

Empowerment and Restraint – Evidence from Teenage Girls’ Clubs in Kenya*

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Abstract

Women- and girl-focused empowerment programs are a common policy response to gender gaps in assertiveness and related outcomes like political participation and representation. We report evidence from a field experiment in Nairobi, Kenya, in which 426 of 996 teenage girls were randomly assigned to attend eight sessions of an empowerment club. Household surveys show that treated girls behaved more assertively – but only in contexts where the expected social costs were low, such as interactions with strangers. Within households, where such costs are higher, we find little evidence of change. These findings highlight that fear of sanctions is an important constraint on girls’ behavior and can therefore limit the effectiveness of empowerment programs. When behavior does shift, social mechanisms – such as new network ties and changed norm perceptions – appear crucial, while individual mechanisms like shifts in confidence and attitudes alone seem insufficient to encourage assertive behavior.

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Women and girls are less likely than boys and men to stand up for their interests, for example when it comes to bargaining for professional promotions (Babcock and Laschever, 2004), asserting oneself in romantic relationships (Varga, 1997) and giving in dictator games (Doñate-Buendía, García-Gallego and Petrović, 2022). Being pro-social may of course produce desirable outcomes for society. It is not obvious that men’s behavior should be the norm (Clayton, O’Brien and Piscopo, 2024). Yet, women being less assertive may also contribute to other gender inequalities, including in politics. Gender gaps are apparent in behaviors like voter turnout (Cheema et al., 2023), making one’s preferences heard to officials (Khan, 2021; Prillaman, 2021), and running for office (Fox and Lawless, 2024; Thomsen and King, 2020; Kanthak and Woon, 2015) – which are all to some degree about standing up for one’s interests. Women’s pro-sociality may also shape the division of household labor (Bittman et al., 2003), which is linked to gender gaps in political representation (Bernhard, Shames and Teele, 2021; Teele, Kalla and Rosenbluth, 2018) and wages (Goldin, 2021).

The perhaps most widespread strategy to address these inequalities are interventions designed to provide women and girls with skills, knowledge, and confidence. Examples include empowerment programs that teach teenage girls “life skills” including how to be confident and assertive (Chang et al., 2020), interventions that expose girls to female role models to raise aspirations (Riley, 2021) and political ambition (Foos and Gilardi, 2020), civic education programs (Kalla, Porter et al., 2022) and information campaigns (Giné and Mansuri, 2018) that encourage political participation, as well as campaign workshops for potential female candidates (Carson, 2022; Geha, 2019; Piscopo, 2019; Sanbonmatsu, 2015).

These interventions seem to assume that women’s behavior is constrained primarily by a lack of informational, material, or emotional resources. Yet, women and girls in patriarchal contexts also face external constraints including the risk of sanctions from a conservative environment (Jayachandran, 2021; Piscopo, 2019). Gottlieb (2016), for example, finds women’s participation in a civics course in Mali was met with backlash from men, because prevailing norms prohibited women from entering the public sphere. If women and girls interact with

an environment that subscribes to traditional gender norms, it is not obvious that women-focused campaigns can encourage empowered behavior. Indeed, the existing evidence on the effectiveness of such campaigns is mixed.¹

This paper sheds new light on how strategic interaction with a conservative environment shapes the effectiveness of empowerment campaigns. We conducted a field experiment in Kenya, where gender inequality is a salient concern in many domains including politics, employment, household-level decision-making, and the experience of violence ([International Center for Research on Women, 2021](#); [USAID, 2020](#); [Wanjala and Were, 2009](#)). Gender attitudes tend to be conservative, even among younger cohorts. Around one-third of Kenyans aged 15-24 find it acceptable for a husband to beat his wife ([Kenya National Bureau of Statistics and ICF, 2023](#)). However, Kenya is no outlier among conservative contexts. The country ranked 75th out of 146 countries in the 2024 Gender Gap Report ([World Economic Forum, 2024](#)). With a little over 60% of married women participating in household decision-making, Kenya is fairly typical for Sub-Saharan Africa (see appendix Figure [A3](#)).

Together with an NGO partner, we randomly assigned 426 of 996 teenage girls from Nairobi to the empowerment campaign “SKY Girls” that teaches girls to stand up for themselves in interactions with peers, relatives, and romantic partners. The treatment group attended eight 90-minute sessions of the “SKY club” that exposed participants to magazines, TV shows, and interactions with role models like actors and activists. Campaigns that target teenage girls are extremely popular, because their attitudes and behavior are thought to be particularly malleable ([Krosnick and Alwin, 1989](#)). USAID alone invested USD 130M in programs designed to increase adolescent girls’ ability to advocate for themselves in 2023.

Examples of assertive behavior that such campaigns seek to encourage include negotiating to postpone intimacy with a romantic partner or demanding a more favorable distribution

¹Studies of teenage girl empowerment programs document shifts in girls’ attitudes and self-perceptions, but only some find effects on behavior ([Chang et al., 2020](#)). [Riley \(2021\)](#) finds exposure to role models increases educational performance, but [Foos and Gilardi \(2020\)](#) find no evidence of an effect of exposure to women politicians on political ambition. There is evidence in favor ([Carson, 2022](#); [Sanbonmatsu, 2015](#)) and against ([Geha, 2019](#); [Piscopo, 2019](#)) the effectiveness of candidate trainings.

of chores from siblings or parents. We argue that individuals decide whether to engage in such behavior by trading off the benefits of an improved outcome with the expected costs of backlash from their social environment. Empowerment campaigns may encourage assertive behavior through *individual mechanisms* – changes in girls’ attitudes and confidence that increase the perceived benefits of assertive behavior – or through *social mechanisms* such as access to a support network that reduces the emotional burden of backlash against assertive behavior. Our central prediction is that such changes are unlikely to encourage girls to assert themselves if the social costs of doing so would be substantial. Drawing on qualitative evidence from Nairobi, we demonstrate that there is variation in these costs across social interactions. Kenyan teenagers perceived the risks of standing up for themselves to be greatest in interactions with members of their households – parents and siblings – who exert substantial control over teenagers’ lives. Hence, we expect within-household behavior to be more difficult to shift than assertiveness outside the household.

Our results support these predictions. We measure outcomes through a household survey shortly after the intervention. The treatment produced a small yet consistent increase in girls’ empowered behavior in interactions with individuals outside their household. Girls in the treatment group report a greater willingness to stand up to male peers, act more assertively towards the enumerator and give less in dictator games with anonymous peers. Evidence of changes in girls’ within-household behavior is limited. Our endline survey also included all other teenagers and young adults in the sampled households. Hence, we are able to verify reports from our main respondents through their siblings’ perceptions. We find no evidence that siblings of girls in the treatment group perceived them as more assertive.

We also explore the mechanisms behind the apparent increase in assertiveness outside the household. We find evidence for the importance of both individual and social mechanisms, but an analysis of spillover effects reveals behavior may be difficult to shift through individual mechanisms alone. Even though sisters of SKY club participants became more likely to consume publicly available SKY content, more supportive of assertive behavior and more

confident in themselves, indirect exposure without in-person attendance of the SKY club did not encourage assertive behavior.

Our main takeaway is that girls’ choices are constrained by their environment and that one should hence not assume that providing them with resources will necessarily change their behavior. We are not the first to make this argument. [Piscopo \(2019\)](#) raises this point in her critique of women-focused candidate trainings. Similar logics have motivated studies of interventions that target women’s environment including boys and men ([Cassidy et al., 2024](#); [Cheema et al., 2023](#); [Dhar, Jain and Jayachandran, 2022](#)). We contribute to this literature by illuminating how constraints in the form of social costs vary across social interactions and how this variation shapes the effects of girl-focused empowerment campaigns. Our insights help explain why such programs appear to consistently shift attitudes but not always behavior ([Chang et al., 2020](#)). In line with our notion that social costs are highest within households, the evidence is most inconclusive for marriage and childbearing decisions, while education and employment outcomes seem more consistently affected.

We also find that where such campaigns can shift behavior, such change requires not only empowering content but also a collective in-person experience. In some sense, this second insight mirrors the first. If social costs are important constraints, social mechanisms may be required to shift behavior. The result aligns with existing evidence that social ties to other women formed through NGO-led women’s groups, candidate workshops, or education can be a catalyst for women’s involvement in politics and career advancement ([Park, 2025](#); [Carson, 2022](#); [Prillaman, 2021](#); [Hampole, Truffa and Wong, 2021](#)).

Finally, our findings alleviate concerns that girl-focused campaigns create risks of harm through backlash. Such backlash has been documented in several studies of adult women ([Brulé, 2020](#); [Gottlieb, 2016](#); [Clayton, 2015](#)). Our results suggest girls in our sample were aware of the potential for backlash and censored themselves to avoid it where its costs would have been high. Various studies have documented similar strategic behavior among adult women. [Vallejo Vera and Gómez Vidal \(2022\)](#) show female legislators in Ecuador limit their

floor time to avoid gendered interruptions. [Exley and Kessler \(2022\)](#) and [Bursztyn, Fujiwara and Pallais \(2017\)](#) find women downplay their abilities and ambition to fulfill gender norms. That teenage girls are aware of the potential for backlash limits the risks of empowerment campaigns but also their potential to achieve wide-ranging shifts in gender norms.

1 Theory

Empowerment has been defined in various ways ([Laszlo et al., 2020](#)). A common foundation is [Sen \(1985\)](#)’s capability approach, which emphasizes individuals’ freedom to choose between different ways of living. Building on this notion, [Kabeer \(1999\)](#) conceptualizes empowerment in terms of pre-conditions, process, and outcomes. We here focus on the process component and present a theory of assertive or empowered behavior: actions that individuals take to achieve outcomes that align with their interests. We concentrate on the behavior of teenagers. Examples that surfaced in our qualitative interviews with adolescent girls from Nairobi, Kenya, ranged from standing up for one’s boundaries in interactions with friends and classmates or requesting a different division of household chores from siblings and parents to defending one’s choice about whether to abort an unwanted pregnancy.

Girls’ behavior as teenagers has direct consequences for medium-term outcomes like educational attainment, partner choice, age at marriage and child birth, which shape their lives for years to come. Both the willingness to participate politically and the decision to run for office have been linked to these outcomes.² Moreover, standing up for one’s interests or ideals is an inherent element of most political activities. The factors that shape girls’ willingness to assert themselves in everyday life may thus be relevant for their propensity to engage in politics later in life as well.

How do individuals decide whether to assert themselves in a given situation? We argue individuals will trade off the potential gains from empowered behavior against the social cost that may result from the reaction of their environment. The gains from assertive behavior

²See, e.g., [Bernhard, Shames and Teele \(2021\)](#); [Folke and Rickne \(2020\)](#); [Teele, Kalla and Rosenbluth \(2018\)](#); [Sondheimer and Green \(2010\)](#).

include achievement of the desired outcome – a better time with one’s friends, a lower load of household chores, one’s desired reproductive outcome – as well as any expressive utility that results directly from the act of standing up for oneself.

The costs of assertive behavior may include the reaction of the person targeted or of others who observe or learn about the situation, particularly when such behavior is perceived as violating social norms. A large literature has found expectations of social sanctions to be powerful motivators of behavior.³ Our qualitative interviews suggest social costs can take many forms (see Table 1). When asked about negative consequences they have experienced or fear when deciding whether to stand up for their interests, girls’ responses ranged from physical and verbal aggression to material repercussions and social exclusion.

Type of Social Cost	Illustrative Examples
Physical aggression	Beating or caning
Verbal aggression	Yelling, insults, or other hurtful language
Professional costs	Job loss or damaged reputation with teachers
Reputational harm	Spreading negative rumors or gossip, revealing one’s private information or secrets to others
Social exclusion	Being ignored, given the silent treatment, or ostracized
Moral judgment	Criticism, disapproval, or stigmatization
Emotional strain	Disappointing, upsetting, or appearing disrespectful toward significant others

Table 1: Social costs of empowered behavior

Types of social costs described in focus group discussions and qualitative interviews with teenage girls in Nairobi, Kenya. See appendix section A.13 for details.

This framework suggests several potential sources of the gender gap in assertiveness. First, girls and women may perceive smaller benefits of assertive behavior. Women may see themselves as less capable of achieving the desired outcome, may value the outcome less, or

³See, e.g., Bursztyn, González and Yanagizawa-Drott (2020); Bursztyn, Egorov and Fiorin (2020); Perez-Truglia (2018); Bursztyn, Fujiwara and Pallais (2017); Bursztyn and Jensen (2015); Krupka and Weber (2013).

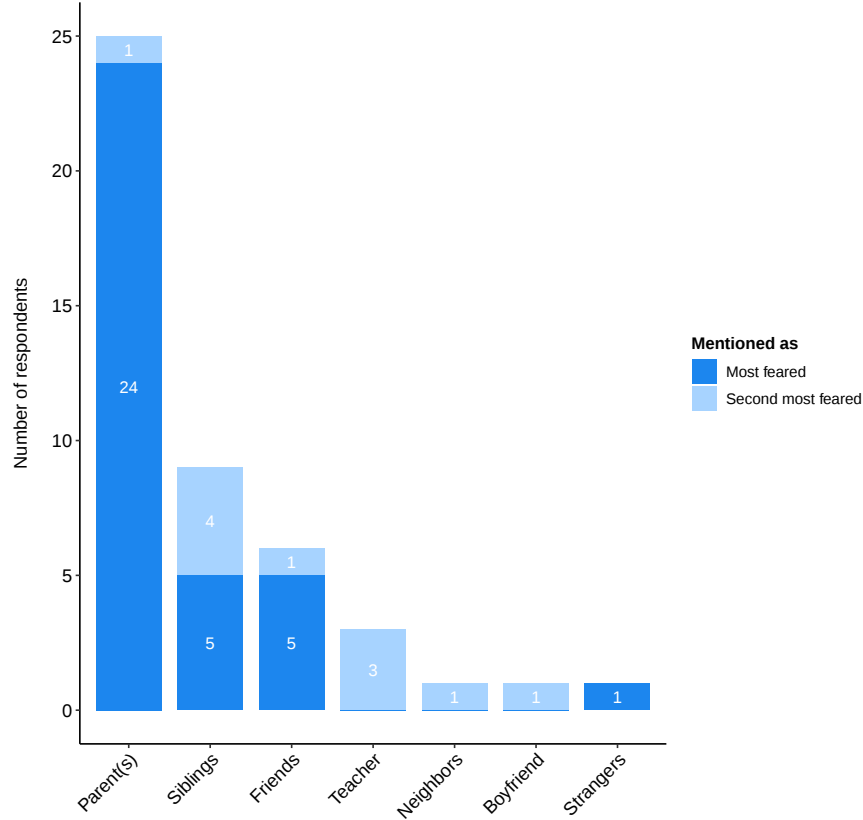


Figure 1: Actors whose negative reaction to assertive behavior is most or second most feared
Actors described in focus group discussions and qualitative interviews with teenage girls in Nairobi, Kenya. See appendix section A.13 for details.

may derive fewer expressive benefits from standing up for themselves, for example because they are socialized to prioritize the preferences of others (Bos et al., 2022; Rudman and Glick, 2001; Diekmann and Eagly, 2000). Girls and women may also face higher costs of standing up for themselves. Exactly because traditional gender norms prescribe women to be caregivers (Gilligan, 1993), their social environment may be less tolerant if they stand up for their own interests (Rudman and Glick, 2001). Moreover, the set of requests that is seen as legitimate may be smaller for girls than for boys. For example, one of our respondents explained:

“I tell him [my brother] to wash [the dishes], but he doesn’t want to. He says that’s not work for boys.”

How may empowerment campaigns shift girls’ choices? We distinguish between two sets of mechanisms. First, such campaigns may lift internal barriers that limit the benefits of

empowered behavior that girls perceive. These programs typically portray assertive behavior as desirable and teach soft skills such as negotiation strategies. Hence, these programs may persuade girls that being assertive is the right thing to do or that they deserve to ask for more or increase girls’ confidence in their ability to achieve a positive outcome by asserting themselves. We refer to such psychological changes as *individual mechanisms*. The literature also uses the term “power-within” (Chang et al., 2020).

A second set of *social mechanisms* involves changes in girls’ ties to and perceptions of others. Many empowerment campaigns explicitly revolve around the idea of a “sisterhood.” Participants consume empowering content and reflect on it together with other girls. Such collective experiences may deepen any persuasive or confidence-boosting effects of the campaign. Joint exposure may also cause girls to expect other participants to be supportive of assertive behavior. If participants can draw on their newly formed social network for emotional support when they experience negative reactions from their pre-existing social environment, girls may become more willing to stand up for themselves in the first place. Similar effects of supportive networks have been documented elsewhere (Prillaman, 2021; Hampole, Truffa and Wong, 2021).

Whichever mechanisms are at play, girl-focused empowerment campaigns are unlikely to cause girls to assert themselves if the social costs of doing so are substantial. In interactions in which these costs are minor, an increased sense of agency, a slight confidence boost, or the awareness of a newfound collective that would help alleviate the emotional strain of a confrontation may be enough to shift the net benefit of assertiveness from negative into positive. Yet, many of the costs listed in Table 1 are severe. If girls anticipate assertive behavior to be met with physical aggression or social exclusion, no amount of encouragement, confidence, and emotional support may be enough to convince them to stand up for themselves.

Negative reactions appeared to loom large in the minds of our respondents in qualitative interviews. One girl explained:

“I worry. I worry too much because I expect people, most people don’t understand

others. You may speak up, maybe you're just trying to express yourself but they'll come back at you in a negative way now. So before I speak, I always think so much about should I say it, should I not say it?"

Yet, our respondents also perceived variation in these costs across social interactions. When asked whether there was a particular person whose reactions they would worry about most, most respondents appeared to have a clear hierarchy in mind. One respondent said:

"I know I'll get worried [what] the teachers think about me, but friends, no, neighbors, no, but when it comes to my family, parents, siblings, I really care."

Figure 1 shows girls consistently reported worrying most about the reactions of family members like parents and siblings. We first asked respondents to tell us about a time when they stood up for themselves. In line with the notion that asserting oneself within one's household carries high cost, most anecdotes involved friends or strangers. Not a single respondent recounted a within-family interaction as her first example.

Why might the social costs of asserting oneself be high within one's family or household? Parents tend to have significant power over the lives of teenage girls. Children feel deep emotional attachments to their parents. Multiple respondents mentioned the emotional strain of disappointing a loved one as shaping their behavior towards their parents. Exiting the relationship with one's parents is not typically an option for minors and parents usually have control over teenagers' material resources. As one respondent summarized:

"Yes, for parents, it's a must you should be worried because they are the ones who cater for everything you need. And yeah, but for friends, they don't really do anything special for you. But for parents and families, it's [a] different thing."

Siblings can exert similar levels of control. For example, 54% of brothers of girls in our control group would not let their sister leave the house wearing a "skirt that is very short." Older siblings tend to take on parental roles. Moreover, respondents mentioned that siblings can appeal to parents and draw on their authority in conflicts. Siblings also tend to have a lot of information about each other. One respondent said:

“Maybe you find your sister or your brother knows a big secret about you. Obvious. When you make them angry, you know how they react. They will just yap.”

Finally, many girls mentioned physical aggression as a common occurrence in their household. To give one example:

“You know parents are harsh so they can tell you something that hurts you but you cannot answer them back because they beat you with something that is close to them and it does not make me happy. If you tell them something even if it is true but they are parents so you will just have to be humble.”

Girls did not express similar worries about violence outside their household.

In short, the social costs of asserting oneself in intra-household interactions seem larger than those in interactions with friends, boyfriends, or strangers. Interactions with parents appear to involve the greatest social costs closely followed by interactions with siblings. We thus expect girl-focused campaigns may be able to encourage empowered behavior outside the household but will be less effective at shifting intra-household behavior.

2 Research Design

2.1 Context

Our study takes place in four low- and middle-income neighborhoods in Nairobi, Kenya. The average household in our sample has 5 members with roughly 3 people sleeping in the same room, which is larger and more crowded than the national average ([Kenya National Bureau of Statistics, 2023](#)). 67% of girls and 82% of boys aged 12-19 in our baseline data are enrolled in school and 40% of the girls own a phone. Shared living arrangements are common: 15.8% of Kenyan households include at least one child not living with a biological parent ([Kenya National Bureau of Statistics, 2022](#)), which is why we consider relationships between teenagers living together as sibling-like, even if they are not biological siblings.

Within households, girls are treated differently from boys. A study of children aged 10-13 in Nairobi shows that girls shoulder higher loads of household chores and parents restrict

their mobility significantly more. Girls make fewer decisions at home and in school and are less likely to feel they can “express their opinions, make suggestions, and have meaningful input in decisions that affect their lives” (APHRC, 2020). Nationally, violent disciplinary measures within the household remain common with corporal punishment and psychological aggression targeted against almost half of girls and 4 out of 10 boys (UNICEF, 2019).

Kenya’s gender inequalities among adult women and men manifest in several domains from land ownership to wage employment and political candidacy (Kenya National Bureau of Statistics, 2020; UN Women Kenya, 2023). Qualitative research shows that women who wish to work outside their homes or want to participate in their households’ financial decision-making often face intimate partner violence or other sanctions by their families (CARE, 2024). Similarly, around half of Kenyans believe that women running for political office would be criticized or harassed and will face problems within her family (Afrobarometer, 2021). Gender-related attitudes reported by teenagers in the control group of our study mirror these patterns of restrictive gender norms: 53% of girls and 41% of boys believe a girlfriend should not spend time with other boys, and 58% of girls expect other girls to think similarly.

2.2 Intervention

2.2.1 The campaign

SKY Girls targets teenage girls aged 12-19 through TV series, pop songs, magazines, in-person events, and social media content. Currently active in seven African countries, it seeks to create an aspirational environment providing girls a sense of inclusion - a “sisterhood”. SKY embeds messages designed to empower girls in their decision-making and communication, especially in romantic and other close relationships, such as with a friend or parent. For example, the campaign aims to teach girls what to expect from healthy relationships, how to spot toxic ones, and how to assert themselves when being pressured, e.g. to have sex or give up an ambition or activity they enjoy.

Our study focuses on SKY Kenya where some of the campaign’s core media channels are a TV series called “PAA – Born to Fly”, and a Youtube show called “The Sista Show”. PAA focuses on teenage girl main characters who struggle with different social pressures, such as from boyfriends, friends, or parents, and learn to stand up for themselves, with the support of their female friends. In The Sista Show, young women hosts entertain the audience with Kenyan pop culture but also interview role model figures such as issue activists, local musicians or actors who talk about experiences where they had to be assertive. Besides its media channels, SKY organizes in-person events at its venue in Nairobi - the “SKY Hub” - and at schools or shopping malls, where girls engage with SKY through music and dance. Girls can further take the “SKY pledge” manifesting to stand up for themselves and usually receive the SKY magazine containing empowerment articles such as “What I wish my 15-year old self knew”. SKY is explicitly inclusive regarding religion and ethnicity, and all its content is published or broadcast in a mix of English, Swahili, and slang.

2.2.2 The club

The “SKY club” as an intervention was designed to give girls an intensive exposure to the campaign’s content over the course of eight 90-minute sessions on Saturday afternoons between June-September 2023. The sessions were held in a large room at a school in Nairobi to which girls were transported from pick-up points near their homes, and back. Each week, girls assigned to the treatment group were encouraged to attend one of two identical sessions taking place subsequently. Club activities included watching PAA and The Sista Show, engaging in guided discussions about it, receiving SKY magazines and discussing selected articles, and interacting with invited guests, such as the PAA cast. Moderators - so-called “Big Sistas” - led the girls through each session, including games and dancing. Girls also received giveaways such as SKY t-shirts and wristbands. The complete SKY club schedule and information on the giveaways can be found in appendix section [A.12](#).

The SKY club was designed to run for eight consecutive weeks but was paused for ten weeks after the first two sessions due to an adverse incident (see appendix section [A.3](#)).

Appendix Table A9 provides an overview of the study timeline. Throughout the study period, participants received weekly invitation text messages, occasional phone calls, and home visits during which field staff advertised the SKY club using leaflets (see Figure A5).⁴ Families received KSH 375 (USD 2.53) for each session that their daughter attended as compensation for their daughter’s absence in the household (see appendix section A.3). Girls knew that consistent attendance would be rewarded with SKY gifts in the last session. They received a SKY club membership card to be stamped at each session (see Figure A6) which helped ensure that only the treatment group could participate in the club.

2.3 Baseline survey and sampling

We enrolled a convenience sample of 1,000 households during a baseline survey between April and May 2023. Four households were revealed to be duplicates at endline leaving us with a sample size of $N = 996$. Enumerators walked the four study neighborhoods following a skip pattern intended to limit cross-household spillovers.⁵ We sampled households with at least one teenage girl between the ages of 12 and 19 for whom we could obtain (parental) consent. Enumerators explained the intervention to a parent and highlighted that not all sampled girls would be able to participate. In each household, we sampled one of the eligible teenage girls at random to become the *main respondent* who would participate in the intervention were the household assigned to treatment. Appendix section A.4 provides more details.

2.4 Random assignment

Prior to random assignment, we organized households into 426 blocks of two or three households. Appendix section A.5 provides details. We randomly assigned one household per block to treatment. We then used simple random assignment to assign main respondents from households in the treatment group to one of the two weekly club sessions. Girls were subsequently allowed to switch sessions (see appendix section A.7 for details). Strict enforcement of session assignments may have reduced overall compliance since girls were sometimes

⁴If a girl or her parents definitively declined further participation, the household was not contacted again.

⁵The median distance to the closest other household in our sample is 28 meters.

unavailable during their assigned session due to commitments such as Saturday school. Figure A4 shows, among attending girls, a minimum of 7% and a maximum of 15% swapped sessions in a given week. Likely due to morning school obligations, the morning session was slightly less popular than the afternoon one (192 versus 234 attendees on average). Appendix Tables A7 and A8 show covariate profiles of girls in attendance varied little across sessions within and across weeks.

2.5 Treatment take-up and compliance

Appendix Figure A2 shows 88% of girls in the treatment group attended at least one and 19% attended all sessions. Appendix Table A6 presents results based on outcomes from our endline survey and our main regression specification. Girls assigned to treatment report attending about six more sessions of the SKY club than control group girls who report attending almost no sessions ($p < 0.01$). A relatively high share of almost 70% of control group girls reports having ever watched a SKY show or read the SKY magazine, which is plausible since this content is publicly available. Assignment to treatment increased this share by about thirty percentage points ($p < 0.01$). We also asked respondents to verify six activities that occurred during the SKY club, and to provide the name and phone number of a free counseling service advertised during the sessions. Girls who do not report attending the club at all are coded as zero. Assignment to treatment causes girls to give an average of four additional correct answers ($p < 0.01$). Finally, we asked respondents whether they interacted with the SKY campaign outside the club, e.g., by visiting SKY social media accounts or the in-person SKY hub. Girls in the control group report engaging in about two such activities on average and assignment to treatment roughly doubles this number ($p < 0.01$).

2.6 Outcome measurement

We measured outcomes during an endline survey that commenced about one week after the intervention. Endline enumerators had not been involved in the intervention and were blind to both treatment assignments and our hypotheses. We interviewed 829 out of 996

main respondents, a response rate of 83%. Attrition appears unaffected by treatment (see appendix Tables A18 and A19). At baseline, enumerators had also listed all other teenagers between the ages of 12 and 19 years residing in the study households which resulted in a sample of 229 sisters and 272 brothers (see appendix Table A4).⁶ At endline, we extended the age range to 12 to 22 years. We interviewed a total of 235 sisters and 255 brothers. 320 of these 490 siblings had been listed at baseline, a response rate of 64%. Tables A18 and A19 show that our treatment appears to affect neither the attrition of siblings listed at baseline nor the likelihood of previously unlisted siblings being interviewed at endline. Appendix section D provides information on our outcome measures. We construct indices by standardizing outcomes to range from 0 to 1 and averaging them. We do not impute item-level missingness due to non-response to outcome questions.

2.7 Estimation and hypothesis tests

We estimate sample intent-to-treat (ITT) effects using the following OLS regression specification:

$$y_{ij} = \alpha + \tau z_j + \beta^T \mathbf{x}_j + \epsilon_{ij}.$$

Here, y_{ij} is the outcome for respondent i in household j ; α an intercept; τ the sample ITT; z_j the treatment assignment indicator; $\mathbf{x}_j$ a vector of nine covariates with associated coefficient vector β^T ; and ϵ_{ij} an error term. We use this specification to estimate direct ITTs among main respondents, and spillovers among siblings. Analyses of main respondents allow for heteroskedasticity of the error term. Since some households have multiple siblings, analyses of siblings allow for clustering on the household-level. We use inverse-probability weights (IPW) to account for varying treatment assignment probabilities across households due to differentially sized blocks and duplicate observations (see appendix section A.6). p -values are calculated via randomization inference (RI) by permuting treatment assignment 8,000 times to simulate the sampling distribution under the sharp null hypothesis of no (positive

⁶These respondents may not be literal siblings of the main respondent. We refer to them as sisters and brothers for convenience.

or negative) effect for any unit. We report parametric p -values for tests about differences in conditional ITTs. To deal with a large number of comparisons, we group hypotheses into theoretically informed groups and test the global null hypothesis that all sub-hypotheses in a group are true using RI and combining p -values using the product function (Caughey, Dafoe and Seawright, 2017). Appendix section A.1 summarizes divergences from the pre-analysis plan. Section A.2 provides details on estimation and testing.

2.8 Ethics

We took extensive steps to safeguard the well-being of study participants. Among other things, we followed calls for more transparency in research ethics (Baron and Young, 2022) and conducted a telephonic back-check survey at baseline and endline to monitor participants’ knowledge of their rights and experience during data collection. We discuss the results, our other efforts to prevent and monitor harm as well as an adverse incident that nonetheless occurred during the intervention in appendix section A.3.

3 Main Results

3.1 Gender-gaps in empowered behavior

We begin by exploring the existence of gender gaps in assertiveness in our sample. Figure 2 shows endline measures of empowered behavior across main respondents and brothers from control group households. The figure includes all pre-registered measures of empowered behavior that we collected for both genders. We use IPW to generate unbiased estimates of the average control potential outcomes in our sample. All measures range from zero to one to ease comparisons. The left panel focuses on interactions with individuals who do not form part of the respondent’s household; the right on within-household interactions.

All gender gaps have the expected sign, but they vary in size. The first two measures on the left capture respondents’ behavior towards the enumerator during the endline interview. Enumerators asked respondents which of two gifts they would prefer to receive for participating in the interview. At the end of the interview, the enumerator handed the re-

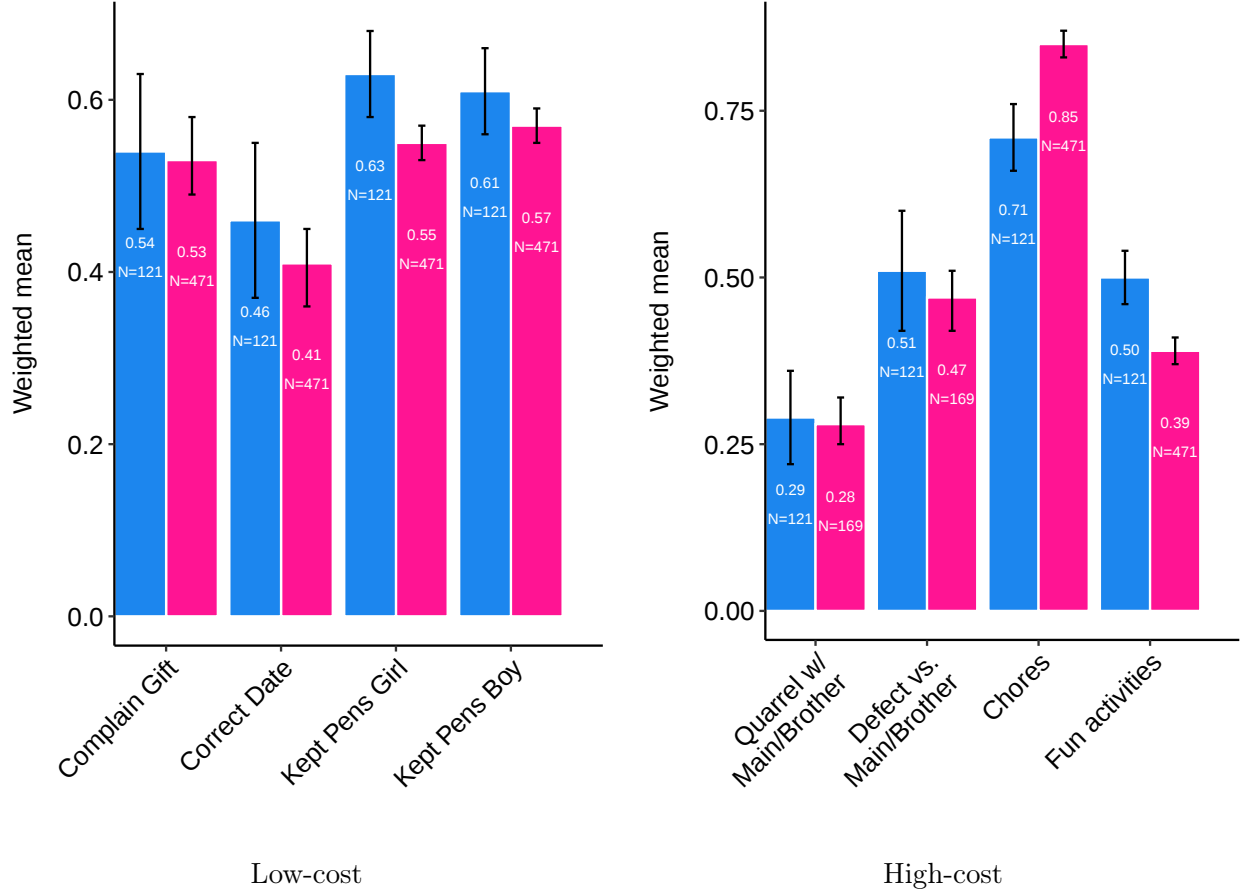


Figure 2: Gender gaps in assertiveness among control group

Bars show weighted means for main girls (pink) and brothers (blue) in control households. Weights equal the inverse probability of assignment to control. For *Quarrel w/ Main/Brother* and *Defect vs. Main/Brother*, we restrict girls to households where a brother was interviewed. Black lines show 95% confidence intervals. Left (right) panel refers to interactions outside (within) the household, where we expect costs of asserting oneself to be low (high). Outcomes are rescaled to 0–1. Question wording in Appendix D.1.

spondent the wrong gift. *Complain Gift* records whether respondents spoke up and asked for their preferred item.⁷ Moreover, enumerators read out the wrong year, while pretending to input the interview date on their tablet. *Correct Date* records whether respondents intervened to correct the enumerator. This measure differs slightly from our theoretical concept of assertiveness in that we observe whether respondents speak out based on what they know rather than based on what they want. Both measures serve as proxies for behavior in one-shot interactions with strangers who hold little sway over respondents’ lives. Endline

⁷If respondents did not complain, enumerators returned later and offered respondents their preferred gift.

enumerators had not been involved in the baseline and intervention and respondents were unlikely to encounter them again. Of course, asserting oneself may nonetheless carry costs. For example, enumerators may react harshly, pass judgment, or complain to respondents' parents. Gender gaps in these measures are small. Around 54% of boys ask for their preferred gift and about 46% correct the date. Girls are one percentage point less likely to do the former and five percentage points less likely to do the latter. One reason may be that girls were interviewed by women and boys by men. In conservative contexts, both genders may hesitate to challenge an adult man, so gaps might have been larger had enumerator gender been held constant.

Kept pens girl and *Kept pens boy* capture behavior in two dictator games with anonymous partners— a boy and a girl, each chosen randomly from the sample. The games were presented in random order. Respondents were handed five pens and asked to hand pens for their partner back to the enumerator.⁸ Pens are desirable objects in this context. Indeed, several anecdotes about assertiveness shared in our qualitative interviews involved arguments about pens. Preferences over pens are likely to be strongly monotonic, since it is common for teenagers to sell items they do not need. The games require respondents to choose between pursuing their own preference for a desirable token and allocating tokens to others. Hence, we argue dictator game behavior proxies assertiveness as we define it here. Moreover, the respondent's choice is not observed by the recipient and hence the potential for social costs is low. The only possible repercussion is a negative reaction from the enumerator. The average boy keeps a little more than three pens. Girls keep one to two fifth of a pen less on average with the gap being slightly bigger when respondents are matched with a girl. In relative terms, boys keep 8% to 15% more pens than girls.

Turning to within-household interactions, we measure the frequency of quarrels between siblings, since standing up for oneself may result in conflict. We focus on how much main respondents who have a brother in the sample report quarreling with their brothers and how

⁸We used an uneven number of pens to avoid even splits and increase the sensitivity of the measure to treatment effects.

much these brothers report quarreling with the main respondent. Brothers and sisters report close to the same frequency of quarreling which may reflect that assertive behavior by either sibling may result in a quarrel involving both.

Main respondents played a prisoner’s dilemma against each of their siblings. Each player could win up to four notebooks. Defection is a dominant strategy in this game in the sense that it maximizes the number of notebooks that a respondent wins, irrespective of their sibling’s choice. Hence, just like giving less in a dictator game, defection is linked to our notion of empowerment as demanding more for oneself. However, the costs of doing so may be higher here since siblings may sanction each other outside the game. In line with the expectation that boys are more assertive, the defection rate is slightly higher among brothers, though the difference is small (51% versus 47%). Appendix Figure A8 shows the most common outcome was that the girl cooperated and the brother defected (27% of games), which is worst for the girl and best for the brother. The reverse outcome in which the girl defected and the brother cooperated was least common (23% of games). Both players cooperated in 25% and both defected in 24% of games.

Finally, we asked respondents whether they had engaged in each of ten activities during the past week – six related to fun or self-improvement and four to household chores. We find substantial gender gaps in how teenagers spend their time. The average boy remembers doing 2.8 of the chores and 3 of the leisure activities while the average girl remembers 3.4 chores and 2.3 fun activities. In relative terms, girls thus remember around 20% more of the chores and 22% fewer free time activities than boys.

3.2 Effects on empowered behavior outside the household

Table 2 displays estimates of treatment effects on girls’ assertiveness in interactions outside the household where we expect social cost to be relatively low. The outcome in column 1 is an index of three survey items that ask respondents whether they would assert themselves in hypothetical interactions with a boyfriend or male friend. The estimate suggests the intervention increased this outcome by roughly one fifth of a control group standard deviation

($p < 0.01$). Appendix table A40 shows this estimate is driven primarily by an increase in respondents’ willingness to ask a romantic partner to spend more time with them, though girls’ proclivity to stand up to a male friend appears to have increased as well. These findings are encouraging, but one may worry about experimenter demand affecting such self-reported outcomes, since the SKY campaign directly models these behaviors.

	Assert (Boy)friend	Assert Enumerator	Kept Pens Girl	Kept Pens Boy
SKY	0.048*** (0.017)	0.045** (0.026)	0.138* (0.083)	0.164** (0.081)
Outcome range	0 – 1	0 – 1	0 – 5	0 – 5
Control Mean	0.644	0.472	2.760	2.843
Control SD	0.230	0.362	1.127	1.142
Hypothesis	upr	upr	two	upr
Num. obs.	825	829	829	829

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table 2: Effects of SKY on girls’ proclivity to assert themselves in low-cost interactions

Models include pre-registered covariates listed in Section A.2. Stars indicate significance based on RI p -values from test of sharp null of no (positive/negative) treatment effect for any unit. Row “Hypothesis” shows the direction of the test. A test of the hypothesis that all null hypotheses across columns 1–4 are true yields $p = 0.001$. Details on model specification and testing are in appendix section A.2 and outcome wording and coding in section D.2.

The outcome in column 2 is an index of our two behavioral measures that record whether respondents asked the enumerator for their preferred gift and corrected the enumerator when she input the wrong date. The SKY treatment appears to have increased this index by roughly one eighth of a control group standard deviation ($p < 0.05$). This finding is robust to the inclusion of enumerator fixed effects (see appendix Table A30). Appendix table A41 shows the share of respondents who engage in each behavior is four to five percentage points higher in the treatment group. While small in size, these estimated effects are big enough to close the small gender gaps apparent in Figure 2.

Columns 3 and 4 show girls in the treatment group keep 0.14 to 0.16 more pens than those in the control group in dictator games with anonymous girls ($p < 0.1$) and boys ($p < 0.05$).⁹ Estimated effects are small and would close around 35% of the gender gap in games with anonymous girls and about 80% of the gap in games with anonymous boys.

A test of the joint significance of the estimates in Table 2 returns a p -value of $p = 0.001$. In short, the SKY Club intervention appears to have caused a small but consistent increase in girls' proclivity to assert themselves in interactions with friends, boyfriends, and strangers.

3.3 Effects on empowered behavior within the household

Table 3 displays estimates of effects on girls' empowered behavior in the household. The outcome in the first column asks respondents what they would do if their brother disapproved of their choice of friends – distance themselves from the friends (coded as zero), not discuss their friends with the brother anymore (coded as one) or confront the brother (coded as two). The SKY treatment appears to have caused a small increase of about 0.12 control group standard deviations in this outcome ($p < 0.05$). We may again worry about experimenter demand given the closeness to the content of the intervention.

Column 2 suggests the SKY intervention increased the frequency with which respondents report quarreling with their siblings by roughly 0.16 scale points or about a fifth of a control group standard deviation ($p < 0.1$). We here subset to respondents who have a sibling in our sample. For respondents who have sisters and brothers in our sample, the outcome is the average of the frequency with which the respondent reports quarreling with siblings of each gender. For respondents who only have siblings of one gender in the sample, the outcome is the frequency with which the respondent reports quarreling with siblings of that gender. Appendix Table A20 shows analyses which separate reported quarrels with sisters from those with brothers which is what we had pre-registered. Moreover, the table considers

⁹We follow our pre-analysis plan and conduct a two-tailed test for the number of pens kept in a dictator game with an anonymous girl. At the time of pre-registration, we were less convinced that this outcome would be affected, since greater in-group bonding (see below) or a stronger identification with one's gender could have offset the apparent empowerment effect that we find here.

two different sub-samples, respondents who reported having any sibling of the respective gender and those whose sibling was actually interviewed.¹⁰ The estimated effects on the frequency with which respondents quarrel with brothers are slightly larger than those on the frequency of quarreling with sisters, but most estimates fail to reach statistical significance. In short, we find some but not particularly strong evidence that respondents in the treatment group may have quarreled more with their siblings and especially with their brothers.

	Assert Brother	Quarrel w/ Sibling	Defect vs. Sibling	Chores	Fun Activities
SKY	0.117** (0.061)	0.161* (0.083)	0.016 (0.050)	-0.050 (0.057)	0.047 (0.082)
Outcome range	0 – 2	0 – 2	0 – 1	0 – 4	0 – 6
Control Mean	0.553	0.566	0.467	3.404	2.345
Control SD	0.830	0.740	0.463	0.767	1.215
Hypothesis	upr	two	two	two	upr
Num. obs.	829	355	355	829	829

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table 3: Effects of SKY on girls’ proclivity to assert themselves in high-cost interactions

Models include pre-registered covariates listed in Section A.2. Stars indicate significance based on RI p -values from test of sharp null of no (positive/negative) treatment effect for any unit. Row “Hypothesis” shows the direction of the test. A test of the hypothesis that all null hypotheses across columns 1–5 are true yields $p = 0.06$. Details on model specification and testing are in appendix section A.2 and outcome wording and coding in section D.3.

Column 3 reports estimated effects on respondents’ behavior in the prisoner’s dilemma that respondents played with their siblings. For respondents with multiple siblings, the outcome is the share of games in which the respondent defected. For respondents with one sibling, the outcome is a binary indicator for whether the respondent defected. We find no evidence that the SKY intervention affected girls’ behavior in the prisoner’s dilemma. The estimated effect of the SKY treatment on girls’ defection rate is small and statistically

¹⁰As we reported above, our response rate among siblings listed at baseline was 64%.

insignificant. Appendix table [A21](#) shows this finding holds in both games that girls played against brothers and in games against sisters.

The final two columns reveal the SKY treatment appears to have affected neither the number of chores nor of “fun” activities that girls remember doing in the past week. In non-preregistered exploratory analyses reported in appendix Tables [A25](#) and [A26](#), we find suggestive evidence of heterogeneity in these effects across respondents who do and do not have siblings. The treatment appears to have caused a slight decrease in the number of chores that respondents did in the previous week among those who have siblings ($p < 0.1$). Estimates among respondents without siblings are very close to zero. It seems plausible that intra-household bargaining about chores takes place between siblings where there are multiple teenagers in a households but between main respondents and their parents where no other teenager is available. The finding that the distribution of chores may have shifted in households with but not in households without siblings is thus in line with the idea that the social costs of asserting oneself are greatest in interactions with parents, though the difference between these conditional effects is not statistically significant. Tables [A25](#) and [A26](#) show a similar but less pronounced pattern for the outcome that asks respondents about “fun” activities.

So far, the evidence of an effect of the SKY intervention on indicators of within-household assertive behavior is, at best, mixed. A test of the joint null hypothesis that all null hypotheses tested in Table [3](#) are true returns a p -value of $p = 0.06$. The p -value would be much larger if we removed the test in column 1, which involves our self-reported survey measure of empowered behavior towards brothers that is most susceptible to experimenter demand effects.¹¹ Moreover, effects on intra-household bargaining outcomes appear to be, if anything, larger in households where respondents are likely to bargain with their siblings but absent where respondents likely bargain with their parents. These findings align with

¹¹Appendix section [C.15](#) shows we obtain a p -value of 0.5 if we stick to our pre-registered grouping of low- and high-cost outcomes that was slightly different – and in hindsight less theoretically consistent – than the one present here.

our theoretical expectation that empowerment campaigns are less likely to affect behavior in interactions where the social costs of asserting oneself are high.

Of course, other interpretations exist. For example, girls may have asserted themselves more when it comes to household chores and free-time activities, but these outcomes may not move because their parents and parents met girls’ requests with resistance. To further probe girls’ behavior, we make use of our surveys with siblings.

	Perceptions		Knowledge	Behavior			
	Assert Brother	Empowered	Correct Guesses abt. Main Girl	Quarrel w/ Main Girl	Defect vs. Main Girl	Chores	Fun Activities
SKY	0.033 (0.045)	0.027 (0.071)	−0.083 (0.114)	0.076 (0.077)	−0.003 (0.046)	0.030 (0.092)	−0.047 (0.114)
Outcome range	0 – 1	0 – 3	0 – 6	0 – 2	0 – 1	0 – 4	0 – 6
Control Mean	0.336	0.848	2.671	0.640	0.475	3.059	2.851
Control SD	0.473	0.775	1.162	0.801	0.500	1.033	1.258
Hypothesis	upr	upr	upr	two	two	two	two
Num. obs.	490	490	490	489	490	490	490
N Clusters	355	355	355	354	355	355	355

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table 4: Effect of SKY on siblings’ perceptions, knowledge, and behavior related to main girl
Models include pre-registered covariates listed in Section A.2. Stars indicate significance based on RI p -values from test of sharp null of no (positive/negative) treatment effect for any unit. Row “Hypothesis” shows the direction of the test. A test of the hypothesis that all null hypotheses regarding outcomes under *Perceptions* (*Behavior*) are true is $p = 0.27$ ($p = 0.87$). No such test is reported for *Knowledge*, which includes only one outcome. Details on model specification and testing are in appendix section A.2 and outcome wording and coding in section D.4.

First, if main respondents acted more assertively in their households, siblings may have perceived this change. Columns 1 and 2 of Table 4 show estimates of treatment effects on siblings’ perceptions of the main respondent. We asked siblings to guess the main respondents’ answers to a number of questions and informed siblings that they would receive an additional notebook if their guess for a randomly selected question turned out to be correct. Column 1 analyzes siblings’ beliefs about how main respondent answered the question about

the hypothetical scenario in which her brother disapproved of her choice of friends. We find no evidence of a treatment effect on the share of siblings who think the main respondent would stand up to her brother. Appendix table [A27](#) shows this finding holds even if we subset to brothers who should be particularly well informed about main respondents’ behavior in this scenario. This pattern exacerbates our concern about experimenter demand driving the responses of treated main respondents to this question.¹² We also asked respondents to choose three out of ten adjectives to describe the main respondent, five of which relate to “passive” and five to “empowered” traits.¹³ Column 2 of Table [4](#) shows the SKY intervention does not appear to cause siblings to describe the main respondent in more empowered terms.

Second, if main respondents asserted themselves more in their household, siblings may become better informed about main respondents’ preferences. Siblings’ incentivized guesses about main respondents pertained to a range of preferences such as the main respondent’s favorite TV show and preferred “fun” activity that could come up in intra-household negotiations. However, as can be seen in column 3 of Table [4](#), we find no evidence of an effect of the SKY intervention on the number of questions about the main respondent that siblings answered correctly. Indeed, appendix Table [A42](#) confirms the SKY intervention does not appear to have affected siblings’ ability to guess main respondents’ answers to any of the included questions.

Third, we included the same measures of intra-household interactions that we collected for main respondents in our surveys with siblings. If there was more within-household conflict or a shift in intra-household bargaining dynamics, we may see changes in siblings’ behavior as well. However, the last four columns of table [4](#) provide no evidence of an effect of the SKY intervention on the frequency with which siblings report quarreling with the main respondent, the rate at which siblings defected against main respondents in the prisoner’s dilemma, and the number of chores and “fun” activities that siblings remember doing in the

¹²It is noteworthy that the estimated treatment effect among main respondents who have brothers is almost as big as that among all main respondents (see appendix Table [A23](#)).

¹³The empowered adjectives were “ambitious,” “assertive,” “charismatic,” “strong,” and “adventurous.” The passive adjectives were “caring,” “helpful,” “sweet,” “understanding”, and “emotional”.

past week. Appendix Tables [A27](#) and [A28](#) shows this finding holds among both sisters and brothers with the exception of a slight increase in sisters’ reported frequency of quarreling with the main respondent ($p < 0.1$).

Taken together, the results reported in Table [4](#) further support the conclusion that the SKY intervention did not substantially increase girls’ assertive behavior in the household. A joint test of the significance of all estimates reported in the table returns a p -value of $p = 0.8$.

Finally, we collected our measures of assertive behavior in low-cost interactions as well as measures of a range of attitudes and beliefs among siblings. Effects on siblings may result not only from changes in the behavior of main girls but also from indirect exposure to the SKY program. SKY content is publicly available on social media and TV. Moreover, main respondents received copies of the SKY magazine to bring home. In qualitative interviews, many girls from the treatment group recount sharing the magazines with and talking about SKY with their siblings. We will return to the indirect effects on sisters of main respondents in the mechanism section below. Here, we focus on effects on brothers. Since the SKY program explicitly targets girls and not boys, we were particularly worried about potential backlash effects among brothers that could result from a sense of being left out or as a reaction to main respondents becoming more assertive.

Appendix table [A55](#) shows brothers of main respondents in the treatment group were indeed aware of the main respondent’s club participation and more exposed to publicly available SKY content. Brothers of girls in the treatment group are also more likely to know that SKY is a program only for girls. Nonetheless, Tables [A56](#) and [A58](#) provide no evidence that indirect exposure to SKY caused brothers to change their attitudes towards girls’ assertive behavior, norm perceptions, beliefs about gender stereotypes and inequality, attachment to masculinity, stated tendency to support girls, or behavior in a dictator game with another boy. If indirect SKY exposure affected brothers at all, it seems to have increased the number of pens that brothers allocated to an anonymous girl in a dictator game. However, given the number of tests we conducted, we are hesitant to stake too much on this last finding.

The apparent absence of effects on brothers is in line with the finding that main respondents do not seem to have drastically changed their within-household behavior.

In sum, we find limited evidence that the SKY intervention encouraged participants to stand up for themselves in intra-household interactions where the cost of doing so are relatively high. That said, our results suggest the SKY intervention caused a small increase in main respondents’ willingness to stand up for themselves in interactions where the social costs of doing so are low.

4 Mechanisms

Next, we explore the mechanisms through which the SKY intervention may have produced its apparent effect on behavior in low-cost interactions. Doing so is methodologically challenging ([Green, Ha and Bullock, 2010](#)). While our design does not allow us to identify the precise causal process triggered by the SKY treatment, we are able to assess the broader relevance of the two categories of mechanisms discussed above – individual and social. We begin by analyzing effects on intermediate outcomes related to both kinds of mechanisms using our quantitative data and illustrative quotes from our qualitative interviews with treated girls. We also make use of several ancillary treatments cross-randomized in our survey to provide evidence of in-group bonding among SKY club participants. Subsequently, we leverage the fact that sisters of treated girls were indirectly exposed to SKY content but not to the social context of the SKY club to tease apart the importance of individual and social mechanisms. Our findings suggest both types of mechanisms may be at work, but that social mechanisms may be particularly important in the sense that the apparent increase in empowered behavior in low-cost interactions among SKY club participants is unlikely to be explained by individual mechanisms alone.

4.1 Individual mechanisms

Table 5 contains some evidence in favor of the relevance of individual mechanisms in the form of persuasion and confidence effects. The outcome in column 1 is an index of two survey

items that ask respondents whether girls should assert themselves in different hypothetical interactions with their boyfriends. The SKY treatment appears to have had a small positive effect of about 0.15 control group standard deviations on this index ($p < 0.01$). Because the SKY campaign places a particular emphasis on behavior in romantic relationships, we also asked girls to assess a series of behaviors that romantic partners could engage in as “a potential sign of a toxic relationship” or as “contributing to a healthy relationship.” The list included behaviors that could be seen as controlling (e.g., demanding constant information about one’s location) as well as empowered behavior (e.g., asking for one’s needs). Column 4 shows girls in the treatment group do not seem more likely to identify healthy and potentially toxic relationship behaviors as such.

	Attitudes		Beliefs About Self	
	Should Assert	Healthy Rel.	Confident	Empowered
SKY	0.048*** (0.020)	−0.030 (0.015)	0.003 (0.012)	0.079* (0.053)
Outcome range	0 – 1	0 – 1	0 – 1	0 – 3
Control Mean	0.688	0.514	0.840	0.954
Control SD	0.296	0.219	0.170	0.743
Hypothesis	upr	upr	upr	upr
Num. obs.	829	817	829	829

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table 5: Effect of SKY on assertive attitudes and self-confidence

Models include pre-registered covariates listed in Section A.2. Stars indicate significance based on RI p -values from test of sharp null of no (positive/negative) treatment effect for any unit. Row “Hypothesis” shows the direction of the test. A test of the hypothesis that all null hypotheses regarding outcomes under *Attitudes* (*Beliefs About Self*) are true is $p = 0.04$ ($p = 0.123$). Details on model specification and testing are in appendix section A.2 and outcome wording and coding in section D.5.

Turning to measures of confidence, the outcome in column 3 is an index of two items that ask about respondents’ level of agreement with the statements “I feel that I have a number

of good qualities” and “I am able to deal with life’s challenges at least as well as most other people in my age group.” We do not find evidence that the treatment caused respondents to see their general qualities and capabilities in a more positive light. The outcome in the last column asks respondents to choose three out of ten adjectives to describe themselves. We used the same list that we presented to siblings when measuring their perceptions of main respondents. Girls in the treatment group choose a slightly larger number of empowered adjectives to describe themselves ($p < 0.1$), though the estimated effect is an increase of less than one tenth of a word.

In sum, our quantitative evidence for the relevance of individual mechanisms appears mixed. That said, some of the qualitative responses of girls in the treatment group to whom we talked during qualitative interviews are consistent with individual mechanisms being at play. When asked what they liked best about their time in the SKY club and whether the experience has created a change in their lives, girls frequently talked about the SKY experience having taught them that one should stand up for themselves and how to do so. Our respondents also explained that participation in the SKY club changed the way they see themselves. To illustrate, one girl said:

“The [...] Sky Club taught me a lot of things, like ways to know who is your best friend and who is not your best friend. Mmmmh...it taught us how to defend yourself when someone abuses you, aaah... how to love yourself and...and how to be self-confident.”

Other responses included “It [The club] helps one have confidence,” “They taught us how to be resilient,” and “I’m not as shy as I used to be.”

4.2 Social mechanisms

Turning to *social* mechanisms, the first three columns of Table 6 suggest main respondents in the treatment group indeed formed new social network ties. While column 1 shows no evidence of an effect on the number of girl friends that respondents report having, the estimate in column 2 suggests the SKY treatment increased the share of respondents who

made a new friend in the last two months by about ten percentage points ($p < 0.01$). This finding is consistent with answers that treated girls gave during our qualitative interviews. Most interviewees recounted that they had made new friends during the SKY club, including those who reported having pre-existing social ties to other SKY club participants from the same school or neighborhood. As one girl explained:

There were girls I knew before the Sky club, [...] I still made friends with other girls. Obviously in the vehicle you can't keep quiet because if your friend is seated there and you are seated here, you must make friends with other people. [...] I was sitting with the new girls [...]

	Social Connections			Norm Perceptions	
	Girl Friends	New Friend	Turn To	Descriptive	Prescriptive
SKY	-0.121 (0.135)	0.109*** (0.034)	0.108* (0.070)	0.086*** (0.025)	0.089*** (0.025)
Outcome range	0 – 10	0 – 1	0 – 3	0 – 1	0 – 1
Control Mean	2.877	0.582	2.186	0.559	0.506
Control SD	2.073	0.494	0.989	0.348	0.346
Hypothesis	upr	upr	upr	upr	upr
Num. obs.	829	829	828	827	827

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table 6: Effect of SKY on network ties and perceptions of social norms

Models include pre-registered covariates listed in Section A.2. Stars indicate significance based on RI p -values from test of sharp null of no (positive/negative) treatment effect for any unit. Row “Hypothesis” shows the direction of the test. A test of the hypothesis that all null hypotheses regarding outcomes under *Social Connections* (*Norm Perceptions*) are true is $p = 0.001$ ($p = 0.000$). Details on model specification and testing are in appendix section A.2 and outcome wording and coding in section D.6.

We also find evidence that these new social ties functioned as a support system. The estimate in column 3 indicates the SKY intervention increased girls’ sense that they would find someone supportive to turn to if something upsetting happened to them ($p < 0.1$). The

magnitude of the coefficient translates into a relatively small effect of around one tenth of a control group standard deviation. In qualitative interviews, girls repeatedly described the supportive atmosphere in the SKY club. As one girl put it

“[...] during the sessions you could stand up maybe if the question was asked, even if you answer a wrong or bad question, they [the other girls] could not laugh at you or mock you. But outside here or at school, you could stand, say something and instead of correcting you, they would laugh at you. Yeah.”

We leverage two ancillary randomizations to provide additional evidence for the idea that girls in the treatment group bonded with other club participants. First, we randomly assigned one quarter of respondents to be told that their anonymous girl partner for the dictator game had not previously been part of the study. The idea was that treatment group respondents would deduce from this statement that their game partner could not have attended the SKY club. Appendix Table A32 suggests the positive effect of the SKY intervention on the number of pens that respondents keep is almost twice as big if respondents are primed to think that their game partner cannot be a club participant. Unfortunately, this test is underpowered, because of the small share of girls assigned to the prompt.¹⁴ Hence, the estimates lack statistical significance. Nonetheless, the estimate pattern supports the interpretation that SKY club participants bonded with and developed altruism towards each other.

Second, we asked main respondents at baseline whether they liked the well-known music genre Afrobeats. 55.4% of respondents reported they do not like Afrobeats. At endline, we asked respondents again how much they like Afrobeats, but used simple random assignment to assign about half of our sample to first be told that a majority of girls at baseline stated they do not like Afrobeats. We expected the prompt to induce peer pressure to express a negative opinion about Afrobeats. Table A60 indeed suggests the prime reduced the stated preference for Afrobeats among girls who were not assigned to the SKY intervention by about one fifth of a control group standard deviation ($p < 0.01$). The interaction term provides

¹⁴To avoid deception, girls assigned to this prime were matched with sisters who had indeed not taken part in any of the previous parts of the study. This requirement also meant that we could only assign a small share of respondents to this treatment due to the smaller number of sister respondents.

no evidence that the SKY intervention reduced girls’ tendency to give in to this pressure. If anything, the negative effect of the prime is stronger among those assigned to the SKY club. This finding runs counter to our expectation that the SKY treatment causes girls to stand up for themselves, but is in line with the idea of in-group bonding among SKY club participants. If girls in the treatment group think about our baseline sample as composed of other club participants, the SKY campaign may have induced a desire to conform to the views of this newly formed collective.¹⁵

Finally, columns 4 and 5 of Table 6 suggest the SKY intervention also produced shifts in respondents’ perceptions of social norms. The estimate in column 4 indicates SKY club participants became more likely to think other girls *would* assert themselves in hypothetical scenarios involving a boyfriend and other male peers ($p < 0.01$). The size of the coefficient is equivalent to roughly one quarter of a control group standard deviation. Column 5 shows girls in the treatment group are more likely to believe others girls think that girls *should* assert themselves in romantic relationships ($p < 0.01$). Appendix Tables A43 and A44 show that effect estimates are similar in size across the individual components of these indices.

Since our measures of norm perceptions ask respondents to assess the likely views and behaviors of “most other teenage girls” or “most girls from your community,” we unfortunately do not know whether these shifts are confined to perceptions of norms among the SKY sisterhood. Some of our qualitative evidence suggests that girls may have changed their perceptions of the other SKY participants in particular. For example, when asked about the difference between her relationship with the SKY participants and her regular friends, one girl responded

“It was different because they [the SKY participants] were, they, those girls were understanding and good [better] than the other girls because they have not learned about many things that we learned in the SKY group. (...) Yes, they [the SKY participants] were more supportive [of me standing up for myself] than

¹⁵In additional pre-registered analyses, we find no evidence that the SKY intervention affected the strength of girls’ gender identity (see appendix Table A31). In other words, any sense of in-group bonding appears to be confined to the group of SKY girls rather than the collective of girls or women more broadly.

the other friends.”

However, other girls described their pre-existing friends as more supportive and as having a greater importance important as a support system, e.g., because these pre-existing friendship ties had grown over a longer period of time.

4.3 Effects among sisters

So far, we have found evidence consistent with the relevance of both individual and social mechanisms. Of course, these sets of mechanisms are not mutually exclusive and both kinds of mechanisms may be at play. To further probe their relative importance, we analyze the indirect effects of the SKY treatment on the sisters of main respondents. This analysis provides evidence against the notion that SKY’s apparent effects on behavior in low-cost interactions are driven by individual mechanisms alone. Appendix section C.12 reveals the following four patterns.

First, Table A49 suggests even though sisters of girls who were invited to the club did not themselves attend club sessions, sisters became aware of their siblings’ club participation and are substantially more likely to report exposure to SKY content like the SKY TV shows and the magazine. This indirect exposure is not surprising given that SKY content is available on different social media platforms, such as Youtube and Instagram. Club participants may have told their siblings about this content and may have brought home copies of the SKY magazine, which were handed out during the club sessions. Indeed, respondents in qualitative interviews frequently mentioned that they shared SKY content with their siblings, and in particular with their sisters.

Second, as can be seen in Table A52, we find no evidence that indirect exposure to SKY content caused sisters to form new network ties. Indirectly exposed sisters also do not seem to have updated their social norm perceptions. This finding is consistent with the idea that opportunities to make new friends who support empowered behavior and update one’s beliefs about others arise predominantly from the attendance of in-person club sessions. Interaction

with a sister who attended the club sessions coupled with the consumption of SKY materials alone appears insufficient to trigger these changes. The apparent absence of a change in norm perceptions among sisters is also consistent with the notion that the treatment did not cause main respondents to interact differently with sisters.

Third, appendix Table A52 provides evidence that sisters who were indirectly exposed to SKY content nonetheless see themselves in a more positive light, choose more empowered adjectives to describe themselves and are more likely to believe that girls should behave in assertive ways. However, despite these changes, indirectly exposed sisters do not appear to act in more empowered ways. Table A50 provides no evidence that indirect exposure caused sisters to self-report assertive behavior or to give less in the two dictator games. While there is some evidence of an increase in confident behavior towards the enumerator, this finding is not robust to enumerator fixed effects (see Table A30).

Taken together, these patterns indicate that shifts in attitudes and confidence alone, without shifts in norm perceptions and the formation of new network ties, were not sufficient to induce empowered behavior among sisters. Under the assumption that the causal process works in similar ways for main respondents, this evidence suggests the apparent increase in main respondents' empowered behavior in low-cost interactions is unlikely to be driven by persuasion or confidence effects alone.

While this evidence points to the relative importance of social mechanisms, our analysis cannot definitively answer the question how social mechanisms shape empowered behavior. One possibility is that the collective experience of the SKY club enhances the confidence or persuasion effects of the campaign content, for example because SKY club participants who form social ties and influence each other. What speaks against this possibility is that both confidence and persuasion effects – at least in terms of the magnitude of effect estimates – appear to be if anything larger among sisters who among social mechanisms do not seem to be operative. Another possibility is that access to a collective of girls who can provide emotional support in the event of backlash lowers the anticipated emotional cost of empowered behavior.

One piece of evidence in line with the interpretation that the SKY club provided girls with new social outside options is that girls in the treatment group report feeling less pressure to be in a romantic relationship (see appendix Table [A31](#), $p < 0.05$). That said, only a handful of girls reported that they stayed in touch with friends from the SKY club in our qualitative interviews that took place over a year after the intervention. Girls cited obstacles such as long distances, limited transportation, and lack of phones as reasons. Hence, if effects were due to a newfound support network, it is not clear how long such effects lasted beyond the immediate aftermath of the intervention when endline measurement took place.

4.4 Alternative explanations

Finally, we consider whether our findings may be artifacts of the research design. One concern is that results may reflect experimenter demand. While difficult to rule out for self-reported survey outcomes, we think it unlikely that this explanation applies to the apparent effects on behavioral measures. Moreover, experimenter demand cannot explain the concentration of effects among certain outcomes, especially in our analysis of mechanisms. Second, one may worry that the apparent effects reflect changes among girls in the control rather than the treatment group. Girls in the control group may have felt left out which may have led them to behave less assertively. Yet, appendix Figure [A7](#) shows girls in the control group became more rather than less likely to say they would assert themselves from baseline to endline. Even though control group girls became less likely to believe that one should be assertive in relationships, the same was true for the treatment group, which suggests a secular trend rather than disappointment among the control group. None of the control group girls reported feeling upset or sad as a result of our study in our endline back-check survey.

5 Discussion

Teenage girls assigned to an empowerment club became more likely to assert themselves in interactions with individuals who are not part of their household. Evidence of behavior change inside the household is limited. These findings correspond to our theoretical pre-

diction that intra-household conflict is so costly that girls moderate themselves when they interact with household members. Our results also suggest that shifts in attitudes and confidence were not alone responsible for the changes in behavior that we do observe. Some form of social change like the formation of new network ties or shifts in norm perceptions appears to have been necessary.

Intra-household dynamics have been shown to shape many outcomes including women’s labor force and political participation. That the SKY campaign does not seem to affect girls’ intra-household behavior may thus cast doubt on the potential of empowerment campaigns to create lasting shifts in gender norms. A more optimistic interpretation is that even though girls rarely have a choice but to interact with members of their existing households, girls have some control about the composition of their future households. Girls who are more assertive outside the household may choose to spend time and form relationships with peers who share similarly empowered views (Kandel, 1978). The finding that girls moderate themselves in settings where backlash could be costly also alleviates concerns that teenage girl empowerment campaigns could cause harm.

To what degree are our findings informative about other kinds of contexts and campaigns? Factors such as the strength of material and emotional ties to one’s families and a heightened risk of physical violence that increase the costs of intra-household conflict are likely to exist in other contexts as well. Moreover, existing evidence suggests intra-household dynamics may constrain other kinds of women-focused campaigns too. Cheema et al. (2023) find a get-out-the-vote campaign was most effective when it canvassed not only women but also their husbands. In her discussion of why women-focused candidate workshops are unlikely to be successful in Lebanon, Geha (2019) points to household-level constraints: “All of the candidates to municipal or parliamentary elections we interviewed stated that their families were the first to ask them to quit the race.” Yet, external constraints on women’s behavior may also take other forms. Piscopo (2019) describes institutional and structural constraints such as discrimination from party leaders and voters as obstacles that shape

women’s decision to run for office. Our findings underscore the importance of theorizing about the specific constraints that women face in a given context when exploring ways to shift women’s behavior.

The apparent importance of social mechanisms for the effectiveness of girl empowerment campaigns also connects to evidence from other contexts and interventions. Networks have been shown to benefit adult women’s empowerment in a diverse array of contexts ranging from the US (Carson, 2022; Hampole, Truffa and Wong, 2021) to Uganda (Bandiera et al., 2020) and India (Prillaman, 2021). Moreover, there is similar evidence that education-entertainment interventions designed to affect views and behaviors around violence against women are more effective if media content is consumed in a social setting (Peterman, 2025). Even though opportunities for social interaction are often an incidental by-product of interventions designed to expose women to particular content, collective experiences may be a crucial element that helps offset the social constraints that women face in conservative environments.

Open questions remain, of course. A more comprehensive assessment of girl empowerment campaigns may explore the longevity of effects as well as the degree to which empowered behavior outside one’s household is linked to behaviors like political participation. Our treatment was also relatively short in nature. A more intensive intervention like an ongoing after-school club that solidifies girls’ social ties to other SKY club participants may have stronger effects on behavior in a broader range of circumstances. Another question concerns the precise causal process that links individual and social mechanisms to empowered behavior. We have provided suggestive evidence that individual mechanisms alone are not sufficient. Yet, this conclusion relies on a comparison of our main respondents to sisters – two groups that are not formed through random assignment. Moreover, we cannot answer the question whether the formation of social ties, shifts in norm perceptions or both are required for behavioral change – and whether and how these social mechanisms interact with individual changes in attitudes and confidence. Future work may answer these questions, for

example by randomly assigning respondents to treatment variations such as a content-only or a network-only intervention designed to trigger only a subset of these mechanisms.

Lastly, we note that we focus on girls' assertiveness as an outcome because teenage girl empowerment programs are an extremely widespread policy intervention that explicitly pursues the goal of encouraging girls to be more assertive. From a normative point of view, however, it is not obvious that doing so should be our priority. This point can be illustrated using the prisoner's dilemma that girls in our sample play with their brothers. The most common outcome of this game is that the brother defects and the girl cooperates – leaving the girl with the lowest and the brother with the highest possible payoff. Holding the strategy of brothers constant, it is undoubtedly desirable for the girl to also defect which increases her payoff. An alternative approach would be to encourage brothers to cooperate as well, which would lead to the socially optimal outcome. This logic underscores the importance of work on the behavior of men ([Cheema et al., 2023](#); [Clayton, O'Brien and Piscopo, 2024](#)).

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