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# Two Sides of Gender

## Sex, Power, and Adolescence

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## Abstract

Adolescents in Sub-Saharan Africa have some of the highest rates of intimate partner violence across the globe. This paper evaluates the impact of a randomized controlled trial that offers females a goal setting activity to improve their sexual and reproductive health outcomes and offers their male partners a soccer intervention, which educates and inspires young men to make better sexual and reproductive health choices. Both interventions reduce female reports of intimate partner violence. Impacts are larger among females who were already sexually active at baseline. The paper develops a game theoretic model to understand the mechanisms at play. In line with the model, the soccer intervention improves male attitudes around violence and sexual and reproductive health and reduces sexual activity. In the goal setting arm, females take more control of their sexual and reproductive health by exiting violent relationships. Females in this arm have higher quality partners at endline.


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# Two Sides of Gender: Sex, Power, and Adolescence *

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## 1 Introduction

Intimate partner violence (IPV) is a global public health epidemic; nearly one in three women will experience physical or sexual IPV in her lifetime (World Health Organization, 2021). In Tanzania, 32% of ever-partnered 15-19 year olds report ever experiencing IPV and 25% report experiencing IPV in the last 12 months (World Health Organization, 2021). IPV is also associated with other risky sexual behavior, such as low rates of modern contraceptive use and multiple partnerships (Melesse et al., 2020; Nkata, Teixeira and Barros, 2019; DHS, 2016). In addition to the direct negative effects of violence on women's physical, mental, sexual, and reproductive health, social norms that perpetuate IPV and the resulting lack of bargaining power with sexual partners affect female ability to make safe choices around sexual and reproductive health (SRH).

We implement a randomized controlled trial (RCT) with female and male adolescents in Tanzania to change these power dynamics around adolescent relationships with the goal of improving SRH outcomes related to violence and risky sexual behaviors.[1] Our interventions build on an ongoing adolescent empowerment program (Empowerment and Livelihoods for Adolescents (ELA) clubs) delivered to females through a network of 149 clubs in three regions of Tanzania. For females, we randomize invitations to participate in a goal setting activity aimed at motivating the adoption of safe behaviors to improve their SRH outcomes. Males from a random subset of communities are invited to participate in an intervention using an innovative sport-based pedagogy that employs soccer-specific activities, metaphors, and language to educate and inspire them. The curriculum focuses on reshaping males' attitudes and behaviors around masculinity, gender-based violence, and sexual relationships. We collect baseline data on all female ELA participants aged 10-24 and their boyfriends and resurvey them two years later.

Intent-to-treat (ITT) estimates show that female experience of IPV decreases by 0.229 of a standard deviation as a result of the males soccer (*Boys*) intervention and by 0.298 of a standard deviation as a result of the female goal setting (*Goal*) intervention. Impacts are

[1] This research received ethical clearance in country through the Tanzania National Institute for Medical Research (NIMR) (protocol NIMR/HQ/R.8a/Vol. IX/2247) and from the University of California Los Angeles Institutional Review Board (protocol # 16-000125).

significantly larger for females who were already sexually active at baseline, highlighting greater efficacy of the interventions for those more vulnerable to IPV. While we find that treating males or treating females is important to reduce IPV, there is no additional complementarity from both interventions occurring together.

We develop a model around SRH and IPV to help explain these findings. In the model, males propose risky sex. Females can say yes or no. If the female says yes, the game ends and each partner receives a payoff from risky sex. If the female says no, the male decides whether to use violence to obtain risky sex from the female. The female can then either stay in the relationship and endure the violence, or exit the relationship. Males and females make these decisions according to their individual net costs of risky sex, costs of violence, and costs of exiting the relationship, along with their expectations of their partner's behavior. The model predicts that the *Boys* treatment can reduce IPV either by increasing male distaste for IPV (increasing his cost of violence) or by increasing the net cost of risky sex (reducing the payoff of risky sex). On the other hand, the model predicts an ambiguous impact of the *Goal* treatment on IPV. The *Goal* treatment increases females' net cost of risky sex. This will increase the probability that a female says no to risky sex. If females are more likely to say no and stay in the relationship, then the model predicts IPV could increase. If females are more likely to say no and exit the relationship, the model predicts IPV would decrease. Whether it is more likely that the female stays in the relationship or exits depends on how costly it is to exit.

Our results show that reductions in IPV associated with the *Boys* treatment appear to be driven by an improvement in male attitudes around violence and SRH and reductions in sexual activity, suggesting a role for both increased cost of violence and increased net cost of risky sex. For the *Goal* treatment, we find that reductions in IPV are due to higher partner churn, with females less likely to be with the same partner as at baseline. In line with the model, this suggests a relatively low cost of exit among these adolescent relationships. Moreover, at endline, females are more likely to be currently paired with higher quality partners.

This paper makes several important contributions. First, traditional programming has not focused on involving males in SRH education programs or service provision because

they often are not the primary beneficiaries of the services (Jewkes, Flood and Lang, 2015); however, because of gendered power dynamics, males often control decisions surrounding sexual behavior, which impact SRH outcomes (Varga, 2003). Due to the empirical design of this study, we can test whether treating males with a soccer intervention in randomly selected communities improves female outcomes related to violence and SRH outcomes and contrast it directly with an intervention targeting females.

Second, experimental methods around improving SRH outcomes in low-income settings have often focused on married couples and long-term partners (Shattuck et al., 2011; Doyle et al., 2018; Minnis et al., 2015; Dunkle et al., 2020; Gupta et al., 2013) or individual adults (Pronyk et al., 2006; Roy et al., 2019; Kapiga et al., 2019; Abramsky et al., 2014)—but not adolescents. Recent evidence suggests that interventions that focus on changing attitudes toward gender norms and risky behaviors targeted at adolescents can be effective (Edmonds, Feigenberg and Leight, 2021; Dhar, Jain and Jayachandran, forthcoming). Since adolescents are at an age where they are establishing a course for future relationships and have more malleable attitudes (Steinberg, 2015; Sheehan et al., 2017), interventions may have larger and longer-term effects. However, due to the focus of SRH programming on married couples and individual adults, we still know relatively little about how to improve adolescent SRH outcomes (besides cash and school- or club-based programming) in low-income settings.[2]

In particular, the economics literature on the causal mechanisms behind IPV has focused exclusively on married couples and on the role of bargaining over household income and resources as a primary driver of IPV outcomes among women (e.g., Haushofer et al. (2019); Hidrobo, Peterman and Heise (2016); Angelucci (2008); Bobonis, González-Brenes and Castro (2013); Erten and Keskin (2018); Aizer (2010)). Models of IPV developed in this literature have focused on identifying competing motivations—expressive (Tauchen, Witte and Long, 1991; Farmer and Tiefenthaler, 1997; Haushofer et al., 2019) or instrumental (Eswaran and Malhotra, 2011; Haushofer et al., 2019)—behind male perpetration

[2]Financial incentives and education-based interventions have been shown to reduce teen pregnancy, early marriage, and HIV/AIDS and to improve IPV outcomes (for example, see Baird, McIntosh and Özler (2011); Handa et al. (2015); Erulkar and Muthengi (2009); Bandiera et al. (2020); Buchmann et al. (2021); Doyle et al. (2010); Duflo, Dupas and Kremer (2015); Sarnquist et al. (2019); Jewkes et al. (2008); Gibbs et al. (2020)).

of IPV within marital household bargaining models. While these models do allow for changes in the value of the female's outside option due to monetary transfers to play a role in mitigating violence (Haushofer et al., 2019; Angelucci, 2008; Bobonis, González-Brenes and Castro, 2013), they largely abstract away from the possibility of female exit from the relationship due to high normative and real costs of marital dissolution, i.e., divorce (see, for example, Erten and Keskin (2018)).[3] In these models, the possibility of male backlash in the face of female control over more resources is motivated by loss of status and attempts to regain majority control of household resources (Bobonis, González-Brenes and Castro, 2013; Angelucci, 2008; Haushofer et al., 2019). Our paper contributes to this literature by focusing on a model of IPV within adolescent relationships, where male violence can be either expressive or instrumental, but for which relationship commitment constraints are much lower—since partners are not married—allowing for females to exit relationships in the face of male violence. However, our model can be generalized to married relationships with higher participation constraints. In addition, the model expands beyond IPV as a bargaining response to control over monetary resources by focusing around partnership bargaining in another critical realm—sexual relations (see Kyegombe et al. (2014); Vyas (2020)).

Third, we contribute to the small causal literature on the impact of sports programming on adolescents (Beaman et al., 2021; Ditlmann and Samii, 2016) and to scant evidence on the role of goal setting in low-income settings. As far as we know, this is the first evaluation of the application of goal setting to SRH in any setting.[4]

Lastly, this study provides low-cost, scalable solutions for decreasing IPV among adolescents. Most previous causal evidence on decreasing violence involves cash transfers

[3]There is a small literature on the impact of lowering the cost of divorce through unilateral and no-fault divorce laws on IPV. For example, in high-income countries, Brassiolo (2016) (Spain) and Stevenson and Wolfers (2006) (United States) both find that changes in laws that lower the cost of divorce reduce IPV by shifting bargaining power in the relationship. On the other hand, García-Ramos (2021) finds that unilateral divorce laws in Mexico increase IPV in the long run as husbands use IPV to prevent women from leaving the relationship.

[4]Setting goals has been found to increase self-control and decrease present-biased behavior, even if non-binding, and is a common method used to improve aspirations (Hsiaw, 2013). Goal setting has been widely used in personnel economics to improve worker performance and productivity (Goerg, 2015). There is also research in education using goal setting to increase student performance on tests, entrance exams, and homework (Clark et al., 2020); decreasing energy consumption (Harding and Hsiaw, 2014); and increasing savings (Choi et al., 2006).

or provision of income (Baranov et al., 2021; Kerr-Wilson et al., 2020). Our effects are over six times lower-cost relative to cash transfer programs among husbands and wives in Kenya (Haushofer et al., 2019) and about three times lower-cost than a monthly transfer program in Ecuador (Hidrobo, Peterman and Heise, 2016), both of which have also quantified causal decreases in IPV. In terms of other educational and attitudes-shifting programs for adolescents, *Dating Matters* in the United States costs over three times more per student on average than our interventions, for relatively smaller decreases in violence (Luo, DeGue and Le, 2020).

## 2 Background and Study Design

### 2.1 Setting and Sample

This study was implemented in three regions of Tanzania—Dodoma, Iringa, and Mbeya—in partnership with BRAC Maendeleo. BRAC opened a network of 150 adolescent female clubs (Empowerment and Livelihoods for Adolescents ($ELA$) clubs) in the second half of 2009 across these regions. Mbeya is the largest of the three regions in terms of population at 2.7 million people as of the 2012 census, with Dodoma having a population of 2.2 million and Iringa just under 1 million people (National Bureau of Statistics et al., 2012). The average population size of study communities is about 3,000, and these are rural areas.

ELA clubs served as the basis for identifying the female study population. ELA is an education-based intervention designed to empower adolescent females by providing a safe social space, life-skills training, and support in adolescent development. Female adolescents and youth are invited to participate in ELA. Participation is voluntary but members are expected to attend five days per week from 3-6PM. Each club averages 20 members and has a mentor who runs the programs. This program was started by BRAC in Bangladesh and is also implemented in Uganda, Sierra Leone, South Sudan and Liberia. While the evidence on ELA from Uganda and Sierra Leone is mostly positive in terms of decreasing unintended teen pregnancy and early entry into marriage or cohabitation (Bandiera et al., 2020, 2019), Buehren et al. (2017) find no positive impacts of ELA in

our setting of Tanzania.

In this previous study of ELA in Tanzania, approximately 25% of the eligible population participated in ELA clubs (Buehren et al., 2017). Previous research has found no significant selection of females into ELA clubs. Buehren et al. (2017) find that, while ELA participants in Tanzania are less likely to have a child than non-participants, there is no evidence that they differ by education enrollment status, relationship status, engagement in income generating activities, or across several measures of household wealth. Likewise, in Uganda, Bandiera et al. (2020) find little evidence of selection on observables into ELA participation. We compare our sample of ELA members at baseline to the random sample of adolescent females from the same communities from the baseline sample of Buehren et al. (2017) and find no evidence of systematic differences (see Table A1). Therefore, ELA participants seem to be representative of female adolescents in study communities.

### 2.2 Study Design and Interventions

This paper focuses on a subset of interventions from a larger RCT, which included an additional intervention that aimed to increase access to contraceptives. Figure 1 illustrates the overall design of the RCT. Treatment status was assigned at the ELA club level and at the individual level, depending on the treatment. At the ELA club level, the 149 clubs were randomly allocated to three groups of equal size, stratified by region: two treatment arms and one control arm. The control arm (49 clubs) maintained the status quo, ELA clubs. The two treatments arms are (i) *Supply* (50 clubs), which provided access to free contraceptives, and (ii) *Boys* (50 clubs), which layers a soccer intervention for males on top of the free contraceptives. At the individual level, a sub-sample of 865 females across all three study arms were randomly selected, stratified at the club level, to receive an invitation to participate in an individual goal setting activity. The evaluation of the *Supply* arm, which produces null results due to no take up of the contraceptives (see Table B1), is discussed in detail in Shah, Seager and Rubio (2021). While it will not be discussed further in this current paper, we control for this arm in all analysis.

**Soccer Intervention.** The *Boys* arm intervention was implemented by Grassroot Soccer (GRS), an organization focused on empowering adolescent males, educating them on sexual and reproductive health topics, preventing HIV, and increasing uptake of health-promoting services among youth (ages 10-19).[5] The activity-based curriculum uses soccer language and analogies to deliver key messages and start conversations that promote healthy and responsible behaviors. Once enrolled, males must attend at least 8 practices to be considered a graduate of the program.

In each region, there were five coaches who each ran three 11-session soccer programs, resulting in a total of 15 teams of approximately 25 males in each region. Ultimately, 1,090 males completed the soccer curriculum in *Boys* communities. The soccer intervention primarily targeted males within female ELA club members' social and sexual networks (described in more detail in section 3). Based on these social and sexual networks, males were invited to enroll in Grassroot Soccer and 313 males ultimately enrolled.[6] Because we had funding for 1,000 males to participate, Grassroot Soccer enrolled around 700 additional males from communities assigned to the *Boys* arm by recruiting at local schools. Therefore the *Boys* impact will be a combination of direct effects of males who were named by a female in our sample and spillover effects from males who enrolled and live in the same communities.

Grassroot Soccer began implementing sessions during the second half of February 2017, continuing through December 2017. The curriculum includes 11 one-hour soccer practices on topics related to risk behaviors, HIV/AIDS prevention, and intimate partner violence/respecting females. Coaches are available post-practice for an additional 15-30 minutes in case males want one-on-one meetings to discuss more private issues. Ten of the practices are on SRH issues and one is on malaria. Of the ten classes on SRH issues several touch on issues directly related to IPV. For example, in the *Communicate* lesson

[5]While this is the ideal age for the intervention, Grassroot Soccer treated a few males older than 19 for this study, as some of the boyfriends named by females in *Boys* treatment communities were older than 19.

[6]Males who enrolled in Grassroot Soccer look similar to males who did not enroll in terms of household wealth, communication with parents, and age, but are 13.3 percentage points more likely to be enrolled in school, which is consistent with GRS programming target population, and had larger households. There is also evidence that GRS was more easily able to contact older males, which may be indicative of phone access and ownership. See Table A2 for more detail.

(lesson two), males are expected to name at least one local service for victims of rape and violence. The key messages of this lesson are (1) "Boys and girls can listen to each other and respect each other, even though it can be difficult"; (2) "When communicating with someone of the opposite sex, remember to: find a safe place to talk, show respect to the person you are communicating with, make strong eye contact, and stay positive"; and (3) "In life, we should all stand up for females to protect them from abuse" (Grassroot Soccer, 2013). Similarly in lesson three, *Risky Partners*, the key message is about having sex with individuals your own age and not pressuring younger females to have sex. In lesson ten, *Red Card*, males are given scenarios worthy of a red card, such as bus drivers requiring sex from female passengers, older partners pressuring younger females to have sex, negative peer pressure to have sex, and gender-based violence. Therefore, this intervention focuses on the importance of preventing IPV, both as an instrument to reduce the risk of contracting and spreading HIV and as a goal in itself. See Appendix Table C1 for goals and key messages for all sessions.

**Goal Setting.** Goal setting is about self-regulation strategies and can be helpful when addressing emotional or behavioral difficulties. Oettingwen and Gollwitzer (2010) argue that framing goals in terms of positive outcomes vs preventing negative outcomes is more effective. It is a valuable tool often used in cognitive-behavioral therapy (CBT).

For the activity, facilitators asked female participants if they would be willing to set a goal to remain healthy and stay STI/HIV free for the following year. If they agreed, facilitators went through the S.M.A.R.T. process (Doran, 1981) with the females, where they were asked to identify and commit to 1-3 specific strategies to follow during the next 12 months in order to achieve the goal. S.M.A.R.T. stands for Specific, Measurable, Achievable, Relevant, and Timely.

The initial goal setting activity took place in August 2017. This activity took about 90 minutes and was done one-on-one with a trained enumerator. Of the 865 females randomly selected from the baseline survey to receive invitations to participate in the goal setting activity 789 participated (91%).[7] Of the 789 participants, 113 females (14.3%)

[7]Of the 174 females who did not participate, only 2 refused. The rest were either unavailable at the

set 3 strategies, 383 females (48.5%) set 2 strategies, and 293 females (37.1%) set only one strategy. The strategies identified by participants mostly focused on the adoption of safe sexual behaviors. Figure 2 highlights that the most commonly identified strategy was to use a condom, followed by abstinence and being faithful. Females also wrote about why this goal is important for their future and what obstacles they might face in following through with their specific strategies. We returned four months later in December 2017 to check-in and remind participants of the goal and their strategies. We collected additional information at that time on the female's perception of whether she was successfully adhering to her strategies.

In Table A3 we use characteristics from the baseline survey and information that was collected during the initial goal setting activity visit in August 2017 to predict the total number of strategies developed and the number of strategies ultimately reported as achieved at endline (both of which range from 0-3). Interestingly, females who likely suffer from depression set and achieved fewer strategies.[8] Consistent with the psychological concept of self-efficacy, females with higher general self-efficacy scores set and achieved more strategies.[9] Females from households with earthen floors (reflecting a relatively poor household) set and achieved fewer strategies.

## 3 Data Collection and Outcomes

### 3.1 Data Collection

**Sample.** We conducted a baseline census of members of all 149 ELA clubs in operation in Dodoma, Iringa, and Mbeya from August to October 2016. The census was taken by meeting with the club leader of each club and obtaining a complete list of active members. Members were considered active if they were attending ELA clubs at least two times per week if they were enrolled in school or were attending at least three times per week if they

time of the intervention or had moved away from the study area.

[8]Likely depression is measured using the Patient Health Questionnaire-2 (PHQ-2), where a score of 3 or higher is indicative of depression. The PHQ-2 includes the first two items of the PHQ-9 (Kroenke, Spitzer and Williams, 2003).

[9]Self-Efficacy is measured using the General Self-Efficacy Scale developed by Schwarzer and Jerusalem (1995). A total self-efficacy score that ranges from 10-40 was calculated. We then standardized this score using the mean and standard deviation of the score among females in control communities.

were out of school. The census identified a population of 3,419 active members across the 149 clubs. The female baseline survey occurred from September to December 2016, 2–5 months before any interventions were implemented, and resulted in a final sample of 3,178 females.[10]

The males' baseline survey took place from December 2016 to February 2017. The sequential nature of the female and male baseline surveys allowed for the female baseline data on social networks to serve as the sampling frame for the male sample. During the baseline survey, females were asked to list males with whom they were friends, males to whom they were attracted, and males with whom they were currently or historically having sex. All of the males listed as sexual partners in *Boys* communities were selected for survey, and, in *Supply* and control communities, a random sample of males were selected from these lists. In total, 1,466 males were surveyed at baseline, 787 of whom were in the *Boys* arm, 376 were in the *Supply* arm and 303 were in the control communities. The male sample was intentionally split so that half of the male sample would be in the *Boys* arm and the other half of the sample would be equally split between the *Supply* and control communities. Figure 1 presents the sample distribution across study arms.

Prior to endline data collection, another census of ELA members was conducted during May 2018. Endline data collection took place between June and August 2018 for both males and females, six months after the end of all interventions. Figure 3 shows the timing of data collection relative to the interventions.

Baseline and endline adolescent surveys collected information on the adolescent's household (e.g., roster, dwelling characteristics, asset ownership) and about the adolescent's sexual behavior, SRH knowledge and attitudes, education and time use, health, and socio-emotional skills. STI and HIV testing was also conducted, but prevalence was unexpectedly low at baseline, around 1% for both, so this data is not used in this analysis.

[10]Surveys were completed with 92.9% of the total number of females listed during the census. The discrepancy reflects changes in participation in ELA clubs rather than refusals to participate in survey.

### 3.2 Outcomes

The primary outcomes in this paper are intimate partner violence and sexual activity. For sexual activity, we focus on behaviors that may be mechanisms through which the interventions operate, such as changes in sexual partnerships (both quantity and quality). We also explore gender attitudes and risk perceptions around violence, SRH, and STIs. These outcomes are measured at both baseline and endline.

For each group of outcomes, we followed Kling, Liebman and Katz (2007) to create an overall index by (1) redefining each outcome in the group to be oriented in the same direction; (2) standardizing each outcome at baseline and endline separately to the mean and standard deviation among adolescents in control communities who were not assigned to the *Goal* treatment; and (3) taking the unweighted mean across all standardized outcomes in the outcome group.

**Intimate partner violence.** For females, we measured intimate partner violence (IPV) based on the responses to three questions that capture her experience of violence from their most recent partner within the last two years. Violence categories included physical (pushing, shaking, or throwing something at her), psychological (threatening to hurt or harm her or someone she cares about), and sexual (being physically forced to have sexual intercourse). These questions are standard questions on IPV and are used in the Tanzania Demographic and Health Surveys (DHS, 2016). The response options are often, sometimes, not in the past 12 months, or never. Interviews were conducted in private and confidentiality was assured to participants. In cases where females reported violence, they were provided a violence hotline number to seek support. We generated two sets of indicators to capture whether the violence happened (i) often or (ii) at all in the last year. We generate an index for each frequency set of psychological abuse, physical abuse, and forced sex—IPV often and IPV in last year—by standardizing each component to the mean and standard deviation among adolescents in control communities who were not assigned to the *Goal* treatment at baseline and endline separately and averaging across items. For males, the survey instead asked if he perpetrated such violence on his most recent partner within the last two years, rather than experiencing it. We generated the

same standardized indices for males to measure IPV perpetration.

## 4 Empirical Framework

The main analysis sample comprises a panel of females who were surveyed both at baseline and endline. We restrict to the balanced panel sample because we randomly selected females at the individual level from the baseline sample of females to receive invitations to participate in goal setting. We estimate intent-to-treat (ITT) regressions using difference-in-differences (DD), accounting for the cross-cutting randomization of the goal setting activity following Muralidharan, Romero and Wüthrich (2021).[11] The specification is as follows:

$$\begin{aligned} Y_{ict} = \alpha + \beta_1 \text{Boys}_c \times \text{Post}_t + \beta_2 \text{Goal}_i \times \text{Post}_t + \gamma_1 \text{Boys}_c \times \text{Post}_t \times \text{Goal}_i \\ + \theta_1 \text{Goal}_i + \theta_2 \text{Post}_t + \theta_3 \text{Goal}_i \times \text{Boys}_c + X_{ict}^{'} \xi + \alpha_c + \epsilon_{ict} \end{aligned} \tag{1}$$

where $Y_{ict}$ is the outcome of interest for individual $i$ in club $c$ at time $t$, $\text{Boys}_c$ and $\text{Goal}_i$ are binary indicators for being assigned to the *Boys* and *Goal* treatments, respectively, and $\text{Post}_t$ is a dummy variable that takes on the value one for the period after treatment is implemented. $X_{ict}$ is a vector of controls including $\text{Supply}_c \times \text{Post}_t$, $\text{Supply}_c \times \text{Goal}_i$ and $\text{Supply}_c \times \text{Post}_t \times \text{Goal}_i$ to control for assignment to the *Supply* treatment and a set of individual characteristics. $\alpha_c$ is a vector of club fixed effects that control for club-level treatment assignment and to account for the stratification of the *Goal* treatment assignment. The standard errors $\epsilon_{ict}$ are clustered at the club level to account for the study design. The parameters of interest, $\beta_1$ and $\beta_2$, capture the ITT effects of the *Boys* treatment and *Goal* treatment, and $\gamma_1$ estimates the interaction between the two treatments.

[11] The results are robust to using the repeated cross sections. We estimate DD specifications because our primary outcomes, IPV and sexual activity, are relatively highly autocorrelated, which make them well-suited for DD analysis (McKenzie, 2012). In addition, we estimate several sub-analyses with cuts of the data (e.g., by baseline sexual activity, age, etc.) and DD estimates help control for any potential baseline differences.

In all regressions with female data, unless noted otherwise, the individual characteristics included in $X_{ict}$ are age, highest grade completed, and binary indicators for the frequency of communication with mothers about SRH topics and whether the female's household (i.e., parents) owns the house in which she lives. We included these controls because they are strongly correlated with sexual activity and relationship status and improve the precision of the estimates (Bruhn and McKenzie, 2009); however, the results are qualitatively similar if we do not include them. We estimate equation 1 for the whole analysis sample and for sub-populations of interest, such as females who had ever had sex at baseline and females who had partners in the last two years at baseline.

### 4.1 Baseline Balance and Follow-up

The underlying identification assumption needed to interpret the results from an RCT as causal is that sample characteristics are balanced at baseline. We show balance for our baseline survey sample of 3,178 females for our primary outcomes in Table 1. In columns 1–2, we show balance for the cluster randomization, and we show balance for the individually-randomized *Goal* intervention in columns 3–4. Overall, the RCT appears to be balanced across observed outcomes at baseline. Appendix Table B2 replicates Table 1, including the *Supply* arm differences. Of the 3,178 females in our baseline sample, 2,591 were successfully tracked to the endline survey, an overall tracking rate of 81.5%. This tracking rate is similar across survey treatments (81% in the control arm, 85% in *Boys*, and 80% of females invited to *Goal*). Table B3 presents baseline balance for this sub-sample. The treatment balance is maintained within this sub-sample. We discuss attrition in more detail in section 7.

In addition, we show balance for the IPV outcomes for the sub-sample of females who reported having ever had sex at baseline (25.7% of the sample) in Table B4, and we report balance for demographic characteristics and additional outcomes in Tables B5–B7.

## 5 Results

We present estimation results from equation 1 for IPV outcomes in Table 2 in sets of two rows. The first of the two rows presents estimates for $\beta_1$ and $\beta_2$ in columns 1 and 2, as well as the outcome mean among females in control communities who were not assigned to the *Goal* treatment at endline (column 3) and the total number of observations (column 4). The second row presents estimates of $\gamma_1$ for each outcome in column 1. Panel A of Table 2 shows a reduction in the IPV outcomes in clubs whose communities received the *Boys* treatment. The *Boys* treatment reduces the IPV often index by 0.229 standard deviations ($p$=.024) and the IPV in last year index by 0.150 standard deviations ($p$=.056).

Looking at the individual components of the indices, the *Boys* treatment reduces the various IPV outcomes between 1.1 and 3.7 percentage points.

Table 2 also shows that the *Goal* treatment decreases the IPV often and IPV in last year indices by 0.298 standard deviations ($p$=.006) and 0.198 standard deviations ($p$=.079), respectively. The individual components of the indices have magnitudes between 1.2 and 5.9 percentage points. We also find evidence that females who are more engaged in the goal setting activity reap larger benefits. Table A4 shows that the impact of the *Goal* treatment on experience of IPV is concentrated among females who set two to three strategies compared to those who set only one or no strategies. Females that set 2-3 strategies report a reduction in the IPV often index by 0.404 standard deviations ($p$=.002) and in the IPV in last year index by 0.242 standard deviations ($p$=.049).

Figures 4 and 5 present the ITT effects of the *Boys* treatment ($\beta_1$) and the *Goal* treatment ($\beta_2$), respectively, for each of the main outcome indices. The top two rows of each figure summarize the impact of the *Boys* and *Goal* treatments on the IPV often index and the IPV in last year index.

The previously discussed impacts are based on the entire sample of females, starting at age 10, when almost no one is experiencing IPV. These outcomes become more salient as females age and become sexually active. At baseline, 25.7% of the sample reported ever having had sex. Figure 6 presents estimates of $\beta_1$ and $\beta_2$ from equation 1 for females who were and who were not sexually active at baseline separately. For this estimation,

we re-center the IPV often and IPV in last year index at baseline and endline separately around females in control communities who were not assigned to the goal setting activity and who were sexually active at baseline.

The decrease in IPV is significantly larger for females who were already sexually active at baseline compared to those who were not. Among females who were already sexually active at baseline, the *Boys* treatment reduces the IPV often index by 0.482 standard deviations ($p$=.039), over twice the size as the treatment effect over the whole sample. While the impact of the *Boys* treatment on IPV in last year is not statistically significant at conventional levels ($p$=.107), the coefficient estimate of -0.282 standard deviations is, again, nearly twice as large as for the whole sample (-0.150 standard deviations). In contrast, the effect sizes among those who were not sexually active are effectively zero in the boys arm.

Similarly, among females who were sexually active, the *Goal* treatment reduces the IPV often index by 0.378 standard deviations and the IPV in last year index 0.444 standard deviations ($p$=.023). The latter effect is over twice the size as in the whole sample. Interestingly, the goal setting activity also reduces the IPV often index by 0.133 standard deviations ($p$=.088) among girls who were not sexually active; however, this is a third of the effect size among girls who were sexually active at baseline.[12]

Since both the *Boys* and *Goal* treatments reduce the reported experience of IPV among females, a natural question arises about the mechanisms driving these reductions. Another question is whether being assigned to the *Boys* arm and the *Goal* treatment generates an additional reduction in IPV. We investigate this further in the next sections.

## 6 Model

We develop a simple game theoretical model to show how the *Boys* treatment for males and the *Goal* treatment for females could affect IPV. In the model, both males and females have heterogeneous net costs from risky sex (i.e., the trade-off between pleasure and

[12]We also look at heterogeneity by having a partner in the past two years at baseline, shown in Figure A1, and the results are consistent with the heterogeneity according to whether the female was sexually active at baseline.

potential negative health outcomes such as STI infection) that are distributed according to a cumulative distribution, costs from violence, and costs for leaving a relationship (i.e., continuation values to stay). Males can use violence instrumentally to obtain risky sex at the cost of violence to himself (and the female).[13] Females decide whether to stay in the relationship according to the trade-off between the cost of violence and/or risky sex and her cost of leaving. If the cost of risky sex and/or the violence inflicted on her (to extract risky sex) exceeds the cost of leaving, she will exit the relationship.

We build out a model for the scenario where males like risky sex and females do not. The male proposes risky sex. The female decides to accept or reject the proposal according to her net cost of risky sex, her expectations that the male will inflict violence, and her costs of violence and relationship dissolution. If the female says no, the male decides whether or not to inflict violence according to his preference for risky sex, his expectations that the female will exit the relationship, and his costs of violence and relationship dissolution. In the face of violence, the female decides whether to stay (and bear the cost of violence) or exit (and escape it).

The model predicts that male propensity to use violence will change if the cost of violence changes or the net cost of risky sex changes. Borrowing terminology from the violence literature, a change in the cost of violence amounts to a change in the *expressive* motivation to engage in violence, whereby violence against female partners provides men with a source of gratification, whether through a direct utility effect (Tauchen, Witte and Long, 1991; Aizer, 2010) or an irrational impulse (Card and Dahl, 2011). A change in the net cost of risky sex amounts to a change in the *instrumental* motivation to engage in violence (because it changes the benefit of it), whereby violence is used as a tool by men for controlling the behavior and resources of their female partners (Tauchen, Witte and Long, 1991; Bloch and Rao, 2002).[14]

[13]There is a lot of empirical evidence, mostly in public health, that shows males using violence to obtain risky sex (see Raj et al. (2007); Teitelman et al. (2011); Alleyne et al. (2011); Kalichman et al. (1998)).

[14]The theoretical literature on IPV differs in terms of the assumptions regarding male motives for violence. Tauchen, Witte and Long (1991) assume that violence is both (expressively) pleasurable and an instrument to control female behavior. Farmer and Tiefenthaler (1997) assume that violence is pleasurable but has no instrumental value. Eswaran and Malhotra (2011) assume that violence is distasteful but an instrument to ensure that the female allocates resources in accordance with the preferences of the male.

For the female, the model predicts that, as her net cost of risky sex increases, she becomes less willing to say yes to risky sex and more likely to say no and exit the relationship. Whether she is more or less likely to say no and stay in the relationship relative to exiting depends on her continuation value for staying in the relationship. If her continuation value is low, she has a higher likelihood of exiting and escaping violence. In this case, the model predicts that violence will decrease as the females' cost of risky sex increases. If her continuation value is high (i.e., it is costly to exit, such as in marriage), she has higher likelihood of say no and staying in the relationship, putting her at increased risk of violence. In this case, the model predicts that violence from the male can increase as the female's cost of risky sex increases.

There is evidence suggesting that the empowerment of women can, in some cases, lead to a "male backlash." In our case, female empowerment can lead to more IPV due to her increased propensity to say no to risky sex. Most of the previous IPV research has been conducted in the context of married couples, where exit costs are relatively high, and female empowerment is along easier to observe economic dimensions (Angelucci (2008); Bobonis, González-Brenes and Castro (2013); Erten and Keskin (2018)). The intuition is that greater income potential for women can precipitate more IPV either instrumentally, to control the additional resources, or as an expressive response, aimed at restoring men's threatened beliefs about their masculine identity. In this case, female empowerment may raise the need to also treat men with complementary interventions, at least in the short term before male attitudes towards women adjust to the new equilibrium (Doepke and Tertilt, 2009).

### 6.1 Setup

We now present the model in detail.[15] The timing of the model is as follows. First, nature draws a type vector $R = (R_m, R_f)$, where $R_i$ is partner i's net cost of risky sex (can be positive or negative) and $i = male, female$, which we index as $m$ and $f$. $R_i$ is

Haushofer et al. (2019) develop a general model where violence can be an instrument to extract resources from the female, and can be either pleasurable or distasteful in terms of its non-pecuniary returns.

[15]Inspiration for this model comes from conversations with Debraj Ray and from Aizer and Dal Bo (2009).

independently and identically distributed according to a cumulative distribution function, $G_i(R_i)$, over the real numbers. Each partner observes only his or her own type. If both partners like risky sex (i.e., $R_m < 0$ and $R_f < 0$), the couple engages in risky sex and there is no violence.[16]

Figure I depicts the game when there is a possibility of violence. If the male wants risky sex but the female does not (i.e. $R_m < 0$ and $R_f > 0$), the male proposes risky sex to the female. The female must decide whether to say yes (Y) or no (N) to his proposal. If she says yes, her payoff is $-R_f$ (which is a loss), while his payoff is $-R_m$ (which is a gain). If she says no, the male must decide whether to inflict violence (V) to extract risky sex or not (NV). Violence entails a cost $V_m$ to the male and $V_f$ to the female. If he plays NV, the game ends and they both receive a normalized payoff of zero. If he plays V, the female must decide whether to exit (E) or not exit (NE) the relationship. If she plays NE, she bears the full cost of the violence inflicted on her as well as the net cost of risky sex, $R_f - V_f$, and the male's payoff is $-R_m - V_m$. If she plays E (dissolving the relationship), they each suffer loss $X_i$, capturing their continuation value to remain in the relationship.

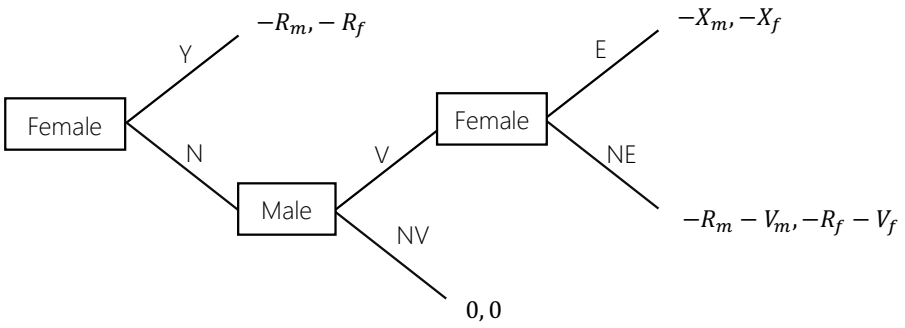



**Figure I** Game tree under the possibility of violence (when $R_m < 0, R_f > 0$)

### 6.2 Solving for Equilibrium

The female has two decision points: (1) where she decides whether to play Y or N, which we will call $R_f^*$ and (2) where she whether to play E or NE, which we will call $R_f^{**}$. The

[16]Note that a negative net cost of risky sex implies a positive payoff from risky sex.

male has one decision point: where he decides whether to play V or NV, which we will call $R_m^*$.

Each of these decision points is associated with a probability according to the cumulative distribution function (c.d.f) $G_i(R_i)$, and probability distribution function (p.d.f.) $g_i(R_i)$. The female will play Y with probability $G_f(R_f^*)$ (and N with probability $1 - G_f(R_f^*)$). She will play N, NE with probability $G_f(R_f^{**}) - G_f(R_f^*)$ and she will play N, E with probability $1 - G(R_f^{**})$. The male will play V with probability $G_m(R_m^*)$ (and NV with probability $1 - G_m(R_m^*)$).

We will now solve for $R_f^*$, $R_f^{**}$, and $R_m^*$ using backwards induction.

**Step 1. Female decides whether or not to exit**

If the male decides to inflict violence (plays V) with probability $G_m(R_m^*)$, the female decides whether to exit the relationship (E) or not (NE). If she does not exit, her payoff is $-R_f - V_f$. If she exits, her payoff is $-X_f$. She will exit if $-R_f - V_f < -X_f$.

**Lemma 1.** The female will choose to exit in the face of violence if $R_f > X_f - V_f \equiv R_f^{**}$, and will choose to stay otherwise. This is equivalent to saying that she will choose to exit if her net cost of risky sex is greater than the difference in cost between exiting the relationship and staying and bearing violence. Because we are in the scenario where females suffer a cost from risky sex ($R_f > 0$), in this solution, $R_f^{**} > 0$.

**Step 2. Male decides whether or not to inflict violence**

If the female plays N, the male must decide whether or not to inflict violence, taking into account the conditional probabilities that the female plays NE or E. If he plays V, he receives either the payoff $-R_m - V_m$ if she plays NE or the payoff $-X_m$ if she plays E.

The expected payoff from choosing violence is $\frac{G_f(R_f^{**}) - G_f(R_f^*)}{1 - G_f(R_f^*)}(-R_m - V_m) + \frac{1 - G_f(R_f^{**})}{1 - G_f(R_f^*)}(-X_m)$, which he compares to the normalized payoff of zero for playing NV. He will inflict violence if $(G_f(R_f^{**}) - G_f(R_f^*))(-R_m - V_m) - (1 - G_f(R_f^{**}))X_m > 0$.

**Lemma 2.** The male chooses to inflict violence if $R_m < -\left[\frac{(1 - G_f(R_f^{**}))}{G_f(R_f^{**}) - G_f(R_f^*)} X_m + V_m\right] \equiv R_m^*$. This is to say that he will inflict violence if his net cost of risky sex (which is negative)

outweighs the trade-off between the cost of violence and the cost of the female leaving, scaled by the odds that she plays E rather than NE.

**Step 3. Female decides whether or not to engage in risky sex**

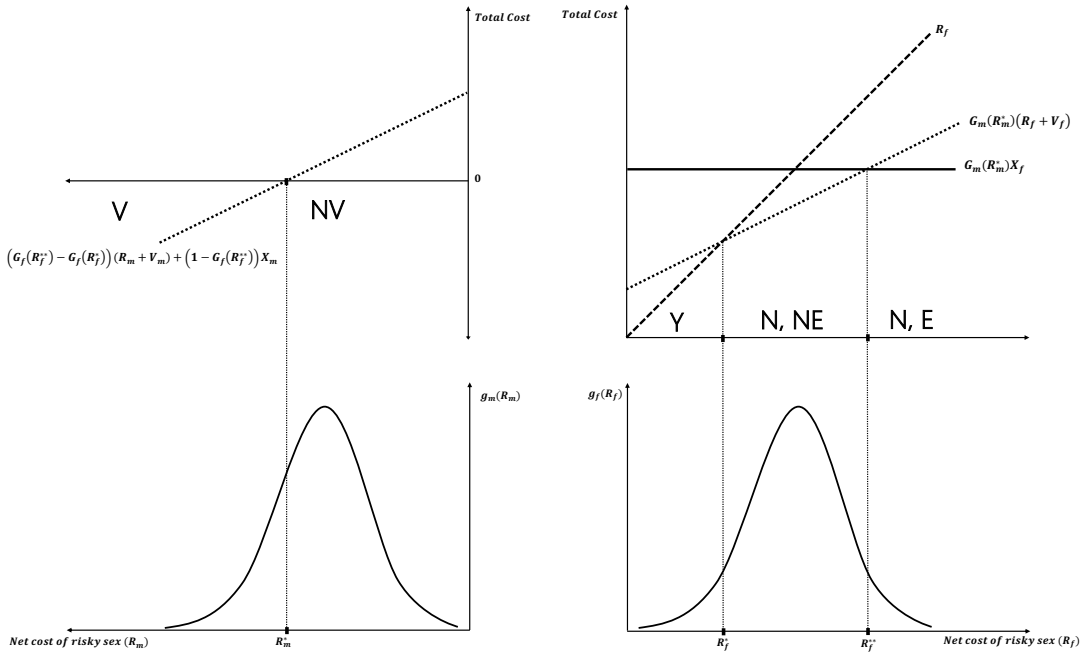
Knowing that the male may inflict violence, the female must decide whether to agree to engage in risky sex (Y) or not (N). If she plays Y, she bears net cost $R_f$. If she plays N and will not exit in the face of violence (i.e., $R_f < R_f^{**}$), she experiences either the payoff $-R_f - V_f$ if the male partner responds with violence with probability $G_m(R_m^*)$ or a payoff of zero if he plays NV with probability $1 - G_m(R_m^*)$. Therefore, the expected cost from saying no is $G_m(R_m^*)(-R_f - V_f)$. She will say no if $-R_f < G_m(R_m^*)(-R_f - V_f)$ (i.e., the net cost of risky sex is greater than the expected cost of saying no).

**Lemma 3.** The female will say no to risky sex if $R_f > \frac{G_m(R_m^*)}{1-G_m(R_m^*)} V_f \equiv R_f^*$. That is, she will say no if the net cost of risky sex is greater than the cost of violence scaled by the odds that the male plays V.

**Equilibrium**

Figure II presents these decision points for the male and female in Panels (a) and (b), respectively. In each panel, the top part of the figure shows each partner's expected cost from each decision combination as a function of the net cost of risky sex, $R_i$. The male has one decision to make: whether or not to play V. The female has two decisions to make (whether to say yes or no to risky sex and whether or not to exit in the face of violence if she says no) and three possible plays: Y; N, NE; and N, E. The bottom part of the figure in each panel maps the decision points to the respective p.d.f., $g_i(R_i)$.

Focusing on II(a), recall that $R_m < 0$, reflecting a net benefit of risky sex for the male, so we focus on his costs in the negative quadrants. The relevant decision for the male is whether or not to commit violence. In this decision, the male faces cost $(G_f(R_f^{**}) - G_f(R_f^*))(-R_m - V_m) - (1 - G_f(R_f^{**}))X_m$ if he plays V, depicted by the dotted line, or a cost of 0 if he plays NV, depicted by the X-axis. The figure shows that males who have a strong preference for risky sex ($R_m < R_m^*$) will play V, while males who have a weaker preference will play NV.




(a) Male (b) Female

**Figure II** Equilibrium responses for males and females

Now focusing on II(b), recall that $R_f > 0$, reflecting female distaste for risky sex, so we focus on her costs in the positive quadrant. The female faces cost $R_f$ if she plays Y, depicted by the dashed line. The expected cost from playing N, NE is $G_m(R_m^*)(R_f + V_f)$, the total of the net cost of risky sex and the cost of violence times the probability that the male plays V, depicted by the dotted line. The expected cost from playing N, E is constant at $G_m(R_m^*)(X_f)$, the cost of exit times the probability that the male plays V, depicted by the solid line. The figure shows that females with a relatively low cost of risky sex ($0 < R_f < R_f^*$) will play Y, females with a moderately high cost of risky sex ($R_f^* < R_f < R_f^{**}$) will play N, NE if he uses violence, and females with a high cost of risky sex ($R_f > R_f^{**}$) will play N, E if he uses violence. Note that in order for there to be a range of $R_f$ where females say no and do not exit, it must be the case that $R_f^{**} > R_f^*$, which implies that $X_f > \frac{1}{G_m(R_m^*)} V_f$. That is, the cost of exit has to be greater than the cost of violence scaled by the inverse probability that the male plays V. This assumption is in line with empirical evidence that high cost of exit, for example through legal fees,

social norms, religious repercussions, and a lack of safety net (formal or otherwise), keeps women in abusive relationships (e.g., Brassiolo (2016); Sandhu and Barrett (2020); Wilson (2007)).

### 6.3 *Boys* Treatment Mechanisms

#### Applying the model

There are two mechanisms through which the *Boys* treatment could affect males' propensity to inflict violence. First, through the expressive channel, the soccer curriculum aims to reshape males' attitudes toward IPV, which, in our model, translates to an increase in the cost of violence, $V_m$. From Lemma 2, this shifts $R_m^*$ to the left, reducing the share of males willing to play V (i.e., inflict violence) (see Figure III).

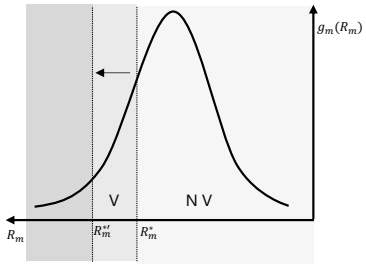
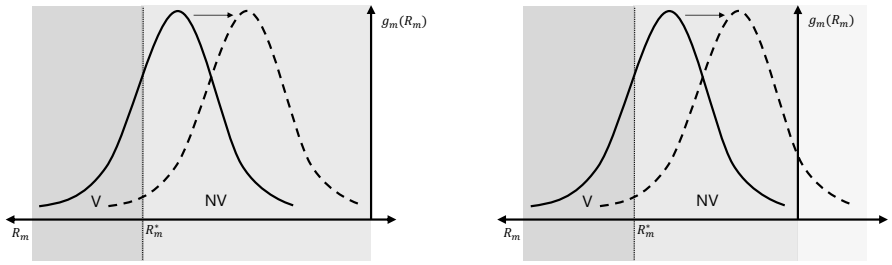



**Figure III** Shift $R_m^*$ to the left (increase cost of violence)

Second, through the instrumental channel, the soccer curriculum teaches males the importance of avoiding risky behaviors in order to stop the spread of HIV and STIs. This increases the net cost of risky sex, $R_m$, and causes a rightward shift in the distribution $g_m(R_m)$, again reducing the share of males willing to inflict violence. This second mechanism may additionally reduce the probability that the male proposes risky sex, depending on the initial location of the distribution $g(R_m)$ and the magnitude of the shift. Figures IV(a) and IV(b) illustrate a case where the share of males proposing risky sex stays the same (at 100%) and a case where the share of males proposing risky sex decreases, respectively. The decrease in the share of males proposing risky sex in figure IV(b) is because there are now some boys for whom the net cost of risky sex, $R_m$, is positive, shown by the right tail of $g_m(R_m)$ entering the positive quadrant, so they will no longer propose risky

sex.




(a) No change in the share of males proposing risky sex

(b) Decrease in the share of males proposing risky sex

**Figure IV** Shift $g_m(R_m)$ to the right (increase net cost of risky sex)

Both channels predict an unambiguous reduction in IPV. Through the expressive channel, males are less likely to play V when females play N, so risky sex does not occur when males propose it. Through the instrumental channel, males are again less likely to play V when females play N; however, males may also be less likely to propose risky sex in the first place.

### Empirical evidence for the *Boys* treatment

We have shown that the *Boys* treatment reduces female reports of IPV, suggesting that the soccer intervention is shifting either the expressive or instrumental (or both) motivations for violence. If the soccer intervention increases the cost of violence for males, $V_m$, we should see male attitudes toward IPV improve, lower perpetration of IPV by males, and a decrease in sexual activity among males and females. If the soccer intervention shifts the distribution of $G_m(R_m)$, then we would expect to see an improvement in SRH attitudes and a reduction in sexual activity, along with a reduction in IPV perpetration. Whether the reduction in sexual activity is of similar magnitude or is greater than the reduction in violence depends on whether the shift in $g_m(R_m)$ is as depicted as in IV(a) or IV(b).

We now turn to the male survey data and estimate the following specification to test

for these effects:

$$Y_{ict} = \alpha + \beta_1 \text{Boys}_c \times \text{Post}_t + \beta_2 \text{Goal}_i \times \text{Post}_t + \gamma_1 \text{Boys}_c \times \text{Post}_t \times \text{Goal}_i \quad (2)$$
$$+ \theta_0 \text{Boys}_c + \theta_1 \text{Goal}_i + \theta_2 \text{Post}_t + \theta_3 \text{Goal}_i \times \text{Boys}_c + X'_{ict}\xi + \alpha_c + \epsilon_{ict},$$

where $Y_{ict}$ is the outcome of interest for individual $i$ connected to a girl in club $c$ at time $t$, $\text{Boys}_c$ is an indicator that the boy is in a community that offers the *Boys* intervention, $\text{Goal}_i$ is an indicator that the female who is connected to the male was invited to the *Goal* treatment, and $\text{Post}_t$ is an indicator for the period after treatment is implemented. $X'_{ict}$ is a vector of controls that includes individual characteristics equivalent to the controls for the females' models, except we control for whether the male speaks to his father about sexual reproductive health topics rather than his mother. Location fixed effects in $\alpha_c$ are at the region level to account for the level of stratification of treatment assignment to the *Boys* arm.

At endline, males were asked their opinion on statements, such as "A woman should tolerate violence from her husband/partner," in order to elicit their attitudes toward violence. We also ask males the same violence questions we ask females, but in terms of their perpetration of it, and construct equivalent IPV indices. Table 3, which is organized the same way as Table 2, presents estimates from equation 2. Table 3, column 1, shows that the *Boys* arm has a strong impact in reshaping IPV attitudes, with males in this arm being 17.4 percentage points ($p$=.001) less likely than males in control communities to agree that women should tolerate violence from their husband or partner. The violence attitudes index suggests that males in the *Boys* treatment arm have 0.290 standard deviations "better" attitudes regarding violence ($p$=.016). The magnitude of the attitudinal change is similar to RCT results from Dhar, Jain and Jayachandran (forthcoming), who engaged adolescents in classroom discussions about gender equality.[17] Table A6 further shows that improvements in attitudes were larger among boys who enrolled in Grassroot Soccer, with an improvement in the Violence Attitudes index of 0.442 standard devia-

[17]Table A5 shows that these shifts in attitudes are concentrated among males who were already sexually active at baseline, precisely the group of males who would be perpetrating IPV and consistent with female reports of greater reductions of IPV among females who were already sexually active at baseline.

tions ($p$=.002) among this group. We do not find statistically significant impacts on male reports of IPV perpetration.

We now present several pieces of evidence that suggest males in the *Boys* intervention arm are more likely to engage in safer sexual behaviors at endline, reflecting an increased net cost of risky sex, $R_m$. Table 4 reports impacts on sexual activity as reported by females in Panel A and as reported by males in Panel B. It shows that females in soccer communities experience a 0.125 standard deviation ($p$=.032) reduction in sexual activity, primarily driven by a reduction in currently having a partner. Table A6 shows that the reduction in the sexual activity index is larger among females for whom a male in their sexual network enrolled in Grassroot Soccer, showing a 0.297 standard deviation ($p$¡.000) reduction in the sexual activity index among this group. Further, in Table A7, females report spending 0.15 fewer hours per day with their boyfriends ($p$=.009).

While reductions in sexual activity as reported by males in Panel B of Table 4 are weaker than for females, all of the coefficients are negative and sizable, and males report 0.116 fewer sexual partners on average (a 14% reduction, $p$=.084).[18] Moreover, Table 5 presents evidence that males' perceptions around the likelihood of peers having STIs has increased in the *Boys* arm, suggesting an increased net cost of risky sex. Previous research around expectations of HIV infection has found that increasing expectations of the likelihood of HIV infection reduces risky behavior (and vice versa) (e.g., Delavande and Kohler (2016)). In line with this, there is some evidence that males in the *Boys* treatment communities are more likely to engage in contraceptive use. First, males in the *Boys* arm are 12.2 percentage points more likely to agree with the statement that "Girls have a right to ask to use a condom" than males in control communities, indicating that attitudes around contraceptives have shifted (see Table 5, $p$=.059). However, female reports of contraceptives among partners in Table 6 suggest that male partners in the *Boys* arm are 17.4 percentage points less likely to use contraceptives ($p$=.028). Therefore, while attitudes appear to have shifted, the evidence on actual behavior is mixed.

Recall that the model predicts that the shift of $g_m(R_m)$ could result in a reduction of

[18] We do not expect the male results to line up fully with the female results as male and female reports about sex often differ (e.g., Gersovitz et al. (1998)).

males proposing risky sex. If male utility in the absence of risky sex is smaller than his outside option, he may not enter into partnerships at all. We note in Table A8 that males in the *Boys* treatment arm are significantly more likely to spend time on sports and leisure at endline than males in control communities—even though the soccer intervention ended more than 6 months prior to the endline survey. Thus, some proportion of the decline in sexual activity could be offset by an increase in male engagement in sports.

Figure 4 presents a summary of treatment effects across outcomes for the *Boys* treatment ($\beta_1$ from equations 1 and 2), highlighting improved violence attitudes and SRH perceptions for males and reductions in sexual activity. The findings are broadly compatible with IPV reductions being driven by changes in both the expressive and the instrumental motivations for violence.

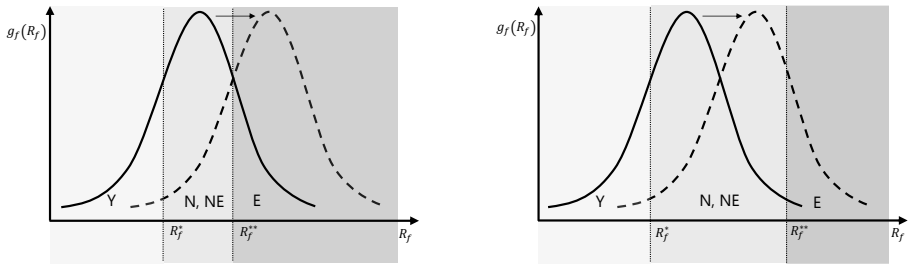
### 6.4 *Goal* Treatment Mechanisms

#### Applying the model

The *Goal* treatment aims to strengthen females' commitment to adopt safe sexual behaviors to remain healthy. In the model, this would cause a rightward shift in the distribution of $R_f$, such that $G'_f(R_f) > G_f(R_f)$. This can lead to more or less violence. On the one hand, some of the females who would have played Y to risky sex in the absence of the intervention—and therefore would not be exposed to violence—will play N in the presence of the intervention, running the risk of a violent response. By increasing the probability that the female plays no and not exit (N, NE), given by $\Delta\left(G_f(R_f^{**}) - G_f(R_f^{*})\right)$, the intervention could increase violence.

On the other hand, some of the females who would not have exited a violent relationship in the absence of the intervention—thereby being exposed to violence—will now exit the relationship (escaping violence). By increasing the probability that the female plays no and exits (N, E), given by $\Delta\left(1 - G_f(R_f^{**})\right)$, the intervention can reduce violence. The net effect on violence will depend on the relative change of these two probabilities, and is ultimately an empirical question.

The location of $R_f^{**}$ determines whether the increase in the probability of leaving




(a) Less violence (b) More Violence

**Figure V** Ambiguous effect of *Goal* on violence

outweighs the increase in the probability of saying no and not exiting. Recall that $R_f^{**} = X_f - V_f$, where $X_f$ is the cost to exit the relationship. If $X_f$ is relatively low, depicted in Figure V(a), where $R_f^*$ and $R_f^{**}$ are closer together, then the resulting shift in $g_f(R_f)$ will result in a larger increase in the probability of playing N, E than the increase in the probability of playing N, NE, and violence will decrease. If $X_f$ is relatively high, depicted in Figure V(b), where $R_f^*$ and $R_f^{**}$ are farther apart, then the resulting shift in the $g_f(R_f)$ will result in a smaller increase in the probability of playing N, E relative to the increase in the probability of playing N, NE. In this case, violence increases. The mechanism driving a reduction in violence is a greater increase in females exiting relationships compared to those saying no and not exiting. This implies that any reduction in violence should be accompanied by an increase in relationship dissolution.

### Empirical Evidence for the *Goal* treatment

Empirically we observe a reduction in IPV among females assigned to the *Goal* arm, so the model suggests we should see an increase in relationship dissolution in this arm. The results in Table 4, column 2, Panel A suggest that, while females invited to participate in the goal setting activity are equally likely as control females to currently have a partner, they report having had a significantly larger number of partners in total since the baseline. There is also evidence of increased relationship dissolution in Table 6, Panel A, where females invited to participate in goal setting at endline report being 3.9 percentage

points less likely to be with the same partners as at baseline ($p$=.070).[19] This evidence is consistent with a larger share of females exiting relationships.

Since females in the *Goal* arm are equally likely to be currently partnered, but with new partners, we explore whether females are pairing with higher quality (less risky) partners. In Panel B of Table 6, we restrict the sample to females who report having partners at baseline and/or at endline and utilize data from female reports of her boyfriends' characteristics. For each female, we average the characteristics of her boyfriends for age, school enrollment, and whether she thinks he uses contraceptives, as all of these characteristics are correlated with less risky sex and less risky partnerships (Agüero and Bharadwaj, 2014; Schaefer et al., 2017; Beauclair, Dushoff and Delva, 2018). We then generate an overall index, standardizing each component to the mean and standard deviation among females in control communities who were not assigned to the goal setting activity at baseline and endline separately and taking the unweighted average of the standardized components. We find that goal setting significantly increases average boyfriend quality by 0.218 standard deviations (p=.015).

Partner churn raises the concern that previous, more violent partners might be displaced to females in the control group. We investigate this concern by comparing IPV outcomes of females invited to the goal setting activity to females who were not invited to participate within the control communities. If violent partners are being displaced from females in the *Goal* treatment to those who are not, we would expect to see an increase in IPV among non-goal setting invitees that offsets the decrease in IPV among females invited to goal setting. Table A9 shows the secular trends in IPV for females invited to participate in goal setting and those who were not in control communities. It shows that, while IPV significantly decreases for females invited to participate in goal setting, there is no offsetting increase among females who were not invited to participate in the control arm.

We also check for evidence of increased violence among females who are most at risk of IPV: those who previously agreed to risky sex, but now may say no. Table A10 shows

[19]Note that the outcome in Panel A of Table 6 is a change from baseline to endline, so the model does not include the post indicator and interactions.

that there is also no evidence of increases in IPV among females who reported sometimes or never using a condom at baseline, who are precisely the group that might trigger violence as goal setting shifts their preferences toward safer sex. This result, paired with the increased partner churn, implies a relatively low cost of exit, $X_f$, as depicted in Figure V(a). This finding could be particular to an adolescent population, such as the one we are working with, in that adolescents are at a stage of relative instability in romantic partnerships.

Figure 5 presents a summary of treatment effects across outcomes for the *Goal* treatment arm ($\beta_2$), highlighting that the main mechanism that appears to be driving reductions in IPV is higher churn of partnerships toward higher quality of sexual partners, suggesting improved agency of females.

### 6.5 Interaction between the *Boys* arm and the *Goal* Arm

In the model, equilibrium violence requires that the male is willing to engage in it and the female is willing to stay in that relationship. The *Boys* treatment reduces males' willingness to perpetrate violence, and the *Goal* treatment reduces female willingness to accept it. A further implication of our model is that females becoming more likely to exit relationships can reduce male proclivity to perpetrate IPV in future rounds of the game, as males adjust their expectations of their partner's response. This can be seen in Figure II(a), where an increase in the probability that the female exits both increases the intercept ($1 - G_f(R_f^{**})$ increases) and flattens the slope ($G_f(R_f^{**}) - G_f(R_f^{*})$ decreases) of the males' expected cost line for playing V. Therefore, implementing the two interventions together could lead to a larger reduction in IPV than implementing either one alone.

Table 2 presents no evidence that there are additional benefits from receiving both the *Boys* and *Goal* treatments together. While imprecisely estimated, the coefficients on the interaction between the two interventions are positive for both indices, suggesting that the two interventions may have substituted each other in reducing females' exposure to IPV. Focusing on the impacts on sexual violence, we see that in control communities, about 5% of females report having been forced to have sex in the last year. The *Goal* treatment alone essentially brings the share of females reporting such experience down

to zero. Thus, given the effectiveness of the interventions (for this outcome), there is no space for complementarities. Interestingly, for physical abuse in the last year, where neither intervention has an effect as large as the control mean, the interaction term is very close to zero (although none of the coefficients are statistically significant). There is also no evidence of complementarities in Tables 4 and 6.

## 7 Attrition

Tables 7 and 8 presents analysis of sample attrition using baseline data for the females and males, respectively, to confirm that attrition does not vary by treatment status or baseline characteristics in a way that may be driving our results. The outcome in all panels is an indicator equal to 1 if the female or male left the sample (attrited).

In both tables, Panel A shows estimates from a regression of attrited on treatment indicators, including the *Goal* interaction with each clustered treatment arm. For both females and males, there is no evidence that there is differential attrition by treatment assignment. In Panel B, we further test for differential attrition across treatment arms by demographic characteristics. These estimations also show little evidence of differential attrition. We provide a more detailed breakdown of the outcome means at baseline according to attrition status in appendix figures A2 and A3, which broadly show no evidence of differential attrition, aside from evidence that goal setting participants who experienced physical abuse at baseline are less likely to attrit. If anything, this would imply positive bias in our estimate of the impact of goal setting on physical abuse, which would bias us away from finding the negative impact of goal setting on physical abuse that we see in Table 2.

## 8 Cost-effectiveness

We now present evidence on the cost-effectiveness of our interventions. The per-female cost of the *Boys* treatment is $41 and the per-female cost of the *Goal* treatment is $38. To ease comparison across treatments and studies, we also normalize the cost of each treatment in terms of a 0.25 standard deviation reduction in IPV. In the case of the *Goal*

treatment, this translates to a per-female cost of $73 per 0.25 standard deviation reduction in IPV. For the *Boys* treatment, we estimate a per-female cost of $64 per 0.25 standard deviation reduction in IPV. Given the lack of experimental studies that provide evidence on reducing IPV among adolescents in LMICs that include cost data, we benchmark our IPV impacts and costs against three studies—two that estimate the impact of cash transfer programs on IPV among married women in Kenya (Haushofer et al., 2019) and Ecuador (Hidrobo, Peterman and Heise, 2016) and one that estimates the impact of an adolescent violence prevention program on dating violence in the United States (Niolon et al., 2019; Luo, DeGue and Le, 2020). We acknowledge that cash transfer programs are designed to shift many other outcomes unrelated to violence and these comparisons should be considered with this in mind.

Haushofer et al. (2019) examine the IPV impact of giving unconditional cash transfers averaging $496 (nominal) to either adult women or their husbands in Kenya. They find that transfers to women reduced physical violence by 0.26 standard deviations and sexual violence by 0.22 standard deviations, while transfers to their husbands reduced physical violence by 0.18 standard deviations. These imply a per-woman cost of $477 to $539 per 0.25 standard deviation reduction in IPV from cash given to women, and a $689 per 0.25 standard deviation reduction in IPV from cash given to their husbands—which is much higher than our per-female costs.

Another helpful benchmark is Hidrobo, Peterman and Heise (2016), who examine the IPV impacts of giving monthly transfers (of cash, vouchers, or food) to adult women in Ecuador. The value of the monthly transfer is $40 for a total of $240 per woman over a six-month period. They find that these transfers (regardless of type) reduce the probability that women experience violence by 6 to 7 percentage points (depending on type of violence), which relative to the control group is equivalent to a 19% to 30% reduction in IPV. In our study, the *Goal* and the *Boys* treatments—which each cost about $40 per girl—reduced the probability that girls experience violence by 1 to 3.5 percentage points (depending on type of violence), which relative to girls in the control group (who are younger than the women in Hidrobo, Peterman and Heise (2016) and thus have had less exposure to IPV) is equivalent to a 41% to 100% reduction in IPV.

Finally, Luo, DeGue and Le (2020) estimate the cost of the *Dating Matters* curriculum developed by the Centers for Disease Control (CDC) to reduce teen dating violence in the United States to be $145.40 per student on average. Niolon et al. (2019) report a 8.43% reduction in teen dating violence perpetration among *Dating Matters* participants. Again, a significantly smaller impact than in our study for a higher per-person cost.

This basic costing analysis suggests that our interventions are highly cost-effective in reducing IPV relative to cash grant and other transfer or education interventions for which we can obtain cost data.

## 9 Discussion and Conclusion

This paper presents causal evidence from a multi-level cluster and individual RCT and finds that offering males a soccer-based health intervention reduces female experience of IPV often by 0.229 standard deviations on average. Similarly, offering females a goal setting activity reduces experience of IPV often by 0.298 standard deviations. Moreover, reductions in IPV are larger for females who were already sexually active at baseline in both treatment arms.

Gender is about power relations between females and males, and, here, we see interventions that each shift one side of the relationship. We develop a game theoretic model to illuminate mechanisms behind the power relations that drive SRH and IPV outcomes. In our model, male decision-making around IPV is driven by his preferences for risky sex, the cost of violence he faces, and expectations around how his female partner will respond to proposals of risky sex and violence. Females decide whether to engage in risky sex based on costs they face related to risky sex, violence, and the dissolution of their relationship, along with their expectations about their partners' perpetration of IPV. This model speaks directly to our interventions, which separately target adolescent males and females to shift the dynamics that allow for IPV at this critical juncture in male and female development. The reduction in IPV in the *Boys* arm starts with a significant improvement in males' attitudes towards IPV. Females exposed to males who participated in this treatment reduce their number of partners and sexual activity. On the other

side, the *Goal* arm helps females set concrete strategies on how to improve their sexual and reproductive health, increasing control over their sexual health. They exit violent relationships and change to higher quality partners. There is no significant interaction between the two interventions, despite the scope for them to complement one another.

While programming focusing on adolescents is increasing, there is still little evidence on what works to reduce IPV for this age group. These results provide evidence of two effective, inexpensive, and scalable interventions to reduce IPV experienced by adolescent females. Changing gender relations at this early stage of adulthood could potentially shift the life trajectory of young men and women, a fruitful avenue for future research. In addition, work to understand how these interventions work, together or separately, in higher-violence settings could provide important guidance on when and where to scale-up.

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## Figures and Tables

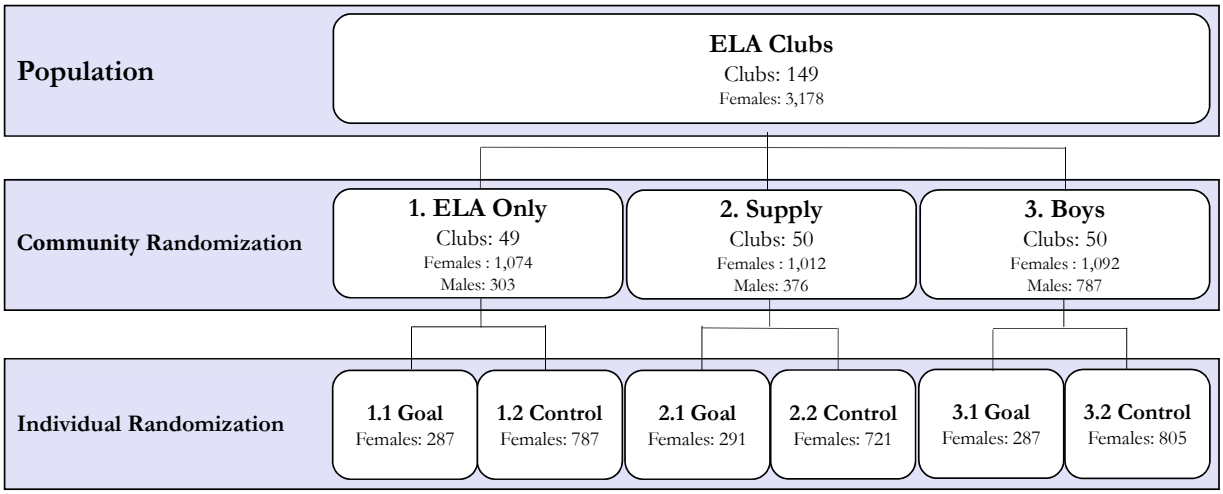


**Figure 1** Study Design

*Notes.* This figure presents the overall study design. The study population, presented in the top box, is female participants at 149 ELA clubs at baseline in 2016. The second box shows community-level randomization and the number of males and females surveyed at baseline in each community-level treatment arm. The third box shows the cross-cutting, individual-level *Goal* treatment, which invited a random sub-sample of female ELA participants in each community to participate in the goal setting activity.

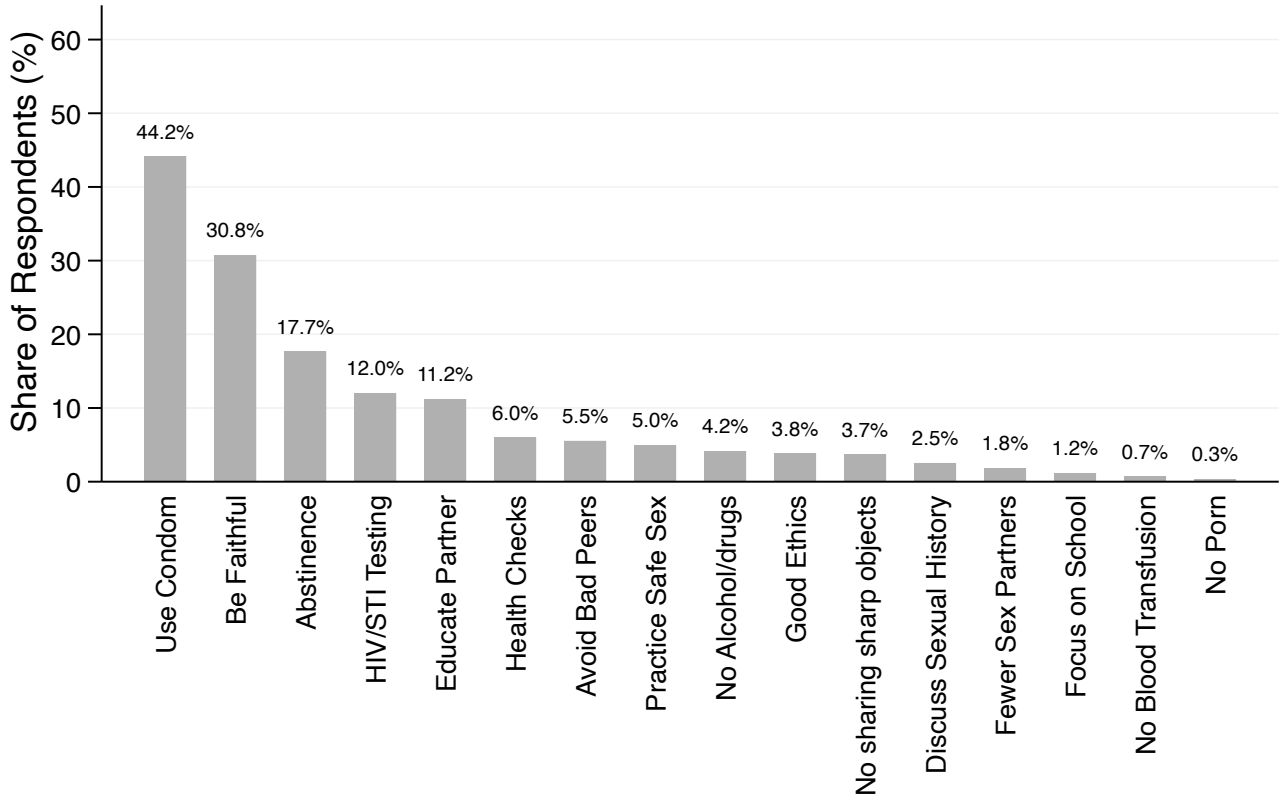


**Figure 2** Strategies from goal setting Activity

*Notes.* This figure summarizes the strategies that females identified during the goal setting activity. Each female was asked to identify 1–3 strategies. These strategies were categorized into 16 over-arching categories. The percent of females who set a strategy that fits in each category is presented above the bar. As females could set up to 3 strategies, the percentages above the bars do not sum to 100%.
*Source.* Female goal setting participants, first visit.

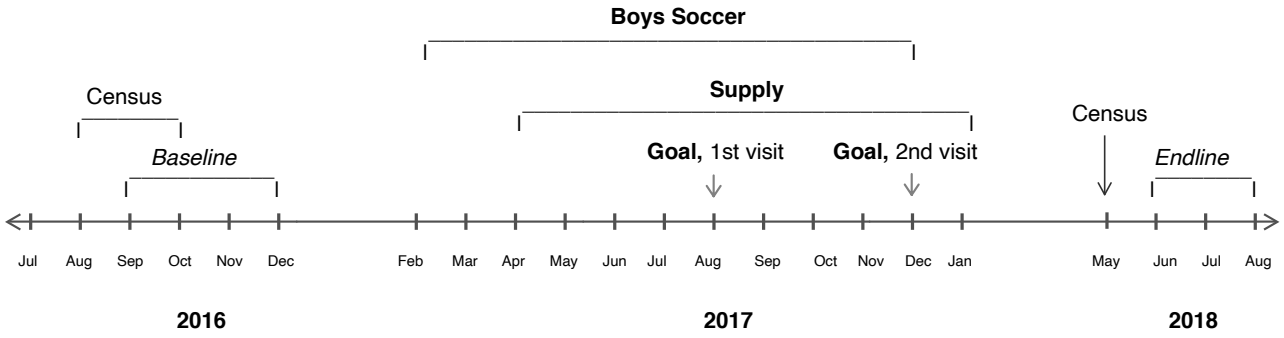


**Figure 3** Study Timeline

*Notes.* This figure presents the study timeline.

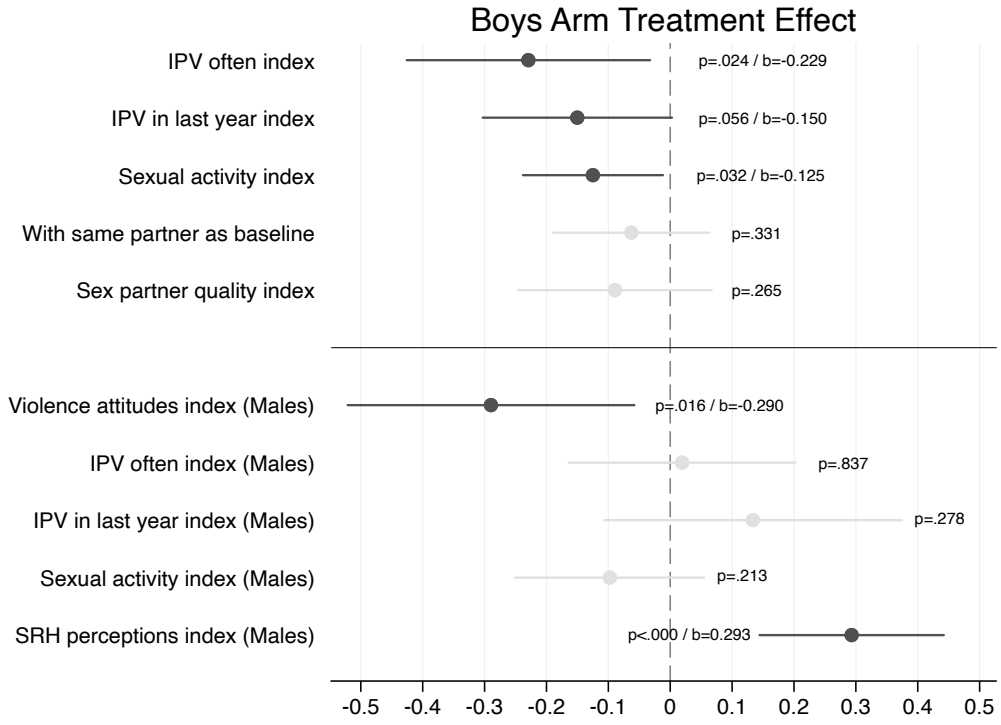


**Figure 4** ITT Effects of *Boys* Treatment

*Notes.* This figure presents estimates of $\beta_1$ from equation 1 for separate regressions with the outcome indices specified on the y-axis. Indices are centered around females (males) in ELA only communities who were not assigned (whose connected female was not assigned) to the *Goal* treatment. Bolded markers are statistically significant at $p < 0.1$. $p$-values and coefficient estimates are displayed beside each marker.
*Source.* Female and male baseline and endline data, balanced panel.

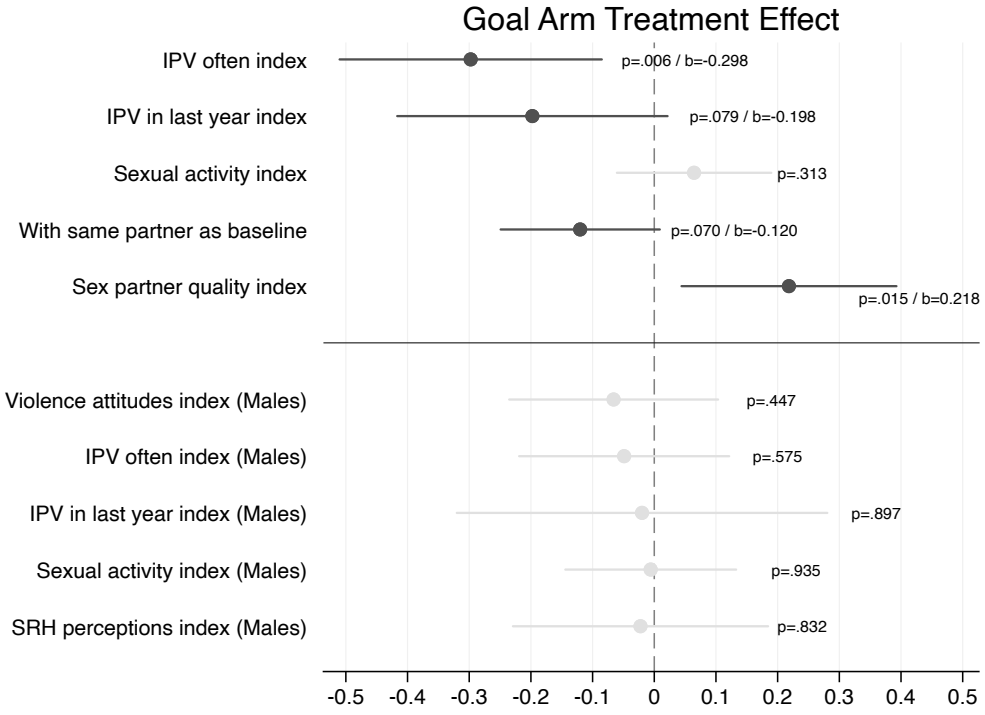


**Figure 5** ITT Effects of *Goal* Treatment

*Notes.* This figure presents estimates of $\beta_2$ from equation 1 for separate regressions with the outcome indices specified on the y-axis. Indices are centered around females (males) in ELA only communities who were not assigned (whose connected female was not assigned) to the *Goal* treatment. Bolded markers are statistically significant at $p < 0.1$. $p$-values and coefficient estimates are displayed beside each marker.
*Source.* Female and male baseline and endline data, balanced panel.

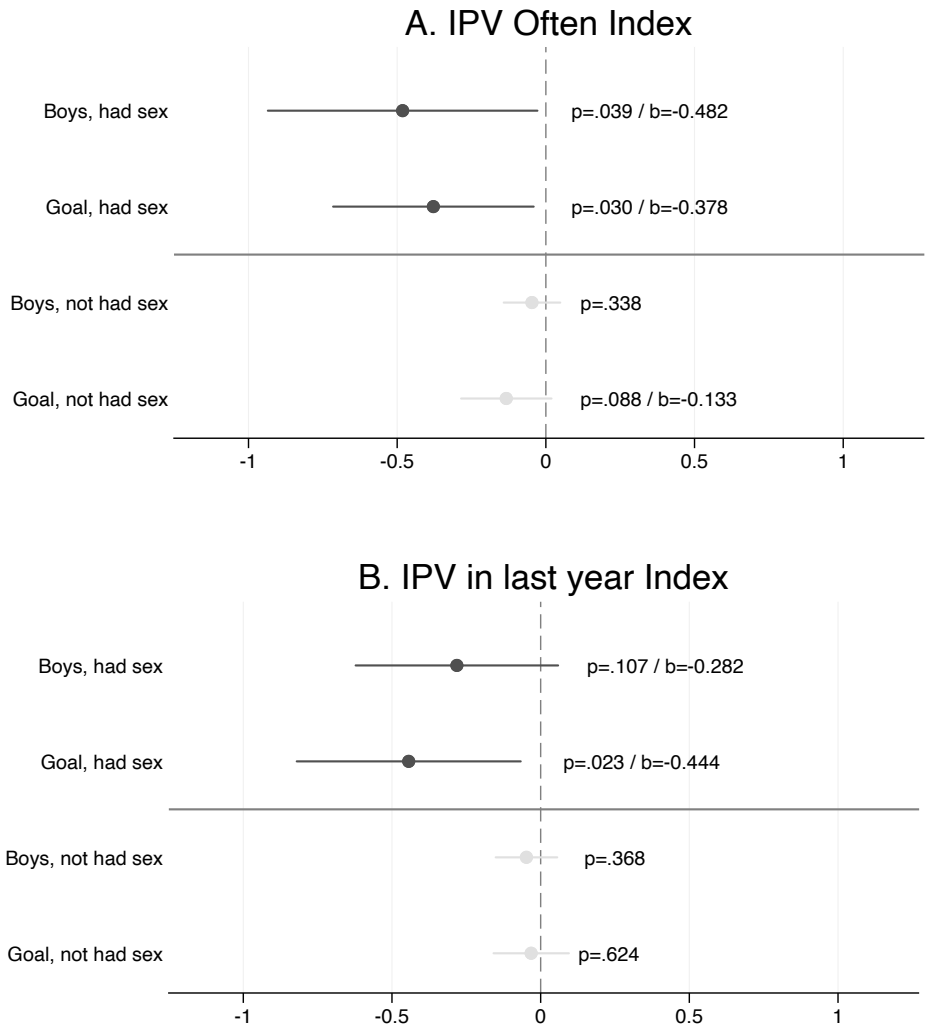


**Figure 6** Impact of Treatments on IPV, Heterogeneity by ever had sex at baseline

*Notes.* This figure presents estimates of $\beta_1$ and $\beta_2$ and from equation 1. Panel A presents estimates for the IPV often index and Panel B presents estimates for the IPV in last year index. The indices are centered on females in ELA only communities who were sexually active at baseline and who were not assigned to the *Goal* treatment. Bolded markers are statistically significant at $p < 0.1$. $p$-values and coefficient estimates are displayed beside each marker.
*Source.* Female baseline and endline data, balanced panel. The sample in the top half is restricted to females who had ever had sex at baseline. The sample in the bottom half is restricted to females who had not ever had sex at baseline.

**Table 1** Treatment-Control Balance at Baseline

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| **Outcome** | **ELA Only Control Mean** | **Boys-ELA** | **No Goal Control Mean** | **Goal - No Goal** |
| **A. Intimate Partner Violence** | | | | |
| Psychological abuse often | 0.017 | 0.006 | 0.018 | 0.006 |
| | | (0.008) | | (0.006) |
| Physical abuse often | 0.008 | 0.010 | 0.011 | 0.000 |
| | | (0.007) | | (0.004) |
| Forced sex often | 0.012 | 0.004 | 0.013 | -0.001 |
| | | (0.006) | | (0.004) |
| Psychological abuse in last year | 0.054 | 0.017 | 0.062 | 0.006 |
| | | (0.017) | | (0.010) |
| Physical abuse in last year | 0.045 | 0.011 | 0.053 | -0.007 |
| | | (0.016) | | (0.009) |
| Forced sex in last year | 0.035 | 0.006 | 0.040 | -0.007 |
| | | (0.013) | | (0.008) |
| **B. Sexual Activity** | | | | |
| Ever had sex | 0.250 | -0.001 | 0.261 | 0.006 |
| | | (0.035) | | (0.018) |
| Currently has partner | 0.212 | 0.011 | 0.230 | -0.006 |
| | | (0.034) | | (0.017) |
| Had partner past 2 years | 0.266 | 0.010 | 0.279 | 0.003 |
| | | (0.037) | | (0.019) |
| Total sex partners ever | 0.312 | 0.018 | 0.334 | 0.001 |
| | | (0.054) | | (0.026) |
| Hours with boyfriend in the past day | 0.030 | 0.014 | 0.041 | -0.002 |
| | | (0.013) | | (0.011) |
| Observations | 1,074 | 3,178 | 2,313 | 3,178 |
| $\chi^2$ p-value | | .535 | | .867 |

*Notes.* Column 1 shows control means for females in ELA only communities and column 3 shows control means for females not assigned to the *Goal* treatment. Columns 2 and 4 show the difference between the means in the corresponding community- or individual-level treatment arms and the corresponding control group means, controlling for the randomization strata. In Panel A, Psychological abuse often (in last year), Physical abuse often (in last year), and Forced sex often (in last year) are binary indicators for the female reporting experiencing psychological abuse, physical abuse, or forced sex often (in last year) within the 12 months prior to survey, respectively. In Panel B, the measures are binary indicators for the female reporting ever having sex, having a current partner, and having a partner in the past 2 years; and continuous indicators for total number of sex partners ever and reported hours spent with her boyfriend in the past day. Standard errors, clustered at the club level, are presented in parentheses below coefficient estimates in columns 2 and 4. The $\chi^2$ p-value in the last row is the p-value from a test of the joint significance of all outcomes in Panel A and B in predicting treatment assignment to the *Boys* arm in column 2 and to the *Goal* arm in column 4 using a logit model, controlling for randomization strata and clustering standard errors at the club level. .01 ***, .05 **, .10 *.
*Source.* Female baseline data.

**Table 2** Impact of Treatments on Intimate Partner Violence (IPV)

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | **Boys Treatment** | **Goal Treatment** | **Endline Control Mean** | **Observations** |
| A. Whole Sample | | | | |
| IPV often index | | | | |
| treatment x post | -0.229** | -0.298*** | 0.000 | 5,182 |
| | (0.100) | (0.108) | | |
| treatment x post x Goal | 0.110 | | | |
| | (0.173) | | | |
| IPV in last year index | | | | |
| treatment x post | -0.150* | -0.198* | -0.000 | 5,182 |
| | (0.078) | (0.112) | | |
| treatment x post x Goal | 0.114 | | | |
| | (0.140) | | | |
| Psych. abuse often | | | | |
| treatment x post | -0.011 | -0.012 | 0.026 | 5,182 |
| | (0.012) | (0.013) | | |
| treatment x post x Goal | -0.024 | | | |
| | (0.020) | | | |
| Physical abuse often | | | | |
| treatment x post | -0.018** | -0.020* | 0.019 | 5,182 |
| | (0.008) | (0.011) | | |
| treatment x post x Goal | 0.003 | | | |
| | (0.018) | | | |
| Force sex often | | | | |
| treatment x post | -0.028** | -0.035*** | 0.023 | 5,182 |
| | (0.011) | (0.013) | | |
| treatment x post x Goal | 0.035** | | | |
| | (0.014) | | | |
| Psych. abuse in last year | | | | |
| treatment x post | -0.029 | -0.024 | 0.086 | 5,182 |
| | (0.024) | (0.030) | | |
| treatment x post x Goal | -0.020 | | | |
| | (0.042) | | | |
| Physical abuse in last year | | | | |
| treatment x post | -0.037* | -0.019 | 0.062 | 5,182 |
| | (0.019) | (0.026) | | |
| treatment x post x Goal | 0.007 | | | |
| | (0.034) | | | |
| Force sex in last year | | | | |
| treatment x post | -0.028* | -0.059** | 0.045 | 5,182 |
| | (0.017) | (0.024) | | |
| treatment x post x Goal | 0.057** | | | |
| | (0.028) | | | |

*Notes.* This table presents estimates of $\beta_1$, $\beta_2$, and $\gamma_1$ from equation 1. For each outcome, the coefficients from a single regression are presented in two sub-rows, with estimates of $\beta_1$ in column 1 and $\beta_2$ in column 2, labeled treatment x post, and the estimate of $\gamma_1$ in the second of the two rows, labeled treatment x post x Goal. Column 3 presents the outcome mean at endline among females in ELA only communities who were not assigned to the *Goal* treatment, and column 4 shows the number of observations in the model. All specifications include controls for highest grade attended, whether the female's household owns the house she lives in, whether the female talks to her mom about sexual reproductive health topics, age of the female, and club fixed effects. IPV often (in last year) index is generated by taking the unweighted mean of the three indicators for each frequency set after they have been standardized to the mean and standard deviation among females in ELA only communities who were not assigned to the *Goal* treatment at baseline and endline separately. Standard errors, clustered at the club level, are presented in parentheses below the coefficient estimates in columns 1–2. .01 ***, .05 **, .10 *.
*Source.* Female baseline and endline data, balanced panel.

**Table 3** Impact of Treatments on Male IPV Attitudes and Perpetration (Male Data)

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | **Boys Treatment** | **Goal Treatment** | **Endline Control Mean** | **Observations** |
| Violence attitudes index | | | | |
| treatment x post | -0.290** | -0.066 | -0.000 | 2,314 |
| | (0.118) | (0.086) | | |
| treatment x post x Goal | 0.179 | | | |
| | (0.125) | | | |
| Tolerate violence from husband/partner | | | | |
| treatment x post | -0.174*** | -0.014 | 0.099 | 2,314 |
| | (0.050) | (0.038) | | |
| treatment x post x Goal | 0.069 | | | |
| | (0.062) | | | |
| Men can beat women under certain circumstances | | | | |
| treatment x post | -0.039 | -0.025 | 0.169 | 2,314 |
| | (0.072) | (0.053) | | |
| treatment x post x Goal | 0.056 | | | |
| | (0.070) | | | |
| IPV often index | | | | |
| treatment x post | 0.019 | -0.049 | 0.000 | 2,314 |
| | (0.094) | (0.087) | | |
| treatment x post x Goal | -0.090 | | | |
| | (0.139) | | | |
| IPV in last year index | | | | |
| treatment x post | 0.118 | -0.020 | 0.000 | 2,314 |
| | (0.146) | (0.153) | | |
| treatment x post x Goal | 0.058 | | | |
| | (0.222) | | | |

*Notes.* This table presents estimates of $\beta_1$, $\beta_2$, and $\gamma_1$ from equation 2. For each outcome defined, the coefficients from a single regression are presented in two sub-rows, with estimates of $\beta_1$ in column 1 and $\beta_2$ in column 2, labeled treatment x post, and the estimate of $\gamma_1$ in the second of the two rows, labeled treatment x post x Goal. Column 3 presents the outcome mean at endline in among males whose connected female is in a ELA only community and was not assigned to the *Goal* treatment and column 4 shows the number of observations in the model. All specifications include controls for age of the male, highest grade completed, a binary indicator that the male never talking to his father about sexual reproductive health topics, a binary indicator that the male's household owns the house he lives in, and region fixed effects. Tolerate violence from husband/partner is a binary indicator that male agrees that a female should tolerate violence, Men can beat women under certain circumstances is a binary indicator for the male disagreeing that "a man should not beat a woman under any circumstance," and the Violence Attitudes index is generated by taking the unweighted mean of the indicators after they have been standardized to the mean and standard deviation among males whose connected female is in a ELA only community and is not assigned to the *Goal* intervention at baseline and endline separately. Higher values of the index indicate greater taste for violence. IPV often (in last year) index is defined as for the females in Table 2, except the underlying questions are about the male's own perpetration of psychological, physical, and sexual abuse. Standard errors, clustered at the club level, are presented in parentheses below the coefficient estimates in columns 1–2. .01 ***, .05 **, .10 *.

*Source.* Male baseline and endline data, balanced panel.

**Table 4** Impact of Treatments on Sexual Activity

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | **Boys Treatment** | **Goal Treatment** | **Endline Control Mean** | **Observations** |
| A. Female Data | | | | |
| Sexual activity index | | | | |
| treatment x post | -0.125** | 0.065 | -0.000 | 5,182 |
| | (0.058) | (0.064) | | |
| treatment x post x Goal | -0.027 | | | |
| | (0.081) | | | |
| Ever had sex | | | | |
| treatment x post | -0.047 | 0.046 | 0.372 | 5,182 |
| | (0.031) | (0.031) | | |
| treatment x post x Goal | -0.009 | | | |
| | (0.041) | | | |
| Currently has partner | | | | |
| treatment x post | -0.110*** | 0.000 | 0.337 | 5,182 |
| | (0.036) | (0.044) | | |
| treatment x post x Goal | 0.027 | | | |
| | (0.056) | | | |
| Total sex partners ever | | | | |
| treatment x post | -0.025 | 0.088** | 0.491 | 5,182 |
| | (0.037) | (0.038) | | |
| treatment x post x Goal | -0.064 | | | |
| | (0.049) | | | |
| B. Male Data | | | | |
| Sexual activity index | | | | |
| treatment x post | -0.098 | -0.006 | -0.000 | 2,314 |
| | (0.078) | (0.071) | | |
| treatment x post x Goal | -0.009 | | | |
| | (0.106) | | | |
| Ever had sex | | | | |
| treatment x post | -0.028 | -0.006 | 0.610 | 2,314 |
| | (0.039) | (0.044) | | |
| treatment x post x Goal | 0.000 | | | |
| | (0.057) | | | |
| Currently has partner | | | | |
| treatment x post | -0.060 | -0.006 | 0.564 | 2,314 |
| | (0.056) | (0.045) | | |
| treatment x post x Goal | -0.044 | | | |
| | (0.065) | | | |
| Total sex partners ever | | | | |
| treatment x post | -0.116* | 0.003 | 0.820 | 2,314 |
| | (0.067) | (0.063) | | |
| treatment x post x Goal | 0.081 | | | |
| | (0.087) | | | |

*Notes.* This table presents the estimates of $\beta_1$, $\beta_2$, and $\gamma_1$ from equation 1 in Panel A and from equation 2 in Panel B. See notes from Table 2 for detail on table structure and control variables in Panel A and notes from Table 3 for detail on table structure and control variables in Panel B. Ever had sex is an indicator that the female (male) has ever had sex, currently has partner is an indicator that the female (male) currently has a partner, and total sex partners ever is the total number of sex partners the female (male) reports. Sexual activity index is the unweighted mean of the indicators after they have been standardized at baseline and endline separately to the mean and standard deviation among females (Panel A) or males (Panel B) in ELA only communities among females who were not assigned to the *Goal* treatment (or among males whose connected female was in a ELA only community and not assigned to the *Goal* treatment). Standard errors, clustered at the club level, are presented in parentheses below coefficient estimatesin columns 1–2. .01 ***, .05 **, .10 *.

*Source.* Panel A: Female baseline and endline data, balanced panel. Panel B: Male baseline and endline data, balanced panel.

**Table 5** Impact of Treatments on Male SRH Perceptions (Male Data)

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | **Boys Treatment** | **Goal Treatment** | **Endline Control Mean** | **Observations** |
| SRH perceptions index | | | | |
| treatment x post | 0.293*** | -0.022 | -0.000 | 2,314 |
| | (0.076) | (0.106) | | |
| treatment x post x goal | 0.073 | | | |
| | (0.140) | | | |
| Female friend somewhat or very likely to have STI | | | | |
| treatment x post | 0.140** | 0.053 | 0.581 | 2,314 |
| | (0.058) | (0.074) | | |
| treatment x post x goal | 0.001 | | | |
| | (0.099) | | | |
| Over 15% of males have an STI | | | | |
| treatment x post | 0.123* | -0.019 | 0.308 | 2,314 |
| | (0.064) | (0.072) | | |
| treatment x post x goal | 0.070 | | | |
| | (0.095) | | | |
| Girls have a right to ask to use a condom | | | | |
| treatment x post | 0.122* | -0.066 | 0.797 | 2,314 |
| | (0.064) | (0.054) | | |
| treatment x post x Goal | 0.030 | | | |
| | (0.074) | | | |

*Notes.* This table presents estimates of $\beta_1$, $\beta_2$, and $\gamma_1$ from equation 2. See notes from Table 3 for detail on table structure and control variables. Female friend somewhat or very likely to have STI is an indicator for believing that female friends are somewhat or very likely to have an STI (versus 'not likely'). Over 15% of males have an STI is an indicator that a male responded that out of 100 of their male peers, more than 15 of them have an STI (the median response), and Girls have a right to ask to use a condom is a binary indicator that the male agrees that females have a right to ask to use a condom. The SRH perceptions index is the unweighted mean of the indicators after they have been standardized at baseline and endline separately to the mean and standard deviation among males whose connected female is in a ELA only community and was not assigned to the *Goal* treatment. Standard errors, clustered at the club level, are presented in parentheses below coefficient estimates in columns 1–2. .01 ***, .05 **, .10 *.

*Source.* Male baseline and endline data, balanced panel.

**Table 6** Impact of Treatment on Partner Churn and Quality of Sex Partners

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | **Boys Treatment** | **Goal Treatment** | **Endline Control Mean** | **Observations** |
| A. Partner Churn | | | | |
| With same partner as baseline | | | | |
| treatment | -0.020 | -0.039* | 0.117 | 2,591 |
| | (0.021) | (0.021) | | |
| treatment x Goal | 0.057* | | | |
| | (0.031) | | | |
| B. Partner Quality | | | | |
| Quality index | | | | |
| treatment x post | -0.089 | 0.218** | -0.000 | 1,711 |
| | (0.080) | (0.089) | | |
| treatment x post x Goal | -0.105 | | | |
| | (0.132) | | | |
| His age | | | | |
| treatment x post | 0.114 | -0.488 | 24.998 | 1,711 |
| | (0.537) | (0.410) | | |
| treatment x post x Goal | 0.318 | | | |
| | (0.580) | | | |
| Dropout/never enroll | | | | |
| treatment x post | -0.007 | -0.047** | 0.041 | 1,711 |
| | (0.023) | (0.023) | | |
| treatment x post x Goal | 0.042 | | | |
| | (0.036) | | | |
| Use contraceptive | | | | |
| treatment x post | -0.174** | 0.057 | 0.620 | 1,711 |
| | (0.078) | (0.071) | | |
| treatment x post x Goal | 0.078 | | | |
| | (0.105) | | | |

*Notes.* In Panel A, the reported coefficients are $\beta_1$, $\beta_2$, and $\gamma_1$ from an adapted version of equation 1 where the outcome variable "With same partner as baseline" is the change in partnership status from baseline to endline. Panel B presents estimates of $\beta_1$, $\beta_2$, and $\gamma_1$ from equation 1. Age is the average age in years of all sexual partners listed; Dropout/Never Enrolled is the share of sexual partners listed whose enrollment status is dropped out or never enrolled in school; and Use contraceptive is the share of sexual partners that the female reports use contraceptives. The Quality index is generated by taking the unweighted mean of the indicators after they have each been recoded so that positive coefficients indicate improved outcomes and standardized at baseline and endline separately to the mean and standard deviation among females in ELA only communities who were not assigned to the *Goal* treatment. Standard errors, clustered at the club level, are presented in parentheses below the coefficient estimates in columns 1–2. .01 ***, .05 **, .10 *.

*Source.* Panel A: Female data, outcome from endline, controls from baseline, balanced panel. Panel B: Female baseline and endline data, balanced panel. Sample is restricted to females in the balanced panel who list at least one sexual partner at baseline or endline.

**Table 7** Attrition: Female Sample

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | ×**Boys**×**Goal** | ×**Boys** | ×**Goal** | **Levels** |
| Panel A. Differential Attrition by Treatment Status, fully-interacted | | | | |
| Boys | | | -0.031 | -0.012 |
| | | | (0.038) | (0.032) |
| Goal | | | | 0.005 |
| | | | | (0.025) |
| Panel B. Differential Attrition by Treatment Status and Key Measures | | | | |
| Never talk to mom about SRH | 0.033 | -0.014 | -0.056 | 0.001 |
| | (0.094) | (0.050) | (0.078) | (0.041) |
| Age | -0.010 | 0.008 | -0.001 | -0.000 |
| | (0.012) | (0.010) | (0.008) | (0.007) |
| Highest grade | 0.019 | -0.016 | -0.003 | 0.006 |
| | (0.014) | (0.010) | (0.010) | (0.008) |
| Married or cohabiting | -0.076 | -0.011 | -0.082 | 0.021 |
| | (0.101) | (0.085) | (0.065) | (0.065) |
| Own house | 0.091 | -0.058 | -0.076 | 0.027 |
| | (0.080) | (0.041) | (0.054) | (0.029) |
| House has electricity | 0.057 | -0.027 | 0.011 | 0.020 |
| | (0.066) | (0.045) | (0.040) | (0.030) |
| Number of household members | -0.044 | -0.004 | 0.009 | -0.008 |
| | (0.028) | (0.016) | (0.019) | (0.011) |
| Boys | | | 0.004 | 0.077 |
| | | | (0.196) | (0.154) |
| Goal | | | | 0.108 |
| | | | | (0.112) |
| Observations | | 3,178 | | |

*Notes.* Each panel presents coefficients from a separate regression where the outcome, $Y_{ic}$, is an indicator equal to 1 if the female was not resurveyed at endline. In each panel, the rows list variables included in the model, and the columns indicate interaction terms. Column 1 presents coefficient estimates on interactions between the row variables and a treatment indicator of being assigned to both the *Boys* and *Goal* treatment, column 2 presents estimates of coefficients on interactions of the row variables with being assigned to the *Boys* treatment, column 3 presents estimates of coefficients on interactions of the row variables with being assigned to the *Goal* treatment, and column 4 presents estimates of coefficients on level controls of the variables at the start of the rows. Standard errors, clustered at the club level, are presented in parentheses below the coefficient estimates. .01 ***, .05 **, .10 *.
*Source.* Female baseline data.

**Table 8** Attrition: Male Sample (Male Data)

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | **×Boys×Goal** | **×Boys** | **×Goal** | **Levels** |
| Panel A. Differential Attrition by Treatment Status, fully-interacted | | | | |
| Boys | | | -0.001 | -0.006 |
| | | | (0.031) | (0.021) |
| Goal | | | | -0.009 |
| | | | | (0.027) |
| Panel B. Differential Attrition by Treatment Status and Key Measures | | | | |
| Never talk to dad about SRH | -0.069 | 0.014 | 0.088 | -0.062 |
| | (0.-78) | (0.067) | (0.065) | (0.058) |
| Age | 0.018* | 0.002 | -0.013 | -0.001 |
| | (0.010) | (0.006) | (0.009) | (0.005) |
| Highest grade | -0.004 | -0.010 | 0.009 | -0.000 |
| | (0.014) | (0.011) | (0.013) | (0.011) |
| Married or cohabiting | -0.113 | -0.070 | 0.167 | 0.026 |
| | (0.160) | (0.057) | (0.143) | (0.046) |
| Own house | 0.038 | -0.079 | -0.040 | 0.050 |
| | (0.103) | (0.056) | (0.079) | (0.046) |
| House has electricity | -0.138 | 0.030 | 0.075 | -0.025 |
| | (0.100) | (0.043) | (0.079) | (0.035) |
| Number of household members | 0.031 | 0.011 | -0.005 | -0.005 |
| | (0.030) | (0.015) | (0.025) | (0.014) |
| Boys | | | -0.221 | 0.023 |
| | | | (0.227) | (0.129) |
| Goal | | | | 0.044 |
| | | | | (0.200) |
| Observations | | 1,466 | | |

*Notes.* Each panel presents coefficients from a separate regression where the outcome, $Y_{ic}$, is an indicator equal to 1 if the male was not resurveyed at endline. In each panel, the rows list variables included in the modell, and the columns indicate interaction terms. Column 1 presents coefficient estimates on interactions between the row variables and a treatment indicator of being assigned to both the *Boys* and *Goal* treatment, column 2 presents estimates of coefficients on interactions of the row variables with being assigned to the *Boys* treatment, column 3 presents estimates of coefficients on interactions of the row variables with being assigned to the *Goal* treatment, and column 4 presents estimates of coefficients on level controls of the variables at the start of the rows. Standard errors, clustered at the club level, are presented in parentheses below the coefficient estimates. .01 ***, .05 **, .10 *.

*Source.* Male baseline data.

## Appendix A: Figures and Tables

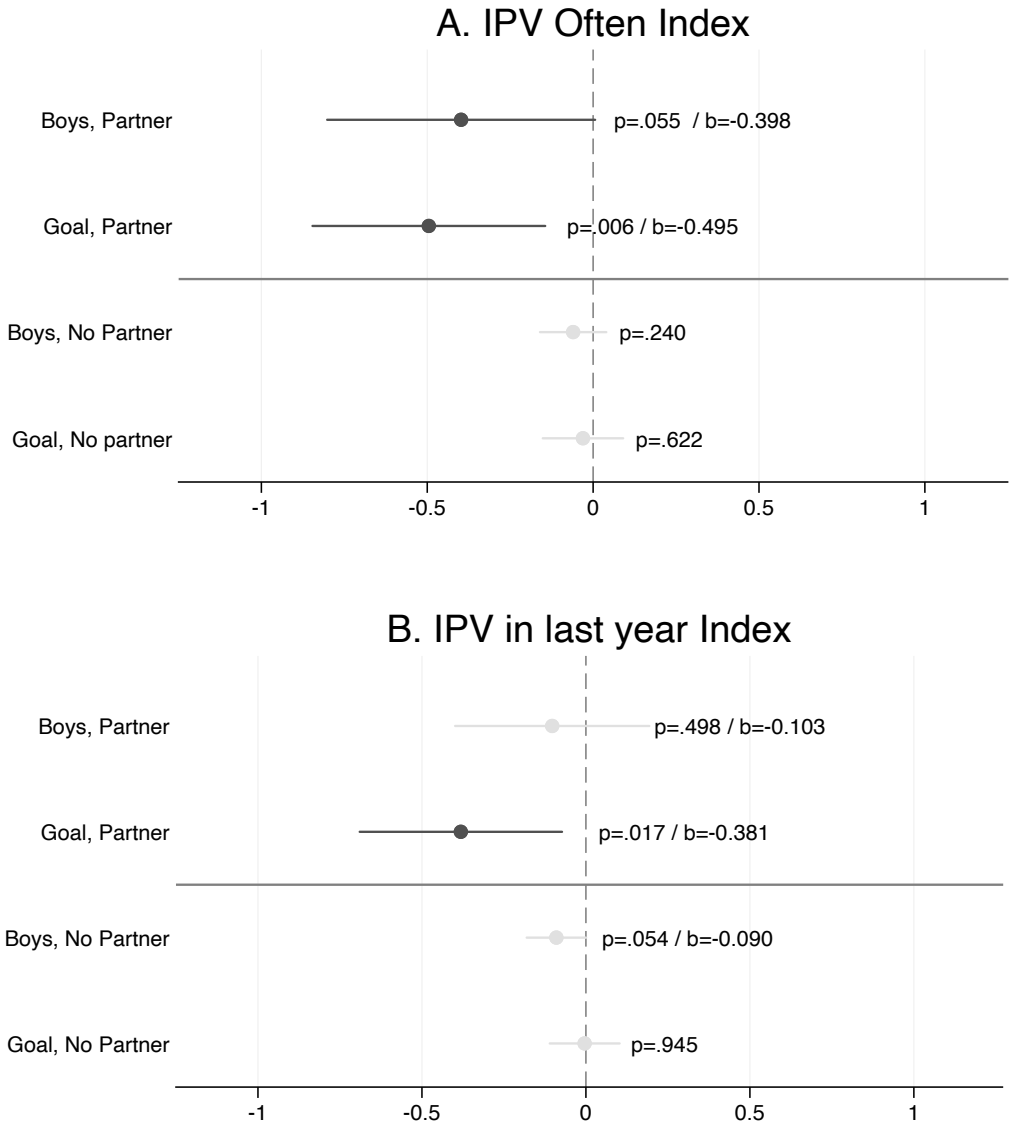


**Figure A1** Impact of treatments on IPV, heterogeneity by had partner in past two years at baseline

*Notes.* This figure presents estimates of $\beta_1$ and $\beta_2$ and from equation 1. Panel A presents estimates for the IPV often index and Panel B presents estimates for the IPV in last year index. The indices are centered on females in the ELA only communities who had a partner in the past two years at baseline and were not assigned to the *Goal* treatment. Bolded markers are statistically significant at $p < 0.1$. $p$-values and coefficient estimates are displayed beside each marker.
*Source.* Female baseline and endline data, balanced panel. The sample in the top half of each panel is restricted to females who had a partner in the past two years at baseline. The sample in the bottom half of each panel is restricted to females who did not have a partner in the past two years at baseline.

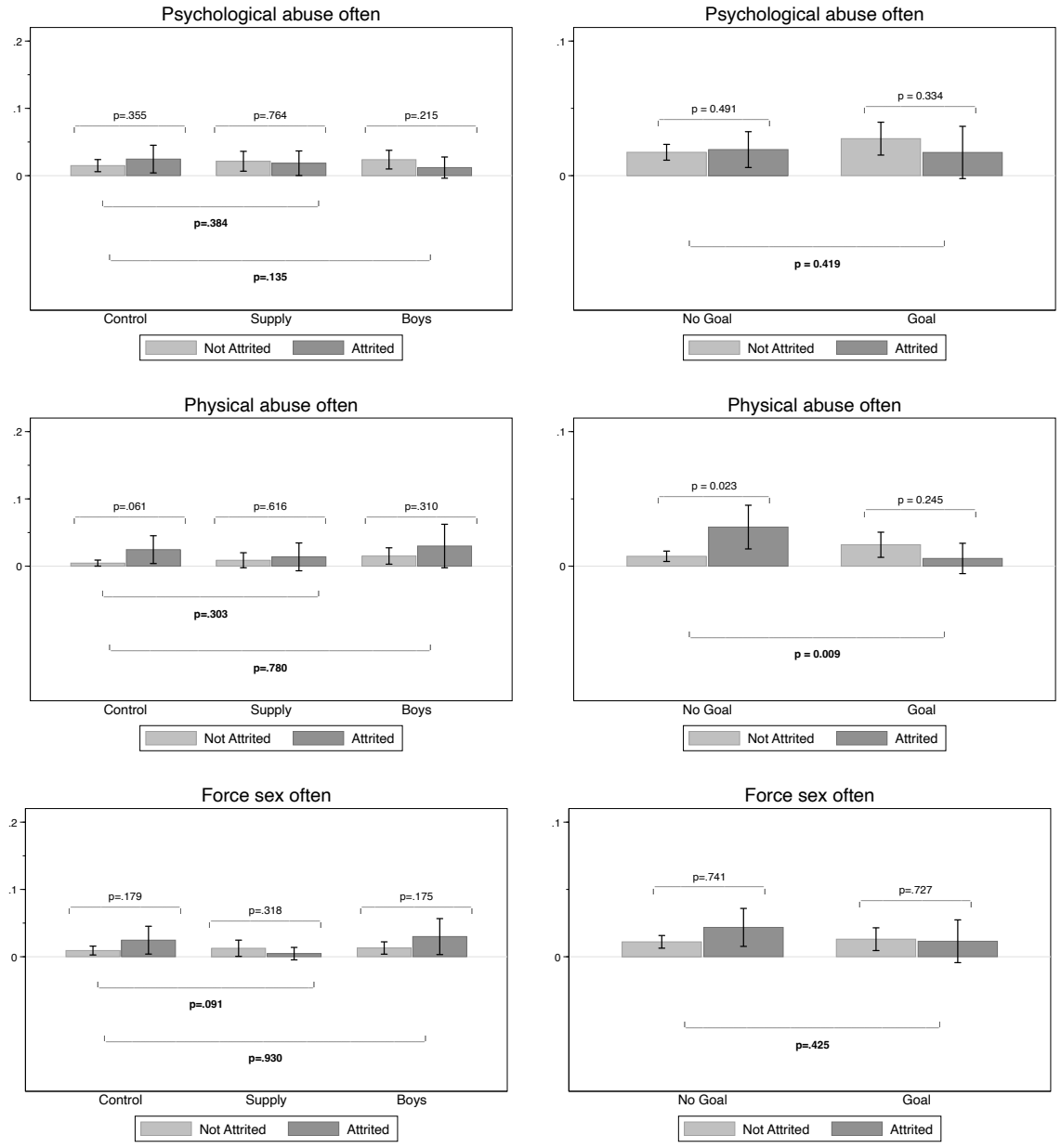


**Figure A2** Baseline outcomes by attrition status: IPV

*Notes.* This figure shows the mean of each specified outcome among females who attrited and those who did not by treatment status. The left-side column presents these means for each community-level treatment arm, specified on the x-axis. Above the mean bars are $p$-values for tests of equality between the means of attrited and non-attrited females. Below the mean bars are $p$-values for tests that attrition differed between treatment arms, first comparing the *Supply* arm to ELA only communities and then comparing the *Boys* arm to the ELA only communities. The right-side column presents the outcome means by attritor and non-attritor status for females assigned to the *Goal* treatment and those who were not, separately. Above the mean bars are $p$-values for tests of equality of means between attritors and non-attritors within each arm. Below the mean bars is a $p$-value from a test that attrition differed between females who were assigned to *Goal* and those who were not.
*Source.* Female baseline data.

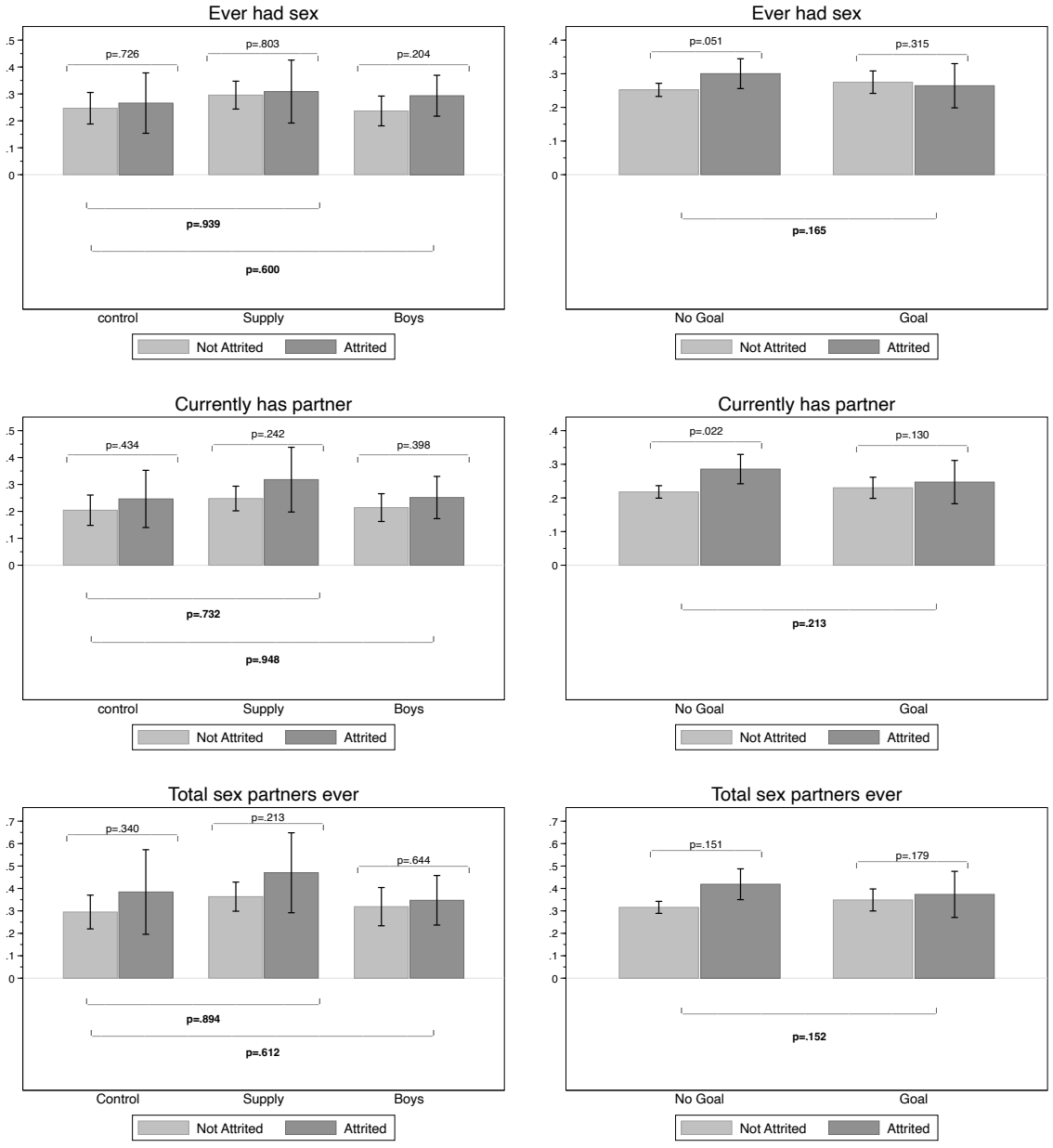


**Figure A3** Baseline outcomes by attrition status: Sexual activity

*Notes.* See notes from Figure A2.
*Source.* Female baseline data.

**Table A1** External Validity: Comparison of our sample to random sample of females in same communities

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | **Baseline Mean** | **Buehren et al. (2017) Baseline Mean** | **Buehren et al. (2017) Baseline Control Mean** | **(1)-(2) p-value** | **(1)-(3) p-value** |
| Age | 16.355 | 16.676 | 16.621 | .023 | .097 |
| Married | 0.044 | 0.022 | 0.024 | .024 | .052 |
| Own house | 0.605 | 0.606 | 0.626 | .951 | .560 |
| Has child | 0.089 | 0.068 | 0.073 | .115 | .283 |
| Ever had sex | 0.241 | 0.228 | 0.242 | .557 | .948 |
| Use condom | 0.182 | 0.188 | 0.189 | .739 | .765 |
| Highest grade | 8.273 | 8.342 | 8.239 | .648 | .835 |
| Dropout | 0.236 | 0.212 | 0.217 | .243 | .438 |
| Never enrolled | 0.012 | 0.015 | 0.019 | .518 | .234 |
| Observations | 1,621 | 4,954 | 1,708 | | |

*Notes.* Column 1 shows baseline means among females in Dodoma and Iringa in the current study sample, collected in 2016. Columns 2 and 3 show baseline means (before ELA clubs were established) among females in the Buehren et al. (2017) study, collected in 2009. The Buehren et al. (2017) sample comprises a random sample of adolescent females from the same communities as the current study in Dodoma and Iringa. Buehren et al. (2017) treatment communities are where ELA clubs were eventually established. Column 2 shows means using the entire baseline sample from Buehren et al. (2017). Column 3 shows means using baseline data restricted to the Buehren et al. (2017) control communities. Column 4 presents the p-values from a test of equality between the means in columns 1 and 2. Column 5 presents the p-values from a test of equality between the means in columns 1 and 3. The latter comparison is made to alleviate concern that communities where clubs are established are different from surrounding communities. Age is age in years; Married is an indicator that the female is married; Own house is an indicator that the female's household owns the house she lives in; Has child is an indicator that the female has a child; Ever had sex is an indicator that the female has ever had sex; Use condom is an indicator that the female uses a condom during sexual intercourse; Highest grade is the highest grade completed by the female; Dropout is an indicator that the female dropped out of school; and Never enrolled is an indicator that the female was never enrolled in school.
*Source.* Column 1: Female baseline data, restricted to females in Dodoma and Iringa. Columns 2–3: Buehren et al. (2017) female baseline data. In columns 1–3, the sample is restricted to females aged 13-22 in order for their to be a common age range across samples.

**Table A2** Predictors of Boys Participation in Boys Soccer Treatment

| | (1) | (2) |
|---|---|---|
| | **Contacted by GRS** | **Enrolled in GRS** |
| Enrolled in school | 0.076 | 0.133** |
| | (0.048) | (0.058) |
| Own house | 0.037 | -0.054 |
| | (0.040) | (0.040) |
| Never talk to dad about SRH | -0.026 | -0.000 |
| | (0.050) | (0.056) |
| Age | 0.027*** | 0.001 |
| | (0.004) | (0.004) |
| House has electricity | -0.021 | 0.033 |
| | (0.043) | (0.041) |
| Number of household members | 0.001 | 0.040** |
| | (0.015) | (0.018) |
| Iringa | -0.246*** | 0.078 |
| | (0.081) | (0.079) |
| Mbeya | -0.084 | 0.131** |
| | (0.083) | (0.062) |
| Outcome mean | 0.679 | 0.352 |
| Observations | 787 | 787 |

*Notes.* In column 1, the outcome is an indicator that the GRS team had a record of contacting the male in our study sample, and, in column 2, the outcome is an indicator that the GRS team recorded enrolling the male in our study sample. The coavariates in the rows are a binary indicator that the male is enrolled in school, a binary indicator that the male's household owns the house he lives in, a binary indicator that the male never talks to his dad about SRH topics, age of the male, a binary indicator that the male's house has electricity, number of household members, and indicators for region of residence. Standard errors, clustered at the club level, are presented in parentheses below the coefficient estimates. .01 ***, .05 **, .10 *.

*Source.* Male baseline data, restricted to males in the *Boys* treatment arm.

**Table A3** Predictors of Achieving Goal

| | (1) | (2) |
|---|---|---|
| | **Number of Strategies Set** | **Number of Strategies Achieved** |
| Major depressive disorder likely | -0.235* | -0.219* |
| | (0.121) | (0.127) |
| Self-efficacy | 0.103*** | 0.102*** |
| | (0.036) | (0.035) |
| Will take risk (top quintile) | 0.055 | -0.002 |
| | (0.057) | (0.067) |
| Impatient now and patient later | -0.028 | -0.018 |
| | (0.076) | (0.082) |
| Age | -0.002 | 0.008 |
| | (0.009) | (0.013) |
| Currently enrolled in school | -0.185 | -0.168 |
| | (0.114) | (0.135) |
| Completed school | -0.093 | -0.054 |
| | (0.106) | (0.125) |
| Household has electricity | -0.044 | 0.021 |
| | (0.051) | (0.055) |
| Household has earthen floor | -0.232*** | -0.121 |
| | (0.065) | (0.088) |
| Outcome mean | 1.772 | 1.640 |
| Observations | 789 | 644 |

*Notes.* The outcome in column 1 is the number of strategies the female set and committed to during the goal setting activity, ranging from 1 to 3 strategies; the outcome in column 2 is the number of strategies that the female reports she achieved at the endline survey, ranging from 0 to 3 strategies. The covariates are from the baseline survey (age, currently enrolled in school, completed school, household has electricity, household has earthen floor) or the goal setting activity, 1st visit (major depressive disorder likely, self-efficacy, will take risk). Major depressive disorder likely is a binary indicator measured using the Patient Health Questionnaire-2 (PHQ-2), where a score of 3 or higher is indicative of depression. Self-efficacy is measured using the General Self-Efficacy Scale developed by Schwarzer and Jerusalem (1995). This scale generates a total self-efficacy score that ranges from 10-40, which we standardized using the mean and standard deviation among females in ELA only communities. Will take risk is based on a question that asked females how willing they were to take risks on a scale from 1 to 10. We generate a binary indicator equal to one if the female gave an answer in the top quintile of responses. Age is age in years at the time of baseline, and currently enrolled in school, completed school, household has electricity, and household has earthen floor are binary indicators. Standard errors, clustered at the club level, are presented in parentheses below coefficient estimates. .01 ***, .05 **, .10 *.
*Source.* Column 1: Female goal setting participants, 1st visit. Column 2: Female goal setting participants, endline data.

**Table A4** Impact of Treatment on Intimate Partner Violence (IPV), Separating Goal into High and Low Strategies

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | **Boys Treatment** | **2-3 strategy Treatment** | **1 strategy Treatment** | **Endline Control Mean** | **Observations** |
| IPV often index | | | | | |
| treatment x post | -0.229** | -0.404*** | -0.134 | 0.000 | 5,182 |
| | (0.100) | (0.130) | (0.112) | | |
| treatment x post x Goal | 0.121 | | | | |
| | (0.170) | | | | |
| IPV in last year index | | | | | |
| treatment x post | -0.150* | -0.242** | -0.129 | -0.000 | 5,182 |
| | (0.078) | (0.122) | (0.120) | | |
| treatment x post x Goal | 0.118 | | | | |
| | (0.140) | | | | |

*Notes.* This table presents estimates of a modified specification of equation 1 that splits the goal treatment indicator into two mutually exclusive categories for females assigned to the *Goal* arm: set 2 or 3 strategies or set 0 or 1 strategy. For each outcome defined at the start of the rows, the coefficients from a single regression are presented in two sub-rows, with estimates of $\beta_1$ in column 1 and the coefficients on the two *Goal* arm indicators in columns 2 and 3 in the first of the two rows, labeled treatment x post, and the estimate of $\gamma_1$ in the second of the two rows, labeled treatment x post x Goal. Column 4 presents the outcome mean at endline among females in ELA only communities who were not assigned to the *Goal* treatment, and column 5 shows the number of observations in the model. See notes for Table 2 for detail on outcome definitions and control variables. Standard errors, clustered at the club level, are presented in parentheses below coefficient estimates in columns 1–2. .01 ***, .05 **, .10 *.
*Source.* Female baseline and endline data, balanced panel.

**Table A5** Impact of Treatments on Males: IPV Attitudes and Perpetration (Restricted to Ever had Sex at Baseline, Male Data)

| | (1) | (4) | (3) | (4) |
|---|---|---|---|---|
| | **Boys Treatment** | **Goal Treatment** | **Endline Control Mean** | **Observations** |
| Violence attitudes index | | | | |
| treatment x post | -0.413*** | -0.100 | -0.000 | 1,100 |
| | (0.138) | (0.143) | | |
| treatment x post x goal | 0.205 | | | |
| | (0.206) | | | |
| Tolerate violence from husband/partner | | | | |
| treatment x post | -0.204*** | -0.057 | 0.107 | 1,100 |
| | (0.062) | (0.061) | | |
| treatment x post x goal | 0.069 | | | |
| | (0.086) | | | |
| Men can beat women under certain circumstances | | | | |
| treatment x post | -0.069 | -0.008 | 0.214 | 1,100 |
| | (0.088) | (0.079) | | |
| treatment x post x goal | 0.072 | | | |
| | (0.115) | | | |
| IPV often index | | | | |
| treatment x post | 0.015 | -0.060 | 0.000 | 1,100 |
| | (0.133) | (0.122) | | |
| treatment x post x goal | -0.169 | | | |
| | (0.171) | | | |
| IPV in last year index | | | | |
| treatment x post | 0.109 | -0.010 | -0.000 | 1,100 |
| | (0.201) | (0.204) | | |
| treatment x post x goal | -0.001 | | | |
| | (0.270) | | | |
| Girls have a right to ask to use a condom | | | | |
| treatment x post | 0.106 | -0.002 | 0.881 | 1,100 |
| | (0.091) | (0.081) | | |
| treatment x post x goal | -0.026 | | | |
| | (0.098) | | | |

*Notes.* This table presents estimates of $\beta_1$, $\beta_2$, and $\gamma_1$ from equation 2. See notes from Table 3 for detail on table structure, outcome definitions, and control variables. Standard errors, clustered at the club level, are presented in parentheses below coefficient estimates in columns 1–2. .01 ***, .05 **, .10 *.

*Source.* Male baseline and endline data, balanced panel, but restricted to males who had ever had sex at baseline.

**Table A6** Impact of Boys Treatment Among Enrolled

| | (1) | (2) | (3) |
|---|---|---|---|
| | **Boys Enrolled** | **Endline Control Mean** | **Observations** |
| **A. Female Data** | | | |
| IPV often index | | | |
| treatment x post | -0.288 | 0.000 | 3,662 |
| | (0.184) | | |
| IPV in last year index | | | |
| treatment x post | -0.312** | -0.000 | 3,662 |
| | (0.144) | | |
| Sexual activity index | | | |
| treatment x post | -0.297*** | -0.000 | 3,662 |
| | (0.060) | | |
| **B. Male Data** | | | |
| Violence attitudes index | | | |
| treatment x post | -0.442*** | -0.000 | 1,542 |
| | (0.141) | (0.086) | |
| IPV often index | | | |
| treatment x post | 0.020 | 0.000 | 1,542 |
| | (0.091) | (0.087) | |
| IPV in last year index | | | |
| treatment x post | 0.088 | 0.000 | 1,542 |
| | (0.166) | (0.153) | |
| Sexual activity index | | | |
| treatment x post | -0.097 | -0.000 | 1,542 |
| | (0.096) | (0.071) | |

*Notes.* The table presents estimates of $\beta_1$ in column 1 from estimating equation 1 in Panel A and equation 2 in Panel B. Column 2 presents the outcome mean at endline in ELA only communities among females (males) who were not assigned to the *Goal* treatment (whose connected female was not assigned to the *Goal* treatment), and column 3 shows the number of observations. See Tables 2 and 3 for outcome definitions and control variables. Standard errors, clustered at the club level, are presented in parentheses below coefficients estimates in column 1. .01 ***, .05 **, .10 *.

*Source.* Panel A: Female baseline and endline data, balanced panel. Panel B: Male baseline and endline data, balanced panel. The sample in the *Boys* treatment arm is restricted to females with males in their network who enrolled in *Boys* treatment in Panel A and to males who enrolled in *Boys* treatment in Panel B.

**Table A7** Impact of Treatments on Female Time Use

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | **Boys Treatment** | **Goal Treatment** | **Endline Control Mean** | **Observations** |
| **In the past day, hours spent...** | | | | |
| Sleeping | | | | |
| treatment x post | -0.349 | 0.052 | 8.936 | 5,182 |
| | (0.234) | (0.202) | | |
| treatment x post x Goal | -0.162 | | | |
| | (0.266) | | | |
| In school | | | | |
| treatment x post | 0.448 | -0.154 | 3.970 | 5,182 |
| | (0.335) | (0.303) | | |
| treatment x post x Goal | 0.149 | | | |
| | (0.416) | | | |
| Studying | | | | |
| treatment x post | 0.285** | -0.132 | 0.750 | 5,182 |
| | (0.127) | (0.116) | | |
| treatment x post x Goal | 0.159 | | | |
| | (0.173) | | | |
| On sports/ leisure | | | | |
| treatment x post | 0.157 | 0.197 | 1.238 | 5,182 |
| | (0.147) | (0.142) | | |
| treatment x post x Goal | -0.295 | | | |
| | (0.206) | | | |
| Doing domestic tasks | | | | |
| treatment x post | -0.267 | 0.404* | 3.341 | 5,182 |
| | (0.242) | (0.231) | | |
| treatment x post x Goal | -0.131 | | | |
| | (0.292) | | | |
| Working on family farm | | | | |
| treatment x post | -0.017 | 0.009 | 0.156 | 5,182 |
| | (0.067) | (0.047) | | |
| treatment x post x Goal | -0.112 | | | |
| | (0.074) | | | |
| On income generating activities | | | | |
| treatment x post | -0.004 | -0.326 | 0.835 | 5,182 |
| | (0.219) | (0.231) | | |
| treatment x post x Goal | 0.267 | | | |
| | (0.294) | | | |
| Praying | | | | |
| treatment x post | -0.024 | -0.395* | 0.695 | 5,182 |
| | (0.187) | (0.209) | | |
| treatment x post x Goal | 0.292 | | | |
| | (0.269) | | | |
| With boyfriend | | | | |
| treatment x post | -0.147*** | -0.015 | 0.212 | 5,182 |
| | (0.055) | (0.049) | | |
| treatment x post x Goal | 0.059 | | | |
| | (0.057) | | | |

*Notes.* This table presents estimates of $\beta_1$, $\beta_2$, and $\gamma_1$ from equation 1. See notes for Table 2 on table structure and control variables. The outcomes are the hours the female reports spending in each category on the day prior to survey. Standard errors, clustered at the club level, are presented in parentheses below coefficient estimates in columns 1–2. .01 ***, .05 **, .10 *.

*Source.* Female baseline and endline data, balanced panel.

**Table A8** Impact of Treatments on Male Time Use (Male Data)

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | **Boys Treatment** | **Goal Treatment** | **Endline Control Mean** | **Observations** |
| **In the past day, hours spent...** | | | | |
| Sleeping | | | | |
| treatment x post | -0.324 | 0.160 | 8.407 | 2,314 |
| | (0.267) | (0.255) | | |
| treatment x post x Goal | -0.003 | | | |
| | (0.359) | | | |
| In school | | | | |
| treatment x post | -0.198 | -0.410 | 3.017 | 2,314 |
| | (0.336) | (0.252) | | |
| treatment x post x Goal | 0.290 | | | |
| | (0.394) | | | |
| Studying | | | | |
| treatment x post | 0.095 | -0.065 | 0.936 | 2,314 |
| | (0.170) | (0.160) | | |
| treatment x post x Goal | 0.199 | | | |
| | (0.192) | | | |
| On sports/ leisure | | | | |
| treatment x post | 0.602** | 0.333 | 2.262 | 2,314 |
| | (0.236) | (0.234) | | |
| treatment x post x Goal | -0.403 | | | |
| | (0.386) | | | |
| Doing domestic tasks | | | | |
| treatment x post | -0.233 | 0.093 | 0.994 | 2,314 |
| | (0.226) | (0.200) | | |
| treatment x post x Goal | 0.514** | | | |
| | (0.243) | | | |
| Working on family farm | | | | |
| treatment x post | 0.109 | 0.330* | 0.273 | 2,314 |
| | (0.136) | (0.173) | | |
| treatment x post x Goal | -0.204 | | | |
| | (0.217) | | | |
| On income generating activities | | | | |
| treatment x post | 0.096 | -0.632 | 4.337 | 2,314 |
| | (0.429) | (0.433) | | |
| treatment x post x Goal | 0.020 | | | |
| | (0.573) | | | |
| Praying | | | | |
| treatment x post | -0.078 | -0.810* | 4.273 | 2,314 |
| | (0.477) | (0.424) | | |
| treatment x post x Goal | 0.252 | | | |
| | (0.580) | | | |
| With girlfriend | | | | |
| treatment x post | 0.017 | 0.135 | 0.343 | 2,314 |
| | (0.083) | (0.102) | | |
| treatment x post x Goal | -0.127 | | | |
| | (0.143) | | | |

*Notes.* This table presents estimates of $\beta_1$, $\beta_2$, and $\gamma_1$ from equation 2. See notes for Table 3 on table structure and control variables. The outcomes are the hours the male reports spending in each category on the day prior to survey. Standard errors, clustered at the club level, are presented in parentheses below coefficient estimates in columns 1–2. .01 ***, .05 **, .10 *.

*Source.* Male baseline and endline data, balanced panel.

**Table A9** Secular Trends in IPV in ELA Only Communities

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | **IPV often index** | | **IPV in last year index** | |
| | **Non-Goal** | **Goal** | **Non-Goal** | **Goal** |
| Post | -0.033 | -0.350*** | -0.071 | -0.296*** |
| | (0.059) | (0.107) | (0.060) | (0.102) |
| Observations | 1,285 | 458 | 1,285 | 458 |

*Notes.* Each column in this table presents coefficient estimates of $\theta_1$ from a separate estimation of the following specification: $Y_{ic} = \alpha + \theta_1 Post_t + \psi age_i + \epsilon_{ic}$. In columns 1 and 3, the sample is restricted to non-goal setting participants in ELA only communities. In columns 2 and 4, the sample is restricted to goal setting participants in ELA only communities. The outcome in columns 1 and 2 is the IPV often index and the outcome in Columns 3 and 4 is the IPV in last year index. Standard errors, clustered at the club level, are presented in parentheses below coefficient estimates. .01 ***, .05 **, .10 *.
*Source.* Female baseline and endline data, balanced panel, restricted to females in ELA only communities.

**Table A10** Impact of Treatments on Intimate Partner Violence (Restricted to those who report sometimes or never condom use at baseline)

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | **Boys Treatment** | **Goal Treatment** | **Endline Control Mean** | **Observations** |
| IPV often index | | | | |
| treatment x post | -0.155 | -0.034 | 0.000 | 760 |
| | (0.223) | (0.218) | | |
| treatment x post x Goal | -0.195 | | | |
| | (0.362) | | | |
| IPV in last year index | | | | |
| treatment x post | -0.333 | -0.462* | -0.000 | 760 |
| | (0.240) | (0.265) | | |
| treatment x post x Goal | 0.277 | | | |
| | (0.378) | | | |

*Notes.* This table presents coefficient estimates of $\beta_1$, $\beta_2$, and $\gamma_1$ from equation 1. See notes for Table 2 for details on table structure, control variables, and outcome definitions. Indices are centered around females in ELA only communities who report sometimes or never using a condom and were not assigned to the *Goal* treatment, at baseline and endline separately. Standard errors, clustered at the club level, are presented in parentheses below coefficient estimates in columns 1–2. .01 ***, .05 **, .10 *.
*Source.* Female baseline and endline data, balanced panel, restricted to females who report either sometimes or never using a condom at baseline.

## Appendix B: Balance Tables

**Table B1** Impacts of *Supply* Treatment on Contraceptive Uptake

| | | (1) | (2) | (3) |
|---|---|---|---|---|
| **Outcome** | **Time** | **ELA Only Control Mean** | **Supply** | **DD** |
| **Panel A. Whole Sample** | | | | |
| Injectable | Baseline | 0.021 | 0.026 | |
| | Endline | 0.024 | 0.021 | -0.008 |
| | | | | (0.008) |
| Implant | Baseline | 0.007 | 0.011 | |
| | Endline | 0.008 | 0.022 | 0.010 |
| | | | | (0.007) |
| IUD | Baseline | 0.007 | 0.003 | |
| | Endline | 0.002 | 0.003 | 0.005 |
| | | | | (0.004) |
| Observations | Baseline | 1074 | 1012 | |
| | Endline | 1766 | 1746 | 5598 |
| **Panel B. Balanced Panel Sample** | | | | |
| Injectable | Baseline | 0.020 | 0.026 | |
| | Endline | 0.028 | 0.020 | -0.014 |
| | | | | (0.010) |
| Implant | Baseline | 0.008 | 0.010 | |
| | Endline | 0.011 | 0.023 | 0.009 |
| | | | | (0.009) |
| IUD | Baseline | 0.007 | 0.004 | |
| | Endline | 0.000 | 0.005 | 0.008 |
| | | | | (0.006) |
| Observations | Baseline | 871 | 795 | |
| | Endline | 871 | 795 | 3332 |

*Notes.* Column 1 shows control means for females in ELA only communites and column 2 shows means for females assigned to the *Supply* treatment. Column 3 shows the simple difference-in-difference estimate between the *Supply* treatment and the ELA Only communities over time. Outcomes are indicators that the female used an injectable, implant, or intrautine device (IUD as contraception with her last partner. These are the primary methods that were promoted by the implementation partners in the *Supply* treatment. Standard errors, clustered at the club level, are presented in parentheses below coefficient estimates in column 3. .01 ***, .05 **, .10 *.
*Source.* Female baseline data.

## **Table B2** Treatment-Control Balance at Baseline

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| **Outcome** | **ELA Only Control Mean** | **Boys-ELA** | **Supply-ELA** | **No Goal Control Mean** | **Goal - No Goal** |
| **A. Intimate Partner Violence** | | | | | |
| Psychological abuse often | 0.017 | 0.006 | 0.004 | 0.018 | 0.006 |
| | | (0.008) | (0.008) | | (0.006) |
| Physical abuse often | 0.008 | 0.010 | 0.001 | 0.011 | 0.000 |
| | | (0.007) | (0.006) | | (0.004) |
| Forced sex often | 0.012 | 0.004 | -0.001 | 0.013 | -0.001 |
| | | (0.006) | (0.006) | | (0.004) |
| Psychological abuse in last year | 0.054 | 0.017 | 0.013 | 0.062 | 0.006 |
| | | (0.017) | (0.019) | | (0.010) |
| Physical abuse in last year | 0.045 | 0.011 | 0.010 | 0.053 | -0.007 |
| | | (0.016) | (0.017) | | (0.009) |
| Forced sex in last year | 0.035 | 0.006 | 0.008 | 0.040 | -0.007 |
| | | (0.013) | (0.014) | | (0.008) |
| **B. Sexual Activity** | | | | | |
| Ever had sex | 0.250 | -0.001 | 0.047 | 0.261 | 0.006 |
| | | (0.035) | (0.036) | | (0.018) |
| Currently has partner | 0.212 | 0.011 | 0.050 | 0.230 | -0.006 |
| | | (0.034) | (0.034) | | (0.017) |
| Had partner past 2 years | 0.266 | 0.010 | 0.043 | 0.279 | 0.003 |
| | | (0.037) | (0.037) | | (0.019) |
| Total sexual partners ever | 0.312 | 0.018 | 0.073 | 0.334 | 0.001 |
| | | (0.054) | (0.052) | | (0.026) |
| Hours with boyfriend in the past day | 0.030 | 0.014 | 0.015 | 0.041 | -0.002 |
| | | (0.013) | (0.016) | | (0.011) |
| Observations | 1,074 | 3,178 | | 2,313 | 3,178 |

*Notes.* Column 1 shows control means for females in ELA only communitues and column 4 shows control means for females not assigned to the *Goal* treatment. Columns 2–3 and column 5 shows the difference between means in the corresponding community- or individual-level treatment arms and the corresponding control group means, controlling for randomization strata. Estimates in columns 2–3 come from a single regression, and estimates in column 5 come from another. See Table 1 for indicator definitions. Standard errors, clustered at the club level, are presented in parentheses below coefficient estimates in columns 2–3 and column 5. .01 ***, .05 **, .10 *.
*Source.* Female baseline data.

**Table B3** Treatment-Control Balance at Baseline, Balanced Panel

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| **Outcome** | **ELA Only Control Mean** | **Boys-ELA** | **Supply-ELA** | **No Goal Control Mean** | **Goal - No Goal** |
| **A. Intimate Partner Violence** | | | | | |
| Psychological abuse often | 0.015 | 0.009 | 0.006 | 0.017 | 0.008 |
| | | (0.008) | (0.009) | | (0.006) |
| Physical abuse often | 0.005 | 0.011* | 0.004 | 0.007 | 0.006 |
| | | (0.007) | (0.006) | | (0.005) |
| Forced sex often | 0.009 | 0.004 | 0.003 | 0.011 | 0.001 |
| | | (0.006) | (0.007) | | (0.005) |
| Psychological abuse in last year | 0.053 | 0.014 | 0.013 | 0.057 | 0.013 |
| | | (0.016) | (0.019) | | (0.012) |
| Physical abuse in last year | 0.040 | 0.010 | 0.011 | 0.044 | 0.008 |
| | | (0.015) | (0.017) | | (0.011) |
| Forced sex in last year | 0.032 | 0.001 | 0.008 | 0.033 | 0.004 |
| | | (0.011) | (0.014) | | (0.009) |
| **B. Sexual Activity** | | | | | |
| Had sex | 0.247 | -0.006 | 0.048 | 0.252 | 0.020 |
| | | (0.038) | (0.037) | | (0.021) |
| Has partner | 0.204 | 0.013 | 0.043 | 0.218 | 0.006 |
| | | (0.036) | (0.035) | | (0.020) |
| Had partner past 2 years | 0.258 | 0.009 | 0.040 | 0.266 | 0.019 |
| | | (0.040) | (0.037) | | (0.021) |
| Total sexual partners ever | 0.295 | 0.029 | 0.065 | 0.316 | 0.020 |
| | | (0.056) | (0.049) | | (0.029) |
| Hours with boyfriend in the past day | 0.030 | 0.019 | 0.022 | 0.044 | 0.002 |
| | | (0.014) | (0.018) | | (0.013) |
| Observations | 871 | 2,591 | | 1,900 | 2,591 |

*Notes.* Column 1 shows control means for females in ELA only communitues and column 4 shows control means for females not assigned to the *Goal* treatment. Columns 2–3 and column 5 shows the difference between means in the corresponding community- or individual-level treatment arms and the corresponding control group means, controlling for randomization strata. Estimates in columns 2–3 come from a single regression, and estimates in column 5 come from another. See Table 1 for indicator definitions. Standard errors, clustered at the club level, are presented in parentheses below coefficient estimates in columns 2–3 and column 5. .01 ***, .05 **, .10 *.
*Source.* Female baseline data, balanced panel.

**Table B4** Treatment-Control Balance at Baseline: Intimate Partner Violence, Balanced Panel, Ever Had Sex at Baseline

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| **Outcome** | **ELA Only Control Mean** | **Boys-ELA** | **Supply-ELA** | **No Goal Control Mean** | **Goal - No Goal** |
| Psychological abuse often | 0.060 | 0.032 | -0.009 | 0.059 | 0.039 |
| | | (0.033) | (0.024) | | (0.029) |
| Physical abuse often | 0.010 | 0.054** | 0.010 | 0.026 | 0.023 |
| | | (0.026) | (0.014) | | (0.020) |
| Force sex often | 0.020 | 0.032 | 0.011 | 0.037 | -0.005 |
| | | (0.020) | (0.020) | | (0.018) |
| Psychological abuse in last year | 0.169 | 0.095* | 0.017 | 0.196 | 0.040 |
| | | (0.052) | (0.054) | | (0.046) |
| Physical abuse in last year | 0.109 | 0.089* | 0.041 | 0.148 | 0.012 |
| | | (0.049) | (0.049) | | (0.041) |
| Force sex in last year | 0.085 | 0.037 | 0.017 | 0.102 | 0.000 |
| | | (0.041) | (0.041) | | (0.029) |
| Observations | 201 | 637 | | 459 | 637 |

*Notes.* Column 1 shows control means for females in ELA only communitues and column 4 shows control means for females not assigned to the *Goal* treatment. Columns 2–3 and column 5 shows the difference between means in the corresponding community- or individual-level treatment arms and the corresponding control group means, controlling for randomization strata. Estimates in columns 2–3 come from a single regression, and estimates in column 5 come from another. See Table 1 for indicator definitions. Standard errors, clustered at the club level, are presented in parentheses below the coefficient estimates in columns 2–3 and column 5. .01 ***, .05 **, .10 *.
*Source.* Female baseline data, balanced panel, but restricted to females who had ever had sex at baseline.

**Table B5** Treatment-Control Balance at Baseline: Demographic Characteristics

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| **Outcome** | **ELA Only Control Mean** | **Boys-ELA** | **Supply-ELA** | **No Goal Control Mean** | **Goal - No Goal** |
| **Panel A. Whole Sample** | | | | | |
| Never talk to mom about SRH | 0.839 | -0.004 | -0.019 | 0.830 | -0.001 |
| | | (0.022) | (0.025) | | (0.016) |
| Age | 16.45 | -0.625* | -0.045 | 16.18 | 0.045 |
| | | (0.336) | (0.340) | | (0.115) |
| Highest grade | 8.01 | -0.182 | 0.272 | 8.04 | -0.059 |
| | | (0.283) | (0.276) | | (0.107) |
| Dropout | 0.256 | -0.006 | -0.024 | 0.249 | -0.016 |
| | | (0.033) | (0.035) | | (0.018) |
| Enrolled | 0.737 | 0.003 | 0.024 | 0.745 | 0.013 |
| | | (0.034) | (0.035) | | (0.018) |
| Married or cohabiting | 0.074 | -0.010 | 0.023 | 0.078 | -0.000 |
| | | (0.019) | (0.022) | | (0.010) |
| Own house | 0.674 | -0.002 | -0.071* | 0.653 | -0.014 |
| | | (0.039) | (0.042) | | (0.018) |
| House has electricity | 0.619 | -0.012 | 0.059 | 0.641 | -0.010 |
| | | (0.045) | (0.041) | | (0.019) |
| Number of household members | 3.28 | -0.023 | 0.024 | 3.27 | -0.043 |
| | | (0.130) | (0.146) | | (0.048) |
| Observations | 1,074 | 3,178 | | 2,313 | 3,178 |
| **Panel B. Balanced Panel** | | | | | |
| Never talk to mom about SRH | 0.844 | -0.011 | -0.043 | 0.824 | 0.008 |
| | | (0.023) | (0.027) | | (0.018) |
| Age | 16.44 | -0.715** | -0.095 | 16.09 | 0.116 |
| | | (0.358) | (0.357) | | (0.135) |
| Highest grade | 7.99 | -0.194 | 0.259 | 8.02 | -0.118 |
| | | (0.301) | (0.280) | | (0.119) |
| Dropout | 0.256 | -0.008 | -0.019 | 0.250 | -0.019 |
| | | (0.037) | (0.038) | | (0.021) |
| Enrolled | 0.738 | 0.012 | 0.019 | 0.748 | 0.012 |
| | | (0.037) | (0.038) | | (0.021) |
| Married or cohabiting | 0.075 | -0.009 | 0.020 | 0.076 | 0.004 |
| | | (0.022) | (0.024) | | (0.012) |
| Own house | 0.665 | 0.015 | -0.067 | 0.651 | -0.016 |
| | | (0.040) | (0.045) | | (0.021) |
| House has electricity | 0.618 | 0.006 | 0.078* | 0.650 | -0.017 |
| | | (0.046) | (0.041) | | (0.022) |
| Number of household members | 3.24 | 0.009 | 0.038 | 3.25 | -0.055 |
| | | (0.135) | (0.150) | | (0.055) |
| Observations | 871 | 2,591 | | 1,900 | 2,591 |

*Notes.* Column 1 shows control means for females in ELA only communitues and column 4 shows control means for females not assigned to the *Goal* treatment. Columns 2–3 and column 5 shows the difference between means in the corresponding community- or individual-level treatment arms and the corresponding control group means, controlling for randomization strata. Estimates in columns 2–3 come from a single regression, and estimates in column 5 come from another. Never talk to mom about SRH is a binary indicator for the female reporting never talking to her mom about SRH topics, age is age in years, highest grade is the highest grade the female has attended, Dropout and Enrolled are binary indicators for the female being enrolled in school and having dropped out of school, Married or cohabiting is an indicator for the female being married or living with a partner, Own house is a binary indicator that the female's household owns the house she lives in, House has electricity is a binary indicator that the house the female lives in has electricity, and Number of household members is the number of members. in the females' household. Standard errors, clustered at the club level, are presented in parentheses below the coefficient estimates in columns 2–3, and column 5. .01 ***, .05 **, .10 *.
*Source.* Female baseline data.

**Table B6** Treatment-Control Balance at Baseline: Education and Economic Empowerment

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| **Outcome** | **ELA Only Control Mean** | **Boys-ELA** | **Supply-ELA** | **No Goal Control Mean** | **Goal - No Goal** |
| **Panel A. Whole Sample** | | | | | |
| Time spent studying | 1.01 | -0.140* | 0.037 | 0.970 | 0.003 |
| | | (0.078) | (0.101) | | (0.059) |
| Education aspiration | 0.828 | -0.002 | -0.022 | 0.817 | 0.022 |
| | | (0.029) | (0.030) | | (0.014) |
| Income generating activity | 0.161 | -0.026 | -0.026 | 0.135 | 0.009 |
| | | (0.027) | (0.028) | | (0.014) |
| Personal business | 0.134 | -0.012 | -0.018 | 0.116 | 0.007 |
| | | (0.025) | (0.027) | | (0.013) |
| Has savings | 0.218 | -0.060** | -0.027 | 0.186 | -0.006 |
| | | (0.028) | (0.028) | | (0.015) |
| Has loan | 0.034 | -0.007 | 0.025 | 0.038 | -0.007 |
| | | (0.013) | (0.019) | | (0.008) |
| Observations | 1,074 | 3,178 | | 2,313 | 3,178 |
| **Panel B. Balanced Sample** | | | | | |
| Time spent studying | 1.015 | -0.124 | 0.064 | 0.991 | 0.014 |
| | | (0.081) | (0.108) | | (0.065) |
| Education aspiration | 0.821 | 0.001 | -0.013 | 0.815 | 0.020 |
| | | (0.033) | (0.033) | | (0.015) |
| Income generating activity | 0.149 | -0.013 | -0.017 | 0.129 | 0.016 |
| | | (0.027) | (0.029) | | (0.016) |
| Personal business | 0.125 | -0.004 | -0.013 | 0.111 | 0.013 |
| | | (0.026) | (0.029) | | (0.015) |
| Has savings | 0.226 | -0.069** | -0.030 | 0.189 | -0.005 |
| | | (0.030) | (0.031) | | (0.017) |
| Has loan | 0.033 | -0.010 | 0.017 | 0.036 | -0.012 |
| | | (0.013) | (0.018) | | (0.008) |
| Observations | 871 | 2,591 | | 1,900 | 2591 |

*Notes.* Column 1 shows ELA only control arm means and column 4 shows control means for females not assigned to the *Goal* arm. Columns 2–3 and column 5 shows the difference between the control group means and the treatment arm means, controlling for randomization strata. Estimates in columns 2–3 come from a single regression, and estimates in column 5 come from another. Time spent studying is hours spent studying in the past day, Education aspiration is a binary indicator that the female aspires to a post-baccalaureate degree, Income generating activity is a binary indicator of being involved in an income generating activity in the past year, Personal business is a binary indicator that the female owns her own business, Has savings is a binary indicator that the female has savings. Has loan is a binary indicator that the female has taken out a loan. Standard errors, clustered at the club level, are presented in parentheses below the coefficient estimates in columns 2–3 and column 5. .01 ***, .05 **, .10 *.
*Source.* Female baseline data.

**Table B7** Treatment-Control Balance at Baseline: Locus of Control and Discount Behavior

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| **Outcome** | **ELA Only Control Mean** | **Boys-ELA** | **Supply-ELA** | **No Goal Control Mean** | **Goal - No Goal** |
| **Panel A. Whole Sample** | | | | | |
| Locus of control | -0.000 | 0.008 | 0.018 | 0.025 | -0.047 |
| | | (0.093) | (0.102) | | (0.036) |
| Very confident can complete task | 0.439 | -0.019 | 0.035 | 0.459 | -0.032* |
| | | (0.050) | (0.054) | | (0.019) |
| Discount factor | 0.397 | 0.052 | 0.012 | 0.423 | -0.021 |
| | | (0.035) | (0.035) | | (0.015) |
| Chose riskiest option | 0.127 | 0.008 | 0.024 | 0.137 | -0.004 |
| | | (0.021) | (0.022) | | (0.016) |
| Observations | 1,074 | 3,178 | | 2,313 | 3,178 |
| **Panel B. Balanced Sample** | | | | | |
| Locus of control | -0.000 | 0.050 | 0.027 | 0.042 | -0.054 |
| | | (0.094) | (0.110) | | (0.039) |
| Very confident can complete task | 0.439 | -0.009 | 0.063 | 0.470 | -0.034* |
| | | (0.053) | (0.059) | | (0.021) |
| Discount factor | 0.406 | 0.043 | 0.002 | 0.427 | -0.020 |
| | | (0.037) | (0.035) | | (0.016) |
| Chose riskiest option | 0.114 | 0.015 | 0.037 | 0.130 | -0.002 |
| | | (0.022) | (0.023) | | (0.017) |
| Observations | 871 | 2,591 | | 1,900 | 2,591 |

*Notes.* Column 1 shows control means for females in ELA only communitues and column 4 shows control means for females not assigned to the *Goal* treatment. Columns 2–3 and column 5 shows the difference between means in the corresponding community- or individual-level treatment arms and the corresponding control group means, controlling for randomization strata. Estimates in columns 2–3 come from a single regression, and estimates in column 5 come from another. Locus of control is an index measured in standard deviation units, generated by standardizing the raw Locus of control score to the mean and standard deviation among females in control communities who were not assigned to the *Goal* treatment at baseline and at endline separately. Very confident can complete task is a binary indicator for the female reporting being very confident she can complete any task she starts, Discount factor measures the extent to which females discount the future and ranges from .1 to 1, and Chose riskiest option is a binary indicator for the female selecting the riskiest option in a risk game implemented in the field. Standard errors, clustered at the club level, are presented in parentheses below the coefficient estimates in columns 2–3 and column 5. .01 ***, .05 **, .10 *.
*Source.* Female baseline data.

## 10 Appendix C: Grassroot Soccer Curriculum

For this intervention, the GRS curriculum comprised 11 one hour practices, including graduation. Ten of the 11 sessions were on SRH and one was on malaria. Each practice starts with a short "warm-up" where players recap the key messages of the previous practice and start discussing some of the themes of the current practice. The main part of the practice is a sport-based activity aimed at teaching and sparking discussions about healthy behaviors. Key messages are included throughout the activity. The practice ends with a quick "cool down" to recap the goals and key messages of the practice. In selected practices, the coaches also share personal stories about their real-life experiences related to the practice theme. Coaches are available post-practice for an additional 15-30 minutes in case males want one-on-one meetings to discuss more private issues.

Table C1 presents the goals and key messages of each practice.

**Table C1** Grassroot Soccer Curriculum

| (1) | (2) | (3) | (4) |
|---|---|---|---|
| **Session** | **Title** | **Goals** | **Sample key messages** |
| 1 | Join the Team! | Instill a core set of life skills and knowledge to help the boys stay healthy | "Build your team with strong supporters that help you abstain from sex or to practice safe sexual behaviors like using condoms." |
| 2 | Communicate | Develop good communication skills, in particular with girls | "Boys and girls can listen to each other and respect each other, even if it can be difficult"<br>"When communicating with someone of the opposite sex, remember to: find a safe place to talk; show respect to the person you are communicating with; make strong eye contact; and stay positive."<br>"In life, we should all stand up for girls and women to protect them from abuse." |
| 3 | Risky Partners | Emphasizes the skewed power dynamics and risks involved when a girl is in a sexual relationship with an older boy; Reinforces that abstinence is safest way to avoid HIV | "If you chose to have sex, it is much less dangerous to have sex with someone you own age than to have sex with someone older."<br>"If you have less power in a relationship, it is harder to make healthy decisions, like using condoms or being mutually faithful." |
| 4 | Stop the Spread | Importance of HIV testing and safe sexual practices | "HIV spreads quickly when people have unprotected sex with multiple sexual partners." |
| 5 | Build your Team | Building supportive social networks | "We all need to build our team with strong supporters to stay strong in life." |
| 6 | One or None | Emphasizes importance abstinence or having a single sexual partner to protect them from contracting HIV | "If you do choose to have sex, you can protect yourself by using condoms and having 1 mutually faithful partner that is HIV-negative." |
| 7 | Know the Game | Understanding how HIV attacks the body, living with HIV, and antiretroviral drugs | "The immune system protects the body from germs and diseases."<br>"A healthy lifestyle can help an HIV-positive person live a longer, healthier life." |
| 8 | Protect yourself | Learn how to identify and use contraceptives, how condoms and circumcision protect from HIV | "You can say NO to unprotected sex!"<br>"There are several ways to prevent pregnancy. Choose the one that's right for you and your partner" |
| 9 | Kick out Malaria | Discusses malaria, the use of bednets, and malaria treatment | "Malaria can kill. You can protect yourself from malaria by sleeping under a CCD every night." |
| 10 | Red Card | Uses the concept of "Red Card" in soccer to identify high risk situations to avoid, such as intimate partner violence, unprotected sex, old partners, multiple partners, and alcohol abuse | "Use the knowledge and skills you learned from the program to start conversations with friends and family members about difficult issues, like unprotected sex, older partners, multiple sexual partners, mixing sex and alcohol, and gender-based violence." |
| 11 | Make your Move! | Celebration of the boys' graduation based on the most important lessons | "Negative pressures from friends, family and the community can be difficult to avoid. But you can make your own smart choices in life!" |