similar effects of the negotiation treatment on becoming sexually active and marriage for women who are out-of-school at the relevant ages, suggesting that these effects are not simply due to school keeping young women "out of trouble." Third, the non-educational effects of the negotiation training are strongest for those who never enroll in college (the stage at which there is suggestive evidence of divergence in the educational outcomes of negotiation and safe space girls). Altogether, interpersonal skills appear to matter directly. Because gains are not purely driven by schooling, an added benefit of the intervention is that even harder-to-reach girls who are not on the margin of greater education benefit.

While we follow our sample for 10 years, our modal respondent is only 24 in 2023. Even in large samples in the U.S., the positive earnings effects of educational interventions are typically attenuated or even negative in participants' early 20s since greater schooling reduces employment and labor force experience.[3] This is likely even more important in low-income settings because students progress through the education system slowly, with stops and re-entry due to pregnancy, financial obstacles, the Covid-19 pandemic, and retaking hurdle exams, similar to Duflo, Dupas and Kremer (2023). Indeed, we find no significant effects of the negotiation training on participants' working status or income (Table A.1) in the 10 year follow-up. As we expect that it is too early to observe differences in labor market outcomes, we leave further investigation of these outcomes to future work.

We contribute to two growing literatures. The first is the literature on non-cognitive/social skills, which increasingly shows that these skills are important for a variety of outcomes (Heckman and Rubinstein, 2001; Borghans et al., 2008; Lindqvist and Vestman, 2011; Kautz et al., 2014; Deming, 2017; Alan, Boneva and Ertac, 2019; Attanasio et al., 2020; Edin et al., 2022; Sorrenti et al., 2025). However, there is little causal evidence on their long-run effects, and evidence is particularly limited for relational skills and in low-income settings where long-run tracking is challenging. Work on cognitive behavioral therapy does provide exciting evidence that improving non-cognitive traits in vulnerable populations can have positive effects (Blattman et al., Forthcoming), but this work focuses on antisocial behavior among men in violent settings. In contrast, our focus on women in sub-Saharan Africa allows us to explore new dimensions of the effects of relational skills, such as their role in delaying sexual activity and marriage, in a context and for a population where relationship-building is particularly important. The fact that we detect large and persistent effects of an intervention during adolescence also highlights the promise of improving non-cognitive skills outside of the critical period between ages 0 and 5 (Cunha et al., 2006).

[3]Despite high quality, large administrative earnings data, Chetty, Friedman and Rockoff (2014) only detect that better teachers positively and significantly impact earnings at age 24, with effect sizes growing thereafter.

This paper also relates to a growing literature on empowerment interventions in low-income settings (Bandiera et al., 2020; Edmonds, Feigenberg and Leight, 2023; McKelway, 2025). These interventions are very popular; in a systematic review of 77 studies of adolescent girls in low- and middle-income countries, Haberland, McCarthy and Brady (2018) find that 30% had empowerment components. Our results suggest that interventions that improve participants' agency — particularly when they improve relationship-building — can have large and persistent effects, even in very low-resource settings. These effects include but are not limited to educational attainment, so such interventions can benefit even those who are constrained from increasing their education. We note however, as discussed in detail by ABLM, the negotiation intervention was carefully designed to be "culturally-wise" (as in Thomas et al. (2024)) and avoid the potential for backlash in a gender-biased setting.

I. Experimental Design and Treatment

The experimental design and treatment are described in detail in ABLM. We summarize relevant information here.

A. Experimental Design

In 2013, girls in 29 primary schools in Lusaka, Zambia were randomized into three treatment groups: negotiation (N=801); safe space (N=785), an empowerment intervention that did not include the skills component of the negotiation training; and control (N=780). Safe space was run by the same facilitators, had the same duration, and provided young women with a female-only space to interact with one another and the facilitators. ABLM use the comparison between the safe space and the negotiation interventions' effects to tease out whether negotiation skills themselves matter as opposed to other, generalized empowerment benefits of the negotiation treatment. Treatment group assignment was stratified by classroom, and the groups were cross-randomized with an information treatment that shared information about HIV risks and the returns to education. ABLM show that safe space had directionally positive but statistically insignificant effects on educational attainment up to 3 years later, while information had null effects. Thus, throughout the paper, we compare the negotiation and safe space effects to better understand the importance of skills vs. other empowerment components.

To test for spillovers, 12 additional schools were randomly chosen as pure control schools and did not receive any treatment. Since ABLM did not find evidence of spillovers, to reduce costs, students in these schools were not tracked in the long-term follow-up. To further ensure our long-run results do not simply reflect negative spillovers, we also exploit within-classroom idiosyncratic variation in the number of girls assigned to the negotiation treatment to estimate spillovers, as in ABLM.

B. *Intervention*

We summarize the intervention briefly here. The full curriculum can be found at McGinn, Low and Ashraf (2014). The treatment used role-play, discussion, and story-telling to communicate the lessons of classic negotiation texts (Curhan, 1998; Mercy Corps, 2009; Ury, 1993; Fisher, Ury and Patton, 2011), adapted for a Zambian context, over 6 two-hour sessions. Negotiation training focuses on identifying cases where there is a "win-win" solution (both parties are made better off than their outside option), even when the potential for joint gains is not immediately obvious, and enacting that solution. ABLM interpret this as increasing the "feasible contracting space." The training also focuses on identifying cases where a "win-win" solution does not exist (there is no joint surplus), and a participant should walk away. This helps participants identify and avoid harmful relationships. Participants are introduced to four key negotiation steps:

1. *Me:* A participant should identify her own interests (e.g., know her outside option).
2. *You:* Identify the negotiation partner's interests and understand that the partner responds to incentives.
3. *Together:* Look for common ground to help solve problems.
4. *Build:* Look for "win-win" agreements that make both parties better off.

ABLM show that girls assigned to the negotiation group performed substantially better on a test of negotiation skills, where they solved open-ended negotiation vignettes, and had less inefficient outcomes in investment games with their parents when they were allowed to communicate.

II. Long-Run Data

Our main outcomes come from a 10-year survey in 2023. Between the intervention and 2023, we conducted brief tracking surveys in 2018 and 2020–2021. We contacted participants using previously-collected contact information for themselves, parents, and relatives, by asking other participants to provide information on hard-to-reach respondents, and via social media outreach. However, financial resources did not allow for intensive in-person tracking. After finding the original participants, we invited them to complete a 30 minute telephone survey, compensating them for their time with 40 Zambian Kwacha (~2 USD) in airtime. Refusals were negligible (0.2%). The study did not have a pre-analysis plan, though the short length of the phone survey combined with a detailed retrospective educational module limited the set of outcomes collected. Appendix C reproduces the survey instrument.

We completed surveys with 1,287 (54.4%) of the original 2,366 study participants. Tracking was challenging because the population we study is one we expect to leave their natal households as

they become adults, marry, and pursue higher education.[4] The Covid-19 pandemic was also highly disruptive for tracking.[5] Our follow-up rates are similar to those seen, in the absence of intensive tracking, in initially school-based interventions with adolescents (Duflo, Dupas and Kremer, 2015), in long-run evaluations of cash transfers (Millán et al., 2019), and over 10 years in the PSID (Heeringa, Chang and Johnson, 2018). They are also similar to or compare favorably to surveys of hard-to-track populations in developed settings (McKenzie, 2025).

There is no evidence of differential attrition: Table A.2 shows the negotiation effect on response is very close to 0 and statistically insignificant (p-value = 0.888). As we will show, this means estimates of Lee bounds (Lee, 2009) for attrition are extremely tight and yield virtually identical results to our main estimates. The table also examines which baseline characteristics predict survey response and whether they interact with negotiation. None of the baseline characteristics, either individually or jointly, significantly interact with negotiation, further limiting the scope for omitted variable bias due to differential attrition. The coefficient on safe space is also insignificant, close to zero, and not significantly different from the coefficient on negotiation. In terms of external validity, only the ability measure is predictive of response, and the effect is small.[6]

In Table A.3, we test whether baseline characteristics are balanced across groups. Consistent with ABLM, the baseline characteristics do not jointly predict negotiation treatment status relative to either the control or safe space, but — as in ABLM — there are imbalances on specific, highly-correlated ability measures that suggest negotiation girls may be slightly lower ability. To the extent these imbalances exist, they are likely to negatively bias our results. To address potential imbalances in a principled way, we exactly follow ABLM and use double lasso to select control variables from the full pool of baseline controls in our main specifications (Belloni, Chernozhukov and Hansen, 2014).[7] However, we also show that our main results are robust to excluding the controls.

The 2023 follow-up survey collected detailed retrospective educational data. The module was designed to minimize issues of over-reporting of educational attainment in survey data (Baird and Özler, 2012), which can obscure experimental effects, and also capture not just final attainment but young women's complex paths through the education system. This module is reproduced in Appendix C. The survey also elicits information about marital status, sexual behavior, fertility, household composition, physical and mental health, basic employment status and income, and gender role attitudes.

[4] Our initial survey was conducted in schools with minors in an urban area where the population is highly-mobile. Even among women surveyed in 2023, only 87% were still in Lusaka. A more anonymous urban population also makes tracking via social contacts challenging. While some highly-intensively tracked in-person surveys achieve higher response rates (Duflo, Dupas and Kremer, 2023; Hamory et al., 2021; Blattman et al., Forthcoming), most are in rural areas.

[5] Even in Duflo, Dupas and Kremer (2023) — a gold standard study for intensive long-run tracking in a low-income context — response rates dropped by 10-15 percentage points after the pandemic.

[6] The ability measure is the first component from a PCA of measures of how girls performed on questions to assess reading comprehension of English and Nyanja, the vernacular, at baseline and is the same measure used in ABLM.

[7] Double-lasso uses two lasso regressions to select the set of controls to include in the final specification. The first regression selects controls that are predictive of the outcome of interest to improve precision, while the second regression selects controls that are predictive of treatment to improve balance.

III. Empirical Strategy & Results

A. *Empirical Strategy*

Our main analysis closely follows ABLM's, which regresses outcomes on the stratifying variable (classroom fixed effects) and indicator variables for treatment assignment (negotiation, safe space, and information), uses double lasso to select additional controls (Belloni, Chernozhukov and Hansen, 2014), and clusters standard errors at the classroom level.[8] Given the attrition of 45% of the sample, the number of respondents in a classroom is small, with a median size of 10. So, for robustness, we also report the estimates without classroom fixed effects.

To account for multiple hypothesis testing, for each set of related outcomes, we report results for a single summary measure as well as each sub-component. For education, this is years of schooling. For health and gender attitudes, we report average treatment effects (see Kling, Liebman and Katz (2007) for details on the calculation). We report robustness to (i) alternative controls, (ii) accounting for attrition with bounds (Lee, 2009; Kling et al., 2004) and inverse probability weighting, and (iii) spillovers.

B. *Educational Attainment*

ABLM use administrative data to show that the negotiation treatment increases girls' enrollment in government schools up to three years after the intervention. The enrollment data in ABLM were collected directly from government secondary schools in Lusaka. Continuing in government school, which is more prestigious than private or community schools, is an important marker of educational success since attending government schools requires better performance on hurdle exams and is the pathway to higher education. Compared to the control group, girls who received the negotiation training were 4 ppt (or 4.4 ppt) more likely to enroll in a government school in Grade 10 (or Grade 11) in ABLM.

In contrast, in the follow-up survey, respondents report their enrollment in *any* school program each year. This leads to higher enrollment rates by grade for several reasons: (1) we now capture students who were not assigned to government schools but pursued education by other means (e.g., private or community school); (2) we capture students who eventually completed a grade but were not progressing on track; (3) we capture enrollment that occurred outside of Lusaka (e.g., at public schools young women were not initially assigned to); and (4) self-reports of enrollment can be upwardly biased (Baird and Özler, 2012). Nonetheless, as shown in Figure A.1, the estimated effects of negotiation on self-reported enrollment by grade are almost identical to the effects in the administrative data in ABLM. This helps validate the quality of both data sources and suggests that estimates from our 10-year follow-up sample are likely to be informative for the broader study

[8] Clustering is not consequential, and heteroskedasticity robust standard errors deliver nearly identical results.

sample.[9]

We now turn to new educational outcomes from the long-term data. In Table 1, we measure effects on: (1) ever enrolled in Grade 12, i.e., the last year in high school; (2) passing the national high school exam (and therefore receiving a graduation certificate); (3) being enrolled in any college program, including 3-year diploma programs (such as teaching/nursing) and more academic programs that take $\geq$ 4 years to complete; and (4) graduating from any college program, a 3-year program, or a $\geq$ 4-year program. Negotiation training significantly increases enrollment in Grade 12 by 3.9 percentage points (Column 1), comparable to effects on enrollment in Grades 10 and 11. There is also a directionally higher chance of passing the national exam (Column 2). Columns 3 and 4 show that the negotiation training raises the college graduation rate by 5.2 ppt or 24%, though it does not statistically significantly increase college enrollment. This impact is mainly driven by increased graduation from three-year diploma programs (Columns 5 and 6). However, we note that 12% of the respondents report being enrolled in a degree program in 2023, suggesting that effects on longer degree programs may appear later. Altogether, the negotiation intervention increases years of schooling by 0.23 (Column 7). Table A.4 shows consistent but slightly stronger effects when we exclude strata fixed effects.

Safe space also has directionally positive effects on educational attainment (consistent with ABLM), especially for Grade 12 enrollment. The safe space and negotiation estimates appear to diverge somewhat for college graduation, though we cannot reject that they are the same at conventional levels. Negotiation's directionally larger effect on college graduation is also consistent with ABLM, which finds larger differences between negotiation and safe space for college preparatory morning school enrollment. Overall, the safe space treatment increases years of education by 0.18 (~80% of the negotiation effect), albeit not statistically significantly. Hence, empowerment alone may play a positive role in educational attainment, especially at the secondary school level, as in Edmonds, Feigenberg and Leight (2023).

Three years after the treatment, ABLM estimated that negotiation increased years of education by 0.1 and that 100 USD spent on the program increased schooling by 0.16 years. Our longer-run estimates suggest that these effects compound rather than fade out. Despite a considerable increase in the control group's educational attainment, 100 USD increases education by 0.38 years.

C. Sexual Behavior, Marriage, and Health

We measure effects on the following outcomes: (1) becoming sexually active prior to the median age (19), (2) marrying below the median age (23), (3) childbirth below the median (21), (4) spousal age gap above the median (5 years), (5) reporting a high likelihood of HIV, (6) self-assessment of health,

[9]The smaller confidence intervals in the 10-year follow-up (despite the smaller sample size) likely reflect the lower variation in the outcome variables in the follow-up data. Figure A.2 further shows that the 3-year effects on enrollment in different grades of government schools and government morning schools using the administrative data in ABLM are largely consistent between the original full sample and the follow-up sample. This also suggests that the follow-up sample is comparable to the full sample.

and (7) an anxiety and depression score, measured with the four-item Patient Health Questionnaire (Kroenke et al., 2009). Table 2 reports the estimates from the ABLM specification; Appendix Table A.5 shows results without classroom fixed effects.[10]

Columns 1–2 of Table 2 report negotiation's effects on age of first sexual activity and marriage. Negotiation girls are 6.0 ppt (16%) less likely to start sexual activity below 19 and 3.4 ppt (34%) less likely to marry below 23 ($p = 0.083$ and $p = 0.088$). Although these effects are not significant at the 5%-level, Figure 1 shows a consistent pattern: negotiation girls are less likely to start sexual activity or get married at younger ages. These differences shrink and become insignificant at later ages, suggesting that negotiation girls delay these activities rather than refrain from them.

While these median value cut-offs for marriage and sex are not typically thought of as capturing adverse outcomes in low-income populations, Figure 1 suggests that effects may appear earlier. In addition, as rates of education have increased in LICs, particularly in urban areas — 43% of our sample reports enrolling in college — marriage in the early-20s is likely to conflict with young women's goals.

Column 3 of Table 2 shows that negotiation does not affect giving birth at a younger age, though this is a relatively rare outcome (14%).[11] Column 4 shows that negotiation girls are 3.8 ppt (32%) less likely to be married to a spouse who is at least five years older.[12] In sub-Saharan Africa, relationships with older men are associated with higher risks of HIV since older men have higher rates of HIV themselves (Dupas, 2011). Consistent with this, Column 5 shows that negotiation substantially (51%) but insignificantly reduces the probability of reporting likely HIV infection.[13]

For self-assessed overall health (Column 6), the respondent could select very good, good, moderate, bad, or very bad. We use a binary outcome coded as one if health is not very good since only 20% of respondents report moderate or worse. Negotiation girls are 6.2 ppt less likely to report their health as not very good ($p = 0.118$). Negotiation skills have little effect on psychological distress (Column 7), measured with a total anxiety and depression score on a scale of 0 to 12. Altogether, the average treatment effect (ATE) of negotiation across measures is a statistically significant -0.08 sd.

By contrast, the safe space treatment has much smaller effects. Overall, it has an ATE of -0.01 sd (p-value = 0.675). Safe space's ATE is also marginally significantly different from negotiation's. The negotiation ATE estimates are robust to specifications excluding the strata fixed effects or double-lasso controls (see Columns 4–6 of Table 4). The divergence in the negotiation and safe space effects highlights that skills, rather than empowerment alone, may be important for these relational outcomes. It also provides evidence that the negotiation effects are not merely driven by

[10] As some of these questions are sensitive (sexual activity, HIV), some participants declined to answer.

[11] Relatively low rates of early births in Lusaka despite high rates of sexual activity and low preventative contraceptive usage may reflect emergency contraceptive use and abortions (Bau et al., 2024).

[12] We find similar results when adjusting the definition of "older spouse" (see Figure A.3).

[13] In our main specification, we drop participants who refused to answer (3) or answered "I don't know" (84) in response to the HIV likelihood question. Table A.6, Columns 3–7, show that negotiation's effect is largely insensitive to alternative coding approaches.

social desirability bias in self-reported outcomes since safe space girls would be influenced by the same biases.

D. *Gender Role Attitudes*

Finally, we examine whether improved interpersonal skills change attitudes about gender roles, consistent with greater relational empowerment. We ask participants whether they agree with four statements: (1) "A good wife obeys her husband even if she disagrees"; (2) "It is important for a man to show his wife/partner who is the boss"; (3) "It's a wife's obligation to have sex with her husband even if she doesn't feel like it"; and (4) "A woman should be able to choose her own friends even if her husband disapproves." Respondents answered with a four-item scale (Strongly disagree, Somewhat disagree, Somewhat agree, and Strongly agree). We recode the outcomes to be binary indicator variables with cut-points corresponding to the median response.[14]

Negotiation directionally lowers the likelihood of agreeing with each statement (Table 3). Although not all outcome-specific effects are statistically significant, the aggregate effect is precisely estimated at -0.11 sd (p-value = 0.001). Tables A.7 and Table A.8 confirm the results are robust to alternative cut-points for the indicator variables and a specification without strata fixed effects.

The effects of safe space are small and close to zero. The ATE is a statistically insignificant -0.02 sd (p-value = 0.594), and it is significantly different from the negotiation effect (p-value = 0.016). When combining all educational, marriage, health, and attitude outcomes in a positive direction, Columns 10–13 of Table 4 show that the negotiation intervention significantly improves participants' overall well-being by about 0.09 sd, approximately three times the effect of the safe space intervention. The contrast between the two interventions highlights the crucial role of negotiation *skills* in improving young women's long-run outcomes and suggests that our results are not merely driven by social desirability bias in self-reported outcomes, as this would also bias the safe space effect.

E. *Robustness*

Table 4 shows that all our aggregate measures are robust to dropping the lasso controls, the classroom fixed effects, or both. It also confirms, as in ABLM, that the information treatment has no effect. Table A.9 shows that the effects are similar or even larger when inverse probability weighting (IPW) is used to account for attrition, while Table A.10 shows that the Lee bounds on the aggregate effects are tight. Table A.11 shows that the results are robust to assuming fairly high levels of unobserved selection for attriters.[15] Table A.12 exploits random within-classroom variation in the number of negotiation girls and finds no evidence of spillovers. Table A.13 shows

[14] These questions are selected from the WHO Multicountry Study on Women's Health and Domestic Violence Against Women, though our survey changes the answer scale from the original "Agree/Disagree" to a four-item scale. Figure A.4 shows that there is large variation in respondents' answers.

[15] See Kling and Liebman (2004) and Blattman, Fiala and Martinez (2020) for similar bounding approaches.

that the negotiation aggregate effect remains statistically significant and statistically different from safe space when we include *all* outcomes in the follow-up survey, including those like income where we do not expect to yet see a positive effect.

IV. Mechanisms: Negotiation Skills vs. Education

In this section, we evaluate whether negotiation's impacts on sexual behavior, marriage, and health are mainly explained by its positive effects on education. The first piece of evidence that this is not the case also comes from the comparison of the negotiation and safe space effects. The effects of the two treatments on years of education are not statistically significantly different (and the safe space point estimate is ~80% of the negotiation estimate). However, we observe statistically different effects on the non-education indices and across all outcomes. This pattern is inconsistent with the idea that negotiation affects these outcomes mainly by increasing education, since otherwise we should also observe that safe space has positive effects.

In addition, Table A.14 shows that the effects on adverse health and sexual outcomes are concentrated in those who did not enroll in college, with a statistically significantly greater effect for those who never enrolled. Since much of negotiation's effect on education is through tertiary education, and this is also where the negotiation and safe space educational effects may deviate, this further suggests that improvements in these outcomes are not fully driven by increased schooling.

We also take advantage of our detailed retrospective data on enrollment status by year and re-estimate the dynamic effects of negotiation on marriage age and start of sexual activity by a given year (as in Figure 1) for the population that was not enrolled in school during that year (Figure A.5). The pattern of estimates is noisier but similar to the full sample, helping to rule out that the effects are merely driven by an "incarceration" effect of being in school.

Another, more qualitative piece of evidence that the training mattered beyond its effects on education comes from diaries used during the negotiation training recording how participants used the skills in daily life. Girls explicitly mention being pressured by boyfriends for sex and successfully practicing negotiation skills by asking boyfriends about their "outside options." Altogether, the training appears to matter for health and marriage outcomes beyond its direct effects on education.

V. Cost-Effectiveness

We first assess cost-effectiveness as years of education per 100 dollars spent directly on the intervention. Based on the 2023 data, 100 dollars spent translates into 0.38 more years of education. This is substantially larger than the effect estimated by ABLM since negotiation's effect on education grew over the subsequent seven years. The value in ABLM (0.16) already compared well with other successful educational interventions, such as conditional cash transfer programs (Schultz, 2004; Baird, McIntosh and Özler, 2011) or subsidizing inputs to schooling (Duflo, Dupas and Kremer, 2015).

Alternatively, we can directly quantify the social benefits and costs of the intervention using either a benefit-cost ratio (BCR) framework or the marginal value of public funds (MVPF) framework described by Hendren and Sprung-Keyser (2020). Accounting for the social costs of the intervention requires accounting for its effect on earnings (e.g., lost earnings while in school), as well as additional educational expenses by the participant and government (e.g., tuition for tertiary education and public spending on secondary and tertiary education). MVPF calculates the marginal social benefit generated by each additional dollar spent by the government due to the intervention, while BCR measures the additional social benefit generated by the intervention for every dollar spent (including crowd-in of spending by the government and households).

To quantify the benefits of increased education, we adopt a surrogate approach in the spirit of Athey et al. (2019). We link negotiation's causal effect on years of education (the surrogate) to estimates of the effect of education on longer-run or unmeasured outcomes of interest from a similar context to quantify the benefits of those effects. We draw on Duflo et al. (2024), who estimate and quantify in dollar terms the fifteen year effects of a secondary scholarship program in Ghana on child survival, child cognitive skills, and wages. We assume that the effect of years of education is linear and that we can scale the size of the stream of benefits by our treatment's relative effect on schooling. Appendix B explains how we adjust the estimates of Duflo et al. (2024) and how we calculate social costs, benefits, and tax revenue generated by the intervention using the 2023 and intermediate tracking surveys.

When focusing on the flow of benefits from increased education, we find that the MVPF and benefit-cost ratio of the negotiation treatment are 10.5 and 7.6, respectively. An MVPF of 10.5 puts the program's MVPF above the vast majority of programs studied by Hendren and Sprung-Keyser (2020). While the surrogate approach captures an important set of benefits, the program's effects on health, relationships, and gender attitudes may lead to even greater cost-effectiveness.[16]

VI. Conclusion

We test whether relational skills — acquired in the critical period of adolescence — set young women on a better life trajectory in a vulnerable, gender-biased setting. Building on ABLM, we show that the effects of the treatment on education *compound* rather than fade out. The data also allow us to measure relational outcomes that emerged later in young women's lives. Our results suggest that improved relational skills helped young women flourish in a highly disadvantaged setting where risky sex is common. Benefits appear to accrue even to those whose education was unaffected.

A natural question is to what extent our results are driven by changes in relationships with parents/family members or boyfriends/partners or by changes in some other outcomes, besides education, that then had downstream effects. While such mechanisms are difficult to unpack

[16] For example, our directionally negative effects on the likelihood of HIV infection may entail substantial social benefits through reduced mortality and improved health. The MVPF of 10.5 and BCR of 7.6 are based on a medium level of the value of a statistical life (VSL), which is equal to 100 times of the GNI per capita in Zambia. Figure B.1 in Appendix B shows the results when assuming lower or higher levels of the VSL.

quantitatively, particularly within the confines of a phone survey, qualitative interviews of treatment girls during the study pilot shed some light on how they initially used their negotiation skills. These interviews (excerpted in Appendix D) reveal that young women practiced these skills with siblings and especially parents but also provide some early evidence that their skills affected relationships with boyfriends, which likely became more relevant as girls aged. Furthermore, the training appeared to improve emotional regulation.

Starting at age 17 (four years after initial treatment), negotiation skills helped young women delay sexual activity, and starting at 19, directionally reduced the likelihood of marrying earlier. Young women had smaller age gaps with their spouses, and held less traditional beliefs about their roles in relationships, consistent with relational empowerment. While many of these non-pecuniary outcomes are difficult to quantify in terms of a dollar value, quantifying merely the stream of benefits from improved education suggests that the program generated 7.6 additional dollars of social benefit for each dollar spent and had a marginal value of public funds of 10.5. Improving relational skills in adolescence, when women are on the cusp of navigating new, potentially unequal relationships with many risks, can set women on better life trajectories, with large social benefits.

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Table 1. Impact of Negotiation Treatment on Educational Attainment

	(1) Ever Enroll in Grade 12	(2) Pass HS Exam	(3) Enroll in Any College	(4) Graduate College: Any Program	(5) Graduate College: 3-year Diploma	(6) Graduate College: ≥4-year Degree	(7) Total Years of Education
Negotiation	0.039	0.015	0.006	0.052	0.050	-0.007	0.232
	(0.019)	(0.026)	(0.034)	(0.030)	(0.029)	(0.015)	(0.109)
	[0.047]	[0.576]	[0.860]	[0.092]	[0.083]	[0.670]	[0.035]
Safe Space (SS)	0.034	0.030	0.031	0.022	0.003	0.011	0.182
	(0.017)	(0.023)	(0.036)	(0.034)	(0.026)	(0.020)	(0.127)
	[0.049]	[0.200]	[0.399]	[0.519]	[0.895]	[0.598]	[0.154]
Observations	1,225	1,229	1,225	1,225	1,229	1,229	1,225
Adjusted R^2	0.076	0.119	0.153	0.078	0.047	0.052	0.116
Mean of Dep. Var.	0.939	0.852	0.431	0.213	0.161	0.054	12.704
Negotiation = SS (p-value)	0.747	0.538	0.518	0.367	0.107	0.323	0.694
Classroom Fixed Effects	✓	✓	✓	✓	✓	✓	✓
Lasso Controls	✓	✓	✓	✓	✓	✓	✓

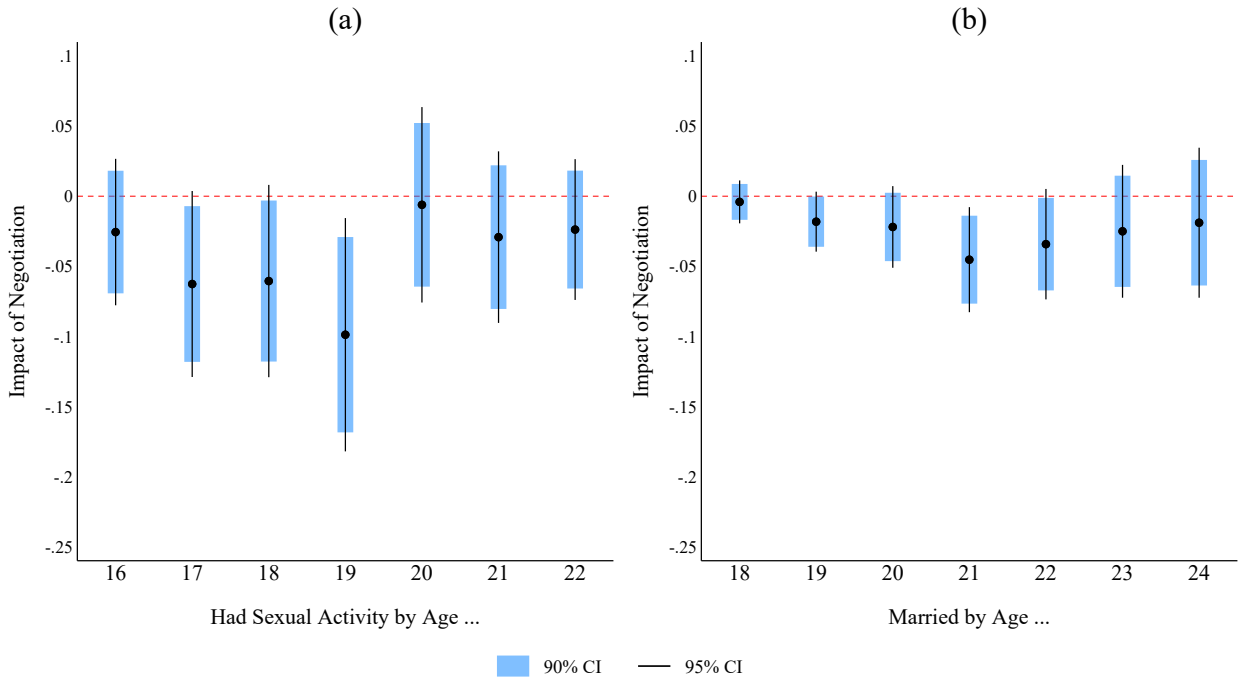
Notes: The table shows the estimated effects of the negotiation treatment on educational attainment. The dependent variables are: ever enrolling in the twelfth grade, successfully graduating from high school (measured as taking and passing the 12th grade national exam), enrolling in any college program, graduating from any college program, graduating from a three-year college program, graduating from a degree program that takes four years or more, and the total years of schooling. Each column is derived from one linear probability model or one Ordinary Least Squares (OLS) regression. All models control for the information treatment indicator and classroom fixed effects. In addition, we use double lasso to select other controls from the full set of baseline characteristics listed in Table A.3. The row "Negotiation = SS (p-value)" shows the p-value derived from testing the difference between the Negotiation and the Safe Space (SS) coefficients in each column. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table 2. Impact on Sexual Behavior, Marriage, Childbirth, and Adverse Health

	(1) Had Sex < 19	(2) Got Married < 23	(3) Child birth < 21	(4) Spouse ≥5 Older	(5) Likely HIV Infection	(6) Health Not Very Good	(7) Anxiety & Depression Score	(8) Average Treatment Effect
Negotiation	-0.060	-0.034	0.020	-0.038	-0.019	-0.062	-0.079	-0.076
	(0.035)	(0.020)	(0.025)	(0.022)	(0.015)	(0.039)	(0.256)	(0.034)
	[0.083]	[0.088]	[0.415]	[0.084]	[0.199]	[0.118]	[0.759]	[0.026]
Safe Space (SS)	0.013	-0.009	0.022	-0.007	-0.007	-0.034	-0.202	-0.014
	(0.037)	(0.025)	(0.025)	(0.025)	(0.016)	(0.037)	(0.263)	(0.033)
	[0.721]	[0.735]	[0.383]	[0.792]	[0.668]	[0.349]	[0.444]	[0.675]
Observations	1,095	1,222	1,225	1,222	1,144	1,229	1,225	1,229
Adjusted R^2	0.034	0.024	0.034	0.046	0.015	0.012	0.021	–
Mean of Dep. Var.	0.364	0.099	0.136	0.117	0.037	0.660	4.411	–
Negotiation = SS	0.052	0.237	0.945	0.155	0.383	0.523	0.630	0.075
Classroom FEs	✓	✓	✓	✓	✓	✓	✓	✓
Lasso Controls	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The table shows the estimated effects of the negotiation treatment on the following outcomes: starting sexual activity below the median age (19), getting married below the median age (23), giving birth to a child below the median age (21), being married to a spouse older than the respondent by at least five years (the median age gap), reporting being likely to be infected with HIV, assessing one's overall health status as not very good, and a total score for anxiety and depression (ranging from 0 to 12). Each column is derived from one linear probability model or one OLS regression. Column 8 shows the estimated average standardized treatment effect following Kling, Liebman and Katz (2007). All models control for the information treatment indicator, classroom fixed effects (FEs), and a set of baseline characteristics selected by double lasso. Standard errors in parentheses are clustered at the classroom level. "Negotiation = SS" shows the p-value for the test of difference between the Negotiation and the Safe Space (SS) coefficients in each column. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Figure 1. Impact on the Timing of Sex and Marriage



Notes: Panel (a) shows the estimated effects of the negotiation training on the likelihood of having had sex by different ages (including the specific age and all ages below it); Panel (b) shows the estimated effects on the likelihood of having been married at least once by different ages (including the specific age and all ages below it). Each estimate is derived from one linear probability model that uses the same specification as Column 1 of Table 2. Figure A.6 shows the distribution of the age when first had sex and the age of first marriage, conditional on having married. Error bars indicate 95% or 90% confidence intervals.

Table 3. Impact on Traditional Gender Role Attitudes

	(1) Wife to obey her husband (Agree)	(2) Man to show he is boss (Agree)	(3) Wife's obligation to have sex (≠Str. disagree)	(4) Woman no own friends (≠Str. agree)	(5) All traditional attitudes (ATE)
Negotiation	-0.042	-0.085	-0.062	-0.034	-0.111
	(0.035)	(0.036)	(0.032)	(0.037)	(0.034)
	[0.232]	[0.022]	[0.056]	[0.352]	[0.001]
Safe Space (SS)	0.002	-0.021	-0.022	-0.009	-0.020
	(0.036)	(0.041)	(0.034)	(0.034)	(0.038)
	[0.960]	[0.617]	[0.524]	[0.801]	[0.594]
Observations	1,229	1,225	1,225	1,229	1,222
Adjusted R^2	0.017	0.045	0.025	0.009	–
Mean of Dep. Var.	0.507	0.315	0.398	0.723	–
Negotiation = SS	0.270	0.073	0.280	0.453	0.016
Classroom FEs	✓	✓	✓	✓	✓
Lasso Controls	✓	✓	✓	✓	✓

Notes: Respondents report whether they strongly or somewhat agree or disagree with four statements regarding gender roles within the family: (1) "A good wife obeys her husband even if she disagrees"; (2) "It is important for a man to show his wife/partner who is the boss"; (3) "It's a wife's obligation to have sex with her husband even if she doesn't feel like it"; and (4) "A woman should be able to choose her own friends even if her husband disapproves." The table shows estimated effects of the negotiation treatment on the following outcomes: agreeing with statement 1, agreeing with statement 2, not strongly disagreeing with statement 3, and not strongly agreeing with statement 4. The cutoff points roughly correspond to the median answer for each statement. Column 5 shows the average standardized treatment effect (ATE) of the negotiation treatment on all outcomes in Columns 1–4. Table A.7 shows that the overall impact remains robust when using different cutoffs to define traditional attitudes for statements 3 and 4. All models control for the information treatment, classroom fixed effects, and a set of baseline characteristics selected by double lasso. "Negotiation = SS" shows the p-value for the test of difference between the Negotiation and the Safe Space (SS) coefficients in each column. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table 4. Effects of Different Treatments on Aggregate Outcomes by the Set of Controls

	Panel A. Total Years of Education			**Panel B.** Adverse Sex, Marriage & Health Outcomes (ATE)		
	(1)	(2)	(3)	(4)	(5)	(6)
Negotiation	0.195	0.273	0.244	-0.075	-0.094	-0.092
	(0.105)	(0.097)	(0.094)	(0.033)	(0.033)	(0.032)
	[0.065]	[0.005]	[0.010]	[0.023]	[0.004]	[0.004]
Safe Space (SS)	0.143	0.222	0.199	-0.019	-0.031	-0.034
	(0.118)	(0.113)	(0.105)	(0.032)	(0.033)	(0.032)
	[0.229]	[0.052]	[0.059]	[0.564]	[0.354]	[0.298]
Information	-0.014	0.063	0.046	0.003	-0.006	-0.003
	(0.089)	(0.085)	(0.086)	(0.023)	(0.023)	(0.022)
	[0.871]	[0.459]	[0.590]	[0.906]	[0.782]	[0.902]
Negotiation = SS	0.658	0.653	0.685	0.088	0.055	0.063
Classroom FEs	✓	-	-	✓	-	-
Lasso Controls	-	✓	-	-	✓	-

	Panel C. Traditional Gender Attitudes (ATE)			**Panel D.** All Outcomes in Positive Direction (ATE)			
	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Negotiation	-0.095	-0.096	-0.088	0.086	0.102	0.096	0.097
	(0.035)	(0.033)	(0.033)	(0.025)	(0.023)	(0.023)	(0.024)
	[0.006]	[0.004]	[0.008]	[<0.001]	[<0.001]	[<0.001]	[<0.001]
Safe Space	-0.005	-0.010	-0.001	0.020	0.036	0.031	0.028
	(0.038)	(0.038)	(0.038)	(0.025)	(0.026)	(0.025)	(0.025)
	[0.895]	[0.788]	[0.973]	[0.420]	[0.156]	[0.211]	[0.272]
Information	-0.026	-0.043	-0.023	0.006	0.022	0.012	0.018
	(0.034)	(0.035)	(0.032)	(0.020)	(0.020)	(0.019)	(0.020)
	[0.448]	[0.212]	[0.473]	[0.749]	[0.266]	[0.537]	[0.387]
Negotiation = SS	0.015	0.021	0.018	0.012	0.012	0.010	0.012
Classroom FEs	✓	-	-	✓	-	-	✓
Lasso Controls	-	✓	-	-	✓	-	✓

Notes: The table shows the estimated effects of the negotiation, safe space, and information treatments on different aggregate outcomes. In Panel A, we use OLS regressions to estimate the effects on total years of education. In Panel B, we estimate the average standardized treatment effects (ATE) on all adverse sex, marriage, and health outcomes (see Table 2 for details of these outcomes). In Panel C, we estimate the ATE on traditional gender attitudes (see Table 3). In Panel D, we estimate the ATE on all educational, health, and attitudes outcomes; we reverse the adverse health-related measures and traditional attitudes such that higher values of a variable always represent more positive outcomes. For each set of outcomes, we show the results with classroom fixed effects, with lasso-selected controls, and without additional controls. The last column in Panel D also shows the overall ATE with both classroom fixed effects and lasso controls. "Negotiation = SS" shows the p-values derived from tests of differences between the Negotiation and Safe Space (SS) treatments. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Supplemental Appendix for

"Ten Years of Relational Power: The Long-Run Effects of Teaching Negotiation Skills to Adolescent Girls"

by Nava Ashraf, Natalie Bau, Corinne Low, and Xiaoyue Shan

Appendix A. Additional Tables and Figures

Table A.1. Effects on Employment Status and Income by Survey Wave

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	2018 Tracking	2020–2021 Tracking		2023 Ten-Year Follow-Up			
	Any Work	In Paid Work	Self-Employed	In Paid Work	Self-Employed	Any Income	Total Income (wins.)
Negotiation	-0.030*	-0.020	-0.028	0.018	0.014	0.006	41.381
	(0.016)	(0.024)	(0.017)	(0.028)	(0.027)	(0.029)	(98.841)
	[0.059]	[0.397]	[0.110]	[0.523]	[0.601]	[0.840]	[0.676]
Safe Space (SS)	0.014	0.000	-0.035**	-0.019	-0.031	-0.045	-100.288
	(0.018)	(0.024)	(0.016)	(0.032)	(0.025)	(0.033)	(103.825)
	[0.418]	[0.990]	[0.029]	[0.556]	[0.221]	[0.167]	[0.336]
Observations	2,152	1,962	1,953	1,229	1,229	1,229	1,229
Adjusted R^2	0.002	0.007	0.011	0.002	-0.002	0.005	0.005
Mean of Dep. Var.	0.118	0.296	0.095	0.307	0.204	0.657	1192.945
Negotiation = SS	0.008	0.385	0.627	0.184	0.111	0.110	0.162
Classroom FEs	✓	✓	✓	✓	✓	✓	✓
Lasso Controls	✓	✓	✓	✓	✓	✓	✓

Notes: The table shows the estimated effects of the negotiation intervention on participants' employment status and income in two tracking surveys and the ten-year follow-up survey. All surveys, including tracking surveys, were phone surveys. In the 2018 tracking survey, we asked participants: "Are you currently working?" The dependent variable in Column 1 indicates whether a participant was working then. In the 2020–2021 tracking survey, conducted during the Covid-19 pandemic, we asked two questions related to employment status before the pandemic and current employment status during the pandemic. The answer options include paid employment, self-employment, and other (e.g., not working or studying). We combine the two questions to measure whether a participant was in paid work or self-employed at all during the whole period (before or during the pandemic); the results are similar when separately examining the status before the pandemic and at the time of the survey. In the 2023 follow-up survey, the main survey examined in this paper, we asked participants to report their current working status with detailed answer options that capture different forms of paid employment (e.g., as a salaried employee, in casual or piece work, and as a paid intern), self-employment (i.e., having own business with or without employees), unemployment, and studying. The dependent variables in Columns 2–5 indicate whether a participant was in any paid employment or was self-employed. In the 2023 survey, participants also reported their approximate monthly income in money and in-kind. The dependent variables in Columns 6–7 are: an indicator for whether a participant earns any positive amount of income and the total amount of income (in ZMW) winsorized at the 99th percentile. Each column is estimated with one linear probability model or OLS regression. All models control for the information treatment, classroom fixed effects, and a set of baseline characteristics selected by double lasso. The row "Negotiation = SS" shows the p-value derived from testing the difference between the Negotiation and the Safe Space (SS) coefficients in each column. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.2. Survey Response by Treatment and Baseline Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Dependent Variable: Follow-up Survey Response						
Negotiation	-0.004	0.099	-0.021	-0.029	-0.012	-0.005	0.139
	(0.026)	(0.238)	(0.047)	(0.035)	(0.052)	(0.027)	(0.266)
	[0.888]	[0.679]	[0.660]	[0.399]	[0.810]	[0.846]	[0.604]
Safe Space (SS)	0.010	-0.001	-0.001	-0.001	-0.000	-0.000	0.001
	(0.025)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)
	[0.699]	[0.974]	[0.962]	[0.974]	[0.985]	[0.989]	[0.976]
Information	0.022	0.025	0.024	0.026	0.025	0.025	0.025
	(0.020)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
	[0.292]	[0.233]	[0.255]	[0.220]	[0.240]	[0.235]	[0.232]
Negotiation × Age		-0.007					-0.010
		(0.016)					(0.017)
		[0.659]					[0.563]
Negotiation × Both parents are alive			0.018				-0.016
			(0.051)				(0.064)
			[0.723]				[0.801]
Negotiation × Live with parents				0.047			0.057
				(0.044)			(0.055)
				[0.296]			[0.301]
Negotiation × Parents pay fees					0.010		-0.017
					(0.055)		(0.063)
					[0.858]		[0.794]
Negotiation × Ability						-0.016	-0.019
						(0.024)	(0.025)
						[0.504]	[0.431]
Age		-0.013					-0.009
		(0.010)					(0.011)
		[0.177]					[0.371]
Both parents are alive			-0.045				-0.075*
			(0.033)				(0.040)
			[0.170]				[0.059]
Live with parents				0.002			0.030
				(0.027)			(0.034)
				[0.932]			[0.374]
Parents pay fees					0.012		0.014
					(0.028)		(0.031)
					[0.666]		[0.657]
Ability						0.028*	0.026*
						(0.016)	(0.016)
						[0.075]	[0.094]
Observations	2,366	2,254	2,254	2,254	2,249	2,254	2,249
Adjusted R^2	0.015	0.013	0.012	0.012	0.011	0.013	0.014
Mean of Dep. Var.	0.544	0.545	0.545	0.545	0.545	0.545	0.545
Negotiation = SS (p-value)	0.622	0.674	0.660	0.420	0.810	0.863	0.600
All Interactions = 0 (p-value)							0.844
Classroom Fixed Effects	✓	✓	✓	✓	✓	✓	✓

Notes: The dependent variable is a binary indicator for completing the 10-year follow-up survey. Each column is derived from one linear probability model. All models control for classroom fixed effects and cluster standard errors at the classroom level. The row "Negotiation = SS (p-value)" shows the p-value derived from testing the difference between the Negotiation and the Safe Space (SS) coefficients in each column. The p-values of the coefficients are shown in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.3. Balance of Baseline Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
			Negotiation vs Control		Negotiation vs Safe Space	
	Mean	Std. dev.	Coeff.	Std. err.	Coeff.	Std. err.
Both parents are alive	0.727	0.446	-0.033	(0.032)	0.004	(0.033)
Lives with biological father	0.563	0.496	-0.013	(0.035)	0.048	(0.036)
Lives with biological mother	0.723	0.448	-0.004	(0.032)	0.031	(0.037)
Living with both mom and dad	0.509	0.500	-0.033	(0.033)	0.026	(0.036)
Parents pay fees	0.775	0.418	0.012	(0.032)	0.045	(0.033)
Reads Nyanja excellently	0.417	0.493	-0.067*	(0.038)	-0.081**	(0.034)
Speaks Nyanja excellently	0.477	0.500	-0.067*	(0.039)	-0.018	(0.036)
Reads English excellently	0.724	0.447	0.003	(0.035)	-0.021	(0.036)
Speak English excellently	0.421	0.494	-0.066*	(0.039)	0.023	(0.035)
Reads Nyanja above average	0.647	0.478	-0.062*	(0.035)	-0.023	(0.039)
Speaks Nyanja above average	0.875	0.331	0.011	(0.027)	-0.003	(0.026)
Reads English above average	0.910	0.287	-0.017	(0.022)	-0.008	(0.025)
Speaks English above average	0.801	0.400	-0.021	(0.035)	-0.013	(0.031)
Age	14.335	1.475	0.053	(0.114)	-0.004	(0.109)
p-value (joint test)			0.325		0.642	

Notes: Columns 1–2 show the mean and standard deviation of each baseline characteristic among the 10-year follow-up sample. Columns 3–4 show the estimated differences between the negotiation group and control group (excluding the safe space group) in baseline characteristics. Columns 5–6 show the estimated differences between the negotiation group and safe space group (excluding the control group) in baseline characteristics. Each estimate (including the coefficient and standard errors) is derived from one linear probability model or OLS regression where the dependent variable is a baseline characteristic, and the independent variable is an indicator for the negotiation treatment. All specifications control for the information treatment indicator and classroom fixed effects. Standard errors in parentheses are clustered at the classroom level. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.4. Impact of Negotiation Treatment on Educational Attainment Without Classroom Fixed Effects

	(1) Ever Enroll in Grade 12	(2) Pass HS Exam	(3) Enroll in Any College	(4) Graduate College: Any Program	(5) Graduate College: 3-year Diploma	(6) Graduate College: ≥4-year Degree	(7) Total Years of Education
Negotiation	0.044**	0.028	0.015	0.061**	0.055**	0.000	0.273***
	(0.017)	(0.023)	(0.031)	(0.027)	(0.026)	(0.014)	(0.097)
	[0.014]	[0.231]	[0.628]	[0.025]	[0.036]	[0.972]	[0.005]
Safe Space (SS)	0.043***	0.045**	0.028	0.029	0.006	0.017	0.222*
	(0.016)	(0.021)	(0.033)	(0.030)	(0.023)	(0.018)	(0.113)
	[0.008]	[0.037]	[0.402]	[0.331]	[0.792]	[0.344]	[0.052]
Observations	1,225	1,229	1,225	1,225	1,229	1,229	1,225
Adjusted R^2	0.074	0.115	0.139	0.070	0.044	0.025	0.097
Mean of Dep. Var.	0.939	0.852	0.431	0.213	0.161	0.054	12.704
Negotiation = SS (p-value)	0.986	0.453	0.730	0.282	0.060	0.313	0.653
Lasso Controls	✓	✓	✓	✓	✓	✓	✓

Notes: The table shows the estimated effects of the negotiation treatment on educational attainment. The dependent variables are: ever enrolling in the twelfth grade, successfully graduating from high school (measured as taking and passing the 12th grade national exam), enrolling in any college program, graduating from any college program, graduating from a three-year college program, graduating from a degree program that takes four years or more, and the total years of schooling. Each column is derived from one linear probability model or one Ordinary Least Squares (OLS) regression. All models control for the information treatment indicator. In addition, we use double lasso to select other controls from the full set of baseline characteristics listed in Appendix Table A.3. The row "Negotiation = SS (p-value)" shows the p-value derived from testing the difference between the Negotiation and the Safe Space (SS) coefficients in each column. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.5. Impact on Sexual Behavior, Marriage, Childbirth, and Adverse Health Without Classroom Fixed Effects

	(1) Had Sex < 19	(2) Got Married < 23	(3) Child birth < 21	(4) Spouse ≥5 Older	(5) Likely HIV Infection	(6) Health Not Very Good	(7) Anxiety & Depression Score	(8) Average Treatment Effect
Negotiation	-0.066**	-0.045**	0.019	-0.045**	-0.029**	-0.065*	-0.060	-0.094***
	(0.031)	(0.019)	(0.022)	(0.021)	(0.014)	(0.035)	(0.232)	(0.033)
	[0.036]	[0.018]	[0.399]	[0.033]	[0.037]	[0.066]	[0.795]	[0.004]
Safe Space (SS)	-0.008	-0.022	0.012	-0.012	-0.009	-0.020	-0.218	-0.031
	(0.035)	(0.024)	(0.024)	(0.023)	(0.015)	(0.033)	(0.237)	(0.033)
	[0.826]	[0.355]	[0.607]	[0.615]	[0.562]	[0.546]	[0.358]	[0.354]
Observations	1,095	1,222	1,225	1,222	1,144	1,229	1,225	1,229
Adjusted R^2	0.004	0.013	0.006	0.022	0.006	0.002	0.015	–
Mean of Dep. Var.	0.364	0.099	0.136	0.117	0.037	0.660	4.411	–
Negotiation = SS	0.082	0.246	0.779	0.100	0.134	0.233	0.507	0.055
Lasso Controls	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The table shows the estimated effects of the negotiation treatment on the following outcomes: starting sexual activity below the median age (19), getting married below the median age (23), giving birth to a child below the median age (21), being married to a spouse older than the respondent by at least five years (the median age gap), reporting being likely to be infected with HIV, assessing one's overall health status as not very good, and a total score for anxiety and depression (ranging from 0 to 12). Each column is derived from one linear probability model or one OLS regression. Column 8 shows the estimated average standardized treatment effect following Kling, Liebman and Katz (2007). All models control for the information treatment indicator and a set of baseline characteristics selected by double lasso. Standard errors in parentheses are clustered at the classroom level. "Negotiation = SS" shows the p-value for the test of difference between the Negotiation and the Safe Space (SS) coefficients in each column. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.6. Effects on HIV Infection Likelihood with Different Ways of Coding Missing Values

	(1)	(2)	(3)	(4)	(5)
If "No-Consent" =	Missing	Likely	Unlikely	Unlikely	Likely
If "Unknown" =	Missing	Likely	Unlikely	Likely	Unlikely
Negotiation	-0.019	-0.032	-0.016	-0.030	-0.018
	(0.015)	(0.025)	(0.014)	(0.024)	(0.014)
	[0.199]	[0.201]	[0.249]	[0.227]	[0.203]
Safe Space (SS)	-0.007	-0.033	-0.003	-0.037	0.000
	(0.016)	(0.025)	(0.015)	(0.024)	(0.016)
	[0.668]	[0.186]	[0.838]	[0.133]	[0.976]
Observations	1,144	1,229	1,229	1,229	1,229
Adjusted R^2	0.015	0.001	0.013	-0.003	0.028
Mean of Dep. Var.	0.037	0.103	0.035	0.100	0.037
Negotiation = SS (p-value)	0.383	0.955	0.340	0.758	0.231
Classroom Fixed Effects	✓	✓	✓	✓	✓
Lasso Controls	✓	✓	✓	✓	✓

Notes: The table shows the estimated effects of the negotiation treatment on the likelihood of HIV infection when coding missing values of the outcome in different ways. Besides reporting likely or unlikely to be infected with HIV, participants can also refuse to answer the question (i.e., "No-consent", $N = 3$) or report "Unknown" ($N = 84$). Column 1 shows the results (shown in main text) when keeping these 87 observations as missing values. Columns 2–5 show the results when replacing these two types of missing values with either 0 (Unlikely) or 1 (Likely). Each column is estimated with one linear probability model. All models control for the safe space and information treatments, classroom fixed effects, and a set of baseline characteristics selected by double lasso. The row "Negotiation = SS (p-value)" shows the p-value derived from testing the difference between the Negotiation and the Safe Space (SS) coefficients in each column. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.7. Robustness of Effects on Aggregate Traditional Gender Attitudes to Different Codings of Sub-Components

	(1)	(2)	(3)	(4)
	Average Standardized Treatment Effect (ATE)			
(i) "Wife's obligation to have sex"	≠ Str. Disagree	Agree	≠ Str. Disagree	Agree
(ii) "Woman can choose own friends"	≠ Str. Agree	≠ Str. Agree	Disagree	Disagree
Negotiation	-0.111***	-0.096***	-0.098***	-0.082**
	(0.034)	(0.033)	(0.035)	(0.036)
	[0.001]	[0.004]	[0.005]	[0.023]
Safe Space (SS)	-0.020	-0.021	-0.003	-0.002
	(0.038)	(0.038)	(0.040)	(0.039)
	[0.594]	[0.581]	[0.935]	[0.961]
Negotiation = SS (p-value)	0.016	0.041	0.016	0.038
Classroom Fixed Effects	✓	✓	✓	✓
Lasso Controls	✓	✓	✓	✓

Notes: The table reports the average treatment effects of negotiation and safe space on traditional gender role attitudes, depending on the definitions of two sub-items of traditional attitudes. Participants report whether they strongly or somewhat agree or disagree with two statements: (i) "It's a wife's obligation to have sex with her husband even if she doesn't feel like it"; and (ii) "A woman should be able to choose her own friends even if her husband disapproves." Column 1 uses the same cut-offs as in the paper: not strongly disagreeing with (i) and not strongly agreeing with (ii). Columns 2–4 show the estimation results when using alternative cut-offs for creating indicator variable measures of each sub-component. All models control for the safe space and information treatments, classroom fixed effects, and a set of baseline characteristics selected by double lasso. The row "Negotiation = SS (p-value)" shows the p-value derived from testing the difference between the Negotiation and the Safe Space (SS) coefficients in each column. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.8. Impact on Traditional Gender Role Attitudes Without Classroom Fixed Effects

	(1) Wife to obey her husband (Agree)	(2) Man to show he is boss (Agree)	(3) Wife's obligation to have sex (≠Str. disagree)	(4) Woman no own friends (≠Str. agree)	(5) All traditional attitudes (ATE)
Negotiation	-0.034	-0.076**	-0.050*	-0.034	-0.096***
	(0.032)	(0.033)	(0.029)	(0.034)	(0.033)
	[0.281]	[0.024]	[0.091]	[0.330]	[0.004]
Safe Space (SS)	0.012	-0.017	-0.014	-0.010	-0.010
	(0.033)	(0.038)	(0.032)	(0.032)	(0.038)
	[0.717]	[0.663]	[0.658]	[0.753]	[0.788]
Observations	1,229	1,225	1,225	1,229	1,222
Adjusted R^2	0.016	0.027	0.016	0.001	–
Mean of Dep. Var.	0.507	0.315	0.398	0.723	–
Negotiation = SS	0.197	0.073	0.306	0.459	0.021
Lasso Controls	✓	✓	✓	✓	✓

Notes: Respondents report whether they strongly or somewhat agree or disagree with four statements regarding gender roles within the family: (1) "A good wife obeys her husband even if she disagrees"; (2) "It is important for a man to show his wife/partner who is the boss"; (3) "It's a wife's obligation to have sex with her husband even if she doesn't feel like it"; and (4) "A woman should be able to choose her own friends even if her husband disapproves." The table shows estimated effects of the negotiation and safe space treatments on the following outcomes: agreeing with statement 1, agreeing with statement 2, not strongly disagreeing with statement 3, and not strongly agreeing with statement 4. The cutoff points roughly correspond to the median answer for each statement. Column 5 shows the average standardized treatment effect (ATE) of the negotiation treatment on all outcomes in Columns 1–4. Appendix Table A.7 shows that the overall impact remains robust when using different cutoffs to define traditional attitudes for statements 3 and 4. All models control for the information treatment and a set of baseline characteristics selected by double lasso. "Negotiation = SS" shows the p-value for the test of the difference between the Negotiation and the Safe Space (SS) coefficients in each column. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.9. Main Results Accounting for Attrition with Inverse Probability Weighting

	(1) Total Years of Education	(2) Adverse Sex Marriage & Health (ATE)	(3) Traditional Attitudes (ATE)	(4) All Outcomes in Positive Direction (ATE)
Negotiation	0.275**	-0.096***	-0.097***	0.104***
	(0.113)	(0.037)	(0.036)	(0.026)
	[0.017]	[0.009]	[0.008]	[<0.001]
Safe Space (SS)	0.183	-0.031	-0.028	0.039
	(0.124)	(0.036)	(0.041)	(0.027)
	[0.143]	[0.395]	[0.492]	[0.149]
Negotiation = SS (p-value)	0.479	0.085	0.092	0.030
Classroom Fixed Effects	✓	✓	✓	✓
Lasso Controls	✓	✓	✓	✓

Notes: The table shows the estimated treatment effects on different outcomes with inverse probability weighting for survey response. Specifically, we derive the predicted propensity (pr) of completing the follow-up survey based on all baseline characteristics and classroom fixed effects. We then use $1/pr$ as the weight when estimating the effects of different treatments on the main outcomes of this paper. Columns 1 represents an OLS regression, while Columns 2–4 show the estimated average treatment effects on adverse marriage or health outcomes, traditional gender attitudes, and all combined outcomes in a positive direction—corresponding to the results in the final columns of Tables 2, 3, and 4. All models control for the safe space and information treatments, classroom fixed effects, and a set of baseline characteristics selected by double lasso. The row "Negotiation = SS (p-value)" shows the p-value derived from testing the difference between the Negotiation and the Safe Space (SS) coefficients in each column. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.10. Lee Bounds on Effects of Negotiation vs. Control on Aggregate Outcomes

(1)	(2)	(3)	(4)
		Lee Bounds	
Outcome Variable	Original Estimate (Clustered SE)	Lower Bound (Clu. Boot. SE)	Upper Bound (Clu. Boot. SE)
Years of Education	0.245***	0.242*	0.250**
	(0.093)	(0.125)	(0.120)
	[0.009]	[0.053]	[0.037]
Adverse Sex, Marriage & Health (ATE)	-0.092***	-0.097*	-0.090
	(0.032)	(0.056)	(0.062)
	[0.004]	[0.083]	[0.147]
Traditional Gender Attitudes (ATE)	-0.089***	-0.089**	-0.088*
	(0.033)	(0.044)	(0.048)
	[0.008]	[0.044]	[0.066]
All Outcomes in Positive Direction (ATE)	0.096***	0.095***	0.099***
	(0.023)	(0.036)	(0.033)
	[<0.001]	[0.009]	[0.002]

Notes: The table compares participants in the negotiation and control arms (excluding the safe space arm) to estimate the original treatment effects of negotiation on different outcomes and the Lee (2009) bounds of the effects. We cannot control for the safe space indicator to tighten the Lee bounds because they are independent treatment arms (i.e., there is no variation in the safe space treatment for the negotiation or control arm). Column 2 shows the original estimates of how the negotiation treatment affects different outcomes, estimated with the follow-up participants initially assigned to the negotiation and control arms. Columns 3–4 show the calculated lower and upper Lee bounds, using the full sample of participants with and without completing the follow-up survey. For the Lee bounds, we derive clustered bootstrap standard errors ("Clu. Boot. SE") by resampling participants from classroom clusters and estimate the corresponding bounds 1,000 times. For the combined ATE estimates, we first estimate the bounds and save the 1,000 resampling results for each outcome. We then calculate the average standardized estimates of the upper/lower bounds and use the saved resampling results to derive the overall bootstrap standard errors. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.11. Aggregate Effects of Negotiation vs. Control Under Different Assumptions about Missing Data

	(1)	(2)	(3)	(4)	(5)
	Attenuated Effect		Original Effect	Strengthened Effect	
Outcome Variable	±0.1 SD	±0.05 SD		±0.05 SD	±0.1 SD
Years of Education	0.102**	0.174***	0.245***	0.317***	0.389***
	(0.050)	(0.050)	(0.093)	(0.050)	(0.051)
	[0.042]	[0.001]	[0.009]	[<0.001]	[<0.001]
Adverse Sex, Marriage & Health Outcomes (ATE)	-0.003	-0.047***	-0.092***	-0.137***	-0.181***
	(0.017)	(0.017)	(0.032)	(0.017)	(0.018)
	[0.877]	[0.005]	[0.004]	[<0.001]	[<0.001]
Traditional Gender Attitudes (ATE)	0.003	-0.043**	-0.089***	-0.135***	-0.180***
	(0.019)	(0.018)	(0.033)	(0.018)	(0.018)
	[0.866]	[0.019]	[0.008]	[<0.001]	[<0.001]
All Outcomes in Positive Direction (ATE)	0.021*	0.059***	0.096***	0.134***	0.171***
	(0.012)	(0.012)	(0.023)	(0.013)	(0.013)
	[0.092]	[<0.001]	[<0.001]	[<0.001]	[<0.001]

Notes: The table shows the aggregate effects of the negotiation treatment under different assumptions about the outcomes of non-tracked participants. As in Table A.10, we focus on the comparison between the control and negotiation arms (excluding the safe space arm), and Column 3 shows the original effects. Columns 1–2 and 4–5 show the estimated effects when assuming non-tracked participants' outcomes to be equal to the mean plus or minus 0.05 or 0.1 SD of the outcome. For years of education, Columns 1–2 assume missing outcomes of the control arm to take different values above the mean and the treatment arm to take values below the mean, so that the estimated effects under these assumptions are attenuated compared to the original effect. By contrast, Columns 4–5 assume the opposite: the treatment (control) arm takes values above (below) the mean, so that the calculated effects are further strengthened. For health and attitudes outcomes in a negative direction, we reverse the assumption for treatment and control arms to calculate the attenuated and strengthened effects. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.12. Tests for Within-Class Spillover Effects

	(1) Total Years of Education	(2) Adverse Sex, Marriage & Health (ATE)	(3) Traditional Gender Attitudes (ATE)	(4) All Outcomes in Positive Direction (ATE)
Negotiation	0.293***	-0.096***	-0.101***	0.103***
	(0.098)	(0.032)	(0.033)	(0.023)
	[0.003]	[0.003]	[0.002]	[<0.001]
Num. Negotiation Girls	-0.042	-0.008	0.009	-0.002
	(0.068)	(0.033)	(0.037)	(0.029)
	[0.538]	[0.816]	[0.810]	[0.951]
Num. Girls in Study	✓	✓	✓	✓
Treatment Controls	✓	✓	✓	✓
Lasso Controls	✓	✓	✓	✓

Notes: The table shows the estimated effects of receiving the negotiation treatment and the number of girls in the classroom that received the negotiation treatment. All models control for the total number of girls in the classroom that participated in the study (and were assigned to the control, negotiation, or safe space arm), indicators for the safe space and information treatments, classroom fixed effects, and a set of baseline characteristics selected by double lasso. Column 1 is derived from one OLS regression, while Columns 2–4 represent average standardized treatment effects (ATE). Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.13. Average Treatment Effects on All Outcomes in the Follow-Up Survey

	(1)	(2)	(3)	(4)
	All Survey Outcomes in Positive Direction (ATE)			
Negotiation	0.048**	0.054***	0.043**	0.051**
	(0.020)	(0.020)	(0.021)	(0.021)
	[0.019]	[0.006]	[0.039]	[0.014]
Safe Space (SS)	-0.011	0.000	-0.015	-0.002
	(0.019)	(0.019)	(0.019)	(0.019)
	[0.588]	[0.984]	[0.425]	[0.925]
Information	0.027	0.031*	0.019	0.024
	(0.017)	(0.016)	(0.016)	(0.015)
	[0.107]	[0.054]	[0.220]	[0.120]
Negotiation = SS	0.004	0.006	0.004	0.007
Classroom FEs	✓	–	✓	–
Lasso Controls	✓	✓	–	–

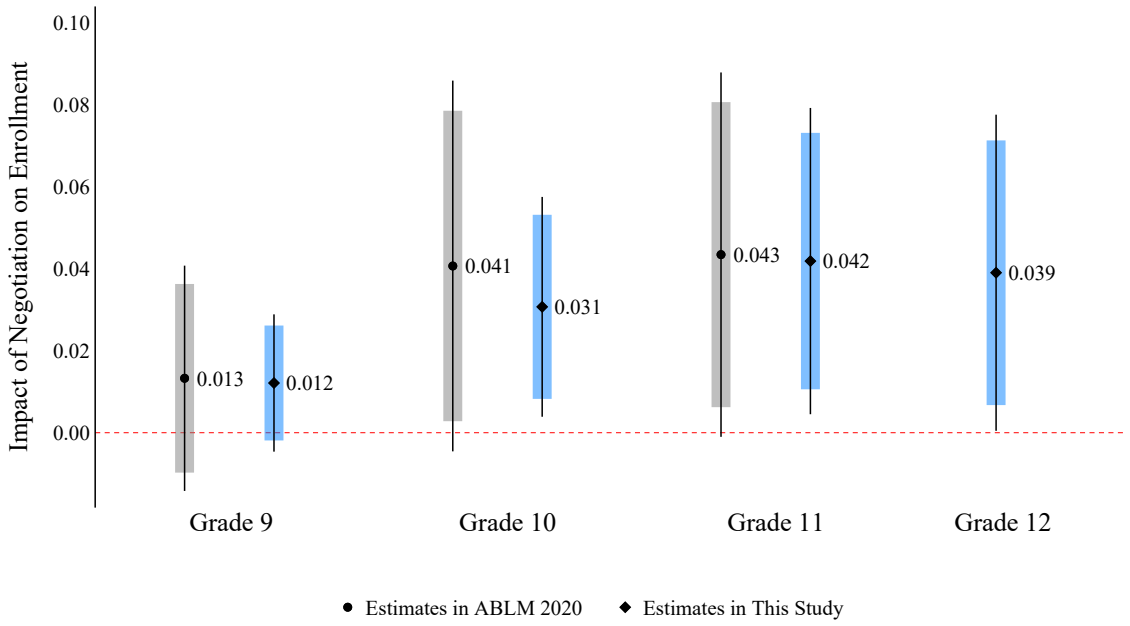
Notes: The table shows the estimated average treatment effects (ATE) on all outcomes measured in the follow-up survey. In addition to the total years of education, all sex, marriage, and health outcomes in Columns 1–7 of Table 2, all gender attitudes outcomes Columns 1–4 in Table 3, labor market outcomes in Columns 4–7 in Table A.1, we also include the following outcomes: number of days with enough food, difficulty in covering expenses (reversed), two measures of household assets and individual assets (constructed using PCA), satisfaction with partner (available for 94% of the sample with a spouse or any romantic partner), whether it is easy to bring up issues with partner, frequencies of physical abuse and sexual violence in the past year (reversed), and feelings of control over household purchasing decisions, where to go, and what happens in the future—see Appendix C for the detailed wording and answer options of these additional outcomes. The survey also includes a small number of questions used to determine survey branching (e.g., household composition), questions unlikely to be affected by the treatments (e.g., parental death and the desired number of children), and questions applicable only to a subsample of respondents who already have children or are already married (e.g., having enough food for children, spouse's income and education). The aggregate ATE estimate in Column 1 is based on models including both classroom fixed effects and lasso controls; Column 2 excludes classroom fixed effects; Column 3 excludes lasso controls; Column 4 excludes both. "Negotiation = SS" shows the p-value for the difference between the Negotiation and the Safe Space (SS) treatments. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Table A.14. Effects on Non-Educational Aggregate Outcomes by College Enrollment

	(1)	(2)	(3)	(4)
	Adverse Sex, Health & Marriage Outcomes (ATE)		Traditional Gender Attitudes (ATE)	
Ever Enrolled in College:	Yes	No	Yes	No
Negotiation	0.022	-0.137***	-0.128**	-0.112**
	(0.050)	(0.045)	(0.060)	(0.052)
	[0.665]	[0.002]	[0.032]	[0.030]
Safe Space (SS)	0.029	-0.027	-0.035	-0.028
	(0.047)	(0.043)	(0.059)	(0.054)
	[0.539]	[0.531]	[0.559]	[0.605]
Observations	528	697	528	697
Negotiation = SS (p-value)	0.880	0.024	0.144	0.126
Classroom Fixed Effects	✓	✓	✓	✓
Lasso Controls	✓	✓	✓	✓

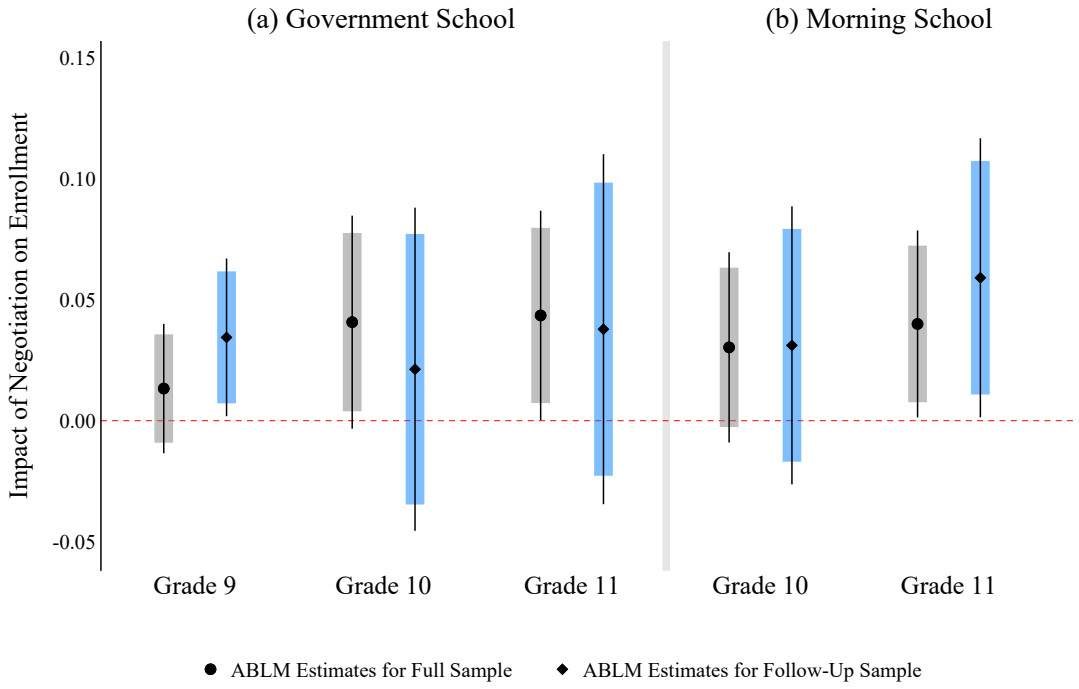
Notes: The table shows the aggregate effects of the negotiation treatment on non-educational outcomes, separately for participants who ever enrolled in college (43%) and participants who never enrolled (57%). Each column represents the average standardized treatment effect estimated for the corresponding sample. All models control for the safe space and information treatments, classroom fixed effects, and a set of baseline characteristics selected by double lasso. The row "Negotiation = SS (p-value)" shows the p-value derived from testing the difference between the Negotiation and the Safe Space (SS) coefficients in each column. Standard errors in parentheses are clustered at the classroom level. p-values are in brackets. When using an interacted model to directly test the difference in the negotiation effect by college enrollment, the interaction term between negotiation and college enrollment is statistically significant at the 5% level (p-value = 0.036) for adverse sex, health, and marriage outcomes but insignificant for overall gender attitudes. *p-value < 0.1, **p-value < 0.05, ***p-value < 0.01.

Figure A.1. Impact on School Enrollment by Grade



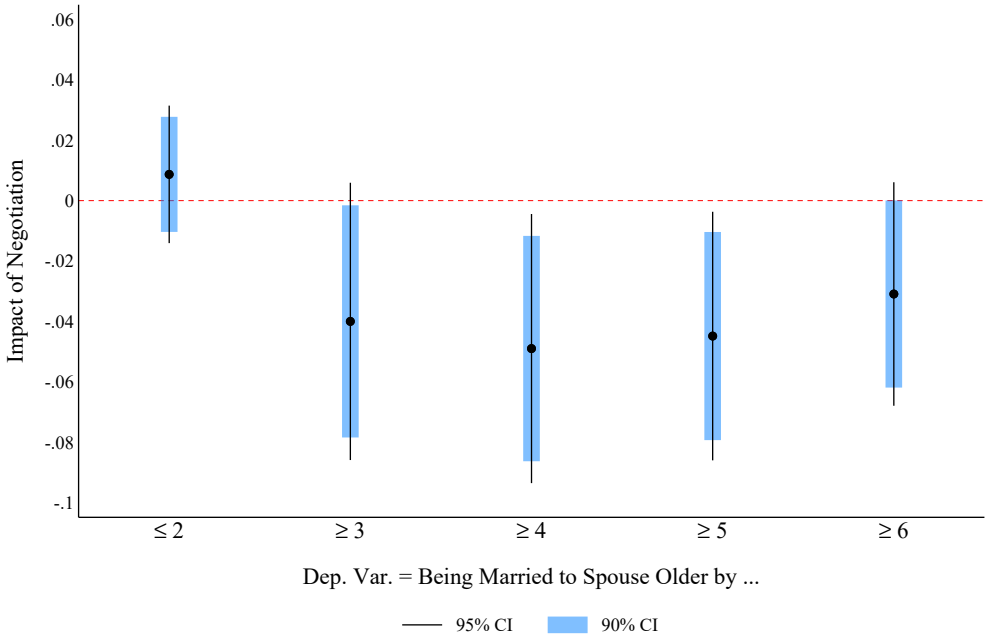
Notes: The figure shows the estimated impact of the negotiation treatment on enrollment in different grades. Each estimate is derived from one linear probability model, in which the dependent variable is a binary indicator for being enrolled in a grade. The circles (ABLM) indicate original results from Ashraf et al. (2020), which uses administrative data to estimate the impact on on-track government school enrollment. The diamonds represent results estimated with the long-term follow-up survey in this study: these estimates capture whether participants are *ever* enrolled in different grades within 10 years after the original treatment. Each estimate is derived from a specification that controls for the safe space and information treatments, classroom fixed effects, as well as a subset of baseline characteristics selected by double lasso. Standard errors are clustered at the classroom level. Error bars indicate 95% and 90% confidence intervals.

Figure A.2. Impact on School Enrollment in the Administrative Data From ABLM for the Full vs. Follow-Up Sample



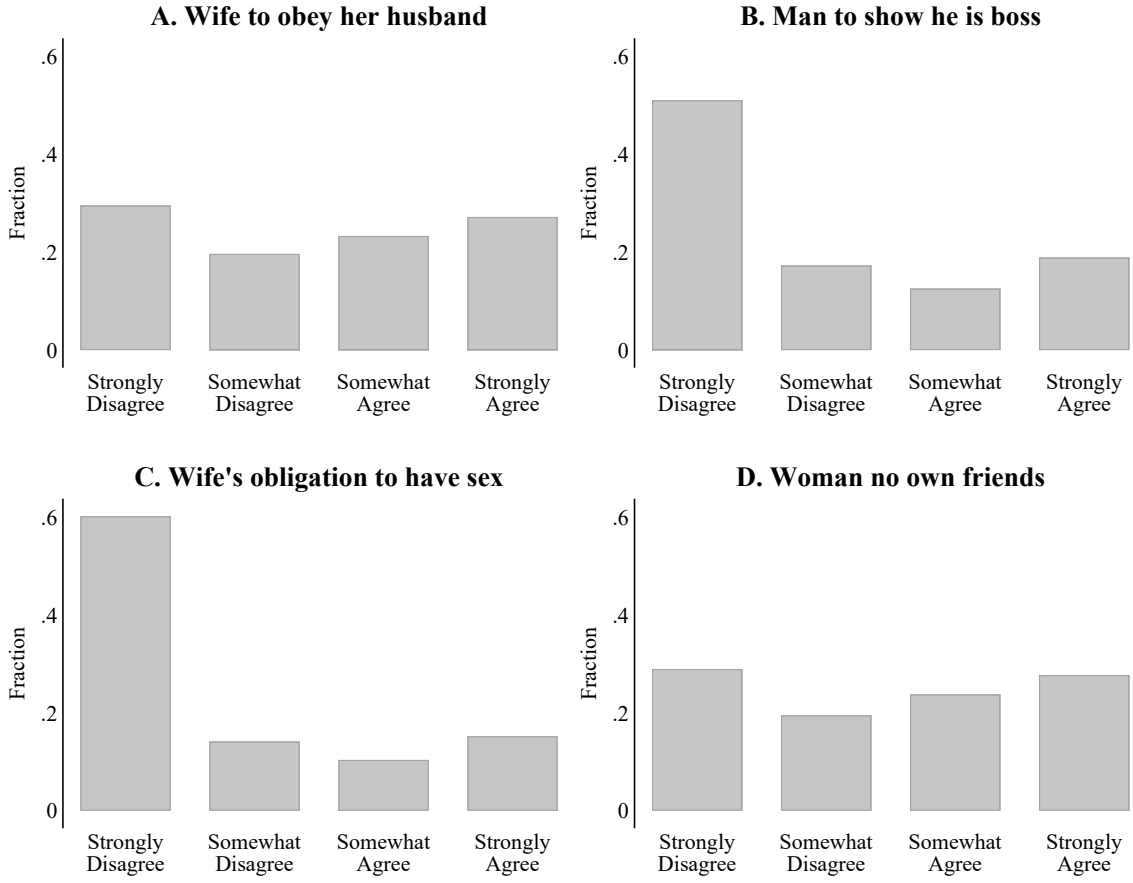
Notes: The figure shows the estimated impact of the negotiation treatment on school enrollment using the original data from Ashraf et al. (2020), separately for the original full sample (circles) and the follow-up sample (diamonds). Each estimate is derived from one linear probability model, in which the dependent variable is a binary indicator for being enrolled in a grade at a government school (Panel a) or government morning school (Panel b). The specification controls for the safe space and information treatments, classroom fixed effects, as well as a subset of baseline characteristics selected by double lasso. Standard errors are clustered at the classroom level. Error bars indicate 95% and 90% confidence intervals.

Figure A.3. Impact on Being Married to a Spouse by Age Gap



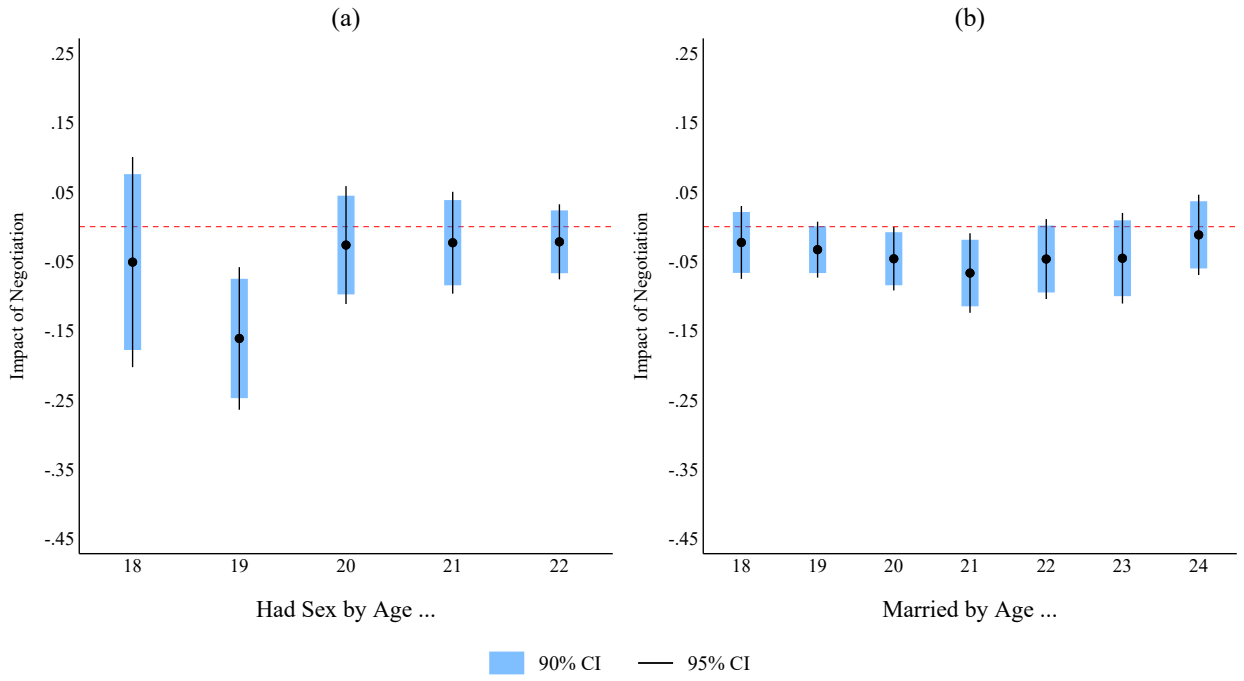
Notes: The figure shows the estimated impact of the negotiation treatment on the likelihood of being married to a spouse who is older than the participant by at most 2 years or at least 3, 4, 5, or 6 years. Each estimate is derived from one linear probability model that controls for the safe space treatment, information treatment, classroom fixed effects, and baseline characteristics selected by double lasso. Error bars indicate 95% or 90% confidence intervals.

Figure A.4. Distribution of Gender Role Attitudes



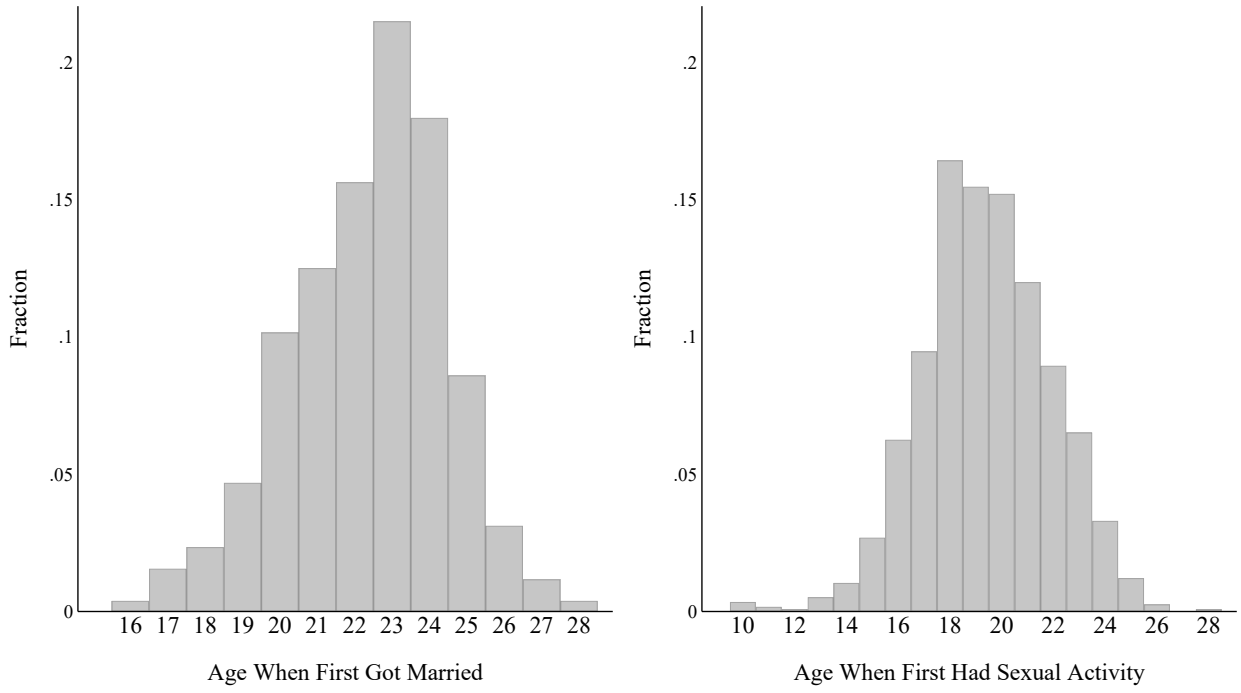
Notes: The figure shows the distribution of answers to four questions: (A) "A good wife obeys her husband even if she disagrees"; (B) "It is important for a man to show his wife/partner who is the boss"; (C) "It's a wife's obligation to have sex with her husband even if she doesn't feel like it"; and (D) "A woman should be able to choose her own friends even if her husband disapproves (reversed)."

Figure A.5. Impact on Age of First Sexual Activity and Age of Marriage for Non-Enrolled



Notes: The figure shows the estimated impact of the negotiation treatment on the likelihood of starting sexual activity or being married by different ages for the sample of participants who are not enrolled in school at each age. For Panel (a), we do not show the estimates for ages below 18 because very few participants are not enrolled in school at younger ages according to their self-reports. Each estimate is derived from one linear probability model that uses the same specification as Column 1 of Table 2. Error bars indicate 95% or 90% confidence intervals.

Figure A.6. Distribution of Age When Married and First Had Sex



Notes: The figure shows the distribution of the age when girls first got married—conditional on being ever married—and the age when first had sexual activity.

Appendix B. Cost-Benefit Analysis

To assess the cost-effectiveness of the negotiation intervention, we calculate (1) the marginal value of public funds (MVPF) and (2) the benefit-cost ratio. Next, we break down the costs and benefits associated with the main effect of the intervention: the increased educational attainment.

B.1 Costs

Broadly, the intervention generates three types of costs:

1. Costs of the intervention itself, denoted by C^I;
2. Direct costs of increased education, denoted by C^{ED}, which are borne either by households (C^{ED}_{pri}) or by the government (C^{ED}_{govt});
3. The opportunity costs of increased education, denoted by C^{EO};

We use our own survey data and statistics from the "Education Public Expenditure Review in Zambia" (Saeki et al., 2015) to calculate each cost component as follows.

Intervention costs (C^I): As estimated in Ashraf et al. (2020), the original intervention in 2013 cost approximately 60 USD per participant.[17] This includes the costs of training and paying facilitators, copies and supplies, lunch on school days, and management and transportation.

Direct educational costs (C^{ED}): To estimate the educational costs generated by the intervention, we directly calculate the total costs of education for each participant based on their reported school enrollment information and then estimate the impact of the negotiation training on the total costs. Specifically, based on the reported enrollment status and details about the enrolled program in each year, we can calculate the approximate expenses borne by households and the government, using estimated costs of different school programs from Saeki et al. (2015). For example, if a participant is enrolled in a public high school (i.e., Grade 10 to 12) in a certain year, the estimated annual costs include 95 USD in household expenses and 420 USD in public funds. The costs vary by the educational level—from primary school to higher education—and by whether the educational institution is publicly funded. After deriving the costs for each participant i in each year $t \in \{2014, 2015, ..., 2023\}$, we calculate the total discounted costs for participant i as:

$$C^{ED}_i = \sum_{t=2014}^{2023} \frac{C^{ED}_{it}}{(1+0.05)^{t-2013}},$$

where $\frac{1}{1+0.05}$ denotes the annual discount factor.

[17] We normalize all costs and benefits using the USD value in 2013.

We then use these individual-level costs to estimate the impact of the negotiation intervention on educational costs using the same specification as in Table 1. The estimated coefficient of the treatment variable provides the final estimate of C^{ED}, which is equal to 65.5 USD. This total cost is composed of 16.7 USD in private costs (C^{ED}_{pri}) and 48.8 USD in public funds (G^{ED}_{pub}).

Opportunity costs of education (C^{EO}): To estimate the opportunity cost of education, we need to examine whether the intervention influenced participants' employment status and income. Since the negotiation treatment increased educational attainment, it could have crowded out employment and wages. As Table A.1 shows, based on the 2023 follow-up survey, we find no significant impact of the intervention on the likelihood of being gainfully employed or the reported monthly income. If anything, the employment rate and income appear higher in the treatment group. Using data from brief tracking surveys conducted in 2018 and in 2020/21, we find directionally negative but noisily estimated effects of the treatment on employment. The directionally opposite effects in earlier years and in 2023 could be due to the treated participants being more likely to be in school at younger ages but having a higher chance of finding jobs after graduation in later years. Overall, given the lack of significant effects, we conclude that the intervention does not generate additional opportunity costs, i.e., C^{EO} = 0 USD. This is consistent with Duflo, Dupas and Kremer (2023) who document that the labor market effect of increased education only emerges after their participants reach an average age of 29. In our setting, participants are aged 24 on average in 2023.

B.2 Benefits

There are three categories of benefits associated with negotiation's effects on education:

1. Labor market returns due to increased education years, denoted by B^{LM};
2. Child survival benefits due to the education effect, denoted by B^{CS};
3. Child cognitive development benefits due to the education effect, denoted by B^{CD};

We explain each of these components and how we estimate them below. Since we do not have data on very long-run labor market and intergenerational effects, we follow the surrogate approach described by Athey et al. (2019). We adopt estimates of the stream of benefits of education from Duflo et al. (2024), who collect very long-run follow-up data and conduct sophisticated cost-effectiveness analyses of an intervention that provided secondary school scholarships to students in Ghana. Their intervention increases the total years of education by 1.33 years. Given the similarity in the setting between Duflo, Dupas and Kremer (2023) and our study, we assume that the benefits of our intervention are proportional to their documented benefits, with the proportionality given by the ratio of the two interventions' impact on schooling years (i.e., $0.23/1.33 \approx 1/6$). We describe our calculations in more detail below and closely follow the assumptions and methods in the cost effectiveness analysis of Duflo et al. (2024). We note that, given the positive effects on the other

health and well-being measures, our intervention likely had benefits beyond the educational effects, but these effects are difficult to quantify and are not included in our calculations.

Labor market returns (B^{LM}): This benefit captures the effect of the intervention on participants' life-time labor market income. Since our participants are relatively young, we do not observe their income during typical working ages—from age 30 to 60. We calculate the labor market benefits following the approach of Duflo et al. (2024), who find that increased female education leads to increased employment in the public sector and significantly higher earnings among female participants (Duflo, Dupas and Kremer, 2023). Extrapolating to the Zambia context, expected increases in earnings are due to the increased likelihood (= 6.7 ppt) of being employed in the public sector, which generates higher incomes than the private sector. We assume that the starting monthly wage at age 30 is 84 USD in the public sector and 23 USD in the private sector.[18] We then project earnings from age 31 to 60 by assuming a 5% annual growth rate, which is the GDP growth rate in Zambia in recent years. Additionally, we assume a 15% tax rate for public sector wages and no tax for private sector wages (following (Duflo et al., 2024)). Given these assumptions, the total discounted labor market benefit of our intervention is equal to:

$$B^{LM} = \underbrace{\frac{0.23 \cdot \beta_{public}}{1.33}}_{\substack{\text{weighted} \\ \text{treatment} \\ \text{effect}}} \underbrace{\sum_{t=2029}^{2059} \frac{[84(1-\tau)-23] \times (1+0.05)^{t-2029}}{(1+0.05)^{t-2013}}}_{\substack{\text{increased wage income} \\ \text{in public sector from age 30 to 60}}}$$

where $\beta_{public} = 0.067$ is the increased likelihood of being employed in the public sector, and $\tau = 0.15$ denotes the overall income tax rate. For our participants whose average baseline age in 2013 is 14, the working period ranges from 2029 (at age 30) to 2059 (at age 60).

Child survival benefits (B^{CS}): Duflo et al. (2024) document that their intervention, which increases schooling years, reduces under-3 child mortality among female participants by 2 ppt. We similarly assume that our intervention leads to reduced child mortality by 0.04 ppt (scaling their treatment effect by the relative effect of our treatment on education). To calculate the survival benefits of the second-generation, we estimate the Value of a Statistical Life (VSL). As recommended by Robinson, Hammitt and O'Keeffe (2019), we consider three levels of the VSL:

1. Low VSL = 36,425 USD, which is extrapolated from a U.S. estimate to Zambia using an income elasticity of 1.5;
2. Medium VSL = 140,742 USD, which is equal to 100 * GNI per capita in Zambia;
3. High VSL = 225,187 USD, which is equivalent to 160 * GNI per capita in Zambia.

[18] We derive these wage rates based on Duflo et al. (2024), where the starting monthly wage is $91 and $25 (in USD 2020) for female participants in public and private sectors, respectively. We adjust these rates by taking into account the difference in GNI per capita between Ghana and Zambia and converting USD 2020 into USD 2013.

We follow Duflo et al. (2024) and calculate the child survival benefits as:

$$B^{CS} = VSL \times AgeWeight \times \underbrace{\frac{0.23 \cdot \beta_{survival}}{1.33}}_{\substack{\text{weighted} \\ \text{treatment effect}}} \left[\frac{N^1_{child}}{(1+0.05)^{10}} + \frac{N^2_{child}}{(1+0.05)^{15}} + \frac{N^3_{child}}{(1+0.05)^{19}} \right]$$

where $\beta_{survival} = 0.02$ is the treatment effect on the child survival rate; $AgeWeight = 1.33$ captures the reduced years of life due to child deaths; N^1_{child} is the number of children born in the first 10 years; N^2_{child} is the number of children born in the next 5 years; and N^3_{child} is the additional number of children born to reach replacement fertility of 2.1.

Child cognitive development benefits (B^{CD}): Using the same methods as above, based on Duflo et al. (2024), we assume that our intervention improves the cognitive ability of participants' children by 0.04 standard deviations, approximately one fifth of the treatment effect in Duflo et al. (2024). Following Duflo et al. (2024), this effect is predicted to raise each child's future earnings from age 18 to 58 by 0.048×33%. We assume that the baseline annual wage is equivalent to the GNI per capita in Zambia. Altogether, the total discounted child cognitive benefit is:

$$B^{CD} = \underbrace{\frac{0.23 \cdot \beta_{cognitive}}{1.33}}_{\substack{\text{weighted} \\ \text{treated effect}}} \left[\sum_{t=2043}^{2083} \frac{\text{No.Children} \times \text{GNI pc}}{(1+0.05)^{t-2013}} \right]$$

where $\beta_{cognitive} = 0.238$ is the treatment effect on a child's cognitive ability, and No.Children = 1.9 is the average number of children that participants have. The child earnings benefit starts from 2043—assuming that our participants give birth to a child in 2025 and the child starts earning income at 18, in 2043.

B.3 Cost-Effectiveness

To assess the cost-effectiveness of our intervention, we calculate two measures: the marginal value of public funds (MVPF) and the benefit-cost ratio (BCR).

MVPF: The marginal value of public funds is defined as the ratio of the participant's willingness to pay (WTP) for the intervention to the net costs borne by the government. When including all components of benefits and costs associated with the education effect of the program, the MVPF is equal to:

$$\text{MVPF} = \frac{\text{WTP}}{\text{Net Government Costs}} = \frac{B^{LM} + B^{CS} + B^{CD} - C^{ED}_{pri} - C^{EO}}{C^I + C^{ED}_{pub} - \tau \cdot B^{LM}}$$

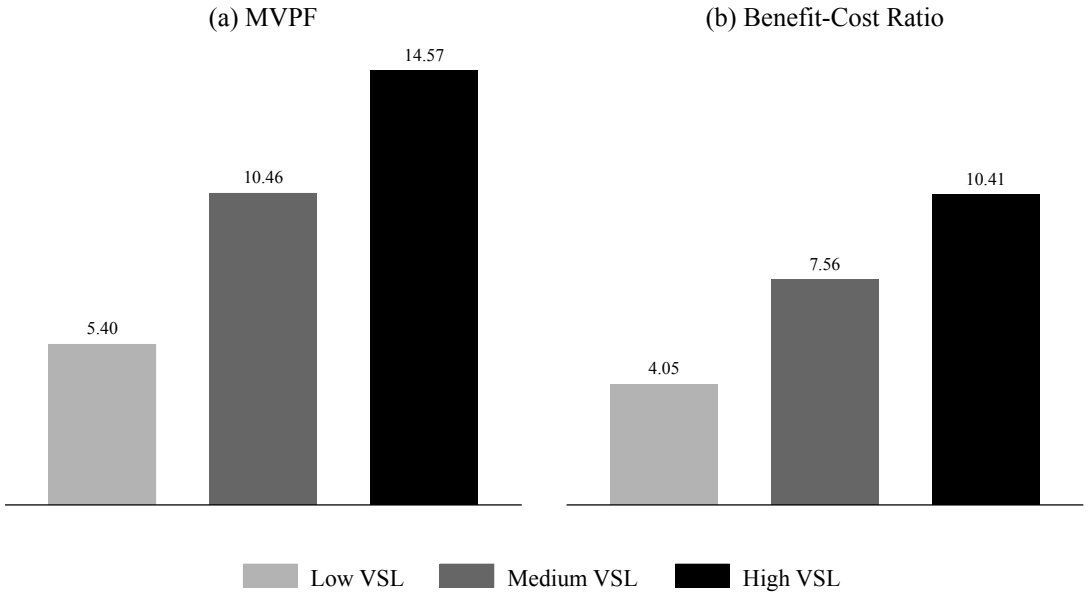
where τ represents the tax rate, which we assume to be equal to 15%.

BCR: The benefit-cost ratio is defined as the ratio of the total social benefits (for participants and the government) to the total costs borne by private and public entities. This ratio is equal to:

$$BCR = \frac{\text{Total Benefits}}{\text{Total Costs}} = \frac{B^{LM} + B^{CS} + B^{CD} + \tau \cdot B^{LM}}{C^{I} + C^{ED}_{pri} + C^{ED}_{govt} + C^{EO}}$$

Results: Figure B.1 below presents the computed MVPF and benefit-cost ratio by the Value of a Statistical Life (VSL). When assuming a medium level of the VSL (i.e., 100 times of the GNI per capita), our program has an MVPF of 10.46 and a benefit-cost ratio of 7.56.

Figure B.1. Cost-Effectiveness of the Negotiation Intervention by the VSL



Notes: Panel (a) plots the marginal value of public funds (MVPF); Panel (b) plots the calculated benefit-cost ratio. We show the results when using three levels of the value of a statistical life (VSL): Low VSL = 36,425 USD; Medium VSL = 140,742 USD (100 × GNI *pc*); High VSL = 225,187 USD (160 × GNI *pc*).

Appendix C. The Follow-Up Questionnaire

note_consent
"Now, as part of IPA's ethical protocols, I am going to read you a consent text. My name is [enum_name] calling you from Innovations for Poverty Action (IPA). IPA is a non-profit organization that discovers and promotes effective solutions to global poverty problems. We are inviting you to participate in a follow-up study of the Girls Arise project that you participated in 2013. If you consent to participating in this study, we will ask you some questions which will require approximately 30 minutes of your time. Participating in this study is voluntary and does not present any direct risks. All personal information will be kept confidential and will only be used in an anonymous manner for research purposes. No names will be stored with survey responses, no names will be published from the study, and only research staff will have access to identifiable information. Since participation in the study is voluntary, declining or refusal to participate in this study will not affect your status to the program or lead to penalty or loss of any benefits to which you are entitled. You are allowed to end the survey at any time for any reason or refuse to answer any questions. If you have any questions or concerns, feel free to contact XXX with the number XXX or contact the University of Zambia Biomedical Research Ethics Committee with the number: XXX."
Do you agree to participate in this survey?
1 = Yes 0 = No

I will start by asking you questions about yourself, and your household.

province_id*
Which province do you currently reside in? {dropdown list}

district_id*
Which district do you currently reside in? {dropdown list}

ward_id*
Which ward do you currently reside in? {dropdown list}

reside_with*
Who do you currently live with in your household?

1 = Spouse/Partner	2 = Biological Son/Daughter
3 = Step Child	4 = Brother/Sister
5 = Brother/Sister in-law	6 = Nephew/Niece
7 = Cousin	8 = Biological Parent
9 = Non-Biological Parent	10 = Father/Mother in-law
11 = Uncle/Aunt	12 = Grand Parent
13 = Alone	-666 = Other relative, please specify: {text input}

hh_head*
Who is your household head?

1 = Spouse/partner
2 = Brother/Sister
3 = Brother/Sister in-law
4 = Cousin
5 = Biological Parent
6 = Non-Biological Parent
7 = Father/Mother in-law
8 = Uncle/Aunt
9 = Grand Parent
10 = Myself
-666 = Other, please specify: {text input}

hh_head_income*
What is the approximate monthly income of the household head paid in money or cash?{numeric input, -999 = Don't know; -888 = Refused}

hh_head_inkind*
What is his/her monthly income paid in kind? Please provide an estimated monetary value of the in-kind payments. {numeric input, -999 = Don't know; -888 = Refused}

marital_status*
Are you currently married or co-residing with someone?
1 = Married 2 = Co-habiting 3 = Not married or co-habiting with anyone

year_married* [If marital_status = 1]
What year did you get married to your current husband (or start co-habiting with your current partner)? {numeric input, -999 = Don't know; -888 = Refused}

ever_married* [If marital_status = 2 or marital_status = 3]
Have you ever been married?
1 = Yes 0 = No

married_previously* [If marital_status = 1]
Were you married to someone else before your current husband?
1 = Yes 0 = No

year_of_first_marriage* [If married_previously = 1]
What year did you first get married? {numeric input, -999 = Don't know; -888 = Refused}

partner_information
"I'm now going to ask you some questions about whoever your current boyfriend or partner is. If you're married, answer for your husband, but if you're not married, you can answer for whoever you are dating or dated most recently."

husband_age* [If marital_status = 1 or marital_status = 2 or ever_married = 1 or married_previously = 1]
What age is your current / most recent partner? {numeric input, -999 = Don't know; -888 = Refused}

spouse_education* [If marital_status = 1 or marital_status = 2 or ever_married = 1 or married_previously = 1]
What is his highest level of education that your current / most recent partner completed?

1 = Never attended school
2 = Lower Primary (grades 1–4)
3 = Upper primary (grades 5–7)
4 = Junior Secondary (grades 8–9)
5 = Senior Secondary (grades 10–11)
6 = Tertiary (University, trade schools/college)
7 = I'm not married or dating anyone

spouse_income* [If (marital_status = 1 or marital_status = 2 or ever_married = 1 or married_previously = 1) and hh_head = 1]
What is the approximate monthly income of your husband/partner paid in money or cash? {numeric input, -999 = Don't know; -888 = Refused}

spouse_income_inkind* [If (marital_status = 1 or marital_status = 2 or ever_married = 1 or married_previously = 1) and hh_head = 1]
What is his approximate monthly income paid in kind (such as free housing and food)? {numeric input, -999 = Don't know; -888 = Refused}

happiness_partner*
How happy would you say you are with your current relationship (including if it's just a casual partner)? (Read all options)
1 = Not happy at all
2 = Not very happy
3 = A little happy
4 = Pretty happy
5 = Completely happy
6 = I'm not married or in any relationship

partner_listen*
How comfortable do you feel bringing up issues in your current relationship, and feeling like you will be listened to and understood? (Read all options)
1 = Not comfortable at all
2 = Not very comfortable
3 = A little bit comfortable
4 = Pretty comfortable
5 = Completely comfortable
6 = I'm not married or in any relationship

children_everborn*
How many children have you ever given birth to? {numeric input, -999 = Don't know; -888 = Refused}

note_children_everborn* [If children_everborn > 10]
"Please confirm that the total number of children ([children_everborn]) is correct."

year_firstbirth* [If children_everborn > 0]
What year did you first give birth? {numeric input, -999 = Don't know; -888 = Refused}

parents_information
"I will ask you questions about your parents. Sorry if any of these questions will remind you of bad moments."

father_alive*
Is your biological father still alive?
1 = Yes
0 = No
-888 = I don't know/remember
-999 = Refuse to answer

age_fatherpassing* [If father_alive = 0]

How old were you when he passed away? {numeric input, -999 = Don't know; -888 = Refused}

mother_alive*
Is your biological mother still alive?
1 = Yes 0 = No
-888 = I don't know/remember -999 = Refuse to answer

age_motherpassing* [If mother_alive = 0]
How old were you when she passed away? {numeric input, -999 = Don't know; -888 = Refused}

total_number_kids*
If it is totally up to you, how many children do you want to have in total? {numeric input}

tot_boys* [If total_number_kids > 0]
How many boys? {numeric input}

tot_girls* [If total_number_kids > 0]
How many girls? {numeric input}

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education_history_10yrs
"Now I will ask you some questions about your education journey for the past 10 years."

{Loop through the following questions from year 2013 to 2023. The Table below shows the overall structure of the questions in this module, using an example. }

Structure of Questions in the Education Module: An Example

Enrolled in school or training in year 20XX?		[If Yes]					[If No]		
		School program					Reasons for not enrolled	Returned to school?	
			[If school] Grade	[If postsec] Postsecondary program	[If college] College name	[If certificate] Certificate program name			[If Yes] Return year
2014	Yes	Morning school	Grade 9	-	-	-	-	-	-
2015	Yes	Morning school	Grade 10	-	-	-	-	-	-
2016	No	-	-	-	-	-	Pregnancy	Yes	2018
2017	-	-	-	-	-	-	-	-	-
2018	Yes	Afternoon school	Grade 11	-	-	-	-	-	-
2019	Yes	Afternoon school	Grade 12	-	-	-	-	-	-
2020	Yes	Postsecondary program		4-Year college	University of Zambia	-	-	-	-
2021	Yes	Postsecondary program		4-Year college	University of Zambia	-	-	-	-
2022	Yes	Postsecondary program		4-Year college	University of Zambia	-	-	-	-
2023	Yes	Postsecondary program		4-Year college	University of Zambia	-	-	-	-

Notes: For respondents not enrolled in school in a specific year (X), we ask whether they return to school later. If they report to return in a later year (Y), we will jump to year Y and restart the loop.

enrolled_X*
In year 20XX were you enrolled in school or some form of training?
1 = Yes 0 = No

school_program_type_X* [If enrolled_X = 1]
What type of school/program was it?
1 = Government Morning School
2 = Government Afternoon School
3 = Private School
4 = Community School
5 = Post Secondary Program or Vocational
6 = Boarding School
7 = GCE tuitions
-666 = Other, please specify: {text input}

grade_X* [If school_program_type_X ≠ 5]
What grade were you in?
8 = Grade 8 9 = Grade 9
10 = Grade 10 11 = Grade 11
12 = Grade 12

post_sec_progrm_X* [If school_program_type_X = 5]
What kind of post-secondary program?
1 = 4-Year College 2 = 3-Year College 3 = Certificate program

college_name_X* [If post_sec_progrm_X = 1 or post_sec_progrm_X = 2]
What's the name of the college?
1 = University of Zambia
2 = Chalimbana University
3 = Copperbelt University
4 = Kwame Nkrumah University
5 = Levy Mwanawasa Medical University
6 = Mukuba University
7 = Mulungushi University
8 = Chreso University
9 = Cavendish University
11 = Rockview University
12 = Lusaka Vocational
13 = Apex University
14 = Eden University
15 = University of Lusaka
16 = Lusangu University
17 = African Research University
-666 = Other, please specify: {text input}

crt_name_X* [If post_sec_progrm_X = 3]
What's the name of the certificate program?
1 = Certificate in Basic Computer Skills (BCS)
2 = Certificate in Business Management (CBM)
3 = Certificate in Domestic Electrical Installation and Appliances (DEIA)
4 = Certificate in Law
5 = Certificate in Marketing
6 = Certificate in Accounts (CIA)
7 = Certificate in Food Production
8 = Certificate in Monitoring and Evaluation
9 = Certificate in Social Work
-666 = Other, please specify: {text input}

crt_college_name_X* [If post_sec_progrm_X = 3]
What's the name of the college?

1 = University of Zambia
2 = Chalimbana University
3 = Copperbelt University
4 = Kwame Nkrumah University
5 = Levy Mwanawasa Medical University
6 = Mukuba University
7 = Mulungushi University
8 = Chreso University
9 = Cavendish University
11 = Rockview University
12 = Lusaka Vocational
13 = Apex University
14 = Eden University
15 = University of Lusaka
16 = Lusangu University
17 = African Research University
-666 = Other, please specify: {text input}

reasons_not_enrol_X* [If enrolled_X = 0]
Why did you not attend this year?
1 = Disability, illness, or injury
2 = Illness, injury or death of parents
3 = Financial reasons / can't afford school cost
4 = Family responsibilities
5 = Not interested in school / poor in studies
6 = School not considered valuable by family
7 = Completed as much school as I wanted
8 = Pregnancy / got married
9 = Started work for pay or family business or farm
10 = Family does not support / allow schooling
11 = School environment not conducive / not safe
12 = Waiting for G12 results to apply for college
-666 = Other, please specify: {text input}

return_school_X* [If enrolled_X = 0]
Did you return to school?
1 = Yes 0 = No

school_return_year_X* [If return_school_X = 1]
What year did you return to school? {numeric input}

g12_exam_X* [If grade_X = 12]
Did you take the grade 12 government exam?
1 = Yes 0 = No

pass_rate_X* [If g12_exam_X = 1]
How did you do in the exam?
1 = High pass 2 = Low pass
3 = Fair pass 4 = Fail

graduation_X* [If school_program_type_X = 5]
Did you graduate your post-secondary program?
1 = Yes 2 = No, dropped out 3 = No, hoping to return

---

current_occupation*
What is your current working status?

1 = I have my own business, with no employees
2 = I have my own business, with employees who work for me
3 = I work as a salaried employee in the private sector
4 = I work as a salaried employee for the government
5 = I do casual or piece work without a fixed employer or job
6 = I work as a salaried employee in the private sector but the work is unstable and paid hourly
7 = I work in domestic labor (cleaning, cooking, child minding)
8 = I work in a family business, and am paid
9 = I work in a family business, and am not paid (may be given things in kind)
10 = I help my family around the house or farm (may be given in kind things like rent or food)
11 = I'm a paid intern / apprentice
12 = I'm an unpaid intern / apprentice
13 = I'm not working but currently looking for work (housewife)
14 = I'm not working and not looking for work
15 = I'm studying
-666 = Other, please specify: {text input}

respondent_income* [If hh_head = 10]
What is your approximate monthly income paid in money or cash? {numeric input, -999 = Don't know; -888 = Refused}

respondent_income_inkind* [If hh_head = 10]
What is your approximate monthly income paid in kind (such as free housing and food)? Please provide an estimated monetary value. {numeric input, -999 = Don't know; -888 = Refused}

days_you_ate*
In the past 7 days, how many days did you not have enough to eat? {numeric input}

days_kids_ate*
In the past 7 days, how many days did your children not have enough to eat? {numeric input}

"For each of the following, please tell me how much control you feel like you have over the decisions or what happens. The options are no control, very little control, a little control, a lot of control, or full control."
hh_purchase*
Decisions about what to purchase for the household
where_go*
Where you go, such as visiting relatives, and seeking medical care for yourself
future_control*
What happens to you in the future, such as whether you are able to meet your career and family goals
1 = No control 2 = Very little control 3 = A little control
4 = A lot of control 5 = Full control

how_difficult*
How difficult is it for you to cover your basic monthly expenses (e.g., food, rent, electricity)?
1 = Not difficult at all 2 = Sometimes a little difficult
3 = Usually difficult 4 = Very difficult

own_hh_assets*

Does your household have/own the following household asset?

Item:	Response
a) Electricity	1 = Yes 0 = No
b) A television	1 = Yes 0 = No
c) A refrigerator	1 = Yes 0 = No
d) Car	1 = Yes 0 = No
e) A motorbike	1 = Yes 0 = No
f) Air condition	1 = Yes 0 = No

own_hh_assets*

Do you yourself own any of the following personal asset?

Item:	Response
a) Simple mobile phone	1 = Yes 0 = No
b) Smartphone	1 = Yes 0 = No
c) Laptop/computer	1 = Yes 0 = No
d) Bicycle	1 = Yes 0 = No
e) Car	1 = Yes 0 = No

toilet_facility*

What kind of toilet facility do members of your household usually use?

1 = Private flush toilet to household
2 = Shared flush toilet
3 = Private latrine
4 = Shared latrine
5 = Bucket toilet
6 = No facility / bush / field
-666 = Other, please specify: {text input}

separate_room*

Do you have a separate room which is used as a kitchen?

1 = Yes 0 = No

school_benefits*

Can you tell me what the benefits of schooling are to girls, if any?

Select all that apply

1 = Getting a good job (increased salary)
2 = Being a good mother (lower child mortality)
3 = Improved health (better nutrition)
4 = Taking care of family (sending money back to parents)
5 = There aren't many benefits of schooling for girls
-666 = Other, please specify: {text input}

general_health*

In general, would you say your health is very good, good, moderate, bad, or very bad?

1 = Very good 2 = Good
3 = Moderate 4 = Bad
5 = Very bad

status_health

"Next, we will ask you some questions about your HIV status. We understand that this can

be sensitive, but please rest assured that the information is strictly confidential. If you feel uncomfortable answering the questions, you can also skip them. If your phone is on speaker now, you may consider turning it off or go somewhere private."

consent_health_status*
Can I proceed?
1 = Yes 0 = No

hiv_likelihood* [If consent_health_status = 1]
Do you think it's likely, unlikely or unclear that you are infected with HIV?
1 = Likely 2 = Unlikely
-999 = Unclear / I don't know -888 = Refuse to answer

hiv_test* [If consent_health_status = 1]
Have you ever taken an HIV test?
1 = Yes 0 = No
-999 = I don't know/remember -888 = Refuse to answer

hiv_result* [If hiv_test = 1]
Was the result positive or negative?
1 = Positive 2 = Negative
-999 = I don't know/remember -888 = Refuse to answer

sex_first_time* [If consent_health_status = 1]
At what age did you have sex for the first time? {numeric input, -999 = Don't know; -888 = Refused; -777 = Don't remember}

"Over the last two weeks, how often have you been bothered by the following problems?"
nervous*
(a) Feeling nervous, anxious or on edge
worrying*
(b) Not being able to stop or control worrying
depressed*
(c) Feeling down, depressed, or hopeless
little_interest*
(d) Little interest or pleasure in doing things
0 = Not at all 1 = Several days
2 = More than half the days 3 = Nearly every day

"In this community and elsewhere, people have different ideas about families and what is acceptable behaviour for men and women in the home. I am going to read you a list of statements, and I would like you to tell me whether you strongly or somewhat agree or disagree with the statement. There are no right or wrong answers. If you say "I don't know/I don't have an opinion" I will ask whether you lean more towards agree or disagree."

family_setup1*
(a) A good wife obeys her husband even if she disagrees
family_setup2*
(b) It is important for a man to show his wife/partner who is the boss

family_setup3*
(c) A woman should be able to choose her own friends even if her husband disapproves
family_setup4*
(d) It's a wife's obligation to have sex with her husband even if she doesn't feel like it
1 = Strongly disagree 2 = Somewhat disagree
3 = Somewhat agree 4 = Strongly agree

generated_note
"Now I would like to ask you questions about some other important aspects of a woman's life. I know that some of these questions are very personal. However, your answers are crucial for helping to understand the condition of women in Zambia. Let me assure you that your answers are completely confidential and will not be told to anyone and no one else will know that you were asked these questions."

violence_anytime*
At any time in your life, as a child or an adult, has anyone ever hit, slapped, kicked, or done anything else to hurt you physically (in a way that went beyond typical childhood discipline)?
1 = Yes 0 = No
-888 = I don't know/remember -999 = Refuse to answer

violence* [If violence_anytime = 1]
From the time you were 14 years old, has anyone ever hit, slapped, kicked, or done anything else to hurt you physically?
1 = Yes 0 = No
-888 = I don't know/remember -999 = Refuse to answer

domestic_abuser* [If violence = 1]
Who has hurt you in this way? Anyone else?
Select all that apply
1 = Current Husband 2 = Former Husband
3 = Current/Former Boyfriend 4 = Father
5 = Step father 6 = Other relative
7 = In-law 8 = Own Friend/Acquaintance
9 = Family Friend 10 = Teacher
11 = Employer/someone at work 12 = Police/Soldier
13 = Priest/Religious Leader 14 = Stranger
-666 = Other, please specify: {text input}

num_abused_times* [If violence_anytime = 1 or violence = 1]
In the last 12 months, how often have you been hit, slapped, kicked, or physically hurt by this/these person(s)?
1 = Never 2 = 1–2 times
3 = Sometimes (3–5 times) 4 = Often (more than 6 times)
5 = Constantly (on a weekly basis)

sexual_abuse_anytime*
At any time in your life, as a child or as an adult, has anyone ever forced you in any way to have sexual intercourse or perform any other sexual acts?

1 = Yes 0 = No
-888 = I don't know/remember -999 = Refuse to answer

sexual_abuse* [If sexual_abuse_anytime = 1]
From the time you were 14 years old, has anyone ever forced you in any way to have sexual intercourse or perform any other sexual acts?
1 = Yes 0 = No
-888 = I don't know/remember -999 = Refuse to answer

abuser* [If sexual_abuse = 1]
Who was the person forcing you in this way? Anyone else?
Select all that apply
1 = Current Husband 2 = Former Husband
3 = Current/Former Boyfriend 4 = Father
5 = Step father 6 = Other relative
7 = In-law 8 = Own Friend/Acquaintance
9 = Family Friend 10 = Teacher
11 = Employer/someone at work 12 = Police/Soldier
13 = Priest/Religious Leader 14 = Stranger
-666 = Other, please specify: {text input}

sexual_abuse_lastyr* [If sexual_abuse = 1 or sexual_abuse_anytime = 1]
In the last 12 months, how often have you been forced to have sexual intercourse or perform any other sexual acts against your will?
1 = Never 2 = 1–2 times
3 = Sometimes (3–5 times) 4 = Often (more than 6 times)
5 = Constantly (on a weekly basis)

Appendix D. Qualitative Evidence on Mechanisms From Pilot Interviews

Examples of Negotiation / Relationships with Parental Figures

- "When talking to [my parents about school fees] I have to kneel down and ask and respect for them as well. They would pay for me because they have seen change in me, in terms of obedience and respect."

- "What has changed is my parents liking me more now because I do wear a wrapper (Chitenge) when am doing my house chores. Before, I used to refuse because I thought it made me look like an old lady."

- "Before I would disobey some rules, but now I obey and I do not answer back... They look at me as an obedient child. They would choose to pay for my school because they have seen that am now hardworking."

- "Before training I used to refuse doing house chores but now I don't... Grandmother perceives me as a good girl because I used to refuse to do house chores before the training but now I don't."

- "Before my aunt used to beat me a lot and I always said bad words back to her. The other day when I broke a plate, I waited for her to return so I could explain what happened so that she understands. So after I talked to her that it was an accident, surprisingly she was okay with it. But before I could have hidden the broken plate and she could have beaten me."

- "Before the training I used to refuse when my parents asked me to cook and liked running away, but these days I don't because I have now known how to respect them."

- "There has been an improvement with the way we are now communicating with my parents especially when it comes to house chores am able to reason even when I know I wouldn't do it at least I try at all means to do what my parents tell me to do... My parents tell me that am now a good person because of the change they seen in me following the training and they have said they wish it continues."

- "[My relationship with my mother has changed.] I now talk to her like my mother. Before I would talk to her like my friend, but the training has helped me a lot."

Examples of Negotiation / Relationships with Siblings

- "When I ask for something from my sister and she does not want to give me, I will just "step to her side," that's by telling her good things, and then she changes her mind and gives it to me. That has changed my relationship with her."[19]

- Like my older brother, the other day he did not want me to use his R.E book. I used what we learnt by asking him open ended questions where is able to explain and not just say no and that was a way of finding out his interest and he told me he wanted to give it to the other friend to use it.

[19] "Step to her side" references one of the program's lessons, which encourages perspective-taking to understand the interests of the other party.

Examples of Negotiation / Relationships with Boyfriends

- "I have started avoiding boys because I just realized how they can take advantage of me if I allow them to be very close to me in terms of going beyond friendship."
- "Before the training, I would spend a lot of time the boys, but now I do not. I would rather be home with the family."
- "I have changed tremendously... before I would accommodate boys to an extent of having an intimate relationship but after the training I have realized that it is bad so I do not do that anymore. I think there is a lot of progress where school issues are concerned especially class work because now I have more time to deal with books than before, where I would decide my time between school and boys."
- "It is very important to know someone's interests before reacting to or concluding to any situation. E.g if you see your boyfriend with another girl, better to understand instead of just concluding. What if she is the sister or relative and you're just shouting? So it's better to find out the truth other than having assumptions."

Examples of Negotiation / Relationships with Others

- "I know I will pass my grade 9 exams though am worried about school fees since am not very sure whether my mum will manage or not so I don't know and that is my main worry for now. How I will overcome this challenge is to mobilize funds through negotiating with people in my neighborhood and at church to see how best they can help me."
- "It is just today here at school that I approached this girl who likes wearing make-up and having boyfriends. I was advising her about the consequences she might find herself in considering her behavior. She became very angry with me until we sat down and I explained nicely how doing such things could destroy her future if she wasn't careful."
- "When I talk to people, am always polite and this has helped me a lot in getting people to see my view point."
- "We have stopped fighting with my friends, if one of us does something wrong, we will tell each other and not back bite about each other."

Examples of Negotiation Skills & Emotional Regulation

- "I did convince my friend to stop getting upset by 'Taking five,' that's controlling yourself."[20]
- "If I am upset with someone, it helps to soften my voice so that the other person can cool down and see my viewpoint."
- "I avoid arguing with people unnecessarily."
- "My Aunt stopped me from getting some of the sandwiches that my sister had prepared. I felt bad but I never answered back, I just kept quiet, so as to be polite which made her not to continue scolding me."

[20] This references the "taking 5" messaging in the program, which teaches participants to take a break to regain calm if they are having difficulty managing their emotions.