Encouraging Female Graduates to Enter the Labor Force: Evidence from a Role Model Intervention in Pakistan[*]

Hamna Ahmed[†], Mahreen Mahmud[‡], Farah Said[§] and Zunia Tirmazee[¶]

April 13, 2022

[†]Lahore School of Economics (hamnaa@gmail.com). Lahore School of Economics, Intersection DHA VI and Burki Road, Burki, Lahore, Pakistan. +92 42 35651230. Corresponding author

[‡]University of Exeter (m.mahmud@exeter.ac.uk)

[§]Lahore University of Management Sciences (farah_said@lums.edu.pk)

[¶]Lahore School of Economics (zuniatirmazee@gmail.com)

Abstract

Pakistan has gender parity in tertiary enrollment yet labor force participation rate of female graduates is one-third that of the male graduates. We conducted a randomised control trial with 2500 final year female undergraduate students in Lahore, Pakistan, a large majority of whom had expressed a desire to work after graduation. We randomly selected half of the sample to watch videos of successful relatable female role models to encourage students to enter the labor force. We collected high frequency, phone survey data up to 18 months after the intervention. The treated students had a significantly higher growth mindset immediately after watching the video. However, this did not translate into significantly higher job search effort or likelihood of working for the first 15 months after the intervention. Eighteen months after the intervention, at the onset of the first nationwide COVID-19 lockdown, treated students were 4.7 percentage points more likely to be working. This result was driven by respondents who belonged to households with lower income and parental education at baseline, possibly due to greater likelihood of a primary earner in their household becoming unemployed after the lockdown, and being more stressed about the loss of household income.

1 Introduction

Countries across the developing world, and in particular in South Asia, have low female labor force participation rates.[1] Pakistan has gender parity in tertiary enrollment but labor force participation rate of female graduates is low, and at 25.9%, is almost a third that of the male graduates (calculated from the Labor Force Survey 2017-18). Yet, many women express a desire to work (Field and Vyborny, 2016; Ahmed et al., 2020). Transport, social norms, household dynamics and access to job opportunities may be significant barriers which keep women from being gainfully employed (Field et al., 2010; Heath and Mobarak, 2015; Field and Vyborny, 2016; Erten and Keskin, 2018; Jayachandran, 2020). Internal barriers, in the form of lack of same-gender role models, mentors and peer support can be important determinants of labor market outcomes for women (Riise et al., 2020), though they receive less attention in literature (McKelway, 2020). Role models and mentors, in particular, can reduce 'stereotype threat' and influence aspirations (Kofoed and McGovney, 2017; Breda et al., 2020; Mansour et al., 2018; Porter and Serra, 2020; Lopez-Pena, 2020).

In this paper, we test if a low-cost, motivational nudge in the form of stories of female role-models can encourage female graduates from low-income households to increase labor force participation. We conducted a randomised control trial with 2500 female undergraduate students in 28 female only public colleges in Lahore, and a low-cost intervention that can be easily scaled up by college administration if proven successful. We alleviated some of the external constraints by giving the entire sample information about *Job Asaan*, a job-search portal that also provides support with CV making and interview preparation. Half of the sample was then individually and randomly selected to watch a 10 minute video showcasing real-world female role models, gainfully employed and from a similar socio-economic group as the students, followed by a brief discussion with the

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[1]Female labor force participation is 36% in Bangladesh, 35% Sri Lanka, 22% in Afghanistan, 83% in Nepal, 22% in Pakistan and 20% in India (World Bank, 2020).

enumerator on the key messages of the video. These role models were meant to encourage a growth-mindset in the students, motivating them and by acting as a 'representation of the possible' (Porter and Serra, 2020). The other half of the sample students formed the placebo group and watched a video of a similar length on an unrelated topic.

The role model intervention led to a higher growth mindset (Blackwell et al., 2007) in the treated group as compared to the placebo group immediately after the video was administered. We find students in the treated group were significantly more engaged with the video, scoring higher on an 'absorption' index (Banerjee et al., 2019). Given the relatively short duration of the this initial interaction, we reinforced the key messages of the video three months after the intervention. Treated students remembered the names and occupations of role-models before this reinforcement at three months, and in surveys conducted eighteen months after first watching the video. We collected high frequency data on job search efforts and outcomes, conducting 3 follow-up surveys over a period of 18 months after the intervention.[2] The 18 month followup was a phone survey conducted right after the COVID-19 induced lockdown in March 2020 where we collected information both about the situation before the lockdown in February and after it in May 2020, i.e. 15 and 18 months after the intervention, respectively.

In our sample, 13% are searching for a job before the COVID-19 lockdown, a percentage that drops to about 5% after the lockdown. The treatment does not impact the likelihood of looking for a job, hours of job search, the likelihood of having read a job advertisement or of using any informal, formal or online platform, over the study period.

We do not find any effects of the intervention on the likelihood of working at 9, 12 or 15 months after the intervention. We can rule out results being driven by differential attrition and low statistical power. At 18 months after the intervention, which coincides with a

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[2]Attrition is balanced across the treatment and control group. We present results for the unbalanced panel. The results for a balanced sample of 1444 respondents are similar and are provided in the Online Appendix C.

nation-wide lockdown due to the COVID-19 pandemic, students in the treatment group are 4.7 percentage points more likely to be working, which is 24% higher than the placebo mean of 20.1%.[3] However, the treated group are not significantly more likely to be working from home, of being employed full-time, or earning above median sample wages at 18 months.

We investigate possible mechanisms by exploring heterogeneity. Specifically, we use k-means clustering and find support for two groups in our sample – a 'low-income-education' and a 'high-income-education' group, with the students in the former group coming from households with significantly lower incomes and parental education levels than the latter. The average effect of the treatment on the likelihood of working at 18 months is driven almost entirely by an effect of about 11 percentage points for students in the 'low-income-education' group. This group is significantly more likely to report that a primary earner in their household have lost their job or have had to shut their business and report being stressed about loss of income in the household due to the COVID-19 pandemic more often compared to the treated 'high-income-education' group. This may be a possible mechanism for their higher likelihood of working.

A recent study closely related to ours is by McKelway (2020), showing that psycho-social discussions designed to engender self-efficacy, can lead to significant improvements in female labor force participation in India. In contrast, we find null impacts before the onset of the pandemic, which may be attributable to a relatively lighter-touch nature of this intervention compared to the intensive and repeated interactions used in McKelway (2020)

Our study speaks to two broad strands of literature. First, we add to literature that studies the impacts of aspirational stories from peer groups on adolescent behavior (Appadorai, 2004; DuBois et al., 2011; Ray, 2006), local female leadership (Macours and Vakis, 2014) and social inclusion (Doel, 2010), as well as role model effects in influencing

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[3]Note that this placebo mean of 20.1% is post the COVID-19 induced lockdown. Before the lockdown, the likelihood of working was higher: 34% in the placebo group, which is in line with national statistics for this age-group and education level.

behavior towards divorce, fertility and domestic violence (Jensen and Oster, 2009; La Ferrara et al., 2012). We contribute to this literature by looking at the effect of real world role models on a yet unexplored outcome: encouraging labor force participation of young female graduates. In doing so, we also contribute to an evolving broader group of studies that investigate the role of psychological interventions in fostering hope; improving health outcomes, academic achievement and labor market prospects; and impacting earning differences and other important life outcomes (Heckman and Rubinstein, 2001; Duckworth and Seligman, 2005; Heckman and Kautz, 2012, 2013; Kautz et al., 2014; Duckworth et al., 2019; Ashraf et al., 2020; Bhan, 2020; Resnjanskij et al., 2021).

Second, this paper also relates to the literature that investigates barriers to labor force participation and tests interventions that alleviate these constraints. Socioeconomic background, information on available jobs and workseekers' skills can be significant determinants of entry into the labor market (Humphrey et al., 2009; Jensen, 2012; Carranza et al., 2020; Caria et al., 2020); however, studies show modest impacts of job search assistance and skills training on employment and wages (see McKenzie (2017) for a review). Search assistance and training programs, in particular, can suffer from low enrolment (Cheema et al., 2012); high cost (Adoho et al., 2014; Abebe et al., 2021); and often require specific targeting to be effective (Abebe et al., 2020). Further, while job search platforms can assist in reducing information frictions, they fail to reduce search costs incurred by job applicants, or change their self-beliefs (Wheeler et al., 2022). In this study we provide evidence on a low-cost intervention that can complement conventional training and assistance programs to promote employment. We can infer from our results that this intervention was insufficient to alleviate binding constraints faced by women in the labor market, though it did prove to be effective for those who experienced high stress during the pandemic.

Our paper proceeds as follows. In Section 2 we present the experimental setting and the

sample details, Section 3 the experiment design, Section 4 the results, Section 5 presents a discussion on spillovers and we conclude in Section 6.

2 Experimental setting and sample

2.1 Setting

The province of Punjab (Pakistan) enjoys high female enrollment rates with 44% of women in urban areas having attained higher-secondary (grade 12) or higher education. In tertiary education, enrolment rates are lower, at approximately 9% but there is gender parity - with enrolment rates at 8.5% for women compared to 9.6% for men (World Economic Forum, 2020). At the same time, the labor force participation rate among female graduates aged between 25-35 is 32%, only one-third of that of men (96%) (calculated from the Labor Force Survey 2017-18). As the second largest city of the country and the provincial capital, Lahore is an important policy centre of Pakistan. The low FLFP in the city is despite the availability of a large number of jobs. For instance, at any given point in time there are nearly 1,800 Lahore-based job openings advertised on Rozee.pk (the largest online job portal of Pakistan), with an average of 20 new job advertisements posted daily.

There are 37,000 students enrolled in the district of Lahore, half of whom are women, providing us with a large population for drawing the study sample (PDS, 2018). Educational institutions are often segregated in Pakistan due to social and cultural norms. We limit our sample to women-only colleges in the city of Lahore. We exclusively focus on students with liberal arts majors, across 28 public colleges. Figure A1 in the Appendix shows the location of these colleges across a population map of the city.

Focus group discussions conducted in 2018 with 100 female undergraduate students from our sample colleges confirm that women face a range of impediments consistent with those identified in the literature in participating in the labor market. Nearly a third mention

informational constraints and issues with travelling to work, but a much larger proportion - approximately 60% of the sample, expressed concerns about navigating social norms, women's mindsets, and lack of confidence and family support. In spite of these substantial barriers to working, nearly half expressed a desire to be working even after 3 to 5 years of graduating. A third of the sample (31%) viewed their mothers as a their role models, yet only 6% of the students have working mothers. While students in this sample have access to the internet and may be exposed to famous, successful women, it appears that they may not have had exposure to relatable role-models who are successful in the labor market.

2.2 Sample

We conducted a baseline survey with 2,499 female final year undergraduate students between October 2018 and February 2019. Of them, 1,224 (49%) were randomly assigned to the treatment group. The intervention was reinforced between February-May 2019 (*intervention reinforcement*). The respondents were interviewed again between, August-September 2019 (*follow-up 1*), December-January 2020 (*follow-up 2*) and then finally between May to June 2020 (*follow-up 3*). Online Appendix Figure A1 displays the study timeline and Online Appendix A provides details of each round.

2.3 Descriptive Statistics

The sample is balanced across a range of individual and household characteristics at baseline for the full sample (Table 1).[4] It comprises of students from households with an average monthly income of approximately USD 315 which is close to the provincial average of USD 368 for urban households (calculated from the Household Integrated Economic

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[4]Column 4 in Table 1 reports observations for each baseline characteristic, all of which were collected before treatment implementation. A similar table for the balanced sample is provided in the Online Appendix Table C.1. For some outcomes, we have missing values due to respondent refusal to answer. The refusal rates are uncorrelated with treatment status (results are available upon request).

Survey 2015-16).[5] The majority live in households that are owned by their family. The households are large, with 7 members on average.

The proportion of the sample that desires to work after they graduate is very high at 84%. The majority want a salaried job with only 2% who want to set up an enterprise. The average response is that it is highly possible for an educated woman like them to work. Four-fifths of the sample (80%) thinks there would be hindrance in finding a job, with one-third mentioning difficulties in travelling for work, and a fourth about permission from family/in-laws. Consistent with the focus group discussions, students are most likely to identify mothers as their role models[6], yet a very low proportion of their mothers currently work. A small proportion of individuals at the baseline are married (8%).

A fifth of the sample are already doing some part-time work as they are studying, mostly giving tuition at home and those who work, earn about USD 81.2 a month on average (the table reports the unconditional mean). On average, the students spent about 4.3 hours studying and approximately 3 hours doing housework every day. Not surprisingly, given the baseline was conducted nearly a year before graduation, there is very little job search: less than 5% search and the time spent on average is less than 1 hour in the last 4 months.

2.4   Attrition

Figure A1 displays the round-wise rate of attrition in parentheses. We were able to successfully interview 87.4%, 87.5%, 69.8% and 64.5% respondents at the time of reinforcement intervention at 3 months, and followup surveys 9, 12 and 18 months after the baseline, respectively. Reassuringly, attrition is not related to treatment status – there is no statistically significant difference between the attrition rate in the treatment and the control group in any of the rounds of data collection (Table 2).

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[5]We use the exchange rate at the time of the study baseline in 2018, USD 1= PKR 123.12, throughout the paper.

[6]Note that this question, and those on whether the respondent was currently working mentioned in the next paragraph, was added towards the end of the baseline survey so we only have 121 observations for them.

Table 1: Descriptive Statistics

Variable	(1) Placebo	(2) Treated	(3) Difference	(4) Obs
Panel (a): Household characteristics				
Monthly household income (USD)	312.892	319.991	7.100	2,283
	(206.632)	(225.340)	(9.043)	
Dummy: Own house	0.836	0.823	-0.012	2,494
	(0.371)	(0.382)	(0.015)	
Household size	6.533	6.595	0.061	2,499
	(1.957)	(1.928)	(0.078)	
Father's years of education	9.462	9.186	-0.276	2,499
	(5.013)	(5.171)	(0.204)	
Mother's years of education	7.691	7.407	-0.284	2,499
	(5.077)	(5.173)	(0.205)	
Dummy: Mother works	0.084	0.068	-0.016	2,432
	(0.277)	(0.252)	(0.011)	
Panel (b): Own characteristics				
Dummy: Want to work after graduation	0.835	0.837	0.002	2,497
	(0.371)	(0.370)	(0.015)	
Dummy: Married	0.080	0.085	0.005	2,499
	(0.271)	(0.279)	(0.011)	
Hours of study per day	4.332	4.389	0.057	2,493
	(2.948)	(3.057)	(0.120)	
Hours of housework per day	2.969	2.892	-0.077	2,498
	(2.283)	(2.269)	(0.091)	
Dummy: Searched for a job	0.047	0.045	-0.002	2,499
	(0.212)	(0.207)	(0.008)	
Hours of job search in the last 4 months	0.249	0.231	-0.019	2,497
	(2.216)	(1.702)	(0.079)	
Monthly personal income (USD)	28.460	25.885	-2.575	2,456
	(87.811)	(82.146)	(3.435)	
Observations	1,275	1,224	2,499	

Note: Columns (1) and (2) show the mean value of the variable in the row for the placebo and treatment sample, respectively. Column (3) reports the difference in means between the placebo and treated sample ($***p < 0.01, **p < 0.05, *p < 0.1$); and column (4) displays total number of observations for each variable. Standard deviations are reported in the parentheses. Panel (a) provides outcomes measures at the household level and Panel (b) provides average characteristics of the respondent.

In table 2 columns 2, 4, 6 and 8, we include controls for baseline covariates, as well as the interaction of these covariates with the treatment status.[7] Attrition is correlated with some individual characteristics collected at baseline (before treatment implementation): in different rounds, we find attrition to be predicted by the household living in own house, father's education, mother's work status, and whether the respondent looked for a job before intervention implementation (Appendix Table A.1). However, the interaction of covariates with treatment status are largely insignificant, with some exceptions. For instance, mother's work status at 9 months and mother's work status and hours of job search positively and significantly predict attrition in the last survey round at 18 months. However, a joint test of significance reveals treatment status and the group of individual covariates interacted with treatment status do not predict attrition in the last round and is only marginally significant at 9 months. In addition, attrition is not predicted by work status and does not arise because of respondents finding work and refusing to participate in subsequent rounds. Results are available in the Online Appendix Table B.1.

Our main analysis utilizes data from the full, unbalanced panel. We show robustness of our main results in two ways. First, we report Lee (2009) bounds on all estimates of main treatment effects. Second, in Online Appendix C, we report results from running all analysis using a balanced panel of 1444 women interviewed in all rounds.

3 Design

3.1 Intervention Motivation

The study intervention is motivated by Blackwell et al. (2007) and Dweck's work on the importance of growth mindset (Dweck, 2007, 2012) in improving performance in the classroom (Paunesku et al., 2015; Yeager et al., 2016, 2019), social settings (Walton and

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[7] All regressions control for the college a student is enrolled in. College does not predict attrition: the F-statistic from a test of joint significance of college and treatment status interaction has a $p-value$ of 0.971, 0.756, 0.626 and 0.958 for surveys 3, 9, 12 and 18 months after baseline. Results available upon request.

Table 2: Attrition by survey round

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Months since baseline	3	3	9	9	12	12	18	18
Treated	0.016	0.112	0.007	0.091	0.009	0.174	0.008	0.097
	(0.013)	(0.078)	(0.013)	(0.084)	(0.018)	(0.114)	(0.019)	(0.116)
Controls	N	Y	N	Y	N	Y	N	Y
p(F-stat)		0.13		0.09		0.70		0.30
Mean	0.13	0.13	0.12	0.12	0.30	0.30	0.35	0.35
Observations	2499	2183	2499	2183	2499	2183	2499	2183

Note: Columns (1)-(2) report attrition from the intervention reinforcement survey (3 months after the baseline), columns (3)-(4) from follow-up 1 (9 months after the baseline), columns (5)-(6) from follow-up 2 (12 months after the baseline), and columns (7)-(8) from follow-up 3 (18 months after the baseline). Columns 2, 4, 6, and 8 report results from a saturated regression with controls for household characteristics (monthly household income, dummy for own house, household size, father's yeas of education, mother's years of education, and dummy for mother works) and respondents' own characteristics (dummies for if wants to work after graduation, and is married, hours of study and housework per day, dummy for if searched for job, hours of job search in the last 4 months, and monthly personal income) and the interaction of these controls with the treatment dummy. All covariates are collected before the intervention is implemented. Observations in columns 2, 4, 6 and 8 are lower due to missing observations in baseline characteristics. A detailed version of this table displaying all observable covariates in columns 2, 4, 6, and 8 can be found in Table A.1. 'p(F-stat)' refers to the p-value of F-Statistic from a test of joint significance of the interaction of treatment status and baseline characteristics. Robust standard errors are presented in parentheses. 'Mean' refers to the average level of attrition in each round. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Wilson, 2018), and reducing stereotype threat (Aronson et al., 2002). A growth mindset encourages individuals to view intellect as malleable with sustained efforts to learn, to be open to challenges, and to endure in the face of adversity. Growth mindset interventions address beliefs about intellect and challenge the view that intellect is fixed. This view may be particularly important in settings where individuals are led to believe they may be naturally lacking talent or skills required to succeed. One such setting is that of women facing a host of social, cultural and psychological barriers to their labor market participation. Beliefs about success in the face of adversity can influence their goals and extent of perseverance in the face of difficulties (Locke and Latham, 1990).

A second source of motivation for the intervention comes from literature on human psychology that argues that human beings primarily model their behaviour on others with the human mind influenced by beliefs and actions of those around us (Lieberman, 2014). Indeed, recent evidence suggests representation and role models can be very effective in changing the beliefs and actions of others around them (see, for instance, Jensen and Oster (2009); Chong and Ferrara (2009); La Ferrara et al. (2012)). Real-world role models have been found to positively affect aspirations and occupation choices (Beaman, 2012). For instance, face-to-face interaction with women who have majored in male dominated fields has encouraged female undergraduate students to do the same (Porter and Serra, 2020). Others have shown similar success in changing beliefs and performance using inspirational videos (Bernard et al., 2014) and movies (Riley, 2022).

The intervention video combines elements from these two strands of literature by exposing women to relatable, real-world women who have successfully handled challenges faced in the labor market. The aim is to encourage a growth mindset (Dweck, 2012) by emphasizing that women can also secure gainful employment and have successful careers if they persist in the pursuit of employment. In the intervention video, the challenges role models faced, and how they successfully handled those challenges with effort and perseverance in the face

of hardship is shown. This is aimed to encourage a growth mindset, drawing inspiration from the experiences of role models seen in the video. Individuals with a growth mindset are expected to be motivated, and hence, better equipped to handle the challenges of the labor market and succeed in realizing their labor market goals.

3.2   Intervention Details

The intervention consists of a documentary video on real educated women from public colleges in Lahore who have been 'successful' in the labor market, in that they have secured a job and are satisfied in their current jobs. We collaborated with the administrations of sample colleges to identify successful alumni. We identified 5 women, all of whom were public college graduates belonging to a similar socio-economic group as the sample respondents. These five women (the names of whom cannot be disclosed due to confidentiality) belonged to different occupations: lawyer, curator at a library, lecturer at a public university, assistant curator at an art gallery and police officer. We chose a mix of professions, including both common and rare occupations for women, such as a lecturer and a police offer, respectively. We show female role-models because it has been found that women tend to respond better to same gender role-models (Lockwood, 2006).

We worked with ContentCreators, a Lahore-based private media company, to film interviews with the five role models for the documentary. Before the interviews were filmed, the research team met with each of the role models in a separate ice-breaking session to explain to them the purpose of these interviews. For making the final documentary, the media company used notes from the ice-breaking sessions to draft the script and prepared the documentary by meeting the role models once again to film their responses to our listed questions. The focus of the interviews were on four dimensions: i) challenges faced by the women in acquiring an education and a job, ii) how they overcame these challenges, iii) how their families feel about their success and, iv) a piece of advice or a lesson they learnt from their struggles that they would like to share with young women. We also

included in the documentary where possible clips of family members to show family support and how they felt about the struggles and the eventual success of the role model.

The interviews were then combined into a 10-minute long video highlighting specific themes across the interviews with background music, voice-overs and shots from women's workplace and homes. The video was not just a question and answer session with the role models but a well-integrated narrative highlighting the need for self-belief, confidence to face problems and to not run away, focusing on goals, dreaming big, working hard and remaining steadfast to achieve these dreams. It also highlighted that it is possible to balance household and work responsibilities with shots of women with their children at home.

It is worth mentioning here that when interviewing the role models, we specifically wanted to highlight the constraints identified by the students to enter the labor market during the focus group discussions conducted with 100 currently enrolled students in April-May 2018, and to show real life examples of women like them who have managed to overcome these challenges and are now successfully employed. The documentary emphasizes that setbacks are an opportunity to learn; that the process of learning is enjoyable in itself; and that economic empowerment can help both their standing in the household and household welfare.

The video screening was followed by a two to three minutes discussion on the content of the video to reinforce the message. The discussion script is in the Online Appendix D. The respondents were reminded what they can learn from these women, the importance of persistence and perseverance highlighted, the possibility of balancing work and family life and that they need to step out of their comfort zone if they want to achieve anything. At the end, they were encouraged to think about what they need to do in order to be successful. The key messages of the videos were reinforced only to the treatment group by

the enumerators approximately three months later.[8] At the time of this intervention reinforcement, the enumerators had a 5-10 minute discussion reminding them of the role models, and the key challenges and lessons from their stories. The respondents were given a postcard mentioning these lessons as a keepsake to remind them of the intervention.

The students were shown the videos individually on a tablet. We decided to not involve the families of these students in order to reduce the possibility of backlash from family members (e.g., as hypothesized in McKelway (2020)), and in order for the intervention to be scaled-up in colleges at low-cost. Before we rolled out the study, the intervention video was piloted with 25 out-of-sample college students to see if the video and the survey could be conducted with each student within a reasonable length of time during college hours. Students in the placebo group watched a video of the same length as the treatment group. This was deliberately chosen to be on a completely unrelated subject to the treatment.[9] The data collection for this study took place in five rounds as shown in the study timeline (Figure A1).

Focus group discussions revealed that students are concerned about the lack of preparedness to enter the labor market – 65% did not know how to make a CV and only 13% believed teachers could help in making one, 32% said they lacked guidance related to job applications. 23% highlighted being provided with information on job openings and 38% on interview skills training as a key way to help them. In order to address these constraints, all students, in both the treatment and placebo arm received information about 'Job Asaan'; an existing job search portal that connects job seekers with employers in metropolitan Lahore. That is, all the sample was provided with similar access to information on existing jobs in Lahore. A 'Job Asaan' flyer with the link to register on the

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[8]We had originally planned to have experimental variation in whether a student is treated once or twice but after the initial intervention, we decided that given its light touch nature, we will not be powered for this analysis. Therefore, we proceeded with giving everyone in the treatment group a repeat intervention message. The pre-analysis plan for the follow up rounds was lodged before any data was analysed to reflect this. With the placebo group, we only administer a followup survey at 3 months.

[9]Link to the documentary shown to the placebo group: https://www.dailymotion.com/video/x35wwat.

16

portal along with other basic information regarding the 'Job Asaan' services printed on it was handed over to all participants (see Online Appendix E).

The intervention cost is at USD 9.77 per respondent. This is comprised of fixed cost of video development and the post cards given at follow up for a total of USD 4.45 and field costs associated with implementation of the intervention of USD 5.22 per respondent.[10] The development costs consists mainly of a fixed cost of video development, with per unit costs expected to fall for larger samples. The implementation costs include salaries of the enumerator team. Part of these unit costs, such as those incurred in piloting and training, can also be expected to be fixed and decrease for larger samples. Appendix B provides details of costs incurred.

3.2.1   Sample selection and treatment assignment

To select the sample for the study, we requested the college administration for a list of students enrolled in the final year of the bachelors program. We identified the proportion of the total working sample to be drawn from each college on the basis of enrollment data. We randomly selected 70% of the working sample to be the actual sample, and kept 30% as a replacement sample to be contacted if a sample student is not located or if she refuses to participate in the survey. We collected all survey data on tablets using SurveyCTO (`www.surveycto.com`). At the time of the baseline data collection, the software assigned each student to either the treatment or placebo group, with equal probability.

3.3   Empirical Strategy

Our basic estimating specification is:

$$y_{it} = \beta_1.T_i + y_{i0} + X_i + \mu_c + \epsilon_{it}$$

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[10]Note that we do not include cost of researcher time input into the development of the videos.

(1)

where y_{it} is an outcome variable, T_i is a dummy variable capturing exposure to treatment, y_{i0} is the outcome of interest measured at baseline if available, μ_c denote college fixed effects. The main hypothesis we propose to test is that exposure to the treatment *i.e.* female role-models has no effect; $H_0 : \beta_1 = 0$.

We estimate the impact of the intervention immediately after the intervention was administered on a measure of 'absorption' and on growth-mindset. At 9, 12, 15 and 18 months after baseline, we look at two key outcomes: job search and likelihood of working. Job search is a binary indicator equal to 1 if the woman looked for work in the last month. In line with recent studies from developing country contexts (e.g., Franklin (2018); Abebe et al. (2020); Groh et al. (2016a,b)), we take a broad definition of 'work' as being gainfully employed for pay. This includes full time and part time work, salaried work or day labor, and other work such as providing tuition to students where income is fixed monthly or per hour. In what follows, we present results using data on an unbalanced panel of women interviewed in each survey rounds. The results for the balanced panel interviewed in all survey rounds are qualitatively similar and available in Online Appendix C.

The analysis follows a pre-analysis plan.[11] There is one key departure: we had specified a job search index created out of a binary variable measuring likelihood of searching for a job, and additional variables capturing job search intensity. For ease of exposition, we focus on the binary indicator in the main analysis but we show treatment effects on the additional job search intensity measures in Appendix Table A.3.[12]

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[11]We have 3 pre-analysis plans: for the outcomes immediately after the intervention, for the first phone follow-up survey at 9 months and for the last phone follow-up survey at 18 months. A PAP report for all pre-specified analysis is available here.

[12]In the trial registry, we specified looking at academic performance as an intermediary outcome. We were not able to collect this data due to COVID-19 induced closure of colleges in March 2020. Colleges were

4 Results

4.1 Intervention engagement and retention

We first test if the video was effective in engaging the respondents. Measures immediately after the intervention were reassuring: 97% of the respondents said they found the video to be interesting, 99% believed the video documented the experiences of real women, and 65% of the sample felt they could relate to the women in the video (Table 3). Three months later, at the time of the intervention reinforcement, 99% of the treated respondents remembered having seen the video. Two-thirds of them were able to correctly answer questions about the video; and an even larger proportion reported having reflected on the messages of the video and having discussed it family members. At 18 months after baseline, 88% of the treatment group still remembered watching the video, with two-thirds also correctly remembering the profession of at least one of the role models. Overall, survey measures reveal a relatively high degree of respondent attentiveness.

We test if respondent engagement and reaction to the videos differ by treatment status through two immediate checks: One, we construct a *transportation* index to test if respondents watching the treatment video were more engaged with the video than the respondents who viewed the placebo video. This index is constructed using Principal Component Analysis (PCA) on four items to capture 'absorption', following Banerjee et al. (2019). The 4 items include whether the participant was distracted by surrounding activities, by their own thoughts, if they were affected emotionally, and/or intrigued to learn more about the characters in the video. We find that participants who watched the role model video were 'transported' to a greater degree, with average transportation index almost two times higher than the placebo group mean of -0.332 (column 1, Table 4). This difference, reassuringly, is driven by the treatment group being more emotionally engaged

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reluctant to disclose final year exam marks from the previous academic year once they re-opened. This was not included Din any pre-analysis plan.

Table 3: Intervention engagement and retention, at baseline and first followup (treated group only)

	Observations	Mean	SD	Min	Max
Panel A: baseline					
Video was interesting (%)	1222	97.1	16.7	0.0	100
Videos captured 'Real Stories' (%)	1211	99.3	8.6	0.0	100
Related to characters (%)	1219	65.1	47.8	0.0	100
Panel B: First followup (4 months after baseline):					
Remembers video (%)	1059	99.1	9.7	0.0	100
Recalls characters	1049	1.5	1.0	0.0	5.0
Correctly answers quiz qs 1 (%)	990	61.5	48.7	0.0	100
Correctly answers quiz qs 2 (%)	993	71.7	45.1	0.0	100
Discussed video with family (%)	1048	73.2	44.3	0.0	100
Reflected on video's message (%)	1059	79.5	40.4	0.0	100

Note: This table presents data on respondent attention and absorption at baseline, *i.e.*, immediately after the intervention was implemented; and recall at the time of the first followup, 4 months after the intervention was first implemented. In Panel A, Video was interesting is defined as an indicator variable for if the respondent finds the video somewhat or very interesting, Videos captured 'Real Stories' is an indicator variable for if the respondent thought the role models in the videos were real, Related to characters is defined as an indicator variable for if the respondent reports completely relating with at least one character. In Panel B, Remembers video is an indicator variable for if the respondent reports remembering the video, Recalls characters is a sum of the number of character names (out of a total of 5 characters) the respondent could recall, Correctly answers quiz questions are indicator variables for if the respondent correctly answered questions about specific aspects of the role model stories, discussed video with family and reflected on video's message are indicator variables for if the respondent answered yes.

and wanting to know more about the characters in the video as compared to the placebo group.

Second, we quantify the extent to which the treatment video was able to engender a growth mindset. We do this by using a validated Implicit Theories of Intelligence scale (Blackwell et al., 2007), implemented immediately after they watched the assigned video. This involved aggregating responses on a series of statements aimed at assessing the extent to which participants consider their ability is fixed or malleable. We find that the role model video led to a significant increase of around 0.1 standard deviation in the growth mindset of treated women. This indicates that immediately after watching the video, treated respondents were more conducive to acquiring knowledge and less likely to believe that they are limited by their intrinsic level of intelligence than respondents who watched the placebo video (Table 4).[13] These immediate checks reveal that the role model video was successful in engaging respondents and in changing their mindset, at least immediately after they first watched the video.

4.2   Effect on labor market outcomes after graduation

Next, we test if the treatment video was successful in changing respondent behaviour with respect to their job search efforts and work status. We collect information on these outcomes at 9, 12 and 18 months after baseline. At 18 months, we collect retrospective information from before the onset of the COVID-19 pandemic, providing us with data at approximately 15 months after the intervention.

In line with national statistics, a third of all graduates (35%) were working before COVID-19 pandemic related lockdown, in February 2020. This number drops to 22% in May 2020, after the lockdown. Amongst all women who are working, 65% are tutors - of

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[13]The effect on having a growth-mindset is no longer significant at the first follow-up three months later. On the other hand, we find significantly higher 'locus of control' (Rotter, 1966) among treated respondents three months after the intervention, though this effect also dissipates over time. Results are available in the Online Appendix Table B.2.

Table 4: Post intervention treatment effects

	(1) Transport index	(2) Growth mindset
Treated	0.677***	0.068*
	(0.049)	(0.040)
Observations	2491	2491
Mean(placebo)	-0.332	-0.034

Note: This table displays results from an OLS regression testing treatment effects on outcomes measured after intervention implementation. 'Transportation index' is an index created using Principal Component Analysis (PCA) measuring respondents absorption with the video, following Banerjee et al. (2019). 8 respondents did not answer one of the questions on which this index is based and were dropped from the analysis. 'Growth mindset' is a standardized index created out of Implicit Theories of Intelligence scale by Blackwell et al. (2007).'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. 'Mean (placebo)' is the average value of the dependent variable for the placebo group. Robust standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

which (81%) provide tuition from home earning on average USD 59.28. A fifth (20%) are employed in other, full-time salaried work earning a higher salary of USD 105.57, 13% are working part-time work and a small proportion (3%) are self-employed, providing beauty, stitching or embroidery services. They earn an average income of USD 77.15.

Fig 1a present the intent-to-treat effects on the likelihood of searching for a job among the full, unbalanced sample of women in the study.[14] Results show that treated women are not significantly more likely than the placebo group to engage in job search during the study period. At 9 months, immediately after they graduated, there was some indication of higher likelihood of job search (2 percentage points more) in the treated group but in subsequent periods the effect sizes are smaller. Our confidence intervals show that we can rule out large effects in all periods except at 9 months where the upper bound of the 95% confidence interval is 0.05. We consider if we are under-powered to detect small effects by constructing Minimum detectable effect (MDE) sizes following Haushofer and Shapiro (2016). Even the largest effect size at 9 months of 0.020 is half that of the MDE size for

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[14]We look at a number of other dimensions of job search and do not find any impact of the treatment (Appendix Table A.3).

that period (Appendix Table A.2, columns 1-4). In addition, there results are robust to attrition – the lower and upper Lee bounds are insignificant at all time periods.

Treatment effects on work status are shown in Figure 1b. The effect size is very small initially, but increases over time. In the initial period, our effects are much smaller than the MDE size (Appendix Table A.2, columns 5-7). However, at 18 months, women in the treated group are 4.7 percentage points more likely to be working as compared to the placebo group, an effect that is statistically significant.[15] This coincides with the Covid-19 related lockdown when it appears that the labor market may have become more challenging. We see a drop in overall employment rates for our sample across all occupations, including home tuition, with no difference by treatment status ($p - value = 0.36$). A decrease in household incomes may have have driven this effect. We discuss this in Section 4.3.1.

All role models shown in the intervention were working outside the home. Once we condition on working, we do not observe a significantly different likelihood of work from home (Appendix Table A.4, Panel a) or of being employed in full-time work (Appendix Table A.4, Panel b) between the treated and placebo women. We also test if treatment led to greater likelihood of working in higher income jobs. We do this by analysing if they are more likely to be earning above sample median monthly income of USD 81.21. We find some indication that this is the case 15 and 18 months after the intervention. However, the effect is only marginally significant at 15 months (Appendix Table A.4, Panel c).

We had phone follow-up discussions with the sample to understand why we see effects on work status at 18 months but not on job search. Women in our sample revealed a strong preference for work at or near their homes, consistent with evidence found in literature in similar settings (Said et al., 2021; Cheema et al., 2022). Therefore, it is likely that our

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[15]These results are robust to differential attrition. The upper and lower bounds are insignificant before the last follow-up at 18 months, after which they range from 4.5 to 4.9 percentage points and are statistically significant.

Figure 1: Treatment effects on job search effort and work status over time (Unbalanced panel)

(a) Job search

(b) Work status
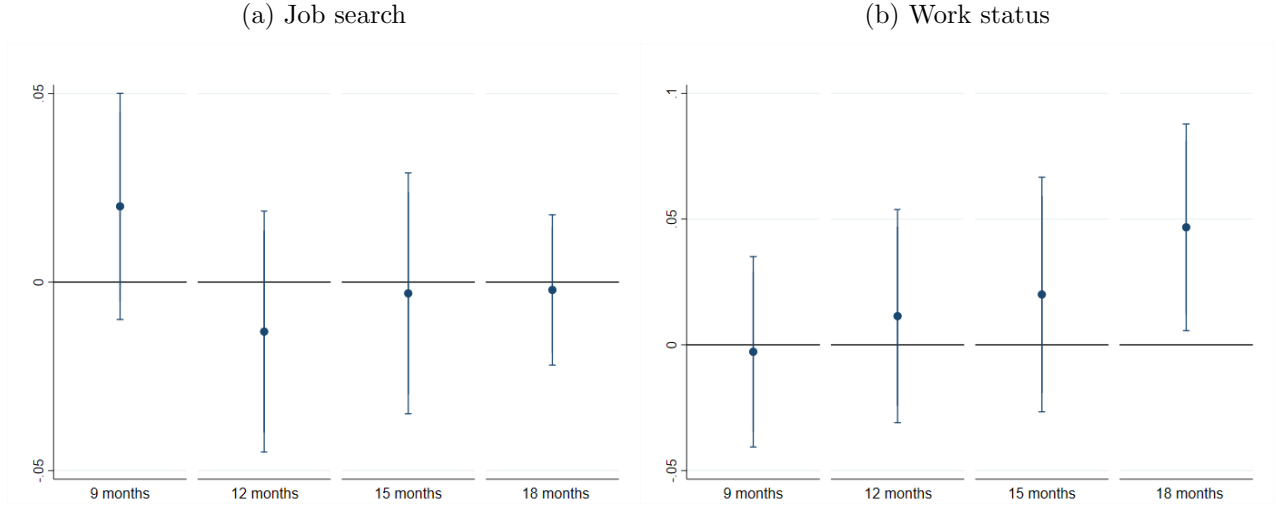
Note: This figure displays treatment effect coefficients from an OLS regression run separately for each survey round. 9, 12, 15 and 18 months refer to the number of months since the baseline and intervention when the dependent variable was measured. The dependent variable (in panel 1a) 'Job search effort' is a binary indicator equal to 1 if the woman looked for work in the last month. The dependent variable (in panel 1b) 'Work status' is a binary indicator equal to 1 if the woman in engaged in any type of work, whether full or part time. The coefficients shown are for the 'treated' variable which is a binary indicator equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo video. The average value of the dependent variable for the placebo group in panel 1a is 0.17, 0.15, 0.13 and 0.05 at 9, 12, 15 and 18 months respectively. The number of observations is 2,189, 1,746, 1,614, and 1,614 at 9, 12, 15 and 18 months respectively. The corresponding average value of the dependent variable for the placebo group in panel 1b is 29%, 28%, 34% and 20%. The number of observations is 2,186, 1,744, 1,614, and 1,614 at 9, 12, 15 and 18 months respectively. A table version of this figure with Lee bounds can be found in Table A.2.

measures of search, which relate to formal jobs, do not capture efforts made to find such jobs. Indeed, two-thirds of those employed at the last follow up are working as tutors and their job search efforts involve using informal networks to find students in the neighbourhood to teach.

4.3 Heterogeneity

4.3.1 Heterogeneity by household income-education status

Our sample is quite homogeneous in terms of respondent aspirations, future plans, age and other characteristics. This is not surprising since the sample is selected from women enrolled in public colleges in a major urban city in Pakistan, and not representative of a

broader population. Nevertheless, we do observe certain household characteristics along which there is considerable heterogeneity at baseline. For instance, one-fifth of the sample have fathers who have studied up to grade 5; fathers of another third of the sample have at least 10 years of education. We explore whether the impact of the treatment varied by the participants' personal, parental and household characteristics.

This analysis was not specified in our pre-analysis plan. For this reason, we employ an unsupervised machine learning technique, k-means clustering, to define sub-groups in our sample, rather than selecting the dimensions along which we define sub-groups ex-post. We classify participants into groups on the basis of the following baseline characteristics: age, parental education, household income and family size.[16] The k-means clustering algorithm finds groups in the data with similar characteristics, minimizing the squared Euclidean distance and ensuring that the sum of the distances for observations in a cluster are minimized. The aim is to find the 'natural' groups of students with similar characteristics at baseline. In order to identify the optimal number of clusters, we adopt the methodology followed by Riley (2020), using both the sum of within-cluster distance and the pseudo-F index. Based on these measures, we find support for two groups among our respondents. These are defined across the income and education of the student's parents. In subsequent analysis, we refer to these groups as low-income-education and high-income-education households, with a sample of 919 and 1364 women, respectively. We have good balance across the treatment and placebo groups within these two sub-groups (Online Appendix, Tables B.3 and B.4).

Women from the low-income-education household category belong to households where the average monthly household income and father's education are lower relative to women from the high-income-education households (Table B.5 in the Online Appendix): the average

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[16]We standardise these variables to avoid high variation in a variable from being over-weighted in the analysis. At baseline, 216 respondents did not report household income. Instead of making assumptions about the nature of missing values and doing imputations, we drop these individuals from this analysis. Reassuringly, the likelihood of missing data at baseline is balanced across the treatment and placebo groups.

household income in low-income-education households is USD 254 compared to USD 359 in high-income-education households, the average education of fathers in the low-income-education households is 6 years relative to 12 years in the high-income-education household category. Mother's are more educated on average in the high-income-education group, with an average of 11 years of education, relative to 3 years of education for mothers in the low-income-education group. The high-income-education households are smaller and the likelihood of the respondent's mother working is twice in the high-income-education group as compared to the low-income-education group. The low-income-education group could relate more (28%) to the constraints faced by the role models as compared to the high-income-education group (23%).

The effect of the treatment on the likelihood of working in the high-income-education group is very small and insignificant in all periods (Fig 2b). In the low-income-education group there is a similar pattern initially, with some indication of higher (but not significantly different) likelihood of working at 15 months. At 18 months, after the start of the COVID-19 pandemic, they are approximately 11 percentage more likely to be working compared to women in this sub-group who were assigned to watch the placebo video (Fig 2a). These findings suggest that the average effect on work status at 18 months discussed in Section 4.2 may be driven by the low-income-education group. In part, this may be due to the treated low-income-education sub-group being 9.2 percentage points more likely to respond that they are (very) often stressed about loss of own and household income due to the COVID-19 pandemic compared to the treated high-income-education group ($p-value$ = 0.02). Further, a primary earner in their household is 8.9 percentage points more likely to have lost their job or have had to shut their business due to the pandemic ($p-value$ = 0.018).

Further, consistent with the null average effects on job search and potential reasons discussed, we do not find any significant difference at 18 months in job search effort (Fig 3a

26

Figure 2: Treatment effects on work status over time
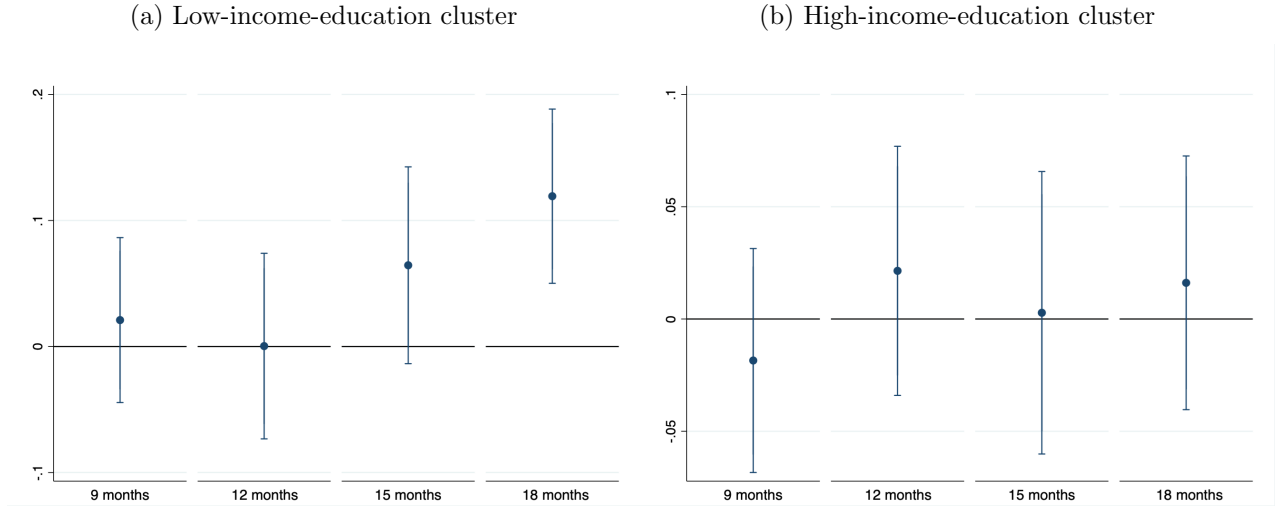
(a) Low-income-education cluster   (b) High-income-education cluster

This figure displays treatment effect coefficients from an OLS regression run separately for each survey round. 9, 12, 15 and 18 months refer to the number of months since the baseline and intervention when the dependent variable was measured. The dependent variable 'Work status' is a binary indicator equal to 1 if the woman in engaged in any type of work, whether full or part time. The coefficients shown are for the 'treated' variable which is a binary indicator equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo video. Panel 2a reports results for the low-income-education sample (defined in Section 4.3) and panel 2b for the high-income-education cluster sample. The average value of the dependent variable for the placebo group in panel 2a is 0.314, 0.324, 0.319 and 0.167 with a sample size of 800, 620, 580, and 580 at 9, 12, 15 and 18 months respectively. The corresponding average value of the dependent variable for the placebo group in panel 2b is 0.279, 0.253, 0.343 and 0.225 with a sample size of 1,195, 969, 887, and 887 at 9, 12, 15 and 18 months, respectively. A table version of this figure with a fully interacted model is in columns (5) to (8) in Table A.5.

& 3b). We also do not find any resulting heterogeneity in the likelihood of earning above median income (i.e. greater than USD 81.21 per month; Online Appendix Table B.6).

4.3.2 Heterogeneity by enrollment status

We have information on enrollment in a masters (postgraduate) degree at 9, 12 and 18 months. We find that a little over a third of our sample proceed to enroll in a masters degree after graduation. This may be motivated by a desire for better job market outcomes: at baseline, respondents expected masters graduates to be able to earn twice as much as undergraduates. Four out of the five working women showed in the treatment video had an advanced degree. While their degrees were not explicitly mentioned (except

Figure 3: Treatment effects on job search effort over time
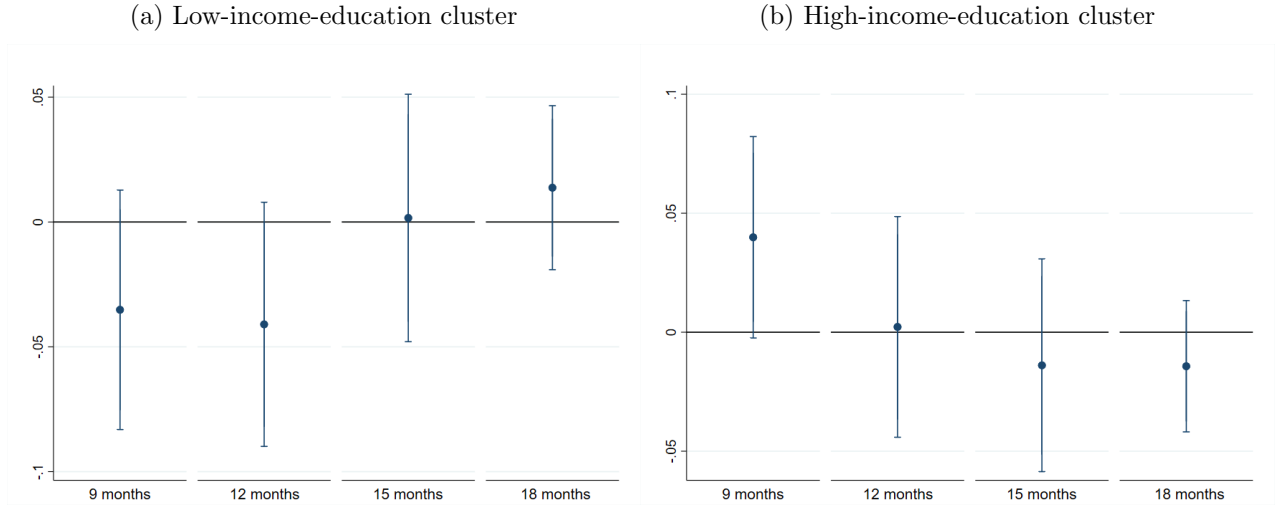
(a) Low-income-education cluster

(b) High-income-education cluster

This figure displays treatment effect coefficients from an OLS regression run separately for each survey round. 9, 12, 15 and 18 months refer to the number of months since the baseline and intervention when the dependent variable was measured. The dependent variable 'Job search effort' is a binary indicator equal to 1 if the woman looked for work in the last month. The coefficients shown are for the 'treated' variable which is a binary indicator equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo video. Panel 3a reports results for the low-income-education sample (defined in Section 4.3) and panel 3b for the high-income-education cluster sample. The average value of the dependent variable for the placebo group in panel 3a is 0.178, 0.141, 0.104 and 0.028 with a sample size of 802, 622, 580, and 580 at 9, 12, 15 and 18 months, respectively. The corresponding average value of the dependent variable for the placebo group in panel 3b is 0.178, 0.168, 0.143 and 0.056 with a sample size of 1,196, 969, 887, and 887 at 9, 12, 15 and 18 months, respectively. A table version of this figure with a fully interacted model is in columns (1) to (4) in Table A.5.

for one), there were references to them being highly educated and this could also be inferred from their jobs. On the other hand, the treatment may have pushed the women to join the labor force immediately, at the cost of pursuing a masters degree. Therefore, we test if the treatment led to a differential likelihood of enrollment in a masters program. We find null treatment effects on the likelihood of enrollment (Appendix Table A.6 panel a).

We explore treatment effects amongst women who are not currently enrolled in graduate studies, and are therefore available to work. Despite no treatment effects on likelihood of enrollment, this analysis with a selected sample was not pre-specified and is based on status measured post-treatment, and so should be interpreted with caution. The treatment effects on job search and work status are reported in the Appendix Table A.6 panels b and c only for women who were not currently enrolled in a masters program at the time of that survey round. We find no treatment effects on job search in all periods and on work status at 9 and 12 months. Consistent with the average effects, among women who do not pursue graduate study, we observe a significant effect of the 'role models' treatment intervention on being gainfully employed post-pandemic only at 18 months after the intervention (Appendix Table A.6 panel c, column 3). Treated women have a 6 percentage points greater chance of having a job which is approximately 30% higher than the placebo group mean.

4.3.3 Heterogeneity by other characteristics

We also test if graduates who had a social science major - such as economics, finance, psychology and mathematics, are more likely to be working than graduates majoring in humanities (e.g. language and religious studies). We find no clear indication of heterogeneity in treatment effects for job search or likelihood of working by the subject they majored in (Online Appendix tables B.7 and B.8).

We also consider if the treatment effects varied by the college the respondent studied in. Findings suggest that treatment effects on working 18 months after the baseline may vary

by the college the student was enrolled in at the time of the baseline: The $p-value$ (F-test) of a test of the joint significance of treatment and college interactions is 0.01. Given the choice of college is not random but a function of respondent characteristics, such as parental income, this finding is in line with the overall patterns observed in heterogeneity by income and parental education discussed in Section 4.3.1.

We had pre-specified a series of analysis on other dimensions of heterogeneity such as Big 5 personality assessment. We find no significant effects on the job search or work status by these characteristics at any of the follow-up rounds.[17]

4.4 Additional outcomes

4.4.1 Marital Status

Our data allows us to determine if the marital status of the respondents changed over the study time period, though we do not have data on the match quality. At baseline, as shown in Table 1, there was no significant difference in the marital status of respondents in the placebo and the treatment group. At the last follow up, 18 months later, the proportion of respondents who are married have increased but this proportion does not vary significantly by treatment status: 11.7% of the treated individuals are married at endline compared to a slightly higher 14.3% in the placebo group.

4.4.2 Job Asaan Database Outcomes

Respondents were informed about Job Asaan, a job search portal, on the day the baseline survey and intervention were administered. All respondents agreed to complete the first stage of signing up for the service at baseline, which was done for them by the enumerator. They had to subsequently complete a second sign-up process that required logging on a link and providing information on expectations around jobs. At this second sign-up stage,

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[17]These results are available in the PAP report here.

the Job Asaan portal collected detailed information related to applicants' job preferences and provided information on the different services that Job Asaan offers.

We were able to match 1,087 of our 2500 respondents with the Job Asaan database using data received in September 2019 (coinciding with the 9 month follow-up). 236 of these 1,087 respondents had fully completed the second stage of the sign-up. We find no effect of the treatment on the likelihood of completing the second sign-up stage (Appendix Table A.7). In the data reported on the Job Asaan portal, respondents in our sample who completed the second signup expect to take 4 months to find work, for a monthly wage of USD 263.93 with no significant difference between the treatment and placebo group. Consistent with self-reported measures, we don't find any effect of the treatment on various measures of job search in the Job Asaan administrative data.

The Job Asaan portal also collects data on applications made for job matches on the portal. We don't find any effect on this on average or by the income-education subgroups discussed in section 4.3.1.

5   Spillover Effects

Information spillover is possible with individual level randomization. It is even more likely when information provided to the treated group is easy to communicate - for instance, information about a job site that has a large listing of jobs. In contrast, we expect ex-ante that motivational nudges and psychological constructs (like aspirations and motivation) would be more difficult to pass on in comparison to objective information about job search sites and resume-making thus reducing the spillover of aspirational and motivational 'nudges'. However, if spillovers do occur, they can bias the measurement of treatment effects towards zero, while increasing the cost effectiveness of the intervention by diffusing the benefits, if any, of the intervention to a larger group of people at little or no cost.

We follow methodology proposed by Banerjee et al. (2019) to estimate spillover effects by following the behavior of network friends. We asked all participants, in both the treatment and placebo groups, to name five 'network' friends from the same college, with whom they communicate regularly. During the follow-up survey at 9 months, we also surveyed the network friends to observe affect (if any) of the treatment on network friends.

We were able to successfully contact 503 of these network friends spread across all colleges surveyed.[18] We find that friends of treated group are 9 percentage points more likely to enrol in a masters program as compared to friends of placebo group (Table A.8). While we do not find any treatment effect on the likelihood of enrolling in a masters program for the main study sample (shown in Table A.6), for the sub-sample for whom we have data on friends, the main sample women are also significantly more likely to be enrolled (by 20 percentage points, p = 0.019; table not shown but available upon request). Hence, we are cautious in interpreting the spillover results since these seem to be friends of a 'selected' sample.

We look at spillover effects on three job related outcomes: if they have created a CV, if they searched for a job in the last month and if they had a job. We find no evidence of a spillover effects of the treatment on work status or job search effort (Table A.8). We also try to disentangle results by the main respondents' personal and household characteristics as we have done in the Section 4.3.1 and test if friends with those in the low-income-education group are more likely to be affected by their treated friends (Online Appendix Table B.9). We see no heterogeneity by this aspect.

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[18]Out of these, 286 were friends with the respondents in the placebo group and and 217 were friends with the treated respondents.

6   Conclusion

In this paper we test if an intervention involving role models can encourage female graduates from low-income households to enter the labor force. We find that participants who were administered a 10-minute video and brief discussion showcasing successful working women from similar socio-economic backgrounds – role models - demonstrated an immediate improvement in 'growth mindset' and high recall of the video content four and eighteen months later. However, we do not find any meaningful improvement in the likelihood of looking for work or of working post-graduation up to 15 months after the intervention. We estimate and show Lee bounds to rule out differential attrition and ex-post MDEs to address concerns about low statistical power.

We find a moderate increase of 4.7 percentage points in the likelihood of working 18 months after the intervention among the treatment group. The 18 month results coincide with a nation-wide lockdown, when the labor market conditions may be expected to be different from normal. This effect is being driven by women belonging to households with lower parental education and household incomes. A possible mechanism is that these women were significantly more likely to experience primary earner of their household losing their job or shutting down their business and being stressed about this lost household income due to the COVID-19 pandemic.

The lack of average treatment effects (before COVID-19) are consistent with recent literature that highlight binding constraints to female labor force participation, such as limited safe transport options, restrictive social norms (McKelway, 2020; Cheema et al., 2022; Field and Vyborny, 2016), lack of interpersonal skills and the ability to interact effectively with family member's opposition (McKelway, 2020; Dean and Jayachandran, 2019) that the intervention tested in this study did not directly target. In addition, it is possible that the light-touch nature of the intervention was insufficient encouragement for

women to overcome these constraints.

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Appendix

A Additional figures and tables

Figure A1: Location of Women only Public Colleges in Lahore
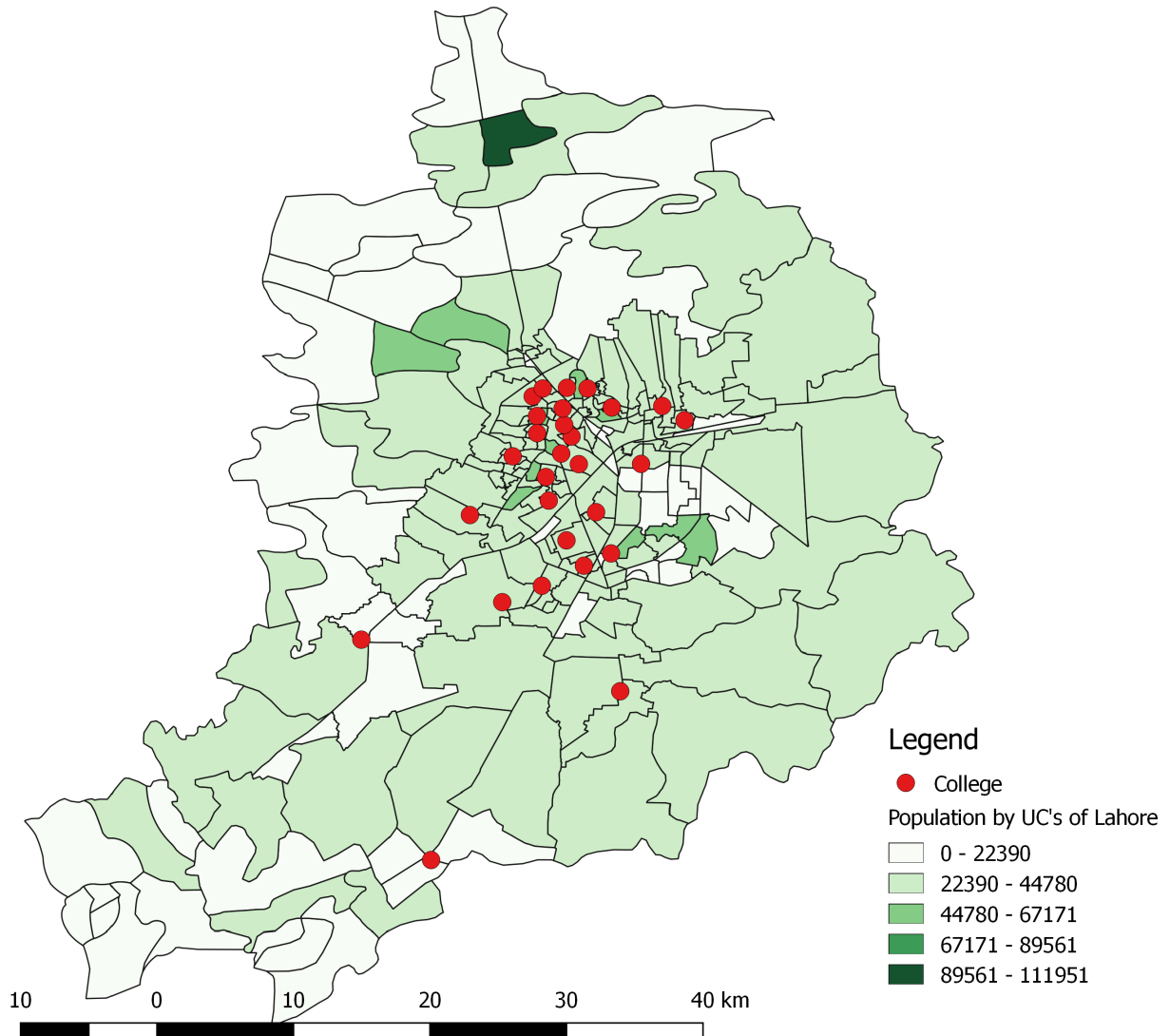
Table A.1: Attrition by survey round, including baseline characteristics

	(1)	(2)	(3)	(4)
Months since baseline	3	9	12	18
Treated	0.112	0.091	0.174	0.097
	(0.078)	(0.084)	(0.114)	(0.116)
Monthly household income (USD)	0.000	0.000*	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Dummy: Own house	0.067***	0.023	0.033	0.100***
	(0.020)	(0.025)	(0.036)	(0.035)
Household size	-0.006	0.001	-0.006	-0.006
	(0.005)	(0.006)	(0.007)	(0.008)
Father's years of education	0.002	-0.002	0.006**	0.001
	(0.002)	(0.002)	(0.003)	(0.003)
Mother's years of education	-0.002	0.001	-0.004	-0.002
	(0.002)	(0.002)	(0.003)	(0.003)
Dummy: Mother works	-0.025	-0.091***	0.014	-0.068
	(0.031)	(0.026)	(0.049)	(0.048)
Dummy: Want to work after graduation	-0.005	0.008	0.002	0.027
	(0.028)	(0.030)	(0.040)	(0.041)
Dummy: Married	0.003	0.007	-0.028	-0.020
	(0.036)	(0.036)	(0.047)	(0.052)
Hours of study per day	0.000	0.002	0.004	-0.002
	(0.005)	(0.005)	(0.006)	(0.006)
Hours of housework	0.003	0.006	0.006	0.013*
	(0.007)	(0.007)	(0.008)	(0.008)
Dummy: searched for a job	-0.075**	-0.030	-0.083	-0.021

	(0.031)	(0.041)	(0.066)	(0.071)
Hours of job search in the last 4 months	-0.002	-0.000	0.009	-0.005
	(0.002)	(0.005)	(0.007)	(0.007)
Monthly personal income (USD)	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Monthly household income (USD) *T	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Dummy: Own house *T	-0.046	0.017	0.006	-0.021
	(0.031)	(0.034)	(0.050)	(0.050)
Household size *T	-0.003	0.001	0.002	-0.002
	(0.007)	(0.008)	(0.011)	(0.011)
Father's years of education *T	0.002	0.002	-0.008*	0.002
	(0.003)	(0.003)	(0.004)	(0.004)
Mother's years of education *T	0.000	-0.000	0.000	-0.003
	(0.003)	(0.003)	(0.004)	(0.005)
Dummy: Mother works *T	0.064	0.166***	0.027	0.153**
	(0.052)	(0.053)	(0.074)	(0.075)
Dummy: Want to work after graduation *T	-0.021	-0.062	-0.063	-0.058
	(0.041)	(0.044)	(0.057)	(0.057)
Dummy: Married *T	0.060	0.025	0.050	0.138*
	(0.054)	(0.053)	(0.068)	(0.073)
Hours of study per day *T	-0.002	-0.010	-0.010	-0.001
	(0.006)	(0.006)	(0.009)	(0.009)
Hours of housework per day *T	-0.007	-0.006	-0.003	-0.000
	(0.008)	(0.009)	(0.011)	(0.012)
Dummy: searched for a job *T	0.085	-0.018	0.010	-0.108
	(0.081)	(0.080)	(0.112)	(0.113)

Hours of job search in the last 4 months *T	0.011	0.008	0.006	0.025**
	(0.011)	(0.013)	(0.015)	(0.012)
Monthly personal income (USD) *T	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Constant	0.091*	0.053	0.246***	0.246***
	(0.054)	(0.057)	(0.079)	(0.083)
p(F-stat)	0.13	0.09	0.70	0.30
Mean	0.13	0.12	0.30	0.35
Observations	2183	2183	2183	2183

Note: Column (1) reports attrition from the intervention reinforcement survey (3 months after the baseline), column (2) from follow-up 1 (9 months after the baseline), column (3) from follow-up 2 (12 months after the baseline), and column (4) from follow-up 3 (18 months after the baseline). All results are from a saturated regression with controls for household characteristics (monthly household income, dummy for own house, household size, father's yeas of education, mother's years of education, and dummy for mother works) and respondents' own characteristics (dummies for if wants to work after graduation, and is married, hours of study and housework per day, dummy for if searched for job, hours of job search in the last 4 months, and monthly personal income) and the interaction of these controls with the treatment dummy ('T'). All covariates are collected before the intervention is implemented. Observations are lower due to missing observations in baseline characteristics. Robust standard errors are presented in parentheses. 'p(F-stat)' refers to the p-value of F-Statistic from a test of joint significance of the interaction of treatment status and baseline characteristics. 'Mean' refers to the average level of attrition in each round. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.2: Effect on job search and work status over time

Dependent variable:	Job search				Work status			
Time after intervention:	9 months	12 months	15 months	18 months	9 months	12 months	15 months	18 months
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated	0.020	-0.013	-0.003	-0.002	-0.003	0.011	0.0200	0.047**
	(0.015)	(0.016)	(0.016)	(0.010)	(0.019)	(0.022)	(0.024)	(0.021)
MDE	0.042	0.0448	0.0448	0.028	0.053	0.062	0.067	0.059
Lower bound	0.015	-0.018	-0.004	-0.003	-0.008	0.008	0.015	0.045
	(0.017)	(0.018)	(0.015)	(0.011)	(0.019)	(0.024)	(0.023)	(0.017)***
Upper bound	0.023	-0.006	0.000	0.001	-0.000	0.020	0.019	0.049
	(0.018)	(0.023)	(0.023)	(0.016)	(0.021)	(0.025)	(0.030)	(0.025)**
Observations	2189	1746	1614	1614	2186	1744	1614	1614
Mean (placebo)	0.171	0.154	0.128	0.0461	0.290	0.277	0.338	0.201

Note: This table displays results from an OLS regression testing treatment effects on job search efforts and work status. The dependent variable in columns (1) to (4) is a binary variable equal to 1 if the respondent looked for work in the last month. The dependent variable in columns (5) to (8) is a binary variable equal to 1 if the respondent is working at the time of the survey. 'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. The lower and upper bounds refer to the treatment effect bounds constructed using the Lee (2009) procedure. 'MDE' refers to ex post minimum detectable effect size at a significance level of 0.05 and power of 80 percent.'Mean (placebo)' is the average value of the dependent variable for the placebo group. Robust standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.3: Effect on job search index components (conditional on searching)

Time after intervention	9 months (1)	12 months (2)	15 months (3)	18 months (4)
Panel (a): Job search hours				
Treated	-0.0509	0.736	2.564	7.700
	(1.084)	(0.859)	(3.709)	(11.91)
Observations	393	255	205	72
Mean (placebo)	10.04	7.130	7.623	10.29
Panel (b): Read job ads				
Treated	-0.0320	0.0772	-0.0969	-0.0355
	(0.0438)	(0.0652)	(0.0715)	(0.152)
Observations	393	255	205	72
Mean (placebo)	0.229	0.406	0.425	0.395
Panel (c): Search via informal networks				
Treated	-0.00696	0.0853	0.0658	0.0382
	(0.0428)	(0.0518)	(0.0600)	(0.153)
Observations	393	255	205	72
Mean (placebo)	0.802	0.783	0.764	0.684
Panel (d): Online job search				
Treated	0.00332	-0.0264	-0.0246	0.0194
	(0.0484)	(0.0651)	(0.0726)	(0.128)
Observations	393	255	205	72
Mean (placebo)	0.531	0.587	0.575	0.763
Panel (e): Formal job search				
Treated	0.0124	-0.00387	-0.0750	-0.0538
	(0.0525)	(0.0646)	(0.0729)	(0.148)
Observations	393	255	205	72
Mean (placebo)	0.469	0.493	0.575	0.316

Note: This table displays results from an OLS regression testing treatment effects on job search efforts on sample of students who appear in each round and report having looked for a job in the last 4 weeks. The dependent variable in panel (a) is the approximate number of hours they spent on job search during the last 4 weeks, the dependent variables in panels (b) - (e) are binary variables for different activities the respondents undertook to look for a job where 'Read job ads' is a binary indicator variable for respondents who have read job advertisements while looking for a job over the past 4 weeks. 'Search via informal networks' is an indicator variable for respondents who have asked family members, friends, colleagues etc. for a job, 'Online job search' is an indicator variable for respondents who have searched for or responded to job advertisements online while looking for a job over the past 4 weeks, 'Formal job search' is an indicator variable for respondents who have contacted potential employers, temporary employment agencies or the public employment service while searching for a job over the past 4 weeks. 'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. Robust standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.4: Effect on working at home, full time and earning above median income (conditional on working)

Time after intervention	9 months	12 months	15 months	18 months
	(1)	(2)	(3)	(4)
Panel (a): Effect on working at home				
Treated	0.0297	0.0411	-0.0154	-0.0279
	(0.0365)	(0.0447)	(0.0429)	(0.0532)
Observations	629	493	559	361
Mean(placebo)	0.692	0.540	0.459	0.590
Panel (b): Effect on working full time				
Treated	0.003	0.002	0.009	0.003
	(0.012)	(0.013)	(0.027)	(0.038)
Observations	629	493	559	361
Mean(placebo)	0.975	0.976	0.889	0.867
Panel (b): Effect on earning above median income (USD 81.21)				
Treated	0.0243	0.00614	0.0715^*	0.0567
	(0.0304)	(0.0449)	(0.0419)	(0.0540)
Observations	603	456	554	349
Mean(placebo)	0.158	0.427	0.378	0.377

Note: This table displays results from an OLS regression testing treatment effects on type of work, conditional on the woman working. The dependent variable in Panel (a) is a binary variable equal to 1 if the respondent is working at home at the time of the survey, in Panel (b) is a binary variable equal to 1 if the respondent is working full time at the time of the survey, and in Panel (c) is a binary variable equal to one if the respondent's monthly income is equal or more than the median sample income of PKR 10,000 (USD 81.21), all conditional on being employed at the time of the survey. 'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. 'Mean (placebo)' is the average value of the dependent variable for the placebo group. Robust standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.5: Heterogeneous treatment effects on job search and work status over time

Dependent variable:	Job search				Work status			
Time after intervention:	9 months	12 months	15 months	18 months	9 months	12 months	15 months	18 months
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated	-0.0325	-0.0389	0.00530	0.0163	0.0233	-0.00776	0.0542	0.107***
	(0.0244)	(0.0251)	(0.0251)	(0.0159)	(0.0331)	(0.0372)	(0.0396)	(0.0345)
High-income-education	-0.0558**	-0.0266	0.00486	0.0168	-0.0582*	-0.0989***	0.00858	0.0549*
	(0.0234)	(0.0253)	(0.0242)	(0.0143)	(0.0297)	(0.0331)	(0.0357)	(0.0296)
High-income-education	0.0730**	0.0420	-0.0196	-0.0310	-0.0451	0.0278	-0.0512	-0.0933**
*Treated	(0.0327)	(0.0343)	(0.0339)	(0.0215)	(0.0418)	(0.0467)	(0.0508)	(0.0449)
Observations	1998	1591	1467	1467	1995	1589	1467	1467
Mean high income (placebo)	0.178	0.168	0.143	0.056	0.279	0.253	0.343	0.225
Mean low income (placebo)	0.178	0.141	0.104	0.028	0.314	0.324	0.319	0.167

Note: This table displays results from an OLS regression testing treatment effects on job search efforts and work status. The dependent variable in columns (1) to (4) is a binary variable equal to 1 if the respondent looked for work in the last month. The dependent variable in columns (5) to (8) is a binary variable equal to 1 if the respondent is working at the time of the survey. 'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. 'High-income-education' is a binary variable equal to one 1 if the respondent belongs to the high-income-education cluster defined in section 4.3. 'High-income-education*Treatment' is an interaction of 'High-income-education' and 'Treated' group, equal to 1 when the respondent is part of the treated sample and belongs to the high-income-education sub-sample. 'Mean high income (placebo)' and 'Mean low income (placebo)' are the average value of the dependent variable for the high and low income placebo groups, respectively. Robust standard errors are presented in parentheses.

Table A.6: Treatment effects on enrollment, and on job search and work status over time of those not currently enrolled

	(1)	(2)	(3)
Time after intervention:	At 9 months	At 12 months	At 18 months
Panel (a): Effect on enrollment			
Treated	-0.0149	-0.00264	-0.00273
	(0.0198)	(0.0213)	(0.0234)
Observations	2178	1744	1614
Mean (placebo)	0.343	0.296	0.348
Panel (b): Effect on job search, for those not enrolled			
Treated	0.0175	-0.00987	-0.00514
	(0.0198)	(0.0206)	(0.0134)
Observations	1453	1236	1056
Mean (placebo)	0.198	0.172	0.0502
Panel (c): Effect on work status, for those not enrolled			
Treated	0.00147	0.0192	0.0598**
	(0.0235)	(0.0266)	(0.0264)
Observations	1451	1236	1056
Mean (placebo)	0.283	0.305	0.203

Note: This table displays results from an OLS regression testing treatment effects on enrollment in masters, and on job search efforts and work status for those not currently enrolled in a masters programme. We have data on enrollment status at 9, 12 and 18 months after the intervention. The dependent variable in panel (a) is a binary variable equal to 1 if the respondent is enrolled in a masters programme at 9 (column 1), 12 (column 2) and 18 months (column 3). The sample for results in panels (b) - (c) is restricted to those not enrolled in a masters programme at 9, 12 and 18 months. The dependent variable in panel (b) is a binary variable equal to 1 if the respondent looked for work in the last month. The dependent variable panel (c) is a binary variable equal to 1 if the respondent is working at the time of the survey. 'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. 'Mean (placebo)' is the average value of the dependent variable for the placebo group. Robust standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.7: Job Asaan Outcomes

Variable	(1) Control group	(2) Treatment group	(3) Difference	(4) Count
JA signup	0.215	0.220	0.005	1,087
	(0.411)	(0.414)	(0.025)	
Access EFH	3.253	3.537	0.284	194
	(1.380)	(1.165)	(0.184)	
Exp. Time to Attaining Work(mths)	3.846	4.741	0.895	176
	(3.621)	(4.405)	(0.606)	
Exp. Wage $/month	263.93	263.93	0.002	210
	(0.02)	(0.02)	(0.002)	
Dummy for job search effort in the following ways:				
Applied to prospective employer	0.085	0.078	-0.008	233
	(0.281)	(0.269)	(0.036)	
Checked at work sites, factories markets	0.103	0.043	-0.059*	233
	(0.305)	(0.204)	(0.034)	
Sought assistance from network	0.085	0.112	0.027	233
	(0.281)	(0.317)	(0.039)	
Placed or answered advertisements	0.043	0.043	0.000	233
	(0.203)	(0.204)	(0.027)	
Registered with an employment agency	0.034	0.034	0.000	233
	(0.182)	(0.183)	(0.024)	
Applied to any job that individual was matched to by JA	0.442	0.456	0.014	216
	(0.499)	(0.501)	(0.068)	
Applied to a job by socio-economic group:				
Low-income-education	0.457	0.594	0.137	67
	(0.505)	(0.499)	(0.123)	
High-income-education	0.462	0.387	-0.074	127
	(0.502)	(0.491)	(0.088)	

Note: Columns (1) and (2) show the mean value of the variable for the placebo and treatment sample, respectively. Column (3) reports the difference in means between the placebo and treatment; and column (4) displays total number of observations for each variable. We were able to match 1,087 out of the 2500 respondents in our sample with the Job Asaan database extract received in September 2019. JA signup is a dummy variable for if the respondent completed the second-stage sign-up. 236 had completed the second stage sign-up ('JA signup'). The measures reported are based on the information stored for these 236 individuals in the Job Asaan database. 'Access EFH' is a scale from 1-5 that askes how easy is it for the respondent to come to the facility where Job Asaan's employment facilitation Hub is located, 1 being extremely likely and 5 being not likely at all. 'Exp. Time to Attaining Work(mths)' is the number of months a respondent said they expected to get a job offer. 'Exp. wage' is the expected salary respondents expect to get on their next job. 'Applied to prospective employer', 'Checked at work sites, factories, markets', 'Sought assistance from network', 'Placed or answered advertisements', 'Registered with an employment agency' are all dummy variables for if the respondent undertook these measures for finding a job in the last month. 'High-income-education' is a binary variable equal to one 1 if the respondent belongs to the high-income-education cluster and 'Low-income-education' is a binary variable equal to one 1 if the respondent belongs to the low-income-education cluster. These clusters are defined in section 4.3. $***p < 0.01, **p < 0.05, *p < 0.1$.

Table A.8: Treatment effects on the spillover group

	(1) Enrolled in Masters	(2) Has created a CV	(3) Job search in the last month	(4) Has a job
Friends with Treated	0.089**	-0.001	0.002	0.034
	(0.042)	(0.043)	(0.033)	(0.045)
Observations	503	503	503	503
Mean (placebo)	0.329	0.584	0.146	0.402

Note: This table displays results from an OLS regression testing spillover effects of the intervention on job market outcomes of networks friends. The dependent variable in column 1 is a binary variable equal to 1 if the respondent is enrolled in Masters at the time of survey , in column 2 the dependent variable is also a binary variable equal to 1 if the respondent has ever created a CV, in column 3 the dependent variable is a binary indicator equal to 1 if the individual in the last 4 weeks has searched for a job and the dependent variable in column 4 is a binary variable equal to 1 if the respondent is working at the time of the survey. 'Friends with Treated' is a binary variable equal to one for respondents who are friends with those who viewed the role model video; 0 for those who are friends with those who viewed the placebo videos. The network friends were interviewed in December 2019 i.e. nine months after the baseline. 'Mean (placebo)' is the average value of the dependent variable for the placebo group. Robust standard errors are in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

B   Cost of the intervention

Table B.1 provides a summary of intervention costs. Development costs include the total costs of video development, including payments made to the media company, ContentCreatorZ and the costs of reminder post cards provided at the time of the reinforcement of the main messages of intervention. To provide per respondent costs, we divide the cost of the video by the number of participants who were assigned to the treated group at baseline (N = 1275) and the total cost of the post cards provided to respondents treated at the reinforcement (N = 1092). The total development costs is approximately USD 4.54, of which a large portion - that of the video development - is a fixed cost. The per unit cost is expected to fall with larger sample. As such, we assume these estimates to provide an upper limit of the costs that can be incurred with a larger group of participants.

The video and reminder interventions were implemented by a team of enumerators. The enumerators also collected baseline and followup data in the same visit that the video and reminder interventions were implemented. We estimate that a fourth of the time and resources of the field team at baseline and a sixth of their time of the second visit were spent on intervention implementation. Included in field team costs are the costs of training, piloting, and salaries of enumerators and field supervisors. We assume that the total time spent with treated and placebo participants are not meaningfully different and divide the total costs of implementation at each round by the total number of participants contacted in each round. We estimate the per participant costs amount to USD 4.3 at baseline and USD 0.97 at the time of the repeat intervention, for a total of USD 5.23. Overall the intervention development and implementation cost a total of USD 9.76 per participant.

Table B.1: Activity based costing per study participant (USD 2018)

Activity			
Development	Video	Post cards	Total
	4.26	0.28	4.45
Implementation	Baseline	Reinforcement	Total
	4.25	0.97	5.22
Total			**9.77**

Note: This table summarizes the per unit cost of the intervention, which have been divided into two types: intervention 'development' and of 'implementation'. The intervention was implemented twice, first with video at the start of the study (baseline) and then reinforced 3 months later (reinforcement). The cost of development involved developing the video at baseline and of providing postcard at the time of reinforcement. All costs are converted to USD using PKR 123.12: 1 USD at the time of baseline in 2018.

Online Appendix

A   Round-wise Survey Details

Figure A1: Timeline of activities

	Baseline	Intervention reinforcement	Follow-up 1	Follow-up 2	Follow-up 3 (R)	Follow-up 3
Time since baseline		3 months	9 months	12 months	15 months	18 months
	Oct'18-Feb'19	Feb-May'19	Aug-Sep'19	Dec'19-Jan'20	Feb'20 Mar'20 (COVID lockdown)	May-Jun'20
	N=2499	N=2184 (12.6%)	N=2189 (12.5%)	N=1746 (30.2%)	N=1614 (35.5%)	N=1614 (35.5%)

Notes: In Figure A1 we show the timeline of activities; specifying time since baseline for each survey round, and the corresponding months of activity. Note that at Follow-up 3 we ask about retrospective outcomes just before the onset of the pandemic (15 months since baseline, denoted by 'R') and current outcomes (18 months since baseline). 'N' refers to the sample size with attrition rate at each data collection round reported in parentheses.

A.1   Round One: Baseline

The baseline survey was conducted and intervention implemented between October 2018 and February 2019. We collected basic information from students at this stage including their age, marital status, degree program, their family background and other demographics. We also collected information on their aspirations and expectations regarding work, their work status, their job search effort and other psychological attributes like locus of control, self-efficacy and grit. After they were exposed to the video messages we then asked them questions regarding the video to see how much attention did they pay to the message. Lastly, we also asked them after showing the documentary a series of questions to gauge the growth mindset. All the interviews at baseline were in person and conducted with students on their college campus.

A.2   Round Two: Repeat intervention

The first followup took place from February to May 2019. To reinforce the message of the documentaries, at the first follow-up , all respondents in the treatment group were given

post cards that had a motivational message printed on it as giveaways. Treated respondents were also asked questions, as part of the follow-up survey, related to the documentary to test if they remembered the video and the message it conveyed

A.3 Round Three: Followup 1

The second followup was conducted via phone interviews between August and September 2019. By this time students had graduated and were most likely to be engaged in job search.

A.4 Round Four: Followup 2

Round four lasted for two months from December 2019 to January 2020. This again was a short phone survey to find out if the respondents had entered the labor force or not either because they decided to continue further studies, got married or were still actively looking for a job. As a part of this survey we also separately interviewed 503 friends of the treated and placebo samples to see if the treatment had some spillover effects, which we will discuss in section 5. These network friends were identified at the baseline by asking all respondents to share names and contact information of friends in that college who they regularly communicate with.

A.5 Round Five: Followup 3

Finally, the last round of data collection took place from May to June 2020 over the phone. In-person interviews were not possible at this stage due to COVID-19 nation-wide lockdown. We collected data on both the current, as well as retrospective (pre-covid) data from February 2020.

B Additional analysis

Table B.1: Impact of working on attrition in the subsequent survey round

	(1)	(2)	(3)	(4)	(5)	(6)
Months since baseline	9	9	12	12	18	18
Worked in the last round	0.002	-0.005	-0.006	-0.022	-0.023	-0.043
	(0.013)	(0.018)	(0.018)	(0.025)	(0.019)	(0.026)
Treated		-0.004		-0.008		-0.006
		(0.012)		(0.020)		(0.022)
Worked in the last round*T		0.014		0.034		0.041
		(0.025)		(0.037)		(0.039)
Observations	2184	2184	2186	2186	1744	1744

Note: Columns (1)-(2) report attrition from follow-up 1 (9 months after the baseline), columns (3)-(4) from follow-up 2 (12 months after the baseline), and columns (5)-(6) from follow-up 3 (18 months after the baseline). Columns 2, 4 and 6 report results from a regression with controls for treatment status and interaction of work status and treatment status. Work status questions were only asked after graduation, i.e. at 9, 12 and 18 months after baseline. Robust standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B.2: Effect on psychological variables 3 months after treatment

	(1) Growth Mindset	(2) Grit	(3) Locus of control	(4) Self efficacy
Treatment	-0.019	-0.107	0.389***	-0.150
	(0.042)	(0.228)	(0.146)	(0.189)
Observations	2185	2185	2185	2184
Mean(placebo)	0.009	41.40	15.762	33.152

Note: This table shows the effects of treatment on the psychological outcomes as measured at the time of the intervention reinforcement (3 months after the baseline). 'Growth mindset' is a standardized index created out of Implicit Theories of Intelligence scale by Blackwell et al. (2007). 'Locus of control' is a scale from 7-28, constructed from the sum of 7 items, each scored on a 1 to 4 points scale. 'Grit' is also a scale from 12-60, constructed from the sum of 12 items, each scored on a 1 to 5 points. 'Self-efficacy' is a scale from 10-40, constructed from the sum of 10 items, each scored on a 1 to 4 points scale. Standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B.3: Balance Table

Low-income-education group

Variable	(1) Control group	(2) Treatment group	(3) Difference
Monthly household income (USD)	249.142	257.962	8.820
	(142.580)	(162.087)	(0.382)
Monthly personal income (USD)	25.597	23.912	-1.684
	(69.910)	(80.192)	(0.737)
Dummy: Own house	0.826	0.792	-0.034
	(0.379)	(0.406)	(0.188)
Father's years of education	5.896	5.557	-0.339
	(4.778)	(4.860)	(0.287)
Mother's years of education	2.980	2.726	-0.255
	(3.709)	(3.637)	(0.294)
Dummy: Mother works	0.061	0.055	-0.006
	(0.240)	(0.229)	(0.719)
Public transport	0.732	0.756	0.023
	(0.443)	(0.430)	(0.415)
Dummy: Want to work after graduation	0.881	0.834	-0.048**
	(0.324)	(0.373)	(0.039)
Hours of study per day	4.434	4.374	-0.061
	(2.992)	(3.029)	(0.761)
Hours of housework	3.077	2.814	-0.262*
	(2.582)	(2.215)	(0.098)
Academic performance	7.583	7.468	-0.116
	(1.576)	(1.511)	(0.256)
Dummy: searched for a job	0.048	0.041	-0.007
	(0.215)	(0.199)	(0.597)
Hours of job search in the last 4 months	0.320	0.290	-0.030
	(2.633)	(2.160)	(0.850)
Information about job sites	0.090	0.078	-0.012
	(0.286)	(0.268)	(0.506)
Read job advertisements	0.033	0.026	-0.007
	(0.179)	(0.160)	(0.539)
Online job search	0.035	0.009	-0.026***
	(0.184)	(0.093)	(0.006)
Household size	7.303	7.339	0.036
	(2.176)	(2.128)	(0.797)
Observations	456	463	919

Note: Columns (1) and (2) show the mean value of the variable in the row for the placebo and treatment sample, for the low-income-education group (as defined in section 4.3), only. Column (3) reports the difference in means between the placebo and treated sample ($***p < 0.01, **p < 0.05, *p < 0.1$); and column (4) displays total number of observations for each variable. Standard deviations are reported in the parentheses.

Table B.4: Balance Table

High-income-education group

Variable	(1) Control group	(2) Treatment group	(3) Difference
Monthly household income (USD)	354.009	363.705	9.696
	(229.902)	(251.962)	(0.458)
Monthly personal income (USD)	29.717	27.598	-2.120
	(99.837)	(87.630)	(0.680)
Dummy: Own house	0.837	0.828	-0.009
	(0.370)	(0.378)	(0.653)
Father's years of education	11.831	11.664	-0.167
	(3.554)	(3.790)	(0.402)
Mother's years of education	10.848	10.717	-0.131
	(3.132)	(3.245)	(0.448)
Dummy: Mother works	0.103	0.083	-0.021
	(0.305)	(0.276)	(0.193)
Public transport	0.822	0.779	-0.042**
	(0.383)	(0.415)	(0.049)
Dummy: Want to work after graduation	0.840	0.865	0.024
	(0.367)	(0.342)	(0.206)
Hours of study per day	4.313	4.476	0.163
	(2.947)	(3.173)	(0.327)
Hours of housework	2.929	2.997	0.068
	(2.039)	(2.325)	(0.567)
Academic performance	7.429	7.371	-0.057
	(1.397)	(1.442)	(0.457)
Dummy: searched for a job	0.052	0.047	-0.005
	(0.223)	(0.212)	(0.663)
Hours of job search in the last 4 months	0.239	0.152	-0.087
	(2.090)	(0.790)	(0.319)
Information about job sites	0.110	0.126	0.016
	(0.314)	(0.332)	(0.360)
Read job advertisements	0.014	0.032	0.018**
	(0.119)	(0.176)	(0.028)
Online job search	0.029	0.031	0.002
	(0.167)	(0.172)	(0.824)
Household size	5.970	6.030	0.060
	(1.541)	(1.519)	(0.468)
Observations	707	657	1,364

Note: Columns (1) and (2) show the mean value of the variable in the row for the placebo and treatment sample for the high-income-education group (as defined in section 4.3), only. Column (3) reports the difference in means between the placebo and treated sample ($***p < 0.01, **p < 0.05, *p < 0.1$); and column (4) displays total number of observations for each variable. Standard deviations are reported in the parentheses.

Table B.5: Descriptive statistics

	(1)	(2)	(3)	(4)
	By group			
Variable	Low-income -education	High-income -education	Difference	Count
Panel (a): Household Characteristics				
Monthly household income (USD)	253.585	358.679	105.094***	2,283
	(152.700)	(240.740)	(8.953)	
Household size	7.321	5.999	-1.322***	2,283
	(2.151)	(1.530)	(0.077)	
Dummy: Own house	0.809	0.833	0.024	2,280
	(0.393)	(0.373)	(0.016)	
Father's years of education	5.725	11.751	6.025***	2,283
	(4.820)	(3.669)	(0.178)	
Mother's years of education	2.852	10.785	7.933***	2,283
	(3.673)	(3.186)	(0.145)	
Dummy: Mother works	0.058	0.093	0.035***	2,222
	(0.234)	(0.291)	(0.012)	
Panel (b): Own characteristics				
Dummy: Want to work after graduation	0.857	0.852	-0.005	2,282
	(0.350)	(0.355)	(0.015)	
Hours of study per day	4.404	4.392	-0.012	2,279
	(3.009)	(3.058)	(0.130)	
Hours of housework	2.945	2.962	0.017	2,282
	(2.406)	(2.181)	(0.097)	
Dummy: searched for a job	0.045	0.050	0.005	2,283
	(0.207)	(0.218)	(0.009)	
Hours of job search in the last 4 months	0.305	0.197	-0.108	2,281
	(2.406)	(1.602)	(0.084)	
Monthly personal income (USD)	24.748	28.699	3.951	2,250
	(75.230)	(94.143)	(3.742)	
Observations	919	1,364	2,499	

Note: Columns (1) and (2) show the mean value of the variable in the row for the low-income-education and the high-income-education sample (as defined in section 4.3) respectively. Column (3) reports the difference in means between the columns (1) and (2). ($***p < 0.01, **p < 0.05, *p < 0.1$); and column (5) displays total number of observations for each variable. Standard deviations are reported in the parentheses. Panel (a) provides outcomes measures at the household level and Panel (b) provides average characteristics of the respondent.

Table B.6: Heterogeneous treatment effect on above median income over time

Time after intervention:	9 months	12 months	15 months	18 months
	(1)	(2)	(3)	(4)
Treated	-0.0422	0.486	0.0610	0.0303
	(0.0432)	(1.260)	(0.0707)	(0.0947)
High-income-education	-0.0163	0.0652	-0.0453	-0.0932
	(0.0453)	(1.186)	(0.0652)	(0.0920)
High-income-education*Treated	0.125*	-0.577	0.0423	0.0672
	(0.0649)	(1.670)	(0.0928)	(0.121)
Observations	554	422	499	321
Mean(placebo)	0.158	-0.424	0.378	0.377

Note: This table displays results from an OLS regression testing treatment effects on monthly income, conditional on the woman working. The dependent variable is a binary variable equal to one if the respondent's monthly income is USD 81.21 or more; 0 otherwise at the time of the survey. 'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. 'High-income-education' is a binary variable equal to one 1 if the respondent belongs to the high-income-education cluster defined in section 4.3. 'High-income-education*Treatment' is an interaction of 'High-income-education' and 'Treated' group, equal to 1 when the respondent is part of the treated sample and belongs to the high-income-education sub-sample. 'Mean (placebo)' is the average value of the dependent variable for the placebo group. Robust standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B.7: Job search by subject majors

Time after intervention:	9 months	12 months	15 months	18 months
	(1)	(2)	(3)	(4)
Treated	0.0197	-0.0173	-0.0126	0.00327
	(0.0207)	(0.0207)	(0.0217)	(0.0135)
Social science major	0.0210	0.0355	0.00639	0.0123
	(0.0225)	(0.0239)	(0.0241)	(0.0151)
Social science major * Treated	-0.000438	0.00470	0.0186	-0.0114
	(0.0317)	(0.0329)	(0.0331)	(0.0210)
Observations	2189	1746	1614	1614
Mean(placebo)	0.171	0.154	0.128	0.0461

Note: This table displays results from an OLS regression testing treatment effects on job search efforts. The dependent variable is a binary variable equal to 1 if the respondent looked for work in the last month. 'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. 'Social science major' is an indicator variable for student taking any of the social sciences subjects as their majors, 0 is for humanities. 'Social science major * Treated' is an interaction of 'Social science major' and 'Treated'. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B.8: Work status by subject majors

Time after intervention:	9 months	12 months	15 months	18 months
	(1)	(2)	(3)	(4)
Treated	-0.00292	0.0150	0.0606*	0.0419
	(0.0259)	(0.0300)	(0.0327)	(0.0285)
Social science major	0.0527*	0.00968	0.0823**	0.0284
	(0.0277)	(0.0307)	(0.0341)	(0.0287)
Social science major * Treated	-0.00378	-0.00776	-0.0858*	0.00733
	(0.0388)	(0.0436)	(0.0479)	(0.0420)
Observations	2186	1744	1614	1614
Mean(placebo)	0.290	0.277	0.338	0.201

This table displays results from an OLS regression testing treatment effects on work status. The dependent variable is a binary variable equal to 1 if the respondent looked for work in the last month. 'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. 'Social science major' is an indicator variable for student taking any of the social sciences subjects as their majors, 0 is for humanities. 'Social science major * Treated' is an interaction of 'Social science major' and 'Treated'. Standard errors in parentheses. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B.9: Heterogeneous treatment effects on the spillover group

	(1) Enrolled in Masters	(2) Has created a CV	(3) Job search in the last month	(4) Has a job
Friends with Treated	0.103**	-0.0198	-0.00240	0.0327
	(0.0490)	(0.0497)	(0.0375)	(0.0528)
High-income-education	0.0395	-0.0570	0.0259	0.00359
	(0.0527)	(0.0534)	(0.0403)	(0.0568)
High-income-education*	-0.0196	-0.0419	-0.0184	-0.0291
Friends with Treated	(0.0590)	(0.0597)	(0.0451)	(0.0636)
Observations	464	464	464	464
Mean (placebo)	0.329	0.584	0.147	0.402

Note: This table displays results from an OLS regression testing spillover effects of the intervention on job market outcomes of friends of the main sample. 'Friends with Treated' is a binary variable equal to one for respondents who were friends with those who viewed the role model video; 0 for those who were friends with those who viewed the placebo videos. We exclude those who were reported as friends of both the treated and placebo groups. 'Enrolled in masters' is a binary variable equal to 1 if the respondent is enrolled in a Masters program at the time of survey, 'has created a CV' is a binary variable equal to 1 if the respondent has ever created a CV, 'Job search in the last month' is a binary indicator equal to 1 if the individual searched for a job in the last 4 weeks and the dependent variable in column 4 is a binary variable equal to 1 if the respondent is working at the time of the survey. 'High-income-education' is a binary variable equal to one 1 if the respondent were friends with those who belong to the high-income-education cluster defined in section 4.3. 'High-income-education*Friends with' is an interaction of 'High-income-education' and 'Friends with Treated' group, equal to 1 when the respondent is friends with those treated individuals who belonged to the high-income-education sub-sample. The network friends were interviewed in followup-1 i.e. nine months after the baseline. 'Mean (placebo)' is the average value of the dependent variable for the placebo group. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

C   Balanced Panel Results

Table C.1: Descriptive Statistics

	(1) Placebo	(2) Treatment	(3) Difference	(4) Obs
Panel (a): Household characteristics				
Monthly household income (USD)	314.047	324.982	10.935	1,315
	(211.482)	(237.927)	(12.397)	
Dummy: Own house	0.815	0.808	-0.007	1,440
	(0.388)	(0.394)	(0.021)	
Household size	6.527	6.646	0.119	1,444
	(1.933)	(1.948)	(0.102)	
Father's years of education	9.481	9.360	-0.121	1,444
	(5.006)	(5.161)	(0.268)	
Mother's years of education	7.865	7.647	-0.218	1,444
	(5.083)	(5.264)	(0.272)	
Dummy: Mother works	0.091	0.063	-0.029**	1,408
	(0.288)	(0.243)	(0.014)	
Panel (b) Own characteristics				
Dummy: Want to work after graduation	0.833	0.844	0.011	1,444
	(0.373)	(0.363)	(0.019)	
Dummy: Married	0.087	0.079	-0.009	1,444
	(0.283)	(0.269)	(0.015)	
Hours of study per day	4.276	4.336	0.060	1,441
	(2.912)	(2.930)	(0.154)	
Hours of housework per day	2.895	2.791	-0.104	1,443
	(2.130)	(2.091)	(0.111)	
Dummy: Searched for a job	0.050	0.043	-0.007	1,444
	(0.218)	(0.203)	(0.011)	
Hours of job search in the last 4 months	0.243	0.166	-0.077	1,443
	(2.069)	(1.008)	(0.087)	
Monthly personal income (USD)	27.405	27.536	0.131	1,423
	(82.372)	(90.550)	(4.584)	
Observations	744	700	1,444	

Note: Columns (1) and (2) show the mean value of the variable in the row for the placebo and treatment . sample, respectively, for the balanced sample of students who appear in all survey rounds. Column (3) reports the difference in means between the placebo and treatment sample ($***p < 0.01, **p < 0.05, *p < 0.1$); and column (4) displays total number of observations for each variable. Standard deviations are reported in the parentheses. Panel (a) provides outcomes measures at the household level and Panel (b) provides average characteristics of the respondent.

Table C.2: Attrition, including baseline characteristics

	(1)	(2)	(3)
Treated	-0.015	-0.017	-0.120
	(0.019)	(0.021)	(0.124)
Monthly household income (USD)		-0.000	-0.000
		(0.000)	(0.000)
Dummy: Own house		-0.069**	-0.061
		(0.027)	(0.039)
Household size		0.008	0.006
		(0.006)	(0.008)
Father's years of education		-0.002	-0.005
		(0.003)	(0.004)
Mother's years of education		0.005*	0.005
		(0.003)	(0.004)
Dummy: Mother works		-0.003	0.054
		(0.039)	(0.052)
Dummy: Want to work		-0.001	-0.034
after graduation		(0.030)	(0.043)
Dummy: Married		-0.029	0.026
		(0.038)	(0.054)
Hours of study per day		0.001	-0.001
		(0.005)	(0.006)
Hours of housework		-0.014**	-0.014*
		(0.006)	(0.008)
Dummy: searched for a job		0.066	0.057
		(0.057)	(0.076)

Hours of job search in	-0.011**	-0.008
the last 4 months	(0.006)	(0.007)
Monthly personal income (USD)	0.000	-0.000
	(0.000)	(0.000)
Monthly household income (USD) *T		0.000
		(0.000)
Dummy: Own house *T		-0.013
		(0.054)
Household size *T		0.002
		(0.011)
Father's years of education *T		0.005
		(0.005)
Mother's years of education *T		-0.000
		(0.005)
Dummy: Mother works *T		-0.128
		(0.078)
Dummy: Want to work		0.059
after graduation *T		(0.060)
Dummy: Married *T		-0.112
		(0.075)
Hours of study per day *T		0.003
		(0.009)
Hours of housework per day *T		-0.002
		(0.011)
Dummy: searched for a job *T		0.047
		(0.119)
Hours of job search		-0.009

in the last 4 months *T			(0.012)
Monthly personal			0.000
income (USD) *T			(0.000)
Constant	0.585***	0.627***	0.687***
	(0.013)	(0.063)	(0.088)
p(F-stat)		0.682	0.726
Mean	0.578	0.579	0.579
Observations	2499	2183	2183

Note: The dependent variable is 1 if the respondent participated in all survey rounds and 0 otherwise. Results in column (2) are from a regression with controls for household characteristics (monthly household income, dummy for own house, household size, father's yeas of education, mother's years of education, and dummy for mother works) and respondents' own characteristics (dummies for if wants to work after graduation, and is married, hours of study and housework per day, dummy for if searched for job, hours of job search in the last 4 months, and monthly personal income). Results in column (3) are from a saturated regression with the same controls as in column 2 and the interaction of these controls with the treatment dummy ('T'). All covariates are collected before the intervention is implemented. Observations are lower in columns 2 and 3 due to missing observations in baseline characteristics. Robust standard errors are presented in parentheses. 'p(F-stat)' refers to the p-value of F-Statistic from a test of joint significance of the controls in column 2 and interaction of treatment status and baseline characteristics in column 3. 'Mean' refers to the average level of attrition. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C.3: Post intervention treatment effects

	(1)	(2)
	Transport index	Growth mindset
Treated	0.597***	0.139***
	(0.0652)	(0.0533)
Observations	1444	1444
Mean (placebo)	-0.291	-0.066

Note: This table displays results from an OLS regression testing treatment effects on outcomes measured after intervention implementation on the balanced sample of students who appear in all survey rounds. 'Transportation index' is an index measuring respondents absorption with the video, following Banerjee et al. (2019). 'Growth mindset' is a standardized index created out of Implicit Theories of Intelligence scale by Blackwell et al. (2007).'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. 'Mean (placebo)' is the average value of the dependent variable for the placebo group. Robust standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table C.4: Effect on job search and work status over time

Dependent variable:	Job search				Work status			
Time after intervention:	9 months	12 months	15 months	18 months	9 months	12 months	15 months	18 months
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated	0.019	-0.010	0.001	-0.000	-0.019	0.005	0.021	0.042*
	(0.019)	(0.018)	(0.017)	(0.010)	(0.030)	(0.031)	(0.032)	(0.028)
Observations	1444	1444	1444	1444	1444	1444	1444	1444
Mean (placebo)	0.188	0.160	0.128	0.045	0.305	0.289	0.340	0.204

Note: This table displays results from an OLS regression testing treatment effects on job search efforts and work status on the balanced panel of . students who appear in all survey rounds. The dependent variable in columns (1) to (4) is a binary variable equal to 1 if the respondent looked for work in the last month. The dependent variable in columns (5) to (8) is a binary variable equal to 1 if the respondent is working at the time of the survey. 'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. 'Mean (placebo)' is the average value of the dependent variable for the placebo group. Robust standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table C.5: Effect on job search index components (conditional on searching)

Time after intervention	9 months (1)	12 months (2)	15 months (3)	18 months (4)
Panel (a): Job search hours				
Treated	0.848	0.0266	2.707	11.72
	(1.298)	(0.878)	(4.058)	(14.57)
Observations	283	223	185	65
Mean (placebo)	9.807	7.437	7.695	9.735
Panel (b): Read job ads				
Treated	0.0600	0.0663	-0.123	-0.0431
	(0.0514)	(0.0711)	(0.0757)	(0.171)
Observations	283	223	185	65
Mean (placebo)	0.179	0.420	0.442	0.412
Panel (c): Search via informal networks				
Treated	0.0379	0.0551	0.0762	-0.00610
	(0.0505)	(0.0564)	(0.0661)	(0.172)
Observations	283	223	185	65
Mean (placebo)	0.779	0.798	0.747	0.676
Panel (d): Online job search				
Treated	0.0242	-0.0388	-0.0154	0.148
	(0.0591)	(0.0682)	(0.0768)	(0.119)
Observations	283	223	185	65
Mean (placebo)	0.543	0.597	0.568	0.735
Panel (e): Formal job search				
Treated	0.0299	-0.0174	-0.0794	0.0214
	(0.0629)	(0.0700)	(0.0775)	(0.161)
Observations	283	223	185	65
Mean (placebo)	0.457	0.538	0.558	0.294

Note: This table displays results from an OLS regression testing treatment effects on job search efforts on balanced sample of students who appear in all survey rounds and report having looked for a job in the last 4 weeks. The dependent variable in panel (a) is the approximate number of hours they spent on job search during the last 4 weeks, the dependent variables in panels (b) - (e) are binary variables for different activities the respondents undertook to look for a job where 'Read job ads' is a binary indicator variable for respondents who have read job advertisements while looking for a job over the past 4 weeks. 'Search via informal networks' is an indicator variable for respondents who have asked family members, friends, colleagues etc. for a job, 'Online job search' is an indicator variable for respondents who have searched for or responded to job advertisements online while looking for a job over the past 4 weeks, 'Formal job search' is an indicator variable for respondents who have contacted potential employers, temporary employment agencies or the public employment service while searching for a job over the past 4 weeks. 'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C.6: Effect on working at home, full time and earning more than median income (conditional on working)

Time after intervention	9 months	12 months	15 months	18 months
	(1)	(2)	(3)	(4)
Panel (a): Effect on working at home				
Treated	0.0631	0.0499	-0.0361	-0.0425
	(0.0458)	(0.0490)	(0.0451)	(0.0573)
Observations	427	420	504	325
Mean (placebo)	0.678	0.530	0.462	0.592
Panel (b): Effect on working full time				
Treated	-0.000198	-0.0116	-0.00699	-0.0187
	(0.0151)	(0.0139)	(0.0275)	(0.0389)
Observations	427	420	504	325
Mean (placebo)	0.978	0.986	0.897	0.882
Panel (b): Effect on earning above median income (USD 81.21)				
Treated	0.0123	-0.00200	0.0946**	0.0828
	(0.0387)	(0.801)	(0.0439)	(0.0570)
Observations	410	392	499	314
Mean (placebo)	0.175	-0.0550	0.369	0.372

Note: This table displays results from an OLS regression testing treatment effects on type of work, conditional on the woman working for the balanced panel of students who appear in all survey rounds. The dependent variable in Panel (a) is a binary variable equal to 1 if the respondent is working at home at the time of the survey, in Panel (b) is a binary variable equal to 1 if the respondent is working full time at the time of the survey, and in Panel (c) is a binary variable equal to one if the respondent's monthly income is equal or more than the median sample income of PKR 10,000 (USD 81.21), all conditional on being employed at the time of the survey. 'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. 'Mean (placebo)' is the average value of the dependent variable for the placebo group. Robust standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C.7: Descriptive statistics

	(1)	(2)	(3)	(4)
Variable	Low-income-education	High-income-education	Difference	Count
Panel (a): Household Characteristics				
Monthly household income ($)	261.54	355.86	94.32***	1,315
	(164.09)	(248.87)	(12.44)	
Own house	0.796	0.813	0.018	1,313
	(0.404)	(0.390)	(0.022)	
Household size	7.333	6.044	-1.288***	1,315
	(29.009)	(20.616)	(1.371)	
Father's years of education	5.738	11.727	5.988***	1,315
	(4.789)	(3.784)	(0.238)	
Mother's years of education	2.966	10.911	7.945***	1,315
	(3.729)	(3.285)	(0.196)	
Mother works	0.050	0.100	0.049***	1,280
	(0.219)	(0.300)	(0.016)	
Panel (b): Own characteristics				
Want to work after graduation	0.853	0.853	0.000	1,315
	(0.355)	(0.354)	(0.020)	
Study time	4.331	4.316	-0.015	1,314
	(2.811)	(2.982)	(0.165)	
Hours of housework	2.704	2.945	0.241**	1,314
	(1.935)	(2.089)	(0.115)	
Searched for a job	0.047	0.050	0.003	1,315
	(0.212)	(0.217)	(0.012)	
Job search hours	0.183	0.236	0.053	1,314
	(1.085)	(2.002)	(0.097)	
Monthly personal income ($)	26.90	27.48	0.0575	1,301
	(83.52)	(90.83)	(5.01)	
Observations	510	805		

Note: Columns (1) and (2) show the mean value of the variable in the row for the low-income-education and the high-income-education sample (as defined in section 4.3) respectively, in the balanced panel. Column (3) reports the difference in means between the columns (1) and (2). ($***p < 0.01, **p < 0.05, *p < 0.1$); and column (5) displays total number of observations for each variable. Standard deviations are reported in the parentheses. Panel (a) provides outcomes measured at the household level and Panel (b) provides average characteristics of the respondent.

Table C.8: Balance Table

Low-income-education group

Variable	(1) Control group	(2) Treatment group	(3) Difference
Monthly household income ($)	253.43	269.92	16.48
	(152.25)	(175.39)	(0.002)
Monthly personal income ($)	26.54	27.28	0.75
	(71.34)	(94.69)	(0.007)
Own house	0.802	0.789	-0.013
	(0.399)	(0.409)	(0.707)
Father's years of education	5.859	5.614	-0.246
	(4.762)	(4.822)	(0.563)
Mother's years of education	3.131	2.795	-0.336
	(3.786)	(3.669)	(0.309)
Mother works	0.048	0.053	0.005
	(0.214)	(0.224)	(0.798)
Public transport	0.714	0.793	0.079**
	(0.453)	(0.406)	(0.040)
Want to work after graduation	0.865	0.841	-0.024
	(0.343)	(0.367)	(0.441)
Study time	4.344	4.319	-0.025
	(2.852)	(2.775)	(0.920)
Hours of housework	2.865	2.538	-0.327*
	(2.198)	(1.608)	(0.056)
Academic performance	7.610	7.428	-0.182
	(1.572)	(1.472)	(0.178)
Searched for a job	0.050	0.044	-0.006
	(0.219)	(0.205)	(0.735)
Job search hours	0.174	0.192	0.018
	(0.856)	(1.281)	(0.850)
Information about job sites	0.112	0.096	-0.016
	(0.316)	(0.295)	(0.546)
Read job advertisements	0.047	0.024	-0.022
	(0.211)	(0.154)	(0.173)
Online job search	0.039	0.008	-0.031**
	(0.193)	(0.089)	(0.023)
Family size	7.266	7.402	0.135
	(2.178)	(2.172)	(2.174)
Observations	259	251	510

Note: Columns (1) and (2) show the mean value of the variable in the row for the placebo and treatment sample, for the low-income-education group (as defined in section 4.3), only in the balanced sample. Column (3) reports the difference in means between the placebo and treated sample ($***p < 0.01, **p < 0.05, *p < 0.1$); and column (4) displays total number of observations for each variable. Standard deviations are reported in the parentheses. Panel (a) provides outcomes measured at the household level and Panel (b) provides average characteristics of the respondent.

Table C.9: Balance Table

High-income-education group

	(1)	(2)	(3)
Variable	Control group	Treatment group	Difference
Monthly household income ($)	351.27	360.90	9.63
	(233.22)	(265.18)	(0.005)
Monthly personal income ($)	26.06	24.04	2.98
	(88.03)	(93.88)	(0.005)
Own house	0.824	0.802	-0.022
	(0.381)	(0.399)	(0.430)
Father's years of education	11.754	11.697	-0.058
	(3.650)	(3.930)	(0.830)
Mother's years of education	10.967	10.850	-0.116
	(3.125)	(3.455)	(0.616)
Mother works	0.125	0.072	-0.053**
	(0.331)	(0.259)	(0.013)
Public transport	0.834	0.779	-0.055**
	(0.373)	(0.416)	(0.048)
Want to work after graduation	0.838	0.870	0.031
	(0.368)	(0.337)	(0.210)
Study time	4.247	4.392	0.145
	(2.912)	(3.058)	(0.493)
Hours of housework	2.888	3.008	0.119
	(1.905)	(2.275)	(0.418)
Academic performance	7.425	7.432	0.007
	(1.391)	(1.435)	(0.943)
Searched for a job	0.055	0.044	-0.010
	(0.228)	(0.206)	(0.500)
Job search hours	0.316	0.148	-0.167
	(2.662)	(0.792)	(0.236)
Information about job sites	0.124	0.143	0.020
	(0.329)	(0.351)	(0.411)
Read job advertisements	0.019	0.044	0.025**
	(0.137)	(0.206)	(0.041)
Online job search	0.036	0.031	-0.005
	(0.186)	(0.174)	(0.717)
Family size	5.995	6.098	0.1037
	(1.513)	(1.536)	(1.524)
Observations	421	384	805

Note: Columns (1) and (2) show the mean value of the variable in the row for the placebo and treatment sample, for the high-income-education group (as defined in section 4.3), only in the balanced sample. Column (3) reports the difference in means between the placebo and treated sample ($***p < 0.01, **p < 0.05, *p < 0.1$); and column (4) displays total number of observations for each variable. Standard deviations are reported in the parentheses. Panel (a) provides outcomes measured at the household level and Panel (b) provides average characteristics of the respondent.

Table C.10: Heterogeneous treatment effect on job search over time

Time after intervention:	9 months	12 months	15 months	18 months
	(1)	(2)	(3)	(4)
Treated	-0.036	-0.027	0.009	0.019
	(0.032)	(0.028)	(0.026)	(0.016)
High-income-education	-0.072**	-0.013	0.003	0.021
	(0.030)	(0.028)	(0.025)	(0.014)
High-income-education*treated	0.079*	0.029	-0.009	-0.030
	(0.042)	(0.038)	(0.035)	(0.022)
Observations	1315	1315	1315	1315
Mean(placebo)	0.188	0.160	0.128	0.0457

Note: This table displays results from an OLS regression testing treatment effects on . job search efforts on balanced sample of students who appear in all survey rounds. The dependent variable is a binary variable equal to 1 if the respondent looked for work in the last month. 'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. 'High-income-education' is a binary variable equal to one 1 if the respondent belongs to the high-income-education cluster defined in section 4.3. Due to missing values on household income at baseline that were used for the k-means clustering analysis, the sample for this analysis is 1315 instead of the balanced panel sample of 1444. 'High-income-education*Treatment' is an interaction of 'High-income-education' and 'Treated' group, equal to 1 when the respondent is part of the treated sample and belongs to the high-income-education sub-sample.'Mean (placebo)' is the average value of the dependent variable for the placebo group. Robust standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table C.11: Heterogeneous treatment effect on work status over time

Time after intervention:	9 months	12 months	15 months	18 months
	(1)	(2)	(3)	(4)
Treated	-0.003	-0.003	0.066	0.101***
	(0.042)	(0.041)	(0.042)	(0.037)
High-income-education	-0.060	-0.077**	0.022	0.062*
	(0.037)	(0.037)	(0.038)	(0.031)
High-income-	-0.024	0.010	-0.068	-0.094*
education*Treated	(0.052)	(0.052)	(0.054)	(0.048)
Observations	1315	1315	1315	1315
Mean (placebo)	0.305	0.289	0.340	0.204

Note: This table displays results from an OLS regression testing treatment effects on work status on balanced sample of students that appears in all survey rounds. The dependent variable is a binary variable equal to 1 if the respondent is working at the time of the survey. 'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. 'High-income-education' is a binary variable equal to 1 if the respondent belongs to the high-income-education cluster defined in section 4.3. Due to missing values on household income at baseline that were used for the k-means clustering analysis, the sample for this analysis is 1315 instead of the balanced panel sample of 1444. 'High-income-education*Treatment' is an interaction of 'High-income-education' and 'Treated' group, equal to 1 when the respondent is part of the treated sample and belongs to the high-income-education sub-sample. 'Mean (placebo)' is the average value of the dependent variable for the placebo group. Robust standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C.12: Heterogeneous treatment effect on above median income over time

Time after intervention:	9 months	12 months	15 months	18 months
	(1)	(2)	(3)	(4)
Treated	-0.0883	-0.939	0.0848	0.0367
	(0.0560)	(0.983)	(0.0745)	(0.0999)
High-income-education	-0.0636	-0.825	-0.00925	-0.0908
	(0.0581)	(1.167)	(0.0666)	(0.0940)
High-income-education*Treated	0.165**	1.594	0.0326	0.0806
	(0.0812)	(1.195)	(0.0971)	(0.125)
Observations	377	359	453	291
Adjusted R^2	0.083	0.019	0.054	0.032
Mean(placebo)	0.175	-0.0550	0.369	0.372

Note: This table displays results from an OLS regression testing treatment effects on monthly income, conditional on the woman working for the balanced sample of students that appears in all survey rounds. The dependent variable is a binary variable equal to one if the respondent's monthly income is USD 81.21 or more; 0 otherwise at the time of the survey. 'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. 'High-income-education' is a binary variable equal to one 1 if the respondent belongs to the high-income-education cluster defined in section 4.3. 'High-income-education*Treatment' is an interaction of 'High-income-education' and 'Treated' group, equal to 1 when the respondent is part of the treated sample and belongs to the high-income-education sub-sample. 'Mean (placebo)' is the average value of the dependent variable for the placebo group. Robust standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table C.13: Treatment effects on enrollment, and on job search and work status over time of those not currently enrolled

	(1)	(2)	(3)
Time after intervention:	At 9 months	At 12 months	At 18 months
Panel (a): Effect on enrolment			
Treated	-0.00563	0.00375	-0.00306
	(0.0245)	(0.0236)	(0.0246)
Observations	1435	1442	1444
Mean (placebo)	0.348	0.302	0.351
Panel (b): Effect on job search, for those not enrolled			
Treated	0.0133	-0.00311	-0.00308
	(0.0251)	(0.0237)	(0.0143)
Observations	942	1010	942
Mean (placebo)	0.214	0.180	0.0497
Panel (c): Effect on work status, for those not enrolled			
Treated	-0.0220	0.0153	0.0571**
	(0.0293)	(0.0298)	(0.0280)
Observations	942	1010	942
Mean (placebo)	0.301	0.319	0.203

Note: This table displays results from an OLS regression testing treatment effects on enrollment in masters, and on job search efforts and work status for those not currently enrolled in a masters programme, from the balanced panel of students that appears in all survey rounds. We have data on enrollment status at 9, 12 and 18 months after the intervention. The dependent variable in panel (a) is a binary variable equal to 1 if the respondent is enrolled in a masters programme at 9 (column 1), 12 (column 2) and 18 months (column 3). The sample for results in panels (b) - (c) is restricted to those not enrolled in a masters programme at 9, 12 and 18 months. The dependent variable in panel (b) is a binary variable equal to 1 if the respondent looked for work in the last month. The dependent variable panel (c) is a binary variable equal to 1 if the respondent is working at the time of the survey. 'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. 'Mean (placebo)' is the average value of the dependent variable for the placebo group. Robust standard errors are presented in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C.14: Job search by subject majors

Time after intervention:	9 months	12 months	15 months	18 months
	(1)	(2)	(3)	(4)
Treated	0.0211	-0.0156	-0.0106	0.00327
	(0.0274)	(0.0238)	(0.0229)	(0.0143)
Social science major	0.0137	0.0366	0.0106	0.0128
	(0.0289)	(0.0267)	(0.0255)	(0.0160)
Social science major * Treated	-0.00550	0.00719	0.0220	-0.00809
	(0.0405)	(0.0369)	(0.0351)	(0.0224)
Observations	1444	1444	1444	1444
Mean(placebo)	0.188	0.160	0.128	0.0457

Note: This table displays results from an OLS regression testing treatment effects on job search efforts on the balanced sample of students that appears in all survey rounds. The dependent variable is a binary variable equal to 1 if the respondent looked for work in the last month. 'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. 'Social science major' is an indicator variable for student taking any of the social sciences subjects as their majors, 0 is for humanities. 'Social science major * Treated' is an interaction of 'Social science major' and 'Treated'. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table C.15: Work status by subject majors

Time after intervention:	9 months	12 months	15 months	18 months
	(1)	(2)	(3)	(4)
Treated	-0.00125	0.0154	0.0539	0.0351
	(0.0328)	(0.0336)	(0.0350)	(0.0305)
Social science major	0.0795**	0.0259	0.0667*	0.0294
	(0.0345)	(0.0342)	(0.0360)	(0.0305)
Social science major * Treated	-0.0378	-0.0223	-0.0685	0.0114
	(0.0481)	(0.0484)	(0.0509)	(0.0446)
Observations	1444	1442	1444	1444
Mean(placebo)	0.305	0.289	0.340	0.204

This table displays results from an OLS regression testing treatment effects on work status on the balanced sample of students that appears in all survey rounds. The dependent variable is a binary variable equal to 1 if the respondent looked for work in the last month. 'Treated' is a binary variable equal to one for respondents who viewed the role model video; 0 for those who viewed the placebo videos. 'Social science major' is an indicator variable for student taking any of the social sciences subjects as their majors, 0 is for humanities. 'Social science major * Treated' is an interaction of 'Social science major' and 'Treated'. Standard errors in parentheses. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

D Post Documentary Discussion

The women you just saw in this video faced numerous challenges in their life like Ayesha and Hira had to come from really far to complete their education, Rida had to adjust to a career that is very unusual for women to adopt, Soniya had to balance both her work and family life but due to their devotion and commitment to their goals they successfully overcame all those challenges.[19] They did not fear from setbacks they faced instead they learnt from them. Today because of what they have achieved in their life their families take pride in them and their standing in the household and household welfare has improved. They have graduated from colleges just like yours and come from very humble backgrounds but they have fought with the circumstances they faced and today they have managed to secure gainful employment and have successful careers. You also can have it all but it only comes with effort, devotion and perseverance. You can learn a lot from these women's lives like:

- Things do not always go your way and people around you may not always support you but if you persist and persevere you can achieve your dreams. Do not allow others' estimation of yourself define you, let others' false judgements inspire you and push you forward instead.

- If you want to achieve something in life you are going to have to step out of your comfort zone. Growth and comfort do not coexist.

- Your family is your support network, winning their trust and confidence gives you strength and the energy to reach your goals. Women even if they work can successfully balance both their work and family life through efficiently managing their time and through prudence.

Please reflect upon what you saw in this video, analyze what you already have and where you lack, try to apply the lessons learnt on your life too if you envision yourself a successful woman in the future.

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[19]Note that the names of the women have been changed in order to maintain confidentiality.

E   Job Asaan Flyer

Figure E1: Job Asaan Flyer

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your career possibilities?

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An Employment Facilitation Center For Women
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