She can fight her own battles: Experimental evidence on the effects of increasing awareness about rights and self-defense training on female empowerment in India^{*}

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Abstract

Crimes against women have increased in India. While laws protecting women's rights exist, under-reporting of crimes is widespread, reflecting a lack of awareness of those laws. Employing an experiment in Bihar, we examine whether treatments designed to increase awareness and awareness coupled with self-defense training among adolescent girls can improve knowledge about their rights; their ability and confidence to fend off physical and sexual assault; their health and well-being; their hopes for the future and their intentions with respect to their education and participating in the labor force. For a subsample of participants in grades 10 and 12, we also examine the effect of the treatments on their examination results and whether they are more likely to pursue studies in commerce and science. In general, we find large treatment effects on all these outcomes at endline. In addition, we find large spillover effects on the treated adolescent's friends and siblings. We also find that the positive effects on both treatment groups for most of the outcomes persist six months after endline.

Keywords: awareness, self-defense training, motivation, hopes, aspirations. **JEL classification:** C54, C9, J16, J21.

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1 Introduction

There has been a sharp increase in crimes against women in many developing countries (see e.g. Alesina et al., 2021; Hoehn-Velasco et al., 2021). This is particularly true for India. In 2019, there was one rape recorded every 16 minutes with nearly 88 rape cases filed daily in India (NCRB, 2021). In Bihar, the state in which our study is situated, crimes against women almost doubled between 2001 and 2020 (Bihar Police, 2020). Bihar ranked second among all Indian states in terms of the number of cases involving kidnaping and abduction of women with most of these involving kidnapping with an intent to marry forcefully (NCRB, 2021). The majority of these abduction cases involved adolescent girls, under 18 years. The actual numbers are believed to be higher than those recorded, primarily due to excessive under-reporting of gender-based violence in Bihar (*State Fact Sheet Bihar (NFHS-5)*, 2020).

One of the reasons for such underreporting could be the lack of awareness about what constitutes a crime against women or sexual harassment and about the various laws that exist to protect women against such crimes. Several laws have been enacted to protect women from abuse, assault and harassment.¹ Steps have been taken to make it easier to file a complaint and make the criminal justice system more navigable and empathetic towards victims.² Other initiatives, such as opening women police stations in some parts of India has resulted in an increase in reports of domestic violence with victims of domestic abuse feeling more comfortable reporting crimes in such settings (Amaral et al., 2021). Yet, despite initiatives such as this, there continues to be a general lack of awareness among women about laws protecting their rights.³

Crimes against women have been found to have adverse implications for the victims of such crime, including higher incidence of anxiety and depression, reduced labor force participation, lower wages and fewer marriage opportunities (Finkelhor et al., 1989; Koss, 1993; Lloyd & Taluc, 1999; Sadler et al., 2000; Paolucci et al., 2001; Black et al., 2011; Rees & Sabia, 2013; Sabia et al., 2013). Such crimes also increase safety fears among women in general. The fear of being a victim of crime makes women more reluctant to leave the house (Gordon & Riger, 1991; Garcia-Reid, 2007). In India, the actual, and perceived, threat of being attacked outside the home

¹ Examples are the Protection of Children from Sexual Offenses, 2012, The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013, Protection of Women from Domestic Violence Act, 2005 and The Criminal Law (Amendment) Act, 2013.

 $^{^2}$ Examples are providing victims with a Protection Officer, providing shelter homes to women suffering from domestic violence, having policewomen present at the time of the investigation, allowing for the filing of complaints online, relaxing restrictions that the complaint has to be filed within a day of the crime, providing independent legal assistance if required and provision of free health check-ups and medical examination.

³ See Tackling Violence Against Women: A Study of State Intervention Measures (2017)

deters women from working outside the home (Sudarshan & Bhattacharya, 2009; Chakraborty et al., 2018), reducing women's labor force participation (Mishra et al., 2021).

In this study, we conduct a randomized controlled trial (RCT) with secondary school girls, in which participants were randomly assigned to one of two treatment groups or the control group. Participants in the first treatment group (referred to as the 'awareness only' treatment) attended a workshop designed to increase knowledge about crimes against women and how to tackle the situation if exposed to such crimes, while participants in the second treatment group ('awareness & training' treatment) received self-defense training in addition to participating in the awareness workshop. Participants in the control group did not receive any intervention. In addition to conducting surveys to examine the effects at the end of the intervention, we also conducted a follow-up survey six months after the endline survey to understand whether the treatment effects persist over time.

We examine if providing these adolescent girls with (a) knowledge about crimes against women, the relevant laws and how to protect themselves; and (b) in addition to providing this information, self-defense training increases awareness of their rights and make them more confident to defend against an assailant. We also examine if the interventions improve the girls' wellbeing, increase the girls optimism about the future and make them more willing to complete secondary school, pursue higher education and participate in the labor force. For a subsample of participants, we examine if the interventions have any effect on the choice of stream of study in which they enroll and the grades realized in their final semester exams. We also investigate whether the treatments have spillover effects from participants to their best friend and to siblings, residing in the same household.

We find that both the interventions significantly improve the confidence level of participants, make them more optimistic about the future and more likely to intend to complete schooling, graduate and work. Treated individuals were also found to be more aware of the rights of women and laws intended to protect them, relative to those in the control group. We find strong spillover effects with respect to awareness on the friends and siblings of the treated participants. We also find that the effects of the intervention persisted six months after endline among participants from both the treatments. Furthermore, 6.4% of the participants in the awareness only and 13.6% of the participants in the awareness and training treatment groups were more likely to continue education during the follow-up survey administered in the next academic year than the control group. Participants exposed to both the treatments were also found to be more likely to opt for

STEM or professional career paths in their pre-college education. The intervention also improved their overall academic performance across subjects during both grades 10 and 12.

To the best of our knowledge, this is the first rigorous study to employ a RCT to present causal estimates for alternative pathways to improve female safety in the context of a developing country, with a focus on understanding spillover effects to participants' social networks.

Our contribution is related to some studies in psychology that have found that self-defense training for women is associated with higher self-defense self-efficacy (Hollander, 2004, 2014; Senn et al., 2017; Jordan & Mossman, 2018), greater assertiveness and self-esteem and reduced fear and anxiety (see e.g. Ozer & Bandura, 1990; McDaniel, 1993; McCaughey, 1997; Weitlauf et al., 2000; Hollander, 2004; Brecklin & Ullman, 2005; Brecklin, 2008; Orchowski et al., 2008).

Some of these studies have employed an experimental design to draw causal inference, but these studies typically have small sample sizes. Other studies only observe the women who have participated in the training, leading to self-selection bias. Most of this literature has focused on self-defense training in developed countries. We differ from this literature in other ways as well. First, while these studies focus just on self-defense training, we seek to identify the most effective intervention between two different treatments: (1) awareness of the various laws and how to respond to various threatening situations and (2) awareness and self-defense training. Second, in addition to examining the effects of the interventions on self-confidence, we consider the effects on the long-term hopes and aspirations of the participants and intentions with respect to important socio-economic outcomes that fear of crime is known to influence. Third, we measure the effect of the interventions on objective outcomes, such as career choices and academic performance, measured by performance in senior secondary school exams. Fourth, we seek to understand the spillover effects of the interventions on awareness among participants' social networks.

The rest of the paper is organized as follows. Section 2 presents the experimental design and data, while Section 3 outlines the timeline of the experiment. Section 4 discusses the outcome variables used in this study and the empirical methodology that we use in this paper. Section 5 then discusses the results, and, finally, we conclude the paper in Section 6.

2 Experimental design

We conduct a RCT with 690 girls enrolled in grades 7 to 12 in 2020-2021 selected from 60

different schools across 20 different regions in the Patna district of Bihar, India.⁴ From each region, adolescent girls were randomly selected from the census/region roster. The 60 schools from the 20 regions were then randomly assigned to one of two treatment groups or the control. Figure A1 in Appendix A shows the location of the 20 regions in the district of Patna in Bihar.

Participants in the awareness only treatment participated in a workshop designed to increase awareness about crimes against women, the laws designed to protect women and awareness about how to defend oneself. In addition to participating in the awareness workshop, participants in the awareness & training treatment also received self-defense training. The control group did not receive any intervention. There were 243 girls from seven regions in the awareness-only treatment group, 245 girls from seven regions in the awareness and training treatment group and 202 girls from the remaining six regions in the control group.⁵ We administered a census and baseline survey before the interventions. After the intervention, we administered an endline survey and a survey to capture spillovers to participants' social networks following the intervention. We also conducted a follow-up survey six months after the endline survey to examine if the treatment effects persist over time. Interestingly, no participants dropped out between the baseline and endline surveys.

Participants in the awareness only treatment received the awareness training using a welldesigned awareness module. The awareness module was first administered over the phone by trained female para-counsellors, with written support material and videos subsequently shared with the participants. During the awareness module, participants were made aware of different types of harassment that women face, the laws designed to protect women against harassment, the importance of reporting crimes to the police and the methods for doing so, as well as the plausible ways to protect themselves. The awareness module included videos explaining child sexual harassment, inspirational videos of girls fighting back against harassment and the procedure to make pepper spray using ingredients available at home. The module also contained the success stories of famous women. More generally, in this module participants were encouraged to overcome their fears, aspire to be independent and pursue further studies.

⁴ For the purpose of our project, we restricted our sample to adolescent girls with an android phone (with facilities for online classes). We used this eligibility criterion to select students from all villages/regions and then randomly assigned students and villages to the treatment and control groups. Overall, 95% of the girls in the villages that we selected had access to android phones.

⁵ While randomly assigning the 20 regions and 60 schools to either of the three groups (the two treatment groups and a control group), we ensured that no student from one group was enrolled in a school located in a region assigned to another group. This helped eliminate spillover effects across the three groups.

In addition to the awareness module, which was provided to participants in the first treatment, participants in the awareness & training treatment received a well-designed self-defense training program. The self-defense training classes included exercises to improve strength, build stamina and provided participants with training in extensive self-defense techniques designed to combat severe physical and sexual threats. Initially, the plan was to provide the self-defense training module in person. Due to COVID-19, and subsequent nationwide movement restrictions in India resulting in schools being closed, the training class was conducted online over the phone.⁶

3 Timeline and surveys

The study was conducted in five stages over a period of one year between August 2020 and July 2021. The baseline survey was conducted in August and September 2020. Both interventions—involving the awareness and the self-defense training modules – were administered from the third week of October 2020 to the third week of November 2020. One month post the interventions, the endline survey was administered in December 2020. The spillover survey ran one week after the endline survey and was completed in January 2021. The follow-up survey was then administered in July 2021, approximately six months after the endline survey (see Figure 1).

The main purpose of the baseline survey was to collect participants' responses to questions about their perception of safety and security, their confidence to fight back in situations in which they were physically or sexually assaulted, their hopes and aspirations for the future, their intentions with respect to finishing school, college, and joining the workforce. The endline survey used eleven multiple-choice questions designed to assess knowledge gained during the interventions. The data collected during the endline survey also allowed us to examine the effect of the interventions on several outcomes, such as knowledge levels, confidence levels (to fight back), intention to complete schooling, graduate and participate in the labor force.

During the spillover survey, we surveyed 197 siblings (siblings of participants residing with them in the same household) and 504 best friends of participants (those with active mobile numbers) to examine the extent of the spillover effects with respect to awareness on others close to the participant that were not directly targeted via either of the interventions. The participants were

⁶ The self-defense training was conducted via real time online video classes by trained female instructors. Note that participants were very comfortable using their android phones for the self defense training since all of their classes had been conducted online since the COVID-19 school closure. The self-defense module took approximately two hours per day spaced over five days and was divided into three parts: (a) warm-up and revision, (b) main training, and (c) cooling-down exercises. The content of both interventions is provided in Appendix D.

not informed beforehand that their friends or siblings would also be surveyed.

A follow-up survey was administered about six months after the endline survey to a randomly selected sub-sample of participants (348 out of 690 participants) during which information on outcomes similar to those captured during the endline survey were collected. The data collected during the follow-up survey allowed us to study the persistence of the treatment effects over time.

4 Data and Empirical Methodology

We use the following regression specification to estimate the treatment effects:

$$y_{i\nu 1} = \alpha + \beta_1 T_{1i} + \beta_2 T_{2i} + \gamma' X_{i\nu} + y_{i\nu 0} + \theta_\nu + \varepsilon_{i\nu}$$
(1)

where y_{iv1} is a range of outcomes for participant *i* residing in region *v* during the post-treatment period. T_1 is an indicator for the awareness only treatment and T_2 is an indicator for the awareness & training treatment. Our reference group is the control group.

The control variables (X_{iv}) include the age of the participant, their grade level, their location, the nature of their family structure, their caste category, father's education, mother's education, father's employment, mother's employment, birth order (among siblings) and income level of their family (relatively rich) compared to others in the village.

We estimate the intent to treat (ITT) effect, which is an average of the causal effects of receiving the treatment. If the interventions are effective, then β_1 and β_2 will both be positive and significant. When available, we also control for the baseline measure of a particular outcome, y_{i0} . We also include region level fixed effects. θ_v denotes the region fixed effects. Finally, the term ε_{iv} indicates the error term. We cluster the standard errors at the unit of our randomization, which is by region.

We study the effect of the interventions on 19 separate outcome variables grouped under several specific categories. The specific survey questions used to construct the outcome variables and the procedure to construct each variable are presented in Table A1 and discussed in detail in Appendix B. The first outcome focuses on whether the interventions improve awareness about the rights of women. The second set of outcome variables is concerned with confidence to defend against an assailant in the event that the participant was attacked. A third set of outcomes focus on the participant's hopes for the future and intention to finish school, pursue higher studies and

participate in the labor market. A fourth set of outcomes focus on the health and wellbeing of participants, measured by self-reported mental health and happiness.

A final set of outcomes examine seven objective educational and career choice outcomes for participants who were enrolled in grades 10 and 12 during the intervention. These outcomes were examination scores in Hindi, English, Mathematics, Science and an average of all examination scores and, for participants in Grade 10, whether they elected to pursue the STEM or professional streams. Information on awareness, current enrolment status and educational outcomes were not collected during the baseline survey. Data for each outcome variable, except for the current enrolment status and educational outcomes, were collected during the endline survey. The educational outcome data, which were collected in the follow-up survey, allowed us to study the effect of the treatments on academic performance and future career choices.⁷

Of the 19 outcome variables that we considered, 8 were constructed using response scales to single questions from the survey. Three outcome variables: (a) the knowledge scale measuring awareness; (b) ability and confidence to defend against physical assault; and (c) ability and confidence to fight back and neutralize an assailant are indices constructed by aggregating responses to several individual questions (see Appendix B for a detailed discussion of the variable construction). Of the seven educational outcomes, five are based on grades received in the final semester exam and two denote career choices based on subjects selected following grade 10 i.e., transition from grade 10 to 11, collected during the follow-up survey.

Finally, current enrolment status is measured using a binary response and is only collected during the follow-up survey. All outcome variables, except current enrolment status, STEM and Professional, have been control group-standardized following (Kling et al., 2007) so that each variable has a mean 0 and standard deviation 1 for the control group.

⁷ Students enrolled in grades 10 and 12 complete board examinations at the end of the academic year and grades are awarded by the relevant board (State board, CBSE, or ICSE). Following their grade 10 board exams students then opt to enroll in arts, commerce, or science pre-college streams (for grades 11 and 12). This determines the subjects in which they enroll in their final two years of secondary school. For example, students who enroll in the science stream study physics, chemistry, mathematics, and biology with compulsory language subjects in English and Hindi. The pre-college stream in which students enroll is crucial for determining the higher education options open to students. For professional courses in higher education, like engineering (Bachelor of Technology) or health care (Bachelor of Medicine or Nursing), students must enroll in the science stream for their pre-college education. During the follow-up survey, we collected data for 131 participants in grade 10 and 39 participants in grade 12 on the marks received in the respective board examinations. For participants who were enrolled in grade 10, we also collected information on the stream that they selected for pre-college education during the follow-up survey.

5 Results

5.1 Summary statistics and balance check

We begin the results section by reporting the summary statistics of the outcome variables by treatment type at endline and follow-up in Table A2 for the full sample. Table A3 gives the summary statistics of the educational outcomes of participants who were enrolled in 10th or 12th grade during the intervention (and had just completed their 10th or 12th grades at the time of the follow-up survey). Tables A4 and A5 present summary statistics of the individual characteristics and outcome variables measured at baseline, respectively, by treatment type. As can be seen, our treatment and control groups are well balanced in terms of individual characteristics (Table A4) and the various baseline measures of outcomes (Table A5).

In both Table A4 and Table A5, we report the means and standard deviations of characteristics and baseline outcomes of our sample. To derive *p*-values on tests of equality of means across treatment and control groups, we regress the variable of interest on the treatment variable (equal to 2 if in the awareness and training treatment, 1 if in the awareness only treatment and 0 otherwise) with region fixed effects and standard errors clustered at the region. We also regress the variables of interest (at baseline) on the treatment variable (equal to 1 if in the awareness and training treatment and zero if in the awareness only treatment) to verify the balance between the two treatment groups. All the balance tests are done using the control group as a reference in columns 4-5 and the awareness only group as a reference in column 6 of Tables A4 and A5.

For our sample, the balance test results for individual and household characteristics like age, class, caste, birth order, family type (joint or nuclear), education and employment status of parents, household size, and family income are not statistically different from the distributions for the control group (p > 0.10) (Table A4). In addition, the balance test results are not statistically different between the two treatment group distributions (p > 0.10).

In terms of outcomes at baseline, our samples are well balanced across all 10 outcomes (shown in Table A5). The treatment group distributions are not statistically different from the control group (p > 0.10). The balance test results are not statistically different between the two treatment group distributions (p > 0.10), except for intention to complete schooling (p-value = 0.03) and intention to graduate (p-value=0.09). Thus, of 30 tests, only two yield a p-value less than 0.10.

5.2 Effect on primary outcomes at endline survey

Table 1 reports the effects of the intervention on awareness about the rights of participants, their ability and confidence to defend against physical assault, sexual assault and to fight back and neutralize an assailant, the participant's hopes for the future, as well as their intentions with respect to completing schooling, graduating college, the highest level of education that they intend to pursue and participation in the labor market. Column 1 reports the ITT estimates for the awareness only treatment group and column 2 reports estimates for the awareness and training treatment group. We check if the coefficients for the awareness only and awareness and training treatments in column 1 and 2, are significantly different and the results for a Wald test⁸ are reported in Column 3. We also report the RI *p*-values⁹ and Multiple hypothesis testing *p*-values¹⁰ in Columns 4 through 7. Figure 2 shows the effect size of the intervention at the endline survey.¹¹

Awareness. Panel A of Table 1 reports the impact of the intervention on participants' knowledge of different types of harassment faced by women, existing laws for protecting women against harassment, the importance of reporting crimes, the avenues for so doing and measures that could be employed to reduce the likelihood of being a victim of crime.

We find that participants' awareness improved significantly due to the intervention. Specifically, participants in the awareness only treatment experienced a 3.73 standard deviation (SD) improvement in the knowledge index (p < 0.01), relative to participants in the control group, while for participants in the awareness and training treatment, there was a 3.97 SD improvement in the knowledge index (p < 0.01), relative to participants in the control. We find our results to be consistent using the randomization-based inference (RI) and Westfall-Young (WY) adjustments (FWER-adjusted *p*-value). Although the estimates for awareness and training are higher than awareness only, the Wald test statistics suggests that the impact of the intervention

⁸ We use the Wald test to test for the equality of the two estimated treatment effects, where the null is equal treatment effect of both the interventions, for each of the variables of interest.

 $^{^{9}}$ To capture the uncertainty in our estimates that comes naturally from the random allocation of participants into the treatment groups, we also report *p*-values using randomization-based inference (RI) following Young (2019) that test the null that the placebo coefficients are similar to the actual coefficients. These are constructed by randomly shuffling the treatment groups and re-estimating our model using this placebo assignment 1,000 times. Results reported in the following section are largely robust to using this method.

 $^{^{10}}$ We have many outcomes of interest and two treatments which makes it essential to correct *p*-values for each outcome that we test. We performed a robustness check of our results using the Westfall-Young (WY) adjustments to account for joint correlation across different hypothesis tests (Westfall & Young, 1993). We report the adjusted *p*-values (with 1,000 replications) of Wald joint and Westfall-Young multiple hypothesis testing test of statistical significance for equations with multiple treatment effects for regression tables with treatment effects. Our results are consistent using this method.

¹¹ The results are robust to the use of school fixed effects and the results were found to be similar.

on both the treatment groups is not significantly different (Table 1, Column 3). This finding reflects that both the treatment groups received the same awareness program.

Ability & confidence to defend oneself. Table 1 (Panel B) reports the impact of the intervention on participants' ability and confidence to defend against physical assault, sexual assault and to fight back and neutralize an assailant. Participants perform better on all three measures due to the intervention. Participants in the awareness only treatment experienced a 2.82, 2.59, and 2.53 SD improvement in ability and confidence to defend against physical assault, sexual assault and to fight back and neutralize an assailant, respectively in comparison to the control group (p < 0.01). Similarly, participants in the awareness and training treatment group experienced a 3.57, 3.59, and 3.94 SD improvement in ability and confidence to defend against physical assault, sexual assault, sexual assault and to fight back and neutralize an assailant, respectively in comparison to the control group (p < 0.01) (see Figure A2). The impact of the intervention on the three outcomes is significantly different between treatments, with the estimates for the awareness and training treatment.

Intentions & hope. We report the effect of the intervention on the future hopes of participants and their intentions with respect to completing schooling, graduating college, highest level of education pursued and participating in the labor market in Panel C of Table 1. The intervention has a significant positive effect on each of these measures (see Figure A3).

With respect to the future hopes of participants, we find an improvement of 2.36 and 4.01 SD for the awareness only and awareness and training treatments (p < 0.01), respectively, relative to participants in the control group. The impact of the intervention on both the treatment groups is significantly different (p < 0.01) with the magnitude of the effect for participants in the awareness and training group considerably larger than that in the awareness only group.

Participants in the awareness only treatment experienced a 1.48 and 2.09 SD improvement in intention to complete school and graduate from college (p < 0.01), respectively, in comparison to participants in the control group. Participants that received the awareness and training treatment experienced a 3.10 and 3.53 SD improvement in intention to complete school and graduate college (p < 0.01), respectively, relative to those in the control group. The impact of the intervention on both the treatment groups is significantly different (p < 0.01), with the estimates for participants in the awareness and training treatment considerably higher (> 1 SD) than those in the awareness only treatment. With regard to the highest level of education one wishes to pursue, we find significant improvement for both the treatment groups. The highest level of

education one intended to pursue improved 0.96 SD for participants in the awareness only (p < 0.01) and 1.44 SD for participants in the awareness and training (p < 0.01) treatment groups, relative to participants in the control group, and are significantly different (p < 0.05).

Finally, we consider the effect of the intervention on intention to participate in the labor market. We find that participants that received the awareness only treatment experienced a 1.35 SD improvement in intention to participate in the labor force (p < 0.01), while participants in the awareness and training treatment group experienced a 2.49 SD improvement (p < 0.01) in this measure, in comparison to participants in the control group. The impact of the intervention on both treatment groups is significantly different (p < 0.01).

Health and wellbeing. We report the results for mental health and happiness in Panel D of Table 1. We find significant improvement in the mental health and happiness of participants in both treatment groups. Specifically, the mental health of participants in both treatments improves ~2 SD compared to the control group. The impact of the intervention on the happiness of participants in the awareness and training treatment group is double that of participants in the awareness only treatment group and significantly different (p < 0.01) (see Figure A4).

5.3 Effect on primary outcomes at follow-up

For the follow-up survey, we randomly selected a representative sample of 348 participants. We report the mean and standard deviation of the outcome variables at baseline (and endline) of the follow-up sample and non-follow-up sample in Table A6. Moreover, we also report the mean and standard deviation of the individual characteristics at baseline of the follow-up sample and non-follow-up sample in Panel B of Table A6. We test the equality between means (t-test p-values) of the outcome variables at baseline (and endline) and individual characteristics of follow-up and non-follow-up samples and report the results in columns 7 and 8 of Table A6. The follow-up sample is found to be balanced with the non-follow-up sample.

We also report the balance test of the baseline individual characteristics in the follow-up sample over three treatment groups. Table A7 reports the balanced summary statistics for individual characteristics and Table A8 reports the baseline outcome variables, respectively. We use the same method used in Table A4 and Table A5 for the balance check between different treatment groups. We find that the treatment group distributions are not statistically different from the control group (p > 0.10), except for mental health, which yields a *p*-value of 0.07 for the awareness only treatment group. The balance test results are not statistically different between

the two treatment group distributions (p > 0.10), except for defending against sexual assault, which yields a *p*-value of 0.08, and the happiness scale, which yields a *p*-value of 0.01.

We next discuss results from the follow-up survey, conducted six months after the endline survey. We report the results in Table 2 and Figure A7. We continue to find a large and significant effect for awareness for both the treatment groups in the follow-up survey, although the effect sizes decline compared to endline. Participants that received the awareness only treatment are found to have a 1.89 SD improvement in the knowledge index (p < 0.01), while participants that receive the awareness and training treatment have a 1.89 SD improvement (p < 0.01), relative to participants in the control group. Consistent with the findings at endline, the impact of the intervention on both the treatment groups is not significantly different (p > 0.10).

Of the three self-defense measures, only ability and confidence to defend oneself against sexual assault was surveyed at the follow-up. We find a significant improvement of 1.13 SD and 1.40 SD on ability and confidence to defend oneself against sexual assault for the awareness only and awareness and training treatment groups, respectively, in the follow-up survey, relative to participants in the control group. Hence, the effect sizes are smaller than the endline survey and the impact of the intervention on both treatment groups is not significantly different (p > 0.10).

The effect of the intervention on hope for the future and intention with respect to completing schooling, graduating college, highest education pursued and participating in labor market are all found to be persistent after six months. We find a significant improvement of 0.77 SD and 1.28 SD for hope for the future, 1.14 SD and 1.26 SD for intention to complete schooling, 1.10 SD and 1.96 SD for intention to graduate from college, 1.15 SD and 1.52 SD for highest level of education one wishes to pursue, and 1.32 SD and 1.46 SD for intention to participate in the labor market for the awareness only and awareness and training treatment groups, respectively, in the follow-up survey, relative to participants in the control group. While the effect of the two treatments on schooling and labor market intentions persist over time, there is an overall decline in the effect size on these outcomes compared to the endline survey.

There is a significant improvement for both self-reported mental health and happiness for participants in both the treatment groups in the follow-up survey. We find a significant improvement of 0.35 SD and 1.11 SD for mental health, and 1.20 SD and 1.29 SD for the happiness index for the awareness only and awareness and training treatment groups, respectively, in the follow-up survey, relative to participants in the control group. While the effect size declines, the effects continue to be significant at a p-value less than 0.01.

Finally, we collected information on the effect of the intervention on whether participants were more likely to continue their education the following academic year.¹² We find that 6.4% and 13.6% of the participants in the awareness only and awareness and training treatment groups, respectively, were significantly more likely to enroll in school or college than the control group (p < 0.01), reinforcing the findings for intention to complete schooling and graduate.

5.4 Effect on educational outcomes for participants in grades 10 and 12 at follow-up

In this section, we discuss the impact of the intervention on the educational outcomes and future career choices of participants in grades 10 and 12, six months after endline. The results are in Table 3. We also report mediation results, in which hope for the future is a channel. Figure 3 and Figure A5 graphically show the effect size of both the treatments on educational outcomes.

In Panel A of Table 3, we examine the impact of the intervention on participants' scores in Hindi and English, as well as the average marks across all subjects in the grades 10 and 12 exams. Participants in both treatments performed better than those in the control across the board. For Hindi, participants in the awareness only (awareness and training) treatment performed 1.48 SD (p < 0.01) (2.72 SD (p < 0.01)) better than participants in the control group. For English, participants in the awareness only (awareness and training) treatment performed 1.98 SD (p < 0.01) (2.72 SD (p < 0.01)) better than participants in the control group and for overall performance, participants in the awareness only (awareness and training) treatment performed 2.81SD (p < 0.01) (2.94 SD (p < 0.01)) better than participants in the control group

In Panel B of Table 3, we report the impact of the intervention on the results of participants in grade 10 in Mathematics and Science and whether they subsequently enrol in the STEM or professional pathways in grade 11. For both subjects participants in the treatment groups perform better than those in the control group. While the effect size for the awareness and training treatment is larger than awareness only, the difference is insignificant.

To examine the channel through which the intervention affects these educational outcomes, we control for future hope at the endline as a mediator and report the results in columns 3-5 in Table 3. We find that an improvement in hope about the future due to the intervention positively affects performance in Hindi, English, Mathematics and overall performance (p < 0.10).

¹² The intervention was implemented in October-November 2020, while the follow-up survey was conducted during the next academic year (July 2021).

With respect to career choice, participants in the awareness only (awareness and training) treatment are 62.20% (97.70%) more likely (p < 0.01) to end up pursuing a career in STEM. Similarly, participants in the awareness only (awareness and training) treatment are 67.60% (92.60%) more likely (p < 0.01) to end up pursuing a professional career, than those in the control.

5.5 Social desirability bias

Social desirability can bias the treatment effects on self-reported outcomes, such as confidence and future aspirations. For instance, larger social desirability bias in the treatment groups, due to experimenter demand effects, may lead to an upward bias in effect sizes for self-reported outcomes. To examine this issue, we included the social desirability scale, following Crowne & Marlowe (1960); Reynolds (1982) and Dhar et al. (2018), in the baseline survey. The social desirability scale measures a person's tendency to give socially desirable answers.¹³ We also construct a low socially desirable score dummy variable using the median as the cut-off. To test whether the treatment effects are biased, we report the heterogeneity analysis based on the low social desirability score dummy in Table 4. For the treatment effects in the follow-up survey, we report the results in Table A10 in the Appendix.

We find that positive treatment effects for self-reported confidence and motivations are similar for participants with a low and high tendency for social desirability bias, except for one instance in the endline survey. We find that participants in the treatment groups with low social desirability scores have a positive and significant effect (p < 0.10) on ability and confidence to defend against sexual assault. Thus, there is some upward bias in the treatment effect for this outcome variable in the awareness and training treatment group, compared to participants in the control group. We find similar results for treatment effects in the follow-up survey except for intention with respect to highest level of education and intention to participate in labor force, which have negative and positive significant effects (p < 0.10), respectively.

We also checked for social desirability bias in treatment effects on ability and confidence to defend oneself, hopes for the future and intentions with respect to education and work by trimming the extreme responses in the treatment arm only as well as in both treatment and control arms. The description of the trimming method and the results are reported in Appendix C.2. We find consistent and significant treatment effects for all the primary outcomes.

¹³ For details on the construction of the social desirability scale see Appendix C.1

5.6 Spillover effects

To estimate the spillover effects of the intervention with respect to awareness levels on siblings and best friends, we estimate the regression specification as in equation (1). The results are presented in Table 5. We find that both treatments have a positive and significant effect on awareness levels of the participants' best friends and siblings. For siblings, the awareness and training intervention has stronger effects than the awareness only intervention, while for friends, both treatments have similar effects. The awareness and training intervention had much stronger effects on knowledge dissemination among siblings than best friends. The relatively lower level of dissemination among friends could be due to the Indian government's restrictions on movement to restrict the spread of COVID-19, as the data were collected during that period.

5.7 Heterogenous spillover effects

In this subsection, we separate out the estimated effects in Table 5 for different sub-samples and present the results in Figure A6 and Table A11. Here, we seek to isolate the channels through which the treatments may affect the awareness of siblings and friends of participants who had taken part in the experiment.

Siblings. We find that treatments lead to a substantial and statistically significant increase in awareness among both brothers and sisters of participants (Panel A of Table A11). While the magnitude of the effect size is higher for sisters than brothers, the difference between the respective coefficients between brothers and sisters is statistically not significant.

Similarly, both treatments lead to a substantial and statistically significant increase in awareness among both younger and older sibling sub-samples. The magnitude of the effect sizes is greater for younger siblings than older siblings, although the difference between the coefficients of the older and younger siblings is only statistically significant for the awareness only intervention.

Friends. We find that both the treatments lead to a substantial and statistically significant increase in awareness among both – caste in-group and out-group friend – sub-samples (Panel B of Table A11). Further, the impact on awareness among friends who belong to the same caste as the participant is greater than the impact on friends of a different caste. This may be due to a greater affinity of participants with friends in their own caste. The coefficients on treatments in both subsamples are significantly different for the awareness and training intervention.

5.8 Heterogeneous treatment effects

We estimate whether treatment effects vary by mother's education,¹⁴ whether the participant felt unsafe at baseline,¹⁵ and whether the participant lacked freedom at home at baseline.¹⁶ To do so we estimate the following regression specification:

$$y_{i\nu1} = \alpha + \beta_1 T_{1i} + \beta_2 T_{2i} + \sum_{m=1}^3 \delta^m H_{i\nu}^m + \sum_{m=1}^3 \rho_1^m (H_{i\nu}^m \times T_{1i}) + \sum_{m=1}^5 \rho_2^m (H_{i\nu}^m \times T_{2i}) + \gamma' X_{i\nu}$$
(2)
+ $y_{i\nu0} + \theta_{\nu} + \varepsilon_{i\nu}$

where H_{iv}^m is the heterogeneity dummy (m) set equal to 1 if education level of the participant's mother is less than college, the participant feels unsafe or lacks freedom at home at baseline.

The results are in Table 6. We find that for participants whose mother's education level is less than a college degree there is significant improvement in intention to complete schooling, intention to graduate college, intention with respect to the highest level of education attained and intention to participate in the labor force for both treatments, relative to the control. Participants with less educated mothers may be less aware about women's rights at baseline and, thus, the marginal returns to the interventions are greater for this group on the relevant outcome variables.

For participants who felt unsafe at baseline, we find that both the treatments lead to a statistically significant improvement in the intention to complete schooling and intention to graduate college, but only a statistically significant improvement in the intention to participate in the labor force for the awareness and training treatment group. The marginal benefits of the awareness and training treatment are expected to be much higher for those who felt unsafe at baseline as the self-defense training would make these individuals feel more confident in dealing with an assailant or when placed in risky situations outside the home.

Finally, we examine heterogeneity by the degree of freedom at home of the participants. We find that both the treatments lead to statistically significant improvement in the intention to graduate

¹⁴ Mother non-graduate dummy variable takes the value 1 if the education level of the participant's mother is below college degree, and 0 otherwise.

¹⁵ To construct the feeling unsafe dummy variable, we use the participant's perception of safety at baseline (on an 11-point Likert scale) and use the median cut-off.

¹⁶ Degree of freedom is the sum of whether the participant was allowed to go to four different kinds of places (the market, outside the house after dark, a friend's place, and school/college) alone, with someone accompanying them or not allowed at all. It takes a value between three and 12 with a higher score indicating less freedom. Low freedom is equal to 1 if the degree of freedom at home is higher than the median at baseline, and 0 otherwise. Information for each of mother's education, feeling unsafe, no intention to participate in the labor force and having low freedom at home was collected in the baseline survey.

college and intention to participate in the labor force compared to the control group for participants with a low degree of freedom at home at baseline. This result is expected as this subgroup of participants would reap considerable benefits stemming from greater awareness.

5.9 Mediation analysis

Finally, we examine the channels through which the interventions affect the intention to complete schooling, intention to graduate college, intention to participate in the labor force and happiness.

To do so, we estimate the following specification.

$$y_{i\nu 1} = \alpha + \beta_1 T_{1i} + \beta_2 T_{2i} + \sum_{n=1}^{3} \rho^n M_{i\nu}^n + \gamma' X_{i\nu} + y_{i\nu 0} + \theta_\nu + \varepsilon_{i\nu}$$
(3)

where; M_{iv}^n is the mediator *n*. We consider three mediators: awareness, measured by the knowledge index, ability and confidence to defend against sexual assualt and hope for the future. We estimate the above specification sequentially, adding one mediator at a time to study the role of each channel. Since we have three mediators and four outcomes of interest, we estimate model (3) twelve times. For example, for the outcome variable intention to complete schooling, we first employ the knowledge index as a mediator, then employ the knowledge index and ability and confidence to defend against physical assault as mediators and finally employ all three mediators to get the direct effects after controlling for the mediation effects.¹⁷ We repeat this for the other outcome variables: intention to graduate, intention to participate in the labour force and the happiness index. In all specifications, the error terms are clustered at the region level.

In Panel A of Table 7 we report the mediation analysis where the outcome variable is intention to complete schooling. The treatment effects decline as we control for additional mediators. The average effect of the treatment on intention to complete schooling operates through ability and confidence to defend against physical assault and hope for the future and both variables are statistically significant at the 1% level. Similarly, for intention to graduate college (Panel B) and intention to participate in the labor force (Panel C), the average effects of the treatment on participants operates through ability and confidence to defend against physical assault and hope for the future and both coefficients are statistically significant at the 1% level. However, awareness is found to have no significant indirect effect.¹⁸ Thus, overall, we find that participants'

¹⁷ The results are robust to the order in which the mediators are added with only slight variation in the magnitudes of the coefficients and no change in sign or statistical significance.

¹⁸ A Wald test of the difference between the treatment effects without any mediators and with the knowledge index as the only mediator finds that the knowledge index is insignificant for all the outcome variables except intention to complete schooling.

ability and confidence to defend against physical assault and hopes for the future¹⁹ are important channels, while awareness, proxied by the the knowledge index, was not an effective channel.

6 Conclusion

Crimes against women are a major problem in many developing countries, including India. Several studies suggest that fear of crime among girls and women has negative effects on female empowerment, including loss of human capital and reduced willingness to work outside the home (Chakraborty et al., 2018; Mishra et al., 2021; Sudarshan & Bhattacharya, 2009). For a sample of adolescent females, we examine the effect of an awareness treatment and awareness and training treatment, not only on knowledge of what constitutes a crime and how to report it, ability and confidence to fight back against an assailant and on their health and wellbeing, but also on aspirational outcomes - their hopes for the future and intentions with respect to schooling and participation in the labor force. For a subsample of participants that we resurvey at follow-up, we find that the treatment effects continue to be persistent six months after endline. We find evidence of spillover effects with respect to awareness from treated individuals to their social networks. We also find that the treatments have positive effects on objective outcomes for a subsample of participants enrolled in grades 10 and 12 at the time of the intervention. Specifically, the interventions have a positive effect on examination scores and increase the likelihood that participants follow commerce and/or science pathways.

Many studies point to the importance of developing strategies to reduce the fear of crime. Most of these strategies seek to ensure that adult women feel more able and confident to defend themselves if placed in a risky situation. Our study is unique in being targeted at adolescent girls and not only examining the effect of the interventions on their ability and confidence to fight off an assailant, but also their career goals and hopes for the future. There is increasing interest among economists in the returns to investing in programs in childhood and adolescence (see e.g. Conti et al., 2016; Gertler et al., 2014; Heckman et al., 2013). Our findings suggest that including an awareness module and self-defense training in the school curriculum may help create a pool of confident and independent girls, who can make better informed decisions about their career goals, such as the decision to pursue higher education, graduate college and participate in the labor

¹⁹ In Table A12 we report the OLS and 2SLS estimates for hope for the future at the endline survey, where we instrument 'Hope for the future' (measured at endline survey) using the random assignment to the treatment. The outcomes - intention to complete schooling, intention to graduate college, intention to participate in the labor force, and happiness - in columns (1)-(4) are z-scores (with mean 0 and SD 1). We find hope for the future to be a highly effective (p < 0.01) channel in improving each of these outcomes.

force. Our findings for the positive effects of the intervention on objective outcomes in the form of examination results and study pathways reinforce the effects of the treatments on subjective professional goals and hope for the future. Our results also suggest that making awareness about rights and self-defense training part of the school curriculum can also assist to disseminate information about women's safety among participants' close networks, such as siblings and friends, further increasing the pool of confident and independent girls and women.

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Tables & Figures

Tables

Table 1: Treatment effects at endline								
	Enc	lline	Wald Test RI <i>p</i> -value		alues	es Multiple hypothesis testing		
	A-Only	A&T	$\beta_{(1)} = \beta_{(2)}$	A-Only	A&T	Wald Joint	Westfall- Young	
Outcome Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
A. Awareness								
Knowledge index	3.732***	3.969***	0.127	0.000	0.000	0.000	0.000	
	(0.120)	(0.070)						
B. Ability & Confider	nce to Defen	d Oneself						
Defend physical								
assault	2.818***	3.566***	0.007	0.001	0.000	0.001	0.001	
	(0.230)	(0.076)						
Defend sexual assault	2.592***	3.593***	0.000	0.000	0.000	0.001	0.001	
	(0.198)	(0.054)						
Fight back &								
neutralize assailant	2.533***	3.943***	0.000	0.000	0.001	0.001	0.001	
	(0.069)	(0.060)						
C. Intention & Hope								
Hope for the future	2.361***	4.099***	0.000	0.000	0.001	0.000	0.000	
	(0.295)	(0.071)						
Intention to complete	. ,							
schooling	1.483***	3.105***	0.000	0.000	0.001	0.001	0.001	
0	(0.325)	(0.097)						
Intention to graduate								
college	2.095***	3.531***	0.000	0.000	0.000	0.001	0.001	
C	(0.156)	(0.120)						
Highest level of	(0.120)	(0.120)						
education	0.965***	1.437***	0.044	0.001	0.000	0.000	0.000	
	(0.216)	(0.051)						
Intention to	(0.210)	(0.051)						
participate in the								
labor force	1 355***	2 486***	0.000	0.001	0.000	0.000	0.000	
	(0.132)	(0.120)	0.000	0.001	0.000	0.000	0.000	
D. Health & Hannine	(0.1 <i>52)</i>	(0.120)						
Mental health	2 055***	1 996***	0.917	0.000	0.046	0.001	0.001	
manul noutur	(0.542)	(0.083)	0.717	0.000	0.040	0.001	0.001	
Hanniness index	1 661***	3 200***	0.000	0.000	0.001	0.000	0.000	
muppiness index	(0.242)	(0.067)	0.000	0.000	0.001	0.000	0.000	
Observations	690	690	-	-	_	_	-	

Note: A-Only and A&T are Awareness Only and Awareness & Training treatment groups, respectively. All outcomes are standardized indices so that the control group has a mean zero and standard deviation one. The standardized baseline index/value of the outcome variables is controlled for in all regressions except for the Knowledge index. Columns (1) & (2) present the estimated treatment effects of A-Only & A&T, respectively. Refer to Table A1 for a detailed description of all the outcome variables. All regressions also control for individual characteristics, such as age (in years), grade (7th to 12th), rural dummy (rural versus other regions of residence), joint family versus other types of family structure, caste category of the participant (General, OBC (other backward castes) and SC/ST (Scheduled Caste/Scheduled Tribe)), father's education (graduate and non-graduate), mother's education (graduate and non-graduate), father's employment (employed and unemployed), mother's employment (employed and unemployed), birth order (among siblings), income level of family (relatively rich) compared to others in the village (which takes a value 1 if prosperous, very comfortable and reasonably comfortable versus others, i.e., just getting along, poor or very poor), and household size (number of members in the family). We also include region fixed effects. Wald statistics in Column (3) indicate if the estimated coefficients associated with the *A-Only* and *A&T* treatments differ significantly. RI-test *p*-values in Columns (4) & (5) are based on a two-sided randomization inference test (with 1,000 replications) for both treatments (Young, 2019). Column (6) reports *p*-values for the Wald joint-test of the significance (adjusted p-value with 1,000 replications) of treatment measures in each equation (Young, 2019). Column (7) reports Westfall-Young multiple hypothesis test of the significance (adjusted *p*-value with 1,000 replications) of any treatment measure in each equation (Westfall & Young, 1993). Robust standard errors clustered at the region level are in parentheses in columns (1) - (2). *** p<0.01, ** p<0.05, * p<0.1

	Follow-up		Wald Test	Vald Test RI <i>p</i> -values			Multiple hypothesis testing		
	A-Only	A&T	$\beta_{(1)} = \beta_{(2)}$	A-Only	A&T	Wald Joint	Westfall- Young		
Outcome Variables	(1)	(2)	(5)	(6)	(7)	(8)	(9)		
A. Awareness									
Knowledge index	1.891***	1.887***	0.978	0.000	0.001	0.001	0.001		
	(0.063)	(0.121)							
B. Ability & Confidence to	Defend On	eself							
Defend sexual assault	1.129***	1.401***	0.137	0.001	0.004	0.001	0.001		
	(0.131)	(0.085)							
C. Intention & Hope									
Current enrolment status	0.064***	0.136***	0.004	0.195	0.425	0.318	0.318		
	(0.011)	(0.015)							
Hope for the future	0.772***	1.277***	0.007	0.002	0.324	0.003	0.003		
	(0.070)	(0.132)							
Intention to complete	× ,								
schooling	1.140***	1.260***	0.439	0.241	0.057	0.104	0.104		
	(0.116)	(0.083)							
Intention to graduate									
college	1.105***	1.957***	0.000	0.000	0.115	0.001	0.001		
	(0.096)	(0.111)							
Highest level of education	1.154***	1.521***	0.003	0.001	0.001	0.001	0.001		
	(0.086)	(0.045)							
Intention to participate in									
the labor force	1.322***	1.464***	0.271	0.000	0.029	0.001	0.001		
	(0.081)	(0.102)							
D. Health & Happiness									
Mental health	0.354***	1.106***	0.0037	0.018	0.466	0.035	0.035		
	(0.079)	(0.194)							
Happiness index	1.204***	1.294***	0.563	0.000	0.015	0.001	0.001		
	(0.089)	(0.109)							
Observations	348	348	_	_	_	_	_		

Table 2: Treatment effects at the follow-up survey

Note: Refer to footnote of Table 1. All outcomes except *Current enrolment status* are standardized indices so that the control group has mean zero and standard deviation one. The standardized baseline index/value of the outcome variables is controlled for in all regression except for the *Knowledge index & Current enrolment status*. *Current enrolment status* takes the value one if the participant is continuing education during follow-up survey, and zero otherwise. During the follow-up survey seven students dropped out of school for various reasons, including financial difficulties and safety concerns.

	Follo	ow-up	Mediation results		ts	Wald Test		RI p-values		Multiple hypothesis testing	
	A-Only	A&T	A-Only	A&T	Mediator	$\beta_{(1)} = \beta_{(2)}$	A-Only	A&T	Wald Joint	Westfall- Young	
Outcome Variables	(1)	(2)	(3)	(4)	(5)	(7)	(8)	(9)	(10)	(11)	
A. Students in Grade	10 & 12										
Hindi score	1.477***	2.719***	1.150***	1.946**	0.185*	0.081	0.000	0.001	0.001	0.001	
	(0.238)	(0.649)	(0.253)	(0.831)	(0.104)						
English score	1.927***	2.724***	1.638***	2.040**	0.164*	0.254	0.000	0.004	0.001	0.001	
	(0.260)	(0.774)	(0.266)	(0.835)	(0.092)						
Overall performance	2.808***	2.940***	2.432***	2.051***	0.213*	0.805	0.000	0.001	0.001	0.001	
	(0.290)	(0.421)	(0.326)	(0.636)	(0.111)						
Observations	170	170	170	170	170	-	-	-	-	-	
B. Students in Grade	10										
Mathematics score	0.730*	1.527***	1.397	1.846*	0.241*	0.179	0.000	0.003	0.000	0.000	
	(0.396)	(0.486)	(1.158)	(1.062)	(0.138)						
Science score	1.987***	2.116***	0.487	0.490	0.087	0.78	0.006	0.136	0.012	0.012	
	(0.261)	(0.506)	(0.665)	(0.530)	(0.107)						
STEM	0.622***	0.977***	0.371	0.655**	0.049	0.155	0.011	0.000	0.001	0.001	
	(0.139)	(0.266)	(0.225)	(0.261)	(0.045)						
Professional	0.676***	0.926***	0.026	0.231	0.031	0.236	0.211	0.013	0.027	0.027	
	(0.126)	(0.202)	(0.205)	(0.194)	(0.030)						
Observations	131	131	131	131	131	-	_	_	_	-	

Table 3: Treatment effects on educational outcomes at follow-up survey

Note: Hindi, English, overall performance, mathematics and science are scores in the school board examination held after the endline survey and are standardized indices so that the control group has mean zero and standard deviation one. *STEM* is an indicator variable that takes the value 1 if the participant has opted for science as a major for pre-college education (11^{th} grade) and 0 otherwise. *Professional* is an indicator variable which takes the value 1 if the participant has opted for commerce or science as major for pre-college education (11^{th} grade), and 0 otherwise. Columns (1) & (2): the estimated treatment effects of *A-Only* & *A*&*T* in the follow-up survey, respectively. Columns (3) - (5): the estimated treatment effects of *A-Only*, *A*&*T*, and the *Mediator* (endline *Hope for the future*) in the follow-up survey, with all covariates, respectively. Refer to footnote of Table 1.

	Variables of interest							
	A-Only	A&T	LSDS	A-Only $ imes$ LSDS	A&T × LSDS			
Outcome Variables	(1)	(2)	(3)	(4)	(5)			
A. Awareness								
Knowledge index	3.468***	3.869***	-0.141	0.213	0.158			
	(0.125)	(0.171)	(0.149)	(0.159)	(0.153)			
B. Ability & Confidence to	Defend On	eself						
Defend physical assault	3.311***	3.906***	-0.106	0.018	0.026			
	(0.109)	(0.237)	(0.146)	(0.150)	(0.160)			
Defend sexual assault	2.751***	3.734***	-0.183	0.085	0.249*			
	(0.120)	(0.195)	(0.128)	(0.148)	(0.134)			
Fight back & neutralize								
assailant	3.049***	4.466***	-0.189	0.189	0.200			
	(0.115)	(0.135)	(0.149)	(0.148)	(0.164)			
C. Intention & Hope								
Hope for the future	2.663***	4.236***	0.071	-0.075	-0.126			
	(0.149)	(0.302)	(0.123)	(0.173)	(0.153)			
Intention to complete								
schooling	2.263***	3.438***	-0.117**	0.095	0.103			
	(0.111)	(0.343)	(0.048)	(0.090)	(0.085)			
Intention to graduate								
college	2.335***	3.589***	0.111	0.013	-0.019			
	(0.084)	(0.184)	(0.095)	(0.095)	(0.124)			
Highest level of education	0.856***	1.544***	-0.005	0.030	0.039			
	(0.108)	(0.241)	(0.074)	(0.116)	(0.100)			
Intention to participate in								
labor force	1.353***	2.420***	-0.124	0.062	0.167			
	(0.083)	(0.181)	(0.085)	(0.110)	(0.109)			
D. Health & Happiness								
Mental health	1.089***	1.181*	0.027	-0.004	-0.002			
	(0.173)	(0.606)	(0.133)	(0.183)	(0.188)			
Happiness index	1.566***	2.884***	0.078	-0.081	-0.124			
	(0.275)	(0.286)	(0.275)	(0.313)	(0.286)			

|--|

Note: Treatment effects are estimated from OLS at the endline. *A-Only* and *A&T* are awareness only and awareness & training treatment groups, respectively. All outcomes are standardized indices so that the control group has mean zero and standard deviation one. The standardized baseline index/value of the outcome variables is controlled for in all regressions except for the *Knowledge index*. Column (1) & (2): the treatment effect of *A-Only* (awareness only) & *A&T* (awareness & training), respectively. Column (3) - (5): Social desirability score is a baseline measure of the participant's propensity to give socially desirable answers. A low social desirability score (LSDS) refers to having a score below or equal to the median for the sample (Refer to section C.1 of Appendix C for details). Refer to Table A1 for the details of all outcome variables. All regressions also control for all individual characteristics (refer to footnote of Table 1). We also include region fixed effects. Robust standard errors clustered at the region level are in parentheses in columns (1) - (5). *** p<0.01, ** p<0.05, * p<0.10

	Participants	Siblings	Friends
Variables of interest	(1)	(2)	(3)
A-Only	3.732***	3.313***	2.084***
	(0.120)	(0.111)	(0.063)
A&T	3.969***	3.867***	2.095***
	(0.070)	(0.172)	(0.089)
Control mean	3.792	4.383	4.150
	(1.852)	(1.836)	(2.601)
Observations	690	197	504

Table 5: Spill-over effects of awareness among friends & siblings

Note: Treatment effects are estimated from OLS. *A-Only* and *A*&*T* are awareness only and awareness & training treatment groups, respectively. *Knowledge Index* is a standardized index so that the control group has mean zero and standard deviation one. All regressions also control for all individual characteristics (refer to footnote of Table 1).

		Defend	Defend	Fight back &	Intention to	Intention to	Highest		
	Knowledge	physical	sexual	neutralize	complete	graduate	level of	Intention	
Outcome variables	Index	assault	assault	assailant	schooling	college	education	to PLF	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
A-Only	3.431***	2.268***	1.592***	2.319***	0.735*	1.203***	0.202	0.879***	
	(0.138)	(0.320)	(0.361)	(0.312)	(0.408)	(0.256)	(0.313)	(0.238)	
A&T	3.725***	2.749***	2.846***	3.566***	2.385***	2.910***	0.520**	2.274***	
	(0.195)	(0.330)	(0.345)	(0.407)	(0.220)	(0.233)	(0.232)	(0.201)	
Mother non-graduate	-0.189	-0.341	-0.313	-0.309	-0.278**	-0.505***	-0.450	-0.206	
	(0.155)	(0.250)	(0.361)	(0.371)	(0.099)	(0.153)	(0.273)	(0.163)	
Mother non-graduate x A-									
Only	0.371**	0.208	0.463	0.221	0.413**	0.742***	0.606**	0.404**	
	(0.165)	(0.240)	(0.367)	(0.371)	(0.186)	(0.203)	(0.281)	(0.186)	
Mother non-graduate x A&T	0.145	0.335	0.205	0.125	0.458***	0.612***	0.831***	0.324*	
	(0.187)	(0.238)	(0.361)	(0.373)	(0.129)	(0.180)	(0.269)	(0.173)	
Feel unsafe	0.043	-0.024	0.041	0.150	-0.340***	-0.220***	-0.115	-0.173	
	(0.131)	(0.162)	(0.139)	(0.203)	(0.104)	(0.059)	(0.117)	(0.100)	
Feel unsafe x A-Only	0.056	0.055	-0.139	-0.149	0.430***	0.181**	0.055	0.102	
-	(0.136)	(0.178)	(0.220)	(0.206)	(0.146)	(0.084)	(0.131)	(0.120)	
Feel unsafe x A&T	-0.042	0.123	0.021	-0.118	0.458***	0.393**	0.054	0.260*	
	(0.162)	(0.182)	(0.183)	(0.221)	(0.151)	(0.148)	(0.127)	(0.135)	
Low freedom	0.054	0.048	-0.320*	-0.044	-0.026	-0.481***	-0.102	-0.539***	
	(0.284)	(0.198)	(0.163)	(0.137)	(0.233)	(0.135)	(0.241)	(0.128)	
Low freedom x A-Only	-0.160	-0.216	0.346	-0.062	0.110	0.617**	0.138	0.582***	
-	(0.280)	(0.213)	(0.230)	(0.146)	(0.295)	(0.219)	(0.271)	(0.169)	
Low freedom x A&T	0.005	-0.080	0.316	-0.008	-0.038	0.352**	0.203	0.510***	
	(0.300)	(0.227)	(0.196)	(0.170)	(0.251)	(0.143)	(0.258)	(0.172)	
Observations	690	690	690	690	690	690	690	690	
R-squared	0.893	0.826	0.821	0.890	0.770	0.798	0.761	0.822	

 Table 6: Heterogeneity analysis

Note: Treatment effects are estimated from OLS. *A-Only* and *A&T* are awareness only and awareness & training treatment groups, respectively. All outcomes are standardized indices so that the control group has mean zero and standard deviation one. The standardized baseline index/value of the outcome variables is controlled for in regression except for the *Knowledge index*. Refer to Table A1 for the details of all outcome variables. All regressions also control for all individual characteristics (refer footnote of Table 1). We also include region fixed effects. *Mother non-graduate* is equal to 1 if the mother's maximum education is less than a college degree. *Feel unsafe* equals 1 if the perception of safety is less than the median at baseline. *Low freedom* is equal to 1 if the degree of freedom at home is lower than the median at baseline. Degree of freedom is the sum of whether the participant was allowed to go to four different kinds of places (marketplaces, outside house after dark, friend's place and school/college) alone, with someone accompanying them, or not allowed at all. It takes the value from 3 to 12 where higher scores denote less the freedom.

	Panel A: Inte	ntion to comple	ete schooling	Panel B: Intention to graduate college			
Variable of interest	(1)	(2)	(3)	(4)	(5)	(6)	
A-Only	1.956***	1.409***	1.253***	2.192***	1.620***	1.455***	
	(0.104)	(0.287)	(0.289)	(0.112)	(0.270)	(0.273)	
A&T	3.067***	2.275***	1.901***	3.315***	2.399***	2.000***	
	(0.095)	(0.350)	(0.360)	(0.111)	(0.349)	(0.362)	
Knowledge index		0.030	0.008		-0.014	-0.039	
-		(0.053)	(0.060)		(0.042)	(0.051)	
Defend sexual assault		0.194**	0.114**		0.277***	0.191***	
		(0.070)	(0.051)		(0.068)	(0.048)	
Hope for the future			0.184***			0.197***	
-			(0.050)			(0.040)	

Table 7: Causal mediation analysis

	Panel C: Inte	ntion to PLF		Panel D: Happiness index			
Variable of interest	(1)	(2)	(3)	(4)	(5)	(6)	
A-Only	1.531***	1.393***	1.279***	1.450***	0.496	0.071	
	(0.138)	(0.197)	(0.211)	(0.130)	(0.296)	(0.189)	
A&T	2.378***	2.058***	1.787***	2.873***	1.581***	0.554**	
	(0.122)	(0.225)	(0.248)	(0.100)	(0.344)	(0.257)	
Knowledge index		-0.053	-0.068		0.094	0.031	
		(0.042)	(0.042)		(0.063)	(0.044)	
Defend sexual assault		0.148**	0.090*		0.268***	0.048	
		(0.055)	(0.046)		(0.071)	(0.043)	
Hope for the future			0.132***			0.509***	
			(0.030)			(0.035)	

Note: Treatment effects are estimated from OLS at the endline. *A-Only* and A&T are awareness only and awareness & training treatment groups, respectively. All outcomes are standardized indices so that the control group has mean zero and standard deviation one. *Knowledge index, Defend sexual assault* and *Hope for the future* are also standardized indices, like the outcome variables. The standardized baseline index/value of the outcome variables is controlled for in all regressions. Refer to Table A1 for the details of all the outcome variables. All regressions also control for all individual characteristics (refer to the footnote of Table 1). We also include region fixed effects. Robust standard errors clustered at the region level are in parentheses. *** p<0.01, ** p<0.05, * p<0.10

Figures







Figure 2: Effect size at the endline survey

Note: This figure shows the estimated treatment effects (same as in columns (1) - (2) of Table 1) in standard deviations, where the control group has mean zero and standard deviation one. Effects are reported with 95% confidence intervals. Refer to Table A1 for the detailed description of all the outcome variables.



Figure 3: Effect size on educational outcomes

Note: This figure shows estimated treatment effects (same as in columns (1) - (2) of Table 3) in standard deviations, where the control group has mean zero and standard deviation one; except STEM and Professional. *STEM* is a binary variable which takes the value 1 if the participant has opted for science as a major for precollege education (11th grade) and 0 otherwise. *Professional* is a categorical variable which takes the value 1 if the participant has opted for science or commerce as major for pre-college education (11th grade), and 0 otherwise. Effects are reported with 95% confidence intervals. Refer to Table A1 for the detailed description of all the outcome variables.

Online Appendix

She can fight her own battles:

Experimental evidence on the effects of increasing awareness about rights and self-defense training on female empowerment in India

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Appendix A: Additional Tables and Figures

A.1 Tables

Table	A1: Description of outcome variables				
Outcome Variables	Measure	Definition	В	E	F
Panel A. Awareness					
Knowledge Scale	Based on 11 questions testing knowledge	Continuous: 0-11	\mathbf{v}	/	1
	(True/False): score 0-11	Continuous. 0-11		v	v
Panel B. Ability & Confidence to I	Defend Oneself				
Defend physical assault	Ability to defend oneself against physical				
	assault from an acquaintance or stranger	Continuous: 1-7	\checkmark	\checkmark	×
	scale: score 1-7				
Defend sexual assault	Confidence to defend oneself against sexual	Continuous: 0-10	\checkmark	\checkmark	\checkmark
	assault scale: score 0-10		·	•	•
Fight back & neutralize an	Confidence to fight back & neutralize an	G 1.10	,		
assailant	assailant in 6 different ways (Hollander, 2014;	Continuous: 1-10	\checkmark	\checkmark	Х
	Weitlauf et al., 2001) scale: score 1-10				
Panel C. Intention & Hope					
Current enrolment Status	Continued education in next academic year in	Indicator: $= 1$ if	\mathbf{v}	\sim	/
	school of college six months after end line	continued	Х	X	\checkmark
Hope for the future	Subjective hope for the future scale, score 0				
Hope for the future	Subjective hope for the future scale, score 0-	Continuous: 0-10	\checkmark	\checkmark	\checkmark
Intention to complete schooling	Intention to complete schooling scale: score				
intention to complete schooling	0-10	Continuous: 0-10	\checkmark	\checkmark	\checkmark
Intention to graduate college	Intention to graduate college scale: score 0-10	Continuous: 0.10	/	/	/
Highest level of advestion	Highest level of education participant wishes	Continuous. 0-10	v	v	v
Highest level of education	to pursue: score 1.5 (grade 12^{th} to Ph D.)	Continuous: 1-5	\checkmark	\checkmark	\checkmark
Intention to participate in labor	Intention to participate in labor force scale:				
force	score $0-10$	Continuous: 0-10	\checkmark	\checkmark	\checkmark
Panel D Health & Hanniness	30010 0-10				
Mental health	Mental health in general in the past 7 days:				
	score 1-5	Continuous: 1-5	\checkmark	\checkmark	\checkmark
Happiness scale	Feeling of happiness in general in the past 7				
<u>F</u> F	days: score 0-10	Continuous: 0-10	\checkmark	\checkmark	\checkmark
Panel F. Educational Outcomes (P	articipants who appeared Board examination)				
Hindi score (Only for grades 10 &	Marks secured in Hindi in the board	G / 0 100			,
12)	examination for the academic year 2020-21.	Continuous: 0-100	Х	Х	\checkmark
English score (Only for grades 10	Marks secured in English in the board	Continuous: 0-100	\mathbf{v}	\sim	/
& 12)	examination for the academic year 2020-21.		~		\checkmark
Overall academic performance	Average marks in all subjects in the board	Continuous: 0-100	\sim	\sim	/
(Only for grades 10 & 12)	examination for the academic year 2020-21.		^		V
Mathematics score (Only for grade	Marks secured in Mathematics in the board	Continuous: 0-100	\sim	\sim	/
10)	examination for the academic year 2020-21.				v
Science score (Only for grade 10)	Marks secured in Science in the board	Continuous: 0-100	×	×	./
	examination for the academic year 2020-21.		\sim	~	v
STEM (Only for grade 10)	Choice of science stream as a major for pre-	Indicator $= 1$ if			
	college education (for grade 11) in next	stream is Science	X	×	\checkmark
	academic year.				
Professional (Only for grade 10)	Choice of commerce or science as a major for	Indicator: $= 1$ if	、 <i>-</i>		,
	pre-college education (for grade 11) in next	stream is Science	Х	Х	\checkmark
	academic year.	or Commerce			

Note: The first three columns list the outcome variables and how they are measured and defined. The last three columns indicate whether outcomes are measured at the baseline (B), end line (E), and/or follow-up survey (F). \checkmark corresponds to Yes and X corresponds to No.

	Co	ontrol	A	Only	A	& T
	Endline	Follow-up	Endline	Follow-up	Endline	Follow-up
Variables	(1)	(2)	(3)	(4)	(5)	(6)
A. Awareness						
Knowledge scale	3.79	3.98	10.67	8.53	10.73	8.97
C C	(1.85)	(2.46)	(0.66)	(2.05)	(0.63)	(1.76)
B. Ability & Confidence to I	Defend One	eself				
Defend physical assault	3.97	-	6.28	-	6.68	-
	(0.80)		(0.46)		(0.46)	
Defend sexual assault	4.56	4.65	7.31	6.88	8.89	7.38
	(1.24)	(1.81)	(0.86)	(1.64)	(0.61)	(1.48)
Fight back & neutralize						
assailant	3.36	-	7.19	-	8.93	-
	(1.43)		(0.54)		(0.63)	
C. Intention & Hope						
Current enrolment Status	-	0.95	-	0.98	-	1.00
		(0.22)		(0.13)		(0.00)
Hope for the future	5.75	6.38	7.60	7.41	8.98	7.68
	(0.81)	(1.12)	(0.71)	(1.11)	(0.66)	(1.02)
Intention to complete						
schooling	5.74	6.32	7.79	7.36	8.84	7.50
	(1.02)	(1.20)	(0.82)	(1.24)	(0.59)	(1.09)
Intention to graduate college	5.72	5.80	7.84	7.66	8.82	7.81
	(0.95)	(1.27)	(0.74)	(1.43)	(0.61)	(1.20)
Highest level of education	3.22	3.17	4.39	4.41	4.55	4.48
	(1.15)	(1.01)	(0.63)	(0.66)	(0.54)	(0.59)
Intention to PLF	5.57	5.79	7.74	7.59	8.86	7.71
	(1.37)	(1.37)	(0.71)	(1.08)	(0.52)	(0.95)
D. Health & Happiness						
Mental health	3.66	3.09	4.53	3.33	4.67	3.68
	(0.47)	(0.73)	(0.50)	(0.85)	(0.48)	(1.21)
Happiness scale	6.13	6.51	7.57	7.56	8.97	7.77
	(0.99)	(1.28)	(0.79)	(1.12)	(0.66)	(1.10)
Observations	202	102	243	122	245	124

Table A2: Summary statistics by treatment types

Note: A-Only and A&T are the awareness only and awareness & training treatment groups, respectively. Treatment and Control columns show the mean of the corresponding variables. Standard Error (SD) is reported in parenthesis.

	Control	A-Only	A&T
Variables	(1)	(2)	(3)
A. Students in grades 10 & 12			
Hindi score	51.46	66.25	62.28
	(6.47)	(6.30)	(6.52)
English score	54.92	64.87	76.82
	(6.71)	(7.51)	(5.82)
Overall academic performance	60.30	69.42	71.68
-	(3.84)	(4.48)	(3.45)
Observations	52	68	50
B. Students in grade 10			
Mathematics score	59.16	73.75	79.22
	(8.21)	(9.55)	(8.07)
Science score	64.89	76.88	73.66
	(7.90)	(7.39)	(7.27)
STEM	0.55	0.71	0.78
	(0.50)	(0.46)	(0.42)
Professional	0.74	0.88	0.88
	(0.45)	(0.32)	(0.33)
Observations	38	52	41

Table A3: Summary statistics of educational outcomes

Note: A-Only and A&T are the awareness only and awareness & training treatment groups, respectively. Treatment and Control columns show the mean of the corresponding variables. Standard Error (SD) is reported in parenthesis. Refer to footnote to Table 3.

	Carta		AQT		t-test <i>p</i> -va	alues	
	Control	A-Only	A&I	Ref: Co	ontrol	Ref: A-Only	
	(SD)	(SD)	(SD)	A-Only	A&T	A&T	
Variables	(1)	(2)	(3)	(4)	(5)	(6)	
Age (in years)	14.58	14.30	14.38	0.18	0.42	0.76	
	(1.85)	(1.75)	(1.82)				
Grade	9.20	9.09	8.96	0.53	0.18	0.50	
	(1.54)	(1.53)	(1.51)				
Caste=General	0.30	0.23	0.18	0.43	0.11	0.41	
	(0.46)	(0.42)	(0.38)				
Caste =OBC	0.62	0.71	0.73	0.30	0.18	0.82	
	(0.49)	(0.46)	(0.45)				
Caste=SC/ST	0.08	0.06	0.10	0.48	0.81	0.47	
	(0.28)	(0.23)	(0.30)				
Birth order	1.32	1.27	1.34	0.55	0.75	0.35	
	(0.51)	(0.44)	(0.50)				
Joint family dummy	0.31	0.37	0.33	0.26	0.50	0.46	
	(0.46)	(0.48)	(0.47)				
Rural dummy	0.50	0.43	0.57	0.83	0.80	0.63	
	(0.50)	(0.50)	(0.50)				
Father graduate dummy	0.29	0.39	0.29	0.65	0.97	0.67	
	(0.45)	(0.49)	(0.46)				
Mother graduate dummy	0.20	0.28	0.20	0.67	0.99	0.68	
	(0.40)	(0.45)	(0.40)				
Father employed dummy	0.89	0.86	0.89	0.37	0.76	0.22	
	(0.32)	(0.34)	(0.31)				
Mother employed	0.01	0.00	0.02	0.58	0.61	0.20	
Guilling	(0, 10)	(0.06)	(0.12)				
Household size	(0.10)	(0.00)	(0.15)	0.22	0.40	0.72	
nousenoiu size	3.91	(2, 61)	(2, 42)	0.23	0.40	0.72	
Income status	(2.31)	(2.01)	(2.43)	0.50	0.69	0.60	
income status	(0.83)	(0.40)	(0.82)	0.30	0.08	0.09	
	(0.30)	(0.40)	(0.38)				
Observations	202	243	245	690	690	488	

 Table A4: Balance test of individual characteristics

Note: *A-Only* and A&T are Awareness Only and Awareness & Training treatment groups, respectively. Treatment and Control columns show the mean of the corresponding variables. The variables are as follows: age (in years), grade (7th to 12th), rural dummy (rural versus other regions of residence), joint family versus other types of family structure, caste category of the participant (General, OBC (other backward castes) and SC/ST (Scheduled Caste/Scheduled Tribe)), father's education (graduate and non-graduate), mother's education (graduate and nongraduate), father's employment (employed and unemployed), mother's employment (employed and unemployed), birth order (among siblings), income level of family (relatively rich) compared to others in the village (which takes a value 1 if prosperous, very comfortable and reasonably comfortable versus others, i.e., just getting along, poor or very poor), and household size (number of members in the family). t-test *p*-values are derived from linear regression, with the variable of interest as the dependent variable and the treatment indicator as an independent variable with standard errors clustered at the region level. (Control group is base for column (4) & (5) and *A-Only* is base for column (6)). Standard Error (SD) is reported in parenthesis.

	Control	A Only	A 8-T	1	t-test p-va	alues
	Control	A-Omy	ΑαΙ	Ref: Co	ontrol	Ref: A-Only
	(SD)	(SD)	(SD)	A-Only	A&T	A&T
Variables	(1)	(2)	(3)	(4)	(5)	(6)
B. Ability & Confidence to Def	end Onesel	f				
Defend physical assault	0.52	0.54	0.53	0.19	0.40	0.43
	(0.11)	(0.09)	(0.10)			
Defend sexual assault	0.52	0.54	0.53	0.34	0.91	0.20
	(0.15)	(0.12)	(0.11)			
Fight back & neutralize						
assailant	0.46	0.48	0.47	0.33	0.62	0.20
	(0.11)	(0.11)	(0.12)			
C. Intention & Hope						
Hope for the future	0.59	0.60	0.59	0.42	0.72	0.36
	(0.12)	(0.13)	(0.13)			
Intention to complete schooling	0.60	0.62	0.59	0.42	0.55	0.03
	(0.09)	(0.08)	(0.10)			
Intention to graduate college	0.61	0.62	0.60	0.44	0.67	0.09
	(0.10)	(0.08)	(0.09)			
Highest level of education	0.65	0.71	0.67	0.28	0.76	0.30
	(0.23)	(0.24)	(0.19)			
Intention to PLF	0.58	0.61	0.60	0.56	0.71	0.74
	(0.15)	(0.14)	(0.11)			
D. Health & Happiness						
Mental health	0.87	0.83	0.83	0.14	0.19	0.94
	(0.12)	(0.12)	(0.12)			
Happiness scale	0.59	0.60	0.61	0.72	0.25	0.31
	(0.15)	(0.15)	(0.15)			
Observations	202	243	245	690	690	488

Table A5: Balance test of baseline outcomes

Note: *A-Only* and A&T are the awareness only and awareness & training treatment groups, respectively. Treatment and Control columns show the mean of the corresponding variables. Variables are averages of responses to survey questions associated with the outcomes, such that the value of each variable is between 0 and 1. Refer to Table A1 for the details of all the outcome variables. t-test *p*-values are derived from linear regression, with the variable of interest as the dependent variable and the treatment indicator as an independent variable with standard errors clustered at the region level (control group is base for column (4) & (5) and *A-Only* is base for column (6)). Standard Error (SD) is reported in parenthesis.

	Non-Fo	llow-up	Follo	w-up	t-test p	-values
	Baseline	Endline	Baseline	Endline	$\mu_{(1)} = \mu_{(3)}$	$\mu_{(2)} = \mu_{(4)}$
	(1)	(2)	(3)	(4)	(5)	(6)
A. Outcome variables						
Knowledge scale	-	8.65	-	8.71	-	0.812
		(3.30)		(3.40)		
Defend physical assault	3.71	5.73	3.71	5.76	0.968	0.791
	(0.70)	(1.31)	(0.69)	(1.28)		
Defend sexual assault	5.30	7.08	5.34	7.06	0.715	0.871
	(1.29)	(1.94)	(1.23)	(2.00)		
Fight back & neutralize assailant	4.72	6.71	4.71	6.66	0.938	0.816
	(1.13)	(2.44)	(1.10)	(2.45)		
Hope for the future	5.90	7.57	6.00	7.53	0.278	0.743
• • • • •	(1.24)	(1.49)	(1.26)	(1.48)	0.000	0.051
Intention to complete schooling	6.06	7.58	6.06	7.55	0.922	0.851
	(0.91)	(1.50)	(0.92)	(1.50)		
Intention to graduate college	6.08	7.58	6.09	7.55	0.887	0.808
	(0.94)	(1.44)	(0.93)	(1.51)	0.004	
Highest level of education	3.39	4.15	3.38	4.06	0.884	0.249
	(1.12)	(0.93)	(1.13)	(1.02)	0.000	
Intention to PLF	5.97	7.58	5.96	7.42	0.902	0.193
	(1.30)	(1.50)	(1.34)	(1.70)		
Mental health	4.20	4.32	4.20	4.33	0.990	0.859
	(0.62)	(0.65)	(0.61)	(0.65)		
Happiness scale	5.99	7.66	6.01	7.62	0.840	0.707
	(1.51)	(1.40)	(1.51)	(1.41)		
B. Individual characteristics						
Age (in years)	14.41		14.41		0.975	
	(1.80)		(1.81)			
Grade	9.09		9.06		0.795	
	(1.51)		(1.55)			
Caste =General	0.23		0.23		0.900	
a	(0.42)		(0.42)		0.040	
Caste = OBC	0.69		0.69		0.943	
	(0.46)		(0.46)			
Caste = SC/ST	0.08		0.08		0.942	
	(0.27)		(0.27)			
Birth order	1.29		1.32		0.381	
	(0.47)		(0.50)		0.000	
Joint Family dummy	0.34		0.34		0.933	
	(0.48)		(0.47)		0.000	
Rural dummy	0.50		0.50		0.939	
	(0.50)		(0.50)		0.007	
Father graduate dummy	0.32		0.32		0.997	
	(0.47)		(0.47)		0.000	
Mother graduate dummy	0.23		0.22		0.902	
	(0.42)		(0.42)		0.000	
Father employed dummy	0.88		0.88		0.880	
	(0.32)		(0.33)		0.700	
Mother employed dummy	0.01		0.01		0.722	
··· · · · ·	(0.09)		(0.11)		0.050	
Household size	6.05		6.08		0.858	
T	(2.43)		(2.49)		0.027	
Income status	0.82		0.82		0.837	
T. 4 4	(0.39)		(0.38)		0.074	
reatment group	1.06		1.06		0.976	
	(0.80)	2.42	(0.80)	0.40		
Observations	342	342	348	348	-	-

Table A6: Balance test of follow-up sample

Note: Refer to Table A1 and footnote of Table A4 for the details of all the outcome variables and individual characteristics, respectively. Columns (1) and (3) report the mean of the variables for follow-up and non-follow-up sample, respectively, in the baseline survey. Columns (2) and (4) report the mean of the variables for follow-up and non-follow-up sample, respectively, in the end-line survey. Columns (5) & (6) report the test of equality (t-test *p*-values) between means of follow-up and non-follow-up samples at baseline and end line, respectively. Standard Error (SD) is reported in parenthesis.

	Control	A_Only	A & T		t-test <i>p</i> -va	alues
	Control	A-Omy	Aut	Ref: Co	ontrol	Ref: A-Only
	(SD)	(SD)	(SD)	A-Only	A&T	A&T
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Age (in years)	14.51	14.47	14.27	0.89	0.40	0.54
	(1.81)	(1.81)	(1.80)			
Grade	9.12	9.25	8.83	0.62	0.25	0.13
	(1.50)	(1.60)	(1.51)			
Caste=General	0.25	0.25	0.19	0.99	0.35	0.41
	(0.44)	(0.44)	(0.39)			
Caste=OBC	0.68	0.67	0.72	0.97	0.66	0.68
	(0.47)	(0.47)	(0.45)			
Caste=SC/ST	0.07	0.07	0.10	0.93	0.66	0.71
	(0.25)	(0.26)	(0.30)			
Birth order	1.26	1.31	1.39	0.63	0.26	0.41
	(0.51)	(0.47)	(0.52)			
Joint Family dummy	0.32	0.33	0.36	0.94	0.48	0.47
	(0.47)	(0.47)	(0.48)			
Rural dummy	0.52	0.43	0.56	0.75	0.90	0.64
-	(0.50)	(0.50)	(0.50)			
Father graduate dummy	0.24	0.35	0.37	0.56	0.51	0.93
	(0.43)	(0.48)	(0.49)			
Mother graduate dummy	0.16	0.27	0.23	0.52	0.67	0.85
	(0.37)	(0.45)	(0.43)			
Father employed dummy	0.88	0.87	0.89	0.77	0.91	0.59
	(0.32)	(0.34)	(0.32)			
Mother employed dummy	0.02	0.01	0.01	0.57	0.57	0.99
	(0.14)	(0.09)	(0.09)			
Household size	5.95	5.98	6.29	0.94	0.30	0.42
	(2.49)	(2.55)	(2.44)			
Income status	0.85	0.79	0.84	0.26	0.79	0.34
	(0.36)	(0.41)	(0.37)			
Observations	102	122	124	348	348	246

Table A7: Balance test of baseline individual characteristic in follow-up survey

Note: See footnote to Table A4.

				1	t-test <i>p</i> -v	values
	Control	A-Only	А&Т	Ref: Co	ontrol	Ref: A-Only
	(SD)	(SD)	(SD)	A-Only	A&T	A&T
Variables	(1)	(2)	(3)	(4)	(5)	(6)
B. Ability & Confidence to	o Defend O	neself				
Defend sexual assault	0.54	0.55	0.52	0.83	0.24	0.08
	(0.14)	(0.12)	(0.11)			
C. Intention & Hope						
Hope for the future	0.59	0.61	0.60	0.56	0.72	0.70
	(0.11)	(0.13)	(0.14)			
Intention to complete schooling	0.60	0.62	0.60	0.31	0.76	0.11
-	(0.10)	(0.08)	(0.09)			
Intention to graduate college	0.59	0.63	0.61	0.10	0.40	0.21
-	(0.10)	(0.08)	(0.09)			
Highest level of education	0.62	0.72	0.68	0.08	0.18	0.49
	(0.22)	(0.25)	(0.19)			
Intention to PLF	0.56	0.61	0.61	0.34	0.30	0.98
	(0.16)	(0.14)	(0.10)			
D. Health & Happiness						
Mental health	0.88	0.82	0.83	0.07	0.13	0.84
	(0.12)	(0.13)	(0.11)			
Happiness scale	0.60	0.58	0.63	0.51	0.16	0.01
	(0.15)	(0.15)	(0.15)			
Observations	102	122	124	348	348	246

 Table A8: Balance test of baseline outcomes in follow-up survey

Note: See footnote to Table A5.

	End	l line	Wald Test	RI p-v	alues	M hypoth	ultiple lesis testing
	A-Only	A&T	$\beta_{(1)} = \beta_{(2)}$	A-Only	A&T	Wald Joint	Westfall- Young
Outcome Variables	(1)	(2)	(5)	(6)	(7)	(8)	(9)
A. Awareness							
Knowledge index	2.065***	2.196***	0.127	0.000	0.000	0.000	0.000
	(0.066)	(0.039)					
B. Ability & Confidence	e to Defend	Oneself					
Defend physical assault	1.741***	2.203***	0.007	0.001	0.000	0.001	0.001
	(0.142)	(0.047)					
Defend sexual assault	1.627***	2.256***	0.000	0.000	0.000	0.001	0.001
	(0.125)	(0.034)					
Fight back & neutralize	. ,						
assailant	1.487***	2.315***	0.000	0.000	0.001	0.001	0.001
	(0.041)	(0.035)					
C. Intention & Hope							
Hope for future	1.287***	2.235***	0.000	0.000	0.001	0.000	0.000
	(0.161)	(0.039)					
Intention to complete	1.01.1.1.1.1.1	0.1004-04-04	0.000	0.000	0.001	0.001	0.001
schooling	1.014***	2.122***	0.000	0.000	0.001	0.001	0.001
Internations to supplicate	(0.222)	(0.066)					
college	1 354***	2 282***	0.000	0.000	0.000	0.001	0.001
conege	(0.101)	(0.077)	0.000	0.000	0.000	0.001	0.001
Highest level of	(0.101)	(0.077)					
education	1.138***	1.695***	0.044	0.001	0.000	0.000	0.000
	(0.255)	(0.060)					
Intention to PLF	1.155***	2.119***	0.000	0.001	0.000	0.001	0.001
	(0.113)	(0.102)					
D. Health & Happiness		. ,					
Mental health	1.500***	1.457***	0.917	0.000	0.046	0.001	0.001
	(0.395)	(0.060)					
Happiness index	1.173***	2.268***	0.000	0.000	0.001	0.000	0.000
TT	(0.171)	(0.047)					
	600	600					

Table A9: Treatment effects on all outcomes (Mean standardized)

Observations690690-----Note: All outcomes are standardized indices so that the overall mean zero and standard deviation one. Refer to footnote of Table 1.

			Variables	s of interest	
	A-Only	A&T	LSDS	A-Only $ imes$ LSDS	A&T × LSDS
Outcome Variables	(1)	(2)	(3)	(4)	(5)
A. Awareness	2.264***	2.022***	0.053	-0.019	-0.098
Knowledge index	(0.231)	(0.573)	(0.266)	(0.308)	(0.311)
B. Ability & Confidence to Defend Oneself					
Defend sexual assault	1.645***	2.029**	0.127	-0.404	-0.028
	(0.189)	(0.711)	(0.119)	(0.239)	(0.216)
C. Intention & Hope					
Hope for the future	0.763***	0.445	0.028	-0.184	0.136
	(0.243)	(0.562)	(0.186)	(0.258)	(0.229)
Intention to complete					
schooling	0.155	0.723	-0.193	0.163	0.229
	(0.254)	(0.540)	(0.122)	(0.270)	(0.275)
Intention to graduate college	1.385***	1.415	0.199	-0.322	-0.138
	(0.232)	(0.831)	(0.182)	(0.238)	(0.270)
Highest level of education	1.035***	2.241***	0.213**	-0.184	-0.254*
	(0.192)	(0.206)	(0.097)	(0.152)	(0.142)
Intention to PLF	0.679***	1.306*	-0.109	0.088	0.235*
	(0.099)	(0.680)	(0.068)	(0.095)	(0.116)
D. Health & Happiness					
Mental health	-0.595*	-0.716	-0.060	0.100	0.200
	(0.328)	(0.766)	(0.197)	(0.335)	(0.305)
Happiness index	1.100***	0.905**	0.208	-0.317	0.058
	(0.200)	(0.375)	(0.177)	(0.254)	(0.224)

 Table A10: Robustness check for social desirability bias in follow up survey

Note: Refer to footnote of Table 4.

		Panel A	Panel B: Friends				
	Ge	ender	Age c	ohort	Caste		
Heterogeneity	Male	Female	Younger	Older	In-group	Out-group	
A-Only	2.502***	2.596***	4.340***	2.731***	2.436***	2.355***	
	(0.321)	(0.134)	(0.742)	(0.056)	(0.095)	(0.084)	
Wald statistics	(0.10	12.	.22	0.	31	
<i>p</i> -value	0	0.76	0.	00	0.	55	
A&T	3.201***	3.631***	3.871***	3.083***	2.712***	2.229***	
	(0.327)	(0.237)	(0.871)	(0.145)	(0.135)	(0.092)	
Wald statistics	1	1.76	2.	09	11	.51	
<i>p</i> -value	0).19	0.	15	0.	00	
Control mean	3.778	5.200	2.571	5.151	4.611	3.967	
	(1.739)	(1.673)	(1.284)	(1.460)	(2.610)	(2.588)	
Observations	110	87	41	156	260	244	

Table A11: Heterogeneity analysis of spill-over effects of awareness

Note: Treatment effects are estimated from OLS. *A-Only* and *A*&*T* are awareness only and awareness & training treatment groups, respectively. *Knowledge Index* is a standardized index so that the control group has mean zero and standard deviation one. Wald statistics show if the estimated coefficients associated with the treatment variables are significantly different for the two sub-samples. All regressions also control for all individual characteristics in Table A4. In panel A, 'younger'/'older' refers to the sibling's age relative to the participant, and 'Male'/'Female' refers to the gender of the sibling. In panel B, 'In-group'/'Out-group' refers to whether the caste of the best friend is the same or different from that of the participant.

Outcome variables	Intention to complete schooling	Intention to graduate college	Intention to PLF	Happiness index
	(1)	(2)	(3)	(4)
		A-Only vs.	Control	
Panel A1: OLS				
Hope for the future	0.138*	0.193**	0.137**	0.584***
	(0.071)	(0.070)	(0.062)	(0.047)
Panel B1: 2SLS				
Hope for the future	1.061***	1.128***	1.035***	0.829***
	(0.051)	(0.049)	(0.079)	(0.058)
Observations	445	445	445	445
		A&T vs.	Control	
Panel A2: OLS				
Hope for the future	0.214*	0.215**	0.202***	0.668***
	(0.105)	(0.080)	(0.063)	(0.067)
Panel B2: 2SLS				
Hope for the future	0.962***	0.984***	0.924***	0.941***
	(0.027)	(0.028)	(0.035)	(0.019)
Observations	447	447	447	447
Wald Test				
(Between Panel A1 & A2)	0.970	0.120	1.060	1.950
<i>p</i> -value	0.325	0.733	0.303	0.162

Table A12: Impact of hope for the future on aspirations at endline: OLS & 2SLS

Note: This table reports OLS and 2SLS estimates of hope for the future at the end line survey, where we instrument 'Hope for the future' (measured at end line survey) using the random assignment to the treatment. Outcomes in columns (1)-(4) are z-scores (with mean 0 and SD 1). We control for mean standardized outcome at baseline. 'Hope for the future' are also z-scores (with mean 0 and SD 1). The baseline 'Hope for the future' and individual characteristics (refer to footnote in Table 1) are also controlled.

A.2 Figures



Figure A1: Map of the study area

Note: This map shows the location of villages/regions in the Patna district in Bihar state. Circles correspond to our study villages (i.e., both treatment and control).



Figure A2: Treatment effects on awareness, self-defense & confidence

Note: Treatment effects in standard deviation units (same as in columns (1) - (2) of Table 1 and Table 2). Thicker lines with a cap and thinner lines signify 99% and 95% confidence interval, respectively. A-Only and A&T are awareness only and awareness & training treatment groups, respectively.



Figure A3: Treatment effects on intention & hope

Note: Treatment effects in standard deviation units (same as in columns (1) - (2) of Table 1 and Table 2), except *Current enrolment status*, which takes the value 1 if continued education during follow-up survey and 0 otherwise. Thicker lines with a cap and thinner lines signify 99% and 95% confidence interval, respectively. A-Only and A&T are awareness only and awareness & training treatment groups, respectively.



Figure A4: Treatment effects on health & happiness

Note: Treatment effects in standard deviation units (same as in columns (1) - (2) of Table 1 and Table 2). Thicker lines with a cap and thinner lines signify 99% and 95% confidence interval, respectively. A-Only and A&T are awareness only and awareness & training treatment groups, respectively.



Figure A5: Treatment effects on educational outcomes

Note: Treatment effects in standard deviation units, except STEM and Professional (same as in Table 3). Refer to notes in Table 3 and Table A1 for a detailed description of outcome variables. Thicker lines with a cap and thinner lines signify 99% and 95% confidence interval, respectively. A-Only and A&T are awareness only and awareness & training treatment groups, respectively.



Figure A6: Spillover effect of awareness on knowledge index

Note: Treatment effects in standard deviation units (same as in Table 5 and Table A11). Thicker lines with a cap and thinner lines signify 99% and 95% confidence interval, respectively. A-Only and A&T are awareness only and awareness & training treatment groups, respectively.



Figure A7: Effect size at the follow-up survey

Note: This figure shows estimated treatment effects (same as in columns (1) - (2) of Table 2) in standard deviations, where the control group has mean zero and standard deviation one; except *Continued Education* which equals to 1 if continued education during the follow-up survey, and 0 otherwise. Effects are reported with 95% confidence intervals. Refer to Table A1 for a detailed description of all the outcome variables.

Appendix B: Data

B.1 Index construction

All outcome variables have been control group-standardized following (Kling et al., 2007), so that each variable has mean 0 and standard deviation 1 for the control group. For instance, for 11-point scale questions on intention to complete schooling, we assign values 0-10 to each point, such that 0 corresponds to *lowest intent* and 10 corresponds to *highest intent*. Thus, each response receives a score (0-10 on an 11-point scale). From each score, we subtract the control group's mean score and divide this difference by the standard deviation of the control group. Specific survey questions used for index constructions are listed in the following subsections.

B.2 Primary outcomes

Knowledge scale. We measure the degree of awareness of the participant with respect to different types of harassment faced by women, existing laws for protecting women against harassment, the importance of reporting crimes, methods for doing so and awareness about how to take precautionary measures to reduce harassment. The knowledge scale consists of 11-questions all of which were multiple choice that measure the participants' awareness. Each correct answer received a score of 1 and 0 otherwise. Therefore, the aggregate knowledge score is between 0 and 11, where a higher score means that the participant is more aware of the issue. We standardize this continuous score using the method explained in section B.1.

Defend against physical assault. We measure the effectiveness to defend against acquaintances & strangers using the following two questions: (1) "*How effectively do you feel that you would be able to defend yourself if a stranger attacked you*?", and (2) "*How effectively do you feel that you would be able to defend yourself if an acquantance attacked you*?" The question measures perceived effectiveness on a 7-point scale, where the higher the number the more effective that the participant feels. We standardize the average of the two continuous scores using the method explained in section B.1.

Defend against sexual assault. We measure confidence to defend against sexual assault with the following question: "*What do you think are the chances that if someone physically attacks you or threatens and tries to hurt you during the next two weeks, you will be able to defend yourself?*" This question was asked in the context of sexual assult and measures confidence on an 11-point Likert scale where 0 means that there is absolutely no chance, and 10 means that

the likelihood that you will be able to defend yourself is very high. We standardize the continuous score using the method explained in section B.1.

Fight back & neutralize assailant. This measures the degree of confidence that the participant has that she can fight back and defend herself in challenging physical assault situations. To measure the degree of confidence, we used a modified version of the Self-Defense Self-Efficacy Scale based on Weitlauf et al. (2001) and Hollander (2014). This scale measures participants' confidence to use various types of self-defense skills (such as punches or strikes, kicks, blocks or grabbing around the neck) to prevent a sexual assault, or to obtain legal or medical help after an assault, on a 10-point scale ranging from 1 (not confident at all) to 10 (very confident). We standardize the average of the 6 questions using the method explained in section B.1. A higher value corresponds to a higher level of confidence.

We aggregate the following questions asked in the survey:

"If suppose you are in a situation in which you were being assaulted/attacked by a man of at least average height and weight, how confident are you that you could

- *1. punch or strike to hurt or disable him?*
- 2. prevent him from sexually assaulting you?
- 3. use a kick to injure or disable him?
- 4. prevent yourself from being injured by blocking or avoiding the blows?
- 5. free yourself from a grab around the neck?
- 6. If you are in a situation in which you have been physically or sexually assaulted, how confident are you that you could get the medical and legal help that you need?"

Current enrollment status. This is measured using a dummy variable (Yes =1), for whether the participant continued education following the the endline survey in December 2020; ie. in the next academic year (2021-22) either in school or at college/university. This outcome variable is only collected in the follow-up survey.

Hope for the future. We measure hope for the future using the following two questions: "*All things considered, how hopeful are you of (1) having a good life in the future, and (2) having a job in future*". The question measures confidence on an 11-point scale, where 0 means least hopeful, and 10 means very hopeful. We standardize the average of the two continuous scores using the method explained in section B.1.

Intention to complete schooling. We measure intention to complete schooling with the following question: "On a scale of 0 to 10 (0 indicating not motivated at all, and 10 indicating fully motivated), how motivated are you to complete schooling (standard twelve)?" We standardize the continuous score using the method explained in section B.1.

Intention to graduate college. We measure the intention to graduate with the following question: "On a scale of 0 to 10 (0 indicating not motivated at all, and 10 indicating fully motivated), how motivated are you to graduate from college (bachelor's degree)?" We standardize the continuous score using the method explained in section B.1.

Highest level of education. We measure the highest level of education with the following question: "*If you wish to continue higher education, what is the highest level of education you would want to pursue?*". This question has the following responses: up to grade 12 (=1), vocational training (=2), diploma (=3), bachelor's degree (=4), master's degree (=5), Ph.D. (=6). We standardize the continuous score using the method explained in section B.1.

Intention to PLF. We measure intention to participate in the labor force with the following question: "On a scale of 0 to 10 (0 indicating not comfortable or willing at all, and 10 indicating fully comfortable and willing), how comfortable and willing are you to go out to work?" We standardize the continuous score using the method explained in section B.1.

Mental health. We measure mental health with the following question: "On average, how do you feel your mental health has been in general in the past 7 days?" with responses "1 = very bad", "2 = bad", "3 = fair", "4 = good", "5 = very good". Therefore, mental health is between 1 and 5. We standardize this continuous score using the method explained in section B.1.

Happiness scale. We measure the happiness scale with the following question from the World Values Survey: "*Taking all things together, how happy are you these days, on an 11-point scale, where 0 means "not happy at all" and 10 means "extremely happy?*" We standardize the continuous score using the method explained in section B.1.

B.3 Educational outcomes & Career choice

These outcome variables are only collected during the follow-up survey for participants in grades 10 or 12, who took the board examination.

Hindi score. The marks received in Hindi by the participant in grades 10 or 12 in the board examination of the academic year 2020-21. We standardize the continuous score using the method explained in section B.1.

English score. The marks received in English by the participant in grades 10 or 12 in the board examination of the academic year 2020-21. We standardize the continuous score using the method explained in section B.1.

Overall performance. Overall average performance in all subjects by the participant in grades 10 and 12 in the board examination of the academic year 2020-21. We standardize the continuous score using the method explained in section B.1.

Mathematics score. The marks received in Mathematics by the participant in grade 10 in the board examination of the academic year 2020-21. We standardize the continuous score using the method explained in section B.1.

Science score. The marks received in Science by the participant in grade 10 in the board examination of the academic year 2020-21. We standardize the continuous score using the method explained in section B.1.

STEM. This is a binary variable that takes the value 1 if after grade 10, the participant opted for science as a major for pre-college education in grade 11, and 0 otherwise.

Professional. This is a binary variable that takes the value 1 if after grade 10, the participant opted for commerce or science as a major for pre-college education in grade 11, and 0 otherwise.

Appendix C: Social Desirability Bias

C.1 Social desirability score

We use a set of 13-questions to measure the participant's tendency to give socially desirable responses to our survey questions following Crowne & Marlowe (1960), Reynolds (1982) and Dhar et al. (2018). The responses to each of the questions asked of the respondent at baseline are either agree or disagree. The social desirability score is the sum of the socially desirable responses so that it is between 0 and 13, where the higher the score the higher the tendency to give socially desirable biased answers. We use it as a dummy variable, where the standard score cut-off equals 1 if the social desirability score ≤ 5 (= median for the sample) and 0 otherwise. We aggregate the responses from the following questions from the survey to construct this index.

- 1. It is sometimes hard for me to go on with my work if I am not encouraged.
- 2. I sometimes feel resentful when I don't get my way.
- 3. On a few occasions, I have given up doing something because I thought too little of my ability.
- 4. There have been times when I felt like rebelling against people in authority even though I knew they were right.
- 5. No matter who I'm talking to, I'm always a good listener.
- 6. There have been occasions when I took advantage of someone.
- 7. I'm always willing to admit it when I make a mistake.
- 8. *I sometimes try to get even rather than forgive and forget.*
- 9. I am always courteous, even to people who are disagreeable.
- 10. I have never been irked when people expressed ideas very different from my own.
- 11. There have times when I was quite jealous of the good fortune of others.
- 12. I am sometimes irritated by people who ask favors of me.
- 13. I have deliberately said something that hurt someone's feelings.

C.2 Bias check by trimming

We examined the role of experimental demand effects on the treatment effects presented in Table 1 employing trimming. In order to do that, we hypothesize that treated participants with the tendency to give socially desirable responses to survey questions are those who give extreme (favorable) changes in their responses at the endline relative to their responses at baseline. For example, this would be true of a participant who reported being highly demotivated to complete schooling at baseline, but then overstated the intervention's effect by reporting being very highly motivated to complete schooling at endline. We remove/trim participants showing the largest shift in their responses to questions from baseline to endline and reestimate the treatment effects.

We report these results in Table C1 for different levels of trimming. We first compute the difference between endline and baseline scores of the outcome variable and then order this difference from negative to positive, where positive difference implies an improvement in the outcome variable at the endline. We then start trimming observations that show the largest improvements (i.e., positive differences) in the treatment group by a specified percentage (10%, 20%, and 30%) and then continue trimming responses in the treatment group. We do this exercise with outcome variables also measured at baseline.

We find that the treatment effect of both the treatment groups on all the outcome variables (with baseline measures) decreases, but remains statistically significant even when we trim as much as 30% of the sample showing the largest improvements from the treatment arm. The results are consistent with the conclusions based on using the social desirability score. We also report the results with trimming of both treatment and control arms in Table C2 as a further robustness check, where the largest deterioration (or negative differences) in the control arm is also trimmed with the trimming of both treatment arms. We find more conservative treatment effects for all the outcome variables (with baseline measures) compared to trimming of only treatment arms. However, treatment effects remain statistically significant for all levels of trimming.

	Unadjusted Effect		Trimmed 10%		Trimmed 20%		Trimmed 30%	
	A-Only	A&T	A-Only	A&T	A-Only	A&T	A-Only	A&T
Dependent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
B. Ability & Confiden	ce to Defend	Oneself						
Defend physical								
assault	2.818***	3.566***	2.765***	3.543***	2.675***	3.527***	2.675***	3.527***
	(0.23)	(-0.076)	(0.251)	(0.078)	(0.291)	(0.090)	(0.291)	(0.090)
Defend sexual assault	2.592***	3.593***	2.620***	3.578***	2.620***	3.578***	1.839***	3.559***
	(0.198)	(0.054)	(0.253)	(0.055)	(0.253)	(0.055)	(0.052)	(0.066)
Fight back &								
neutralize an assailant	2.533***	3.943***	3.297***	4.558***	3.175***	4.511***	2.561***	3.945***
	(0.069)	(0.06)	(0.112)	(0.098)	(0.029)	(0.118)	(0.140)	(0.073)
C. Intention & Hope								
Hope for the future	2.361***	4.099***	2.145***	4.063***	2.067***	4.089***	2.264***	3.985***
	(0.295)	(0.071)	(0.104)	(0.079)	(0.101)	(0.089)	(0.148)	(0.292)
Intention to complete								
schooling	1.483***	3.105***	1.890***	3.341***	1.430***	3.450***	0.879***	2.957***
	(0.325)	(0.097)	(0.327)	(0.338)	(0.125)	(0.232)	(0.066)	(0.084)
Intention to graduate								
college	2.095***	3.531***	1.876***	3.200***	1.259***	2.705***	1.259***	2.705***
	(0.156)	(0.12)	(0.109)	(0.270)	(0.150)	(0.169)	(0.150)	(0.169)
Highest level of								
education	0.965***	1.437***	0.499***	0.880***	0.349**	0.848^{***}	0.122	1.040***
	(0.216)	(0.051)	(0.154)	(0.290)	(0.145)	(0.283)	(0.126)	(0.217)
Intention to PLF	1.355***	2.486***	1.219***	2.199***	0.886***	2.193***	0.758***	2.049***
	(0.132)	(0.12)	(0.174)	(0.176)	(0.070)	(0.204)	(0.054)	(0.237)

Table C1: Robustness check for biased responses: trim treatment arm only

Note: Treatment effects are estimated from OLS. Columns (1-2): treatment effect estimated with all baseline covariates (as in equation (1)). Columns (3-8): first, the difference between endline and baseline *outcome variables* were computed, i.e., endline *outcome variable* minus baseline *outcome variable*; second, the differences are ordered from negative to positive, where positive (negative) differences mean *outcome variable* improved (deteriorated) at endline; third, X% of the largest positive differences in the treatment groups were dropped. For instance, in columns (3-4) we drop 5% of the largest positive differences in the treatment effect.

	Unadjusted Effect		Trimmed 10%		Trimmed 20%		Trimmed 30%	
	A-Only	A&T	A-Only	A&T	A-Only	A&T	A-Only	A&T
Dependent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
B. Ability & Confidence	e to Defend	Oneself						
Defend physical								
assault	2.818***	3.566***	2.961***	3.722***	2.545***	3.402***	2.058***	2.880***
	(-0.23)	(-0.076)	(0.082)	(0.240)	(0.303)	(0.096)	(0.067)	(0.112)
Defend sexual assault	2.592***	3.593***	2.830***	3.881***	2.048***	3.414***	0.999***	2.703***
	(-0.198)	(-0.054)	(0.102)	(0.334)	(0.077)	(0.052)	(0.052)	(0.072)
Fight back &								
neutralize an assailant	2.533***	3.943***	3.154***	4.393***	2.163***	3.524***	2.636***	3.908***
	(-0.069)	(-0.060)	(0.085)	(0.096)	(0.061)	(0.063)	(0.081)	(0.142)
C. Intention & Hope								
Hope for the future	2.361***	4.099***	1.836***	3.631***	2.141***	3.992***	1.767***	3.741***
	(-0.295)	(-0.071)	(0.216)	(0.087)	(0.150)	(0.285)	(0.297)	(0.303)
Intention to complete								
schooling	1.483***	3.105***	1.122***	2.913***	1.859***	3.427***	0.401***	2.490***
	(-0.325)	(-0.097)	(0.306)	(0.095)	(0.222)	(0.234)	(0.129)	(0.356)
Intention to graduate								
college	2.095***	3.531***	1.964***	3.231***	1.526***	2.981***	1.508***	2.622***
	(-0.156)	(-0.120)	(0.087)	(0.074)	(0.062)	(0.047)	(0.171)	(0.051)
Highest level of								
education	0.965***	1.437***	0.918***	1.307***	0.341**	0.848***	0.344*	1.272***
	(0.216)	(0.051)	(0.054)	(0.032)	(0.141)	(0.282)	(0.194)	(0.027)
Intention to PLF	1.355***	2.486***	1.942***	2.620***	0.800***	2.104***	0.442***	1.721***
	(-0.132)	(-0.120)	(0.065)	(0.082)	(0.076)	(0.217)	(0.046)	(0.271)

Table C2: Robustness check for biased responses: trim both treatment and control arms

Note: Treatment effects are estimated from OLS. Columns (1-2): treatment effect estimated with all baseline covariates (as in equation (1)). Columns (3-8): first, the difference between endline and baseline *outcome variables* were computed, i.e., endline *outcome variable* minus baseline *outcome variable*; second, the differences are ordered from negative to positive, where positive (negative) differences mean *outcome variable* improved (deteriorated) at endline; third, X% of the largest positive differences in the treatment groups were dropped and X% of largest negative differences in the control group were dropped, creating a lower bound. For instance, in columns (3-4) we drop 5% of the largest positive differences in the treatment group and 5% of the largest negative differences in the control group then re-estimates the treatment effect.

Appendix D: Details of the Interventions

Treatment Group I: Awareness Only

The awareness only module consisted of three sessions, each of which was designed to take 30-40 minutes and was provided one-on-one over the phone with each participant by a trained female counsellor.

Session 1: Laws protecting women

This session covered the following topics:

- A. Situations that violate women's rights.
- B. Laws protecting women's rights
 - In public
 - At home
 - In the workforce
- C. Protection of children from sexual offences

Session 2: Strategies to reduce the risk of crime and how to report an offence

This session covered the following topics:

- A. Advice on self-protection and dealing with risky situations.
- B. A video presentation on how to make pepper spray at home.
- C. How, and to whom, to report an offence.
- D. Advice for seeking medical assistance following sexual assault.
- E. Services available to victims of crime, including services especially for women.
- F. Punishments for crimes against women
- G. Female empowerment emphasizing that victims are not to blame for crimes.

Session 3: Hopes and aspirations

This session covered the following topics:

- A. A video presentation of successful Indian female role models.
- B. Emphasize that these role models were once like the participant, studying at school.
- C. Emphasize the importance of 'dreaming big' and studying hard.
- D. Emphasize the importance of looking to the future, taking advantage of the laws that have been put in place to protect their rights and increase their freedom and not letting crimes against women to deter them from achieving their dreams.
- E. Close by emphasizing that each participant can reach her full potential by living her life to the fullest, following her aspirations and studying hard.

Treatment group II: Awareness and Training

Participants took part in the awareness only module (as described above) plus the following selfdefense training module, which was conducted via real time online video classes by trained female professionals. The self-defense module was approximately two hours per day for five days.

Each daily training program was divided into three parts:

1. Warm-up & Revision

At the beginning of each training session, a few simple exercises and stretches were performed to stretch muscles and increase joint flexibility, including basic foot kicks (30-40 minutes) and punching (30 minutes). The techniques taught the previous day were revised, beginning from day 2. The duration of this first part was 60-90 minutes.

2. Main Training

The main training session consisted of specialized self-defense techniques designed to protect oneself in a range of real-life situations. A range of different scenarios and self-defense methods were assigned for the each day (as detailed below) with emphasis on enhancement of muscle strength and endurance. The duration of the second component was 40-50 minutes.

3. Cooling-down Exercise

The third part consisted of cooling down exercises, such as stretching and strategies to relieve stress. In this section, the trainer also told participants that she shall share some videos on self-defense with her through messaging and WhatsApp. Each of these videos were designed to provide easy access to videos to enable the participant to practice self-defense techniques learned in the session. The duration of the third component was 10-20 minutes.

Main training component on each of the five days

Day-1:

The instructor introduced the program and discussed the reasons why it was important for participants to be able to defend themselves. Practicing basic Taekwondo techniques

Day-2:

Taekwondo self-defense techniques designed to protect oneself in situations in which:

- the participant's hands/wrists are grabbed and held by an assailant.
- the assailant places his hands around the participant's neck from the front.

Day-3:

Taekwondo self-defense techniques designed to protect oneself in situations in which:

- the assailant touches or holds the participant's waist from behind.
- the assailant places his hands around the participant's neck from behind.

Day-4:

- Taekwondo self-defense techniques designed to protect oneself in situations in which the assailant pulls the participant's hair from the front.
- The use of "hit to elbow" as a self-defense technique when the assailant attacks the participant from behind.
- The use of "nail pinching" as a self-defense technique in situations in which the assailant grabs the participant's hand.

Day-5:

Taekwondo self-defense techniques designed to protect oneself in situations in which:

- the assailant grabs the participant's *Dupatta* (shawl).
- the assailant pushes the participant toward a wall.
- the assailant attacks the participant with a knife.
- the assailant attacks the participant with a wooden stick.