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Sex workers, Stigma and Self-Image:
Evidence from Kolkata Brothels[*]

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Abstract

This paper studies the link between self-image and behavior among those who face stigma due to poverty and social exclusion. Using a randomized field experiment with sex workers in Kolkata (India), we examine whether a psychological intervention aimed at mitigating the adverse effects of stigma can induce behavior change. We find significant improvements in participants' self-image, as well as their savings and preventive health choices. Additionally, changes in savings and health behaviour persist up to fifteen and 21 months later respectively. Our findings highlight the potential of purely psychological interventions to improve the life choices and outcomes of marginalized groups.

JEL Codes: O12, J15, D87

Key words: stigma, self-image, savings, public health, HIV prevention, gender, sex workers, India

1   Introduction

'The reason poverty causes pain is not just because it can leave people feeling hungry, cold and sick, but because it is associated with unfavourable regard...the poor man...is ashamed of his poverty'.

– Adam Smith, *The Theory of Moral Sentiments*

'Failure to address the psychosocial determinants of human behavior is often the weakest link in social policy initiatives. Simply providing ready access to resources does not mean that people will take advantage of them .'

– Alberto Bandura

The large body of economics literature on poverty and social exclusion examines the role of various resource constraints that are external to an individual in perpetuating these phenomena: lack of access to nutrition, credit and education, or information about the returns to certain activities, such as education (Jensen, 2010; Nguyen, 2008) or health precautions (Dupas, 2011). Nevertheless, such external constraints do not quite explain some self-defeating behaviors of those so marginalized: e.g., significant non-take up of benefits by the poor under government programs they are eligible for (Moffit, 1983; Currie et al., 2001), reluctance to open and use bank accounts for savings and daily transactions (Bertrand et al., 2004) or to adopt cheap, preventive health measures (Katz and Hofer, 1994). These behaviors prompt us to consider an alternative approach, one that examines the role of *internal* or psychological constraints that emerge under poverty and social exclusion.

Many of the choices we make – be it about education, career choice, marriage, or even simply what we eat – are influenced not just by our material resources or information, but as much by how we perceive ourselves, i.e. our *self-image*. (Akerlof and Kranton, 2000). Being poor or marginalized often brings with it considerable stigma, which can greatly distort a person's self-image, resulting in a 'spoiled identity' (Goffman, 1963).[1]

There are multiple, potentially overlapping pathways through which a self-image distorted by stigma can adversely affect behavior. For one, it can limit the set of choices seen as appropriate for oneself (Akerlof and Kranton, 2000); it can lead to a "self-fulfilling pessimism about the returns to effort for certain activities" (Loury, 1999) and induce sub-optimal choices resulting in a psychological poverty trap.[2] The psychology literature on Self-Affirmation

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[1]As this author notes in his classic work on stigma, "[t]hose who have dealings with [the stigmatized individual] fail to accord him respect and regard ...; he echoes this denial by finding that some of his own attributes warrant it".

[2]See Benabou and Tirole (2002) and Köszegi (2006) for theoretical frameworks within economics that link self-image concerns to sub-optimal choices.

(Steele, 1988; Sherman and Cohen, 2006) posits that every individual desires to maintain a self-image of being a good, moral person who acts in ways consistent with the roles, values and belief systems (s)he subscribes to. Hence, threats to the adequacy of such a self-image can result in defensive reactions that yield counter-productive outcomes.

In this paper, we evaluate a psychological intervention that aims to mitigate the adverse effects of stigma on individual choices, by reshaping the self-image of those who face it. Given this research focus, we selected a group of individuals that faces these adversities especially acutely: female sex workers in India. In the words of one of our program participants: "I have lost everything...(and) ended up in these blind alleys [only to] face torture and society's contempt." Owing to strong social prejudice against their profession, female sex workers in India find it difficult to access healthcare and credit, or to enrol their children in local schools (Pai et al., 2014). In addition to being socially segregated, they are also subject to gender bias that is widespread in Indian society. They seem to internalize such stigma to a considerable degree and suffer from a poor self-image.[3]

Apart from the direct adverse impact on the women themselves, both stigma and its internalization among sex workers has been identified as a serious public health threat, hampering progress on HIV testing, prevention and treatment worldwide (Shannon and Montaner, 2012; Pantelic et al., 2019). The latter study notes that internalized stigma that worsens sex workers' self-image keeps them from accessing HIV and other health services. It concludes that there is an urgent need for more community-based, scalable interventions (as opposed to specialized, higher cost clinical interventions) to mitigate the adverse effects of self-stigma on HIV prevention in low and middle income countries.

In the present study, we evaluate the impact of one such intervention designed to improve the self-image of female sex workers, on their psychological well-being as well as their savings and health behavior. This intervention involved a training program that encouraged sex workers to re-examine their self-image in multiple ways. The program was developed and conducted by Durbar, a Kolkata-based NGO engaged in promoting the welfare of sex workers for over 25 years. It consisted of 8 weekly sessions in the form of discussions among groups of 15-20 sex workers, led by experienced associates of the NGO. The program began with a discussion of their individual identity as sex workers, encouraging them to reflect on a few questions: Could they perceive what they do as providing entertainment, and hence themselves as entertainment workers? Do they regard themselves as people doing an honest day's work to earn a living? If so, aren't they morally superior to a thief? The intervention also tried to recast their group self-image in a more positive light, citing their successful sex

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[3]This phenomenon of internalized stigma leading to a low self-image is also referred to as 'self-stigma'. As Nag (2006) reports in his book on sex workers in India, from a survey conducted by (Mukherjee and Das, 1996), many of them describe themselves as *Hum log bahut kharab aurat hain*" which translates to "We are very bad (fallen) women".

workers' cooperative bank initiative (USHA) as an example of their collective power. It used this basic building block of a positively recast self-image (individual and collective) to then suggest pathways involving directed and perseverant efforts towards better life outcomes.

In terms of psychological well-being, we find that the training program significantly improved the self-image of sex workers. Endline comparisons indicate that sex workers assigned to the treatment group fared significantly better on every dimension of self-image that we studied, relative to the control group: a lower sense of shame about their occupation, higher self-worth, greater ability to face challenges and greater ease in public interaction. The treatment group was also more likely to report being happy.

In terms of economic outcomes, we examine the impact of the training program on their choice of savings products. During each week of the training program, sex workers from both treatment and control groups were asked to choose how they wanted to receive a small transfer of Rs.100 (approximately $1.41): either as an injection into a current account or invested in one of two fixed deposit options. We find that sex workers in the treatment group were 25-50 percentage points more likely than the control group to choose a fixed deposit option over the current account, indicating greater effort towards securing their future. We rule out several alternative mechanisms that could be driving our results, including inadequate financial literacy, peer effects, reciprocity towards experimenters and the commitment features of the savings products.

One concern here could be that social desirability bias may be driving our findings on self-image and savings choices. Mention of the sex workers' cooperative bank as an example of collective agency may have independently induced participants to invest in the fixed deposit option. To allay these concerns, we examine the impact of the training program on another action that is particularly important for sex workers' long-term well-being, but which was not discussed at any stage of the program: preventive health behavior. We find that relative to the control group, sex workers in the treatment group were on average 9 percentage points more likely to report having visited a doctor (in a Durbar-run local clinic) for a routine checkup in the previous month. This is quite remarkable, given the high baseline level of such doctor visits in this sample (77%) and the fact that health decisions were never discussed in the training program.[4] This finding is also robust to using administrative data on such health visits obtained from the clinics themselves, thereby allaying potential concerns of reporting bias.

A common concern with psychological interventions is that their effects may be purely short term, with no lasting impact. We are able to directly address this concern in our study by examining the impacts of the training program on savings and health outcomes 15 and 21

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[4]This increase in doctor visits does not appear to be 'need-based': sex workers in the treatment group did not service more clients following exposure to the training program.

months later respectively. Given that these medium-term outcomes data were obtained from the official records of the cooperative bank and health clinics, they do not raise concerns of social desirability bias either. We find that the positive effects of the training program persist for both type of outcomes. Program participants were 53 percentage points more likely to keep open their current and fixed deposit accounts 15 months after the program, and 15 percentage points more likely to continue with preventive health check ups 21 months after the program. These magnitudes compare favorably to other studies that have tried to improve preventive health and savings behavior; for instance, Dupas and Robinson (2013a) find that take up rate of randomly offered lock-box for health savings was 66% higher 12 months after the program, while Dupas and Robinson (2013b) find that six months after being offered formal savings accounts, 40% of female micro-entrepreneurs in rural Kenya still had their accounts open and were using them.

In summary, we see a clear positive impact of the training program both on self-image of the sex workers, as well as on purposive actions taken by them towards better future financial and health outcomes, not only at the time of the intervention, but also 15 and 21 months after the program respectively.[5] These findings make a distinct contribution to the literature on poverty and social exclusion: they show that an exclusively psychological intervention with no material resource support, can lead to significant and sustained positive behavior changes, by restoring a damaged self-image. This feature is distinct from other programs to uplift poor and marginalized groups that lower material resource constraints, be it through skills training, capital infusions or cash transfers (McKenzie and Woodruff, 2013; Banerjee et al., 2011; Bandiera et al., 2015).[6]

Recent work has highlighted the paucity of rigorous evidence on which psychological interventions are effective in dealing with challenging life experiences (Wilson, 2011) and the need for such evaluations, especially in the context of developing countries Haushofer and Fehr (2014). Our paper fills the gap on both counts. The only other such work we are aware of with marginalized groups in developing countries is Blattman et al. (2017) which combines cash incentives with a cognitive behavioral therapy (CBT) intervention to combat crime among youth in Liberia.[7]

Our paper also ties into the literature on female empowerment interventions that seek to achieve this goal by reshaping attitudes and beliefs related to gender roles (Dhar et al., 2018)

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[5]Given the overlap across the different channels through which self-image can affect behavior, we do not attempt to parse out the impact of any of these channels outlined earlier.

[6]For evaluations of Self-Affirmation interventions offered to racial minorities facing education and health challenges in the U.S., see Cohen et al. (2006, 2009).

[7]Other CBT-based literature includes work by Heller et al. (2017) who evaluate the impact of interventions with marginalized youth on their criminal activity in the U.S. and Baranov et al. (2017) who examine the long-term impact of an intervention to tackle maternal depression in Pakistan, on economic outcomes and children's welfare.

female employment (Dean and Jayachandran, 2019) and intimate partner violence (Green et al., 2017). Our subject group – female sex workers – is of independent interest, given that criminalization of this profession in most countries makes it harder to shed light on this group, even as it creates several adverse consequences (Cunningham and Shah, 2017).

Finally, our paper also contributes to the literature on discrimination in two ways. First, it shifts the focus from documenting the existence of discrimination to thinking about effective interventions to mitigate its adverse effects.[8] Second, it considers a fresh approach to tackling the challenges of stigma and discrimination, by psychologically empowering those who suffer its consequences to contest it. Existing interventions to change attitudes towards discrimination have focused more on the prejudiced rather than those who are the objects of prejudice.[9]

The rest of the paper is organized as follows. Section 2 gives a brief description of the setting of our study. Section 3 details the training content and experimental design while Section 4 outlines the conceptual framework. Section 5 describes the data, variables and estimation methods, and Sections 6 and 7 presents our main empirical findings. Section 8 concludes.

2   The Setting

According to Nag (2006, pp. 271-80), it is estimated that there are between 2 and 3 million sex workers in India. Sex workers living in brothels, who are the focus of the present study, are typically engaged in the profession full-time.

The brothel-based sex work industry in Kolkata, the city in eastern India where our study is located, is estimated to include about 18,000 women located in different 'red-light' areas across the city (AIIHPH, 1992). While the largest of these areas in terms of size is Sonagachi, with an estimated population of around four thousand to six thousand prostitutes (Rao et al., 2003; JISC, 2009), our three study localities of Bowbazar, Kalighat and Chetla are more medium-range in this respect, with a mean of around 500 prostitutes per area.[10] A vast majority of the sex workers (approximately 80% in our sample) are migrants from impoverished rural parts of nearby districts in the state of West Bengal (of which Kolkata is the capital) or neighbouring countries like Nepal and Bangladesh. Destitution and coercion are among the most common reasons cited for why women end up in this profession (Basu et al., 2004).

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[8]Bertrand and Duflo (2017)'s review of the experimental evidence on discrimination concludes that "...while field experiments in the last decade have been instrumental in documenting the prevalence of discrimination, field experiments in the future decade should aim to play as large of a role in isolating effective methods to combat it."

[9]Some examples of such work within economics include Boisjoly et al. (2006); Beaman et al. (2009); Rao (2013). See Paluck and Green (2009) for a review of the extensive psychology literature in this area.

[10]Of the three, Bowbazar is the largest in terms of size and Chetla is the smallest.

Sex work sites in these areas consists of a number of houses that serve as brothels, as well as small businesses (e.g. liquor shops, food stalls, teashops etc.) that have grown around these brothels to support sex workers and their clients. Within these brothels, sex workers live and work under primarily three types of contracts. The first type of contract is one in which the sex worker pays a fixed rent to the owner for a room in the brothel and works independently (*self-employed*). The second type is one in which the sex worker splits her daily earnings approximately 50:50 with the owner in return for lodging and use of room (*adhiya*). The third is one where the sex worker (typically very young) effectively works as a bonded labourer to the owner who has paid a lumpsum amount in advance for her to her family or a trafficker (*chukri*). Due to the efforts of the NGO Durbar in the prevention of under-age prostitution, *chukri* contracts have almost disappeared from these areas.[11] A fourth type of contract also exists, called a 'flying' contract, in which the sex worker is not resident in the brothel but comes to work there from outside the 'red-light' area. She typically hires a room from the owner of the brothel on a per-hour or per-act basis to carry out her services.

As is true for sex workers in most parts of the world, sex workers in India are severely stigmatized owing to their profession. In addition, the ambiguous legal status of activities related to sex work in India effectively criminalises the profession.[12] Together, these factors contribute to sex workers being stigmatized and routinely discriminated against in Indian society: e.g. their children are denied admission to government schools, they themselves face difficulties in obtaining voter ID cards, accessing housing and healthcare or opening a bank account (Pai et al., 2014).

Sex workers in India appear to internalize such stigma. For example, approximately 62% of the respondents in our baseline survey said they felt ashamed of their occupation. Their sense of being 'fallen' women also leads to undue tolerance of such exploitation, rather than challenging it. For instance, Gupta (2011) reports her initial surprise when, while talking to a group of 102 sex workers outside of Delhi, they claimed that they faced no violence. Further probing revealed that they were not considering being slapped, having broken bones and even worse acts as violence, simply because their understanding was that "he (the client) paid for it, so why is it violence?"

Such experience of stigma leading to low self-image among these sex workers can induce choices that are self-defeating in the long term. A sex worker in the Araria district of the neighbouring state of Bihar, while writing about her efforts to form a self-help group in her red-light area of Khawaspur, says "I would go to ...the women and ask them to join the group and begin saving a portion of their earnings. They would say: Why? Our lives are going to

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[11]In our sample, the percentage of *chukri* contracts is less than 1%.

[12]The Indian anti-sex work criminal law, Immoral Traffic Prevention Act, 1956 (ITPA) does not proscribe sex work *per se* but penalises specific activities related to commercial sex, such as soliciting, maintaining a brothel, living off the earnings of prostitution, etc. (Kotiswaran, 2014)

end this way, why should we save?" (Nat, 2011)

The training program offered by the NGO Durbar stems from the premise that to improve sex workers' life outcomes, what is needed is a change in their mindset that lets them break free of such pessimism induced by stigma. It persuades sex workers to adopt such a change in mindset by plausibly reshaping their self-image in a positive direction. Based on this foundation of a positive self-image, the training program also suggests to them pathways to take charge of their future lives.

3   Training Content and Experimental Design

3.1   Training Content

The training program was developed and conducted by our local partner Durbar, an NGO working with sex workers in Kolkata over the last two decades. The program consisted of 8 group sessions run over 8 weeks (1 per week), during which experienced trainers associated with the NGO attempted to reshape sex workers' impaired self-image through interactive discussion, verbal persuasion and role-playing.

Given that most sex workers' current self-image is heavily burdened by their past experience, the training program began with Session 1 focusing on the need to reconsider past experiences and modes of thinking, for a better future. Session 2, a core building-block of the training program, then built on this theme by working on re-casting the sex worker's current self-image. This was done by initiating a discussion on whether they could look upon themselves as entertainment service providers, rather than someone performing a morally depraved act, and whether they could regard themselves as someone trying to make an honest living, hence better than a thief or dishonest person. It raised comparisons of sex workers with members of mainstream society, to bring out how they are not that different from them, and hence equally entitled to lead a fulfilling and dignified life. The discussion aimed to bring home the point that neither their occupation nor any of their implied that they 'deserved' the stigma they encounter in society.

Based on this foundation of a more positively recast self-image of the participants, the remaining sessions focused on pathways and purposive actions to improve their future life outcomes, both at an individual as well as at a collective level. They did not, however, attempt to 'orient' the participants towards any specific life goals.[13]

Session 3 focused on the importance of collective agency. It championed the establishment of the sex worker run cooperative bank (USHA) in Kolkata as an excellent example of how sex workers' belief in their collective ability to improve their future had successfully

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[13] See Bernard et al. (2014) for evidence on aspirations-driven changes in behavior induced by programs using role-models for adults, and Glewwe et al. (2013) for children.

brought about positive change. The session also provided information on various savings options available within USHA. In order to ensure that the treatment group did not have any informational advantage over the control, identical information on these savings options was also provided to the control group at the same time.

Session 4 focused on the issue of violence in the day-to-day lives of these sex workers. Due to the ambiguous legal status of sex workers in India (as referred to in Section 2), they are frequently subjected to violence, be it from clients, landlords or the police etc. The session engaged participants on what constitutes violence and how to deal with it and/or challenge it. It was emphasized that sex workers *do not deserve* violent treatment just because they are in a profession that society considers 'fallen' or 'bad', which links back to their self-image (theme of Session 2).

Sessions 5 and 6 emphasized the role of trust, mutual support and organization among sex workers in improving their collective self-image, taking charge and enhancing their shared life outcomes. This was not only with respect to dealing with issues like violence but also asserting their legal and political right to greater social acceptance. Session 7 focused on a discussion about the sex workers' children, and the need to instil in them a positive self-image that empowers them to strive for a better future. Session 8 summarized the key messages of the entire program.

Every attempt was made to keep the program content authentic, while remaining sensitive to the vulnerable state of the participants. Towards this end, the trainers who conducted the program were members of Durbar with long-standing associations with the community of sex workers, including a former sex worker herself.

The training program consciously avoided any discussion on pathways *out* of the profession, in the form of encouragement or suggestions on escape routes. Neither did it provide any information on alternative employment opportunities. The program focused entirely on boosting sex workers' psychological resources while keeping their material conditions (including information, alternative employment options, etc.) unchanged.

3.2   Experimental Design

Brothels in 'red-light' areas of Kolkata are typically located in one to three-storey residential buildings or houses with multiple rooms, where these sex workers live and work. Thus, they do not fit into the image of neon-lights and women out on the street, typically associated with such areas in developed countries. In our three study areas – Kalighat, Bowbazar and Chetla – sex workers are housed across 98 brothels.[14]

Our pilot survey revealed that interaction among sex workers *within* brothels was far more intense compared to across brothels: more than 75% in a random sample of 50 sex workers

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[14]The distribution of brothels by study area is: 45 in Bowbazar, 30 in Kalighat and 23 in Chetla.

reported that *all* their close friends lived in the same brothel as they did, while approximately 85% reported that majority of their close friends did so. Hence, the brothel was chosen as the unit of randomization to minimize the risk of contamination.

We randomized two-thirds of the brothels (66 out of 98) into treatment after stratifying by brothel size, as follows. To determine brothel size, we first ranked brothels within each area by the number of 'eligible' women, defined as sex workers 35 years of age or less at the time of baseline survey. We then formed triplets of brothels ranked by size. Within each triplet, we randomly selected two brothels to the treatment group and one brothel to the control group.

Next, to select sex workers *within* brothels for our study sample, we randomly surveyed between 50-70% of the eligible sex workers across our three study localities, giving us a final baseline sample of 467 surveyed sex workers. All surveyed sex workers in treatment brothels were invited to participate in the training program, while those surveyed in the control brothels were not.

Participants in treatment groups gathered in groups of 15-20 in a room for the training session every week for 8 weeks. Assignment to these groups was random and included women from multiple brothels. Hence there was random variation in the fraction of women from a single brothel within each group. Each training session lasted about one hour, and the same group met in all sessions. All sessions of the training program were held in a pre-designated venue in each of the three study areas, except for the last session which was held at an offsite location. Each week's training session was led by a different trainer, but within any given week, all groups were led by the same trainer.

At the end of each of the 8 weekly training sessions, we provided a token payment of Rs. 100 (approximately $ 1.41) to all program participants, and offered them two types of options on how they could receive this payment:

1. as an injection directly into their current account

2. as an injection to a fixed deposit, with or without a matching contribution from the participant, up to a specified amount limit.

Both these options were held with the sex workers' cooperative bank, USHA. While the current account offers greater liquidity than fixed deposits, the latter offer a higher interest rate and hence a higher longer-term return. In this sense, investing in a fixed deposit reflects greater future-oriented effort. The (annual) interest rates on these products were 8% for current account balance, 12% on a fixed deposit without a matching contribution and 15% with such a contribution. An important design feature of these products was that participants faced no penalty if they were to break their fixed deposit midway through the year. They would simply earn the lower rate of interest as offered on the current account (8%). The

participants' choices across these savings products were recorded at the end of each weekly training session. It is important to reiterate that these payments and the same menu of savings product options were offered to all participants in *both* the treatment and control groups,[15] which allows us to use these savings decisions as one of the key outcome variables of our analysis (discussed in Section 5.2.2). The conditions for the treatment and control groups were kept as similar as possible. Significant care was taken to ensure that both groups had access to exactly the same factual information about the various savings options within USHA at the same point in time, i.e. after Session 3.

Moreover, to maintain parity, the control group participants were also required to meet at the same frequency as the treatment group, i.e. every week (in groups of approximately 20-25) for 8 weeks, to give us their savings choices.[16] Thus, the main difference between the treatment group and control group meetings was that for the latter, their choices were not preceded by the weekly training session. This design feature of regular meetings of the control group enables us to address the potential concern that any observed difference between the treatment and control groups post intervention might be driven, not by the training program itself, but by the frequency of contact (Feigenberg et al., 2013) or of opportunities to network and exchange ideas that are naturally fostered by such group training programs.

In order to minimize the chances of spillovers among participants in the treatment group, whereby they could observe and mimic each other's choices, we asked each participant to reveal her choice to us in a separate room after the completion of the training session. We also ensured that she was not able to return to the training room (where the remaining participants from her group were sat) after having declared her choice. We followed similar protocol for the control group as well.

The amount of money offered to the participants was Rs. 100 (i.e. approximately $1.41) per week. This is equal to 40% of their median daily earnings of approximately Rs. 250 (about $3.54) – hence not an insignificant amount, in terms of reflecting sex workers' choices over the savings options made available. Moreover, due to the nature of their trade, sex workers manage their finances on a day-to-day basis (Evans and Lambert, 2008), which is consistent with anecdotal evidence from the field on the popularity of daily savings schemes in these 'red-light' areas. Thus the savings decisions presented as part of the experiment are familiar to participants from their daily life.

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[15]The payment was offered as a 'thank you' gift to the treatment group for participating in the training program and to the control group, for participating in the baseline survey.

[16]The justification offered to the control group was that administrative constraints necessitated the staggered nature of payments.

4   Conceptual Framework

How does the experience of stigma affect an individual's self-image? Through what pathways did the intervention we evaluate induce changes in the efforts and behavior of sex-workers who participated in the training program?

We propose a conceptual framework to address these questions, drawing from a rich literature on self-image and stigma in economics, sociology and psychology. We start with the premise that every individual cares about having an adequately positive self-image (or identity), of being a moral person who acts in accordance with their values and beliefs (Akerlof and Kranton, 2000); (Steele, 1988, Self-Affirmation Theory). Experiencing social stigma tarnishes this self-image, so much so that it can lead her to believe that some of her own attributes warrant the lack of social regard (Goffman, 1963). In other words, individuals can *internalize* stigma, resulting in a poor self-image.

A person with a diminished self-image cares more about the outcomes of her everyday actions, because she seeks to bolster her image through positive outcomes. At the same time, she is more pessimistic about her success. As a result, a person with a low self-image perceives these everyday actions as a potential threat to her fragile self-image and avoids them, out of a fear of failure (Cohen and Sherman, 2014, page 335). Also, if she fears being stigmatized when she undertakes these everyday actions (for instance, visiting the local bank or health clinic) then it makes her less likely to do so – with potentially adverse longer term consequences.

In the appendix, we outline a model that captures the above elements, in three key features. First, individuals gain utility not only from material returns, but also a psychological return from expected success or failure of their effort, which is tied to their self-image.[17] We model self-image as an individual's belief about her ability to persevere in the face of challenges, to accomplish desired outcomes.[18] Second, individuals with a lower self-image have a lower expectation of success. They also attach a higher weight $\pi(\alpha)$ to the psychological return from success (or failure) of their efforts, where $\pi'(\alpha) < 0$ i.e. $\pi(\alpha)$ is decreasing in self-image α. Third, facing stigma diminishes an individual's self-image, consistent with Goffman (1963). In the model, facing stigma is equivalent to receiving a weaker social signal $(\widetilde{\alpha})$ and $\alpha = f(\widetilde{\alpha}), f'(.) > 0$. We also show that creating a feedback loop from effort to self-image yields multiple equilibria consistent with the 'self-fulfilling pessimism' in the face of stigma (Loury, 1999).

These key features of the model yield the following predictions with respect to the impact of the psychological intervention we evaluate.

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[17]This two-part approach to utility from self-image is similar to Köszegi (2006) and Akerlof and Kranton (2000).

[18]While we recognize that self-image is multi-dimensional in nature, we focus on this ability dimension alone, purely for parsimony in the model.

1. First, the program works to restore a more positive self-image α among sex-workers', including their perception of their ability to overcome challenges (Table 3).

2. Second, a better self-image reduces their fear of failure by lowering the weight $\pi\,(\alpha)$. Hence, it increases their efforts to secure better future outcomes – in savings (Tables 5-7, 13-15) and health (Table 12, 16).

3. Third, the above effects are stronger for those who have a poorer self-image at the start of the program (Table 8) – because of complementarity between effort and self-image.

5 Data, Variables and Estimation

5.1 Data

5.1.1 Short-term Data

In Feb-April 2012, we conducted a baseline survey that collected detailed information on a number of psychological outcome measures, as well as socio-economic characteristics, past histories and occupational details of the sex workers.[19] As reported earlier, our baseline sample consisted of the 467 sex workers in our study sample. The training program was carried out between October and December 2012, during which we collected weekly data on the savings choices of our subjects. For the treatment group, refusal to attend the training program was low at 3.8%.[20] The follow-up survey was conducted in January-February 2013. Attrition from the baseline to the follow-up survey was about 7% and not significantly different between treatment and control, leaving us with an endline sample of 437 participants. Our attrition rate compares favorably with other studies evaluating interventions for the poor.[21]

In order to address the potential concern that survey responses by our treatment participants might suffer from "social desirability bias" i.e. they just give the "right" answers, we recruited and trained a separate team of surveyors (independent of Durbar staff who were in charge of conducting the training) who carried out all the surveys.

Table 1 presents descriptive evidence on the individual characteristics of the sex workers in our study areas. The average sex worker is 32 years old, most likely Hindu, with very little formal education, and has been in this profession for an average of 9 years. Close to half

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[19]Although this trial was not pre-registered on the AEA RCT Registry, we present in our analysis results using all the originally planned variables. Our survey instrument is also available on request.

[20]Refusal to attend is measured as the proportion of invited sex workers who were part of the baseline survey but who failed to turn up on the first week of the training program. Among the control group, failure to turn up to give us their savings choices in the first week is not significantly different, at 4.4%.

[21]Bandiera et al. (2015) report an attrition rate of 15% for the Targeted Ultra-Poor program conducted by BRAC in rural Bangladesh over 4 years, Banerjee et al. (2011) report an attrition rate of 17% in their baseline sample in West Bengal over an 18-month period, while Morduch et al. (2012) report an attrition rate of 12% over 3 years in Andhra Pradesh.

of them are self-employed. Sex workers appear to suffer a loss of around 26% in prices they can charge for their service by using condoms, similar to a loss rate of 23% reported for sex-workers in Mexico by (Gertler et al., 2005).[22] Average monthly earnings are approximately Rs. 9,000 (about $127.37). A vast majority of these sex workers are members of Durbar but fewer than half have bank accounts (in USHA).

Sex workers in treatment and control brothels also appear to be similar on most of these observable characteristics, with the exception of religion and the proportion of *adhiya* sex workers. All our endline results presented below are robust to the inclusion of these and other baseline characteristics as controls (see Appendix Tables A1 and A2). Moreover, we find no statistically significant differences in outcomes by religion and baseline contract type (see Appendix Tables A3 and A4). Finally, our difference-in-difference specifications account for any level differences between the treatment and control groups in terms of baseline characteristics.

5.1.2 Medium-term Data

We also obtained related savings data on program account closures and final balances from the NGO, twelve and fifteen months after the program ended. This data was made available to us for only two of our three original study localities, Kalighat and Chetla. We note that the random assignment of brothels to treatment and control groups was done within each of the three red-light districts, and confirm that the balance on the variables originally reported in Table 1 holds for this restricted sample too (see Appendix Table A5). There continues to be no significant baseline differences between treatment and control groups for any of the key outcome variables either (see Appendix Table A6).

Finally, we obtained administrative data on actual visits to health clinics (run by the NGO Durbar) undertaken by the *universe* of sex workers living in our study localities, for up to 21 months after the program ended (till September 2014). This data was made available to us in anonymised format for confidentiality reasons (since it included sensitive STD test information). As a result, we are unable to match it to specific participants in our study sample (comprising approximately 35% of the total population of sex workers in our study localities at the time of baseline). In other words, we cannot identity individual sex workers but we know which brothel each of them live in. Thus we present medium-term results on health-seeking behavior for all sex workers living in our treatment and control brothels during this time. Moreover, field visits to 20 randomly selected brothels (out of the original 98) in February 2019 revealed that on average approximately 76% of the sex workers

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[22]While this is a sizeable loss, it is still significantly lower compared to the estimates of Rao et al. (2003) who reported estimated losses of 66-79% in a similar population of sex workers in Kolkata. This difference could be a significant increase in condom usage, thanks to Durbar's sustained effort over the last decade, in generating awareness among sex workers in Kolkata regarding value of practicing of safe sex.

from our original sample still reside in these brothels, indicating that attrition is relatively low. Thus we argue that despite some constraints, the administrative data complements the self-reported data on health-seeking behavior of our sample sex workers obtained from our surveys, and provides an additional check against social desirability bias.

5.2 Variables

5.2.1 Key Psychological Dependent Variables

The first set of dependent variables that we focus on in this paper are self-reported psychological variables, including various proxies of self-image as well as other related outcomes. These measures were constructed based on questions developed in close consultation with Durbar, given their experience and familiarity with our study population and context.

Proxies of Self-Image Self-image is a multi-dimensional concept, hence we attempt to capture different proxies of it, as detailed below. These context-relevant metrics were developed in consultation with our NGO partner.

Shame: This measure is constructed on the basis of the question: "Are you ashamed of your occupation?" The answer options are "1-Yes", "2-Sometimes", "3-Never". A binary variable for shame is constructed that equals 1 if the answer is 1 or 2 and zero otherwise.

Self-worth: This measure is constructed on the basis of the question: "How do you view yourself?" The answer options are "1-Bad woman", "2-Fallen woman", "3-Woman with no future", "4-Service provider/entertainment worker", "5-Somehow managing life", "6-Criminal". A binary variable for self-worth is created that takes the value 1 if the answer is 4 and zero otherwise.

Ability to face challenges: This measure is constructed on the basis of the following questions: "Do you feel capable of: resolving a situation of conflict with the police; resolving problems with the landlord/lady; resolving problems with local youths; resolving problems with goons; resolving problems with your pimp; resolving problems with your madam; dealing with aggressive clients; dealing with emergencies like sudden illness; developing a new skill to engage in another occupation; making plans for a future business; determining your child's future; buying property." The answer options for each of these situations are: "1-Strongly agree", "2-Agree", "3-Neither agree nor disagree", "4-Disagree", "5-Strongly disagree. For each of the 12 scenarios described above, a binary variable is created that equals 1 if the answer is either 1 or 2, and 0 if the answer is 3, 4 or 5. These 12 binaries are added up to generate an agency score between 0-12, and then converted into a standardized z-score by subtracting the mean and dividing by the standard deviation.

Comfort in Public interaction: This measure is constructed on the basis of the following question: "Are you comfortable about: speaking in meetings; participating in public processions; interacting with a police officer; talking about your profession with your children; talking about your profession with your neighbour; talking about your profession to the police; allowing your children to bring home their friends." The answer options are same those for the previous variable. For each of the 7 scenarios described above, a binary variable is created that equals 1 if the answer is either 1 or 2, and 0 if the answer is 3, 4 or 5. These 7 binaries are added up to generate a comfort score between 0-7, and then converted into a standardized z-score by subtracting the mean and dividing by the standard deviation.

Other Psychological Outcomes We also look at other psychological outcome measures such as happiness, aspiration for own future, and decision-making power that are impacted by self-image.

Happiness: This measure is constructed on the basis of the question: "On a scale of 1-5, how happy would you classify yourself to be in life?" The answer options are "1-Very happy", "2-Somewhat happy", "3-Indifferent", "4-Somewhat unhappy", "5-Very unhappy". A binary variable for happiness is created that takes the value 1 if the answer is either 1 or 2 and zero otherwise.

Aspiration: This measure is constructed on the basis of the question: "Where do you see yourself five years from now?" The answer options are "1-Own a house", "2-Become a peer worker", "3-Become an organization member of the NGO, Durbar", "4-Become a madam", "5-Leave this profession", "6-Same as now", "7-Don't know". A binary variable for aspiration is created that equals 0 if the answer is either 6 or 7 and 1 otherwise.

Decision-making power: This measure is constructed on the basis of the following question: "For each of the following, specify who takes the decision: number/choice of customer; financial matters; children's future; purchase of clothes and jewellery; own medical treatment; condom usage with babu (fixed client); condom usage with other ordinary client." The answer options for each of scenarios are "1-Self", "2-Husband/babu", "3-Other family member", "4-Madam", "5-Pimp", "6-Other sex workers", "7-Durbar official". For each of the 7 scenarios described above, a binary variable is created that equals 1 if the answer is 1, and 0 otherwise. These 7 binaries are added up to generate a decision-making score between 0-7, and then converted into a standardized z-score by subtracting the mean and dividing by the standard deviation.

5.2.2 Key Economic Dependent Variables

The second set of outcome variables that we focus on are various measures of participants' future-oriented economic behavior.

Savings product choice: This variable uses the choices made by participants across the two types of savings products offered, current account and fixed deposit, as described earlier. Savings choices are captured with a binary variable that equals 1 if the current account is chosen and 0 if one of the fixed deposits is chosen. A higher value is interpreted as reflecting a more present-oriented (less future-oriented) choice.

Health-seeking behavior: An alternative measure of future-orientation that we use is health-seeking behavior of our participants. Since sex work, by its very nature, puts a lot of stress on the physical condition of the sex worker, investment in physical health is very important for future sustainability. We proxy health-seeking behavior with the frequency of visits to the doctor. In particular, the measure is based on the question: "When was the last time you visited your doctor for a regular check-up regarding your physical health?" The answer options are "1-A week or less ago", "2-A month of less ago", "3-A year or less ago", "4-More than a year ago", "5-More than 5 years ago". A binary variable for health seeking behavior is constructed that equals 1 if the answer is either 1 or 2 and zero otherwise.

It is important to emphasize here that these visits are made by sex workers to see doctors based in local clinics run by the NGO Durbar itself, since sex workers are often denied access to formal government and private health care agencies (as referred to in Section 2 above). These visits are typically regular and preventive in nature, rather than being need-based.[23]

Table 2 reports the baseline values of the key dependent variables. There appear to be no significant baseline differences between treatment and control groups along any of these dimensions.

Medium-term Outcomes: For the medium term savings outcomes, we focus on the likelihood of closing the program accounts twelve and fifteen months after the program ended, and their final account balances fifteen months later. For health-seeking behavior, we examine the probability of visiting the health clinic (in three-month intervals) up to 21 months after the program ended.

5.3 Estimation

In order to evaluate the impact of the training program on the psychological variables of interest, we estimate the following regression specification:

$$Y_{ijl} = \alpha_l + \beta T_{jl} + \epsilon_{ijl} \tag{1}$$

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[23]A potentially interesting outcome variable to explore in this context would have been condom usage. However, due to the extensive efforts of Durbar as part of a national anti-AIDS initiative for promoting condom use (Rao et al., 2003), reported condom usage in red-light areas of Kolkata is very high. For instance, 99% of our respondents report using a condom in the baseline.

where Y_{ijl} indicates the dependent variable of interest for individual i living in brothel j in area l. T_{jl} is a binary variable equal to 1 if the individual lives in a treatment brothel (a brothel whose eligible residents were invited to participate in the training program). The coefficient β captures the average difference in outcomes of individuals living in a treatment brothel relative to those living in a control brothel, and identifies the intention-to-treat (ITT) parameter. It is close to the average treatment-on-treated effect, since less than 4% of those invited to the training program refused to attend. α_l denote area fixed effects and are included to improve efficiency since randomization was stratified by locality (Bruhn and McKenzie, 2009).

We also estimate the program impact by using a difference-in-difference strategy as follows:

$$Y_{ijlt} = \alpha_l + \beta T_{jl} + \gamma Post_t + \delta T_{jl} * Post_t + \epsilon_{ijlt} \tag{2}$$

In this case, the program effect δ is identified by comparing changes in individual outcomes before and after the training program in treatment brothels to those in control brothels, within the same area. This controls for time-varying factors common to individuals in treatment and control brothels, as well as time-invariant heterogeneity with area. $Post_t$ is a binary variable that denotes the endline survey. Standard errors are clustered at the brothel level throughout to account for the fact that outcomes are likely to be correlated within brothel.

In order to estimate the program impact on future-oriented economic behavior, in terms of saving products choice, we estimate the following regression specification:

$$S_{ijls} = \alpha_l^s + \rho T_{jl} + \epsilon_{ijls} \tag{3}$$

where S_{ijls} is a binary variable which equals 1 if the individual i chooses an injection into their current account and 0 otherwise (i.e. injection into fixed deposit account). The subscript s denotes the order of the weekly training session $[s = 1, ..., 8]$. Since both types of fixed deposits (with and without matching contributions from participants) entail some degree of future-orientation, we club them together. We estimate equation 3 above separately for each session, as well as with and without individual fixed effects.

Finally, in order to estimate program impact on health-seeking behaviour, we use specifications similar to (1) and (2) above.

6 Short-term Impacts

6.1 Psychological Outcomes

Table 3 and 4 present the ITT estimates of the training program's impact on the various proxies of self-image and other psychological variables respectively. Table 3, Panel A presents the simple differences between treatment and control groups in the endline survey, using Specifi-

cation (1). Column 1 in Panel A of Table 3 indicates that sex workers assigned to the treatment group are 40 percentage points (pp) less likely to report feeling ashamed of their occupation compared to their counterparts in the control group (relative to a baseline measure of 0.63). Column 2 indicates that they are also 68 pp more likely to report having higher self-worth than those in the control (relative to a baseline mean of a mere 0.18). It is reassuring to find that the self-worth results are consistent with those for shame, since in the context of our study, these two variables may be regarded as being inversely related. The training program also increased their self-reported ability to face challenges by 0.43 standard deviations compared to those assigned to the control group (column 3), as well as their comfort/ease in public interaction by 0.30 standard deviations (column 4). Table 3, Panel B (columns 6-9) presents the difference-in-difference estimates using Specification (2). The findings are found to be robust to this alternative specification and estimated coefficients are of a similar order of magnitude. Hence, the training program appears to have been successful in improving the self-image of stigmatized sex workers.

Next, we turn to Table 4 which reports the impact of the training program on other psychological variables that may be affected by an improved self-image. Column 1 in Panel A of Table 4 indicates that following exposure to training, sex workers are 12 pp more likely to report that they are happy in the endline, which corresponds to an increase of 25% from the baseline mean. A positively recast self-image may make them feel better about themselces and hence increase happiness. However, no significant impact is observed on the level of aspiration (column 2). This finding is consistent with the fact that the program did not direct them towards specific types of future goals.

Column 3 indicates that the training program had no impact on sex workers' self-reported decision-making power. However, baseline levels of decision-making power were already quite high amongst this population: 77% sex workers in our sample report taking *all* decisions on their own, while 93% report taking more than 50 percent of decisions on their own. Thus, with relatively less margin for improvement, it is not surprising that the training program has little additional impact on decision-making power of the participants.

Panel B of Table 4 (columns 5-7) shows that these results are robust to a difference-in-difference specification. The estimated coefficients are significant and of a similar order of magnitude as the endline ones. The only difference is in the case of happiness which, although has a point estimate of comparable size, is no longer statistically significant. However, McKenzie (2012) argues that when outcomes have low autocorrelation, it is more efficient to use ANCOVA instead of difference-in-differences to estimate treatment effects. In case of reported happiness, the correlation between baseline and endline levels is 0.02. Therefore, we also present the happiness results using ANCOVA in column 1 of Appendix Table A8

and find the treatment effect to be once again positive and significant.[24]

Since we examine the impact of the training program on seven psychological variables, this raises the concern that these effects are simply observed by chance among all of the different outcome variables. We follow two approaches to address this multiple inference problem. Following Anderson (2000), the first approach is to reduce the number of tests being conducted by constructing summary indices of the two groups of our dependent variables: proxies of self-image and other psychological outcomes. The results for the two summary indices are presented in Table 3 (columns 5 and 10) and in Table 4 (columns 4 and 8) respectively. The summary index for self-image is statistically significant (for both endline and difference-in-differences) while that for other psychological outcomes is not.[25]

The second approach, following Aker et al. (2016) and Sankoh et al. (1997), uses the Bonferroni correction for multiple testing, adjusted for correlated multiple outcomes. Using an alpha of 5 percent, and actual mean inter-variable correlations (varying between -0.01 to 0.06,) the Bonferroni p-values work out to be between 0.006 and 0.007.[26] All our psychological variables remain statistically significant (for α=0.05) at these adjusted levels (both endline and differences-in-differences), except for happiness, which is now just marginally insignificant at α=0.1.

6.2 Economic Outcomes

6.2.1 Saving Product Choices

The training program was designed to create a more positive self-image among participants – an objective that the results above suggest it did achieve. In this section, we examine whether such an enhanced self-image also encouraged more purposive actions among program participants, to improve their future life outcomes.

Our core findings on participants' future-oriented actions as reflected in their savings product choices, are presented in Figure 1. Each bar represents the proportion of individuals opting for deposit into their current account rather than their fixed-deposit account in a particular session. Initially, the proportion of individuals in the treatment group choosing a current account is similar to that in the control group. For the control group, this proportion remains more or less unchanged over the course of the program, with a slight rise towards

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[24] For robustness, we present ANCOVA results for all our self-reported outcome variables in Appendix Tables A7 and A8, and SUR results in Table A9.

[25] In Appendix Table A10, we also present results for a summary index constructed over all seven psychological variables. The result is statistically significant.

[26] Unlike in the standard Bonferroni correction where the outcomes are assumed to be independent, this adjusted Bonferroni correction allows for the case of correlated outcome variables where the mean correlation between outcome variables can be included as a parameter in the Bonferroni adjustment. A mean correlation of zero would yield the full Bonferroni adjustment, whereas a mean correlation of one would mean no adjustment (see p. 23 in Aker et al. (2016)).

the end. For the treatment group, however, there is a significant shift towards a fixed deposit (as indicated by a fall in the take-up of the current account option) from Session 4 onwards.

Table 5 presents the ITT estimates of the training program using Specification (3) on choices over savings products, and confirms the patterns observed in Figure 1. There is no statistically significant difference in the propensity to choose the present-oriented option between the treatment and control groups up to Session 3 (columns 1-3), with the coefficients being small in magnitude. But in Session 4, the treatment group is 25 pp less likely to choose the present-oriented option than the control (column 4), which increases to approximately 50 pp in Session 5 (column 5) and remains more or less stable till the end of the program.[27]

The regression coefficients from Table 5 are plotted in Figure 2, where each dot on the solid line is the coefficient of the interaction of the treatment dummy and relevant session dummy (a 95% confidence interval is plotted by broken lines). These coefficients are close to 0 and insignificant until Session 3 and negative and significantly different from zero Session 4 onwards. This captures the move way from the present-oriented current account option towards the fixed deposit options among the treated sex workers, over the course of the training program.[28]

Figure 2 uses variation across individuals. However, we observe some attrition in attendance over the course of the training programme. In particular, attendance in the last session was disproportionately affected due to its offsite location. Till Session 7, attrition was approximately 11%, but increased a further 8% in Session 8. One might worry that this may lead to estimation bias if different kinds of individuals attrit in the treatment relative to control, even if the average rate of attrition does not differ significantly between the two groups. We address this concern by including individual fixed effects in an alternative specification, as reported in Table 6. In each column of this table, the coefficient on Treatment*Session i captures the relative difference in savings product choice of the treatment group relative to control, for session i. In other words, this table conducts the same analysis as Table 5, but uses interaction terms within a pooled regression equation to identify treatment effects by session. Column 1 of Table 6 reports similar treatment effect sizes across various sessions as in Table 5. More importantly, these results remain robust to the inclusion of individual fixed effects in Column 3, thereby allaying the potential selective attrition concerns discussed above.

Figure 3 plots the coefficients from the specification including individual fixed effects,

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[27]The regression results presented in Table 5 cluster standard errors at the brothel level. However, since the training was imparted to women in groups of size 15-17, there arises a possibility that outcomes could be correlated within these training groups. The results are found to be robust when standard errors are clustered at the training group level instead of brothel level (results available upon request).

[28]Figure 6 in the Appendix reports the results separately for the current account and 2 types of fixed deposits. It shows that the fixed deposit results are driven by the option with a matching contribution from the participants.

and it is reassuring that Figure 3 closely resembles the original Figure 2.

In the last session of the program, the participants were also given the option to overturn their decisions in the previous seven sessions in favour of their decision in the final session. Approximately 33% of the participants made such a switch in the final session.

We examine the proportion of participants who decided to overturn their earlier decisions (of a current account deposit) in favour of a fixed deposit . The results are presented in Table 7. The dependent variable is a dummy that equals 1 if the participant chooses to overturn her past session choices (at least one of which was an injection into the current account), in favour of a fixed-deposit account, and zero otherwise. Column 1 of Table 7 indicates that the treatment group is 32 pp more likely to switch to a fixed deposit in the last session relative to the control group.

We also examine heterogeneous treatment effects by baseline levels of stigma, as captured by shame. Interestingly, we find that participants who reported a greater sense of shame in the baseline are more responsive to the training program: they are 9-13 pp more likely to choose a fixed deposit rather than a current account, relative to those who report a lower sense of shame (Table 8). This is consistent with an impact of the intervention on participants' behavior through an improvement in their self-image.[29]

6.2.2 Alternative Explanations

In determining whether these saving choice results can be interpreted as being caused by the self-image enhancing training program, we attempt to rule out the following alternative explanations.

Financial Literacy:

As noted in Section 3.2, the sex workers did not face any interest rate penalty for breaking the fixed deposits before the lock-in period of one year was over. Hence, in terms of maximising investment returns, the current account is the *dominated* option. Despite this, both the treatment and control groups start off by investing in this option, and the control group continues to do so until the end of the program. This may raise concerns regarding the participants' lack of financial understanding of the products, and prompt one to wonder whether the observed shift of the treatment group towards the fixed deposit options is merely due to an improvement in their financial comprehension over the course of the program, and not its content. However, for this explanation to be plausible, we would expect to observe a bigger impact on the savings choices of those participants in the treatment group who had poorer financial comprehension to begin with. While we did not directly measure financial literacy of our participants, a reasonable proxy for this would be prior experience of han-

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[29]Here we show the combined effect for all weeks. Week by week results are available on request.

dling a bank account. We proxy the latter by using a binary variable that captures whether or not the participant had a bank account with USHA (the sex workers' co-operative bank) at the time of the baseline survey. We find no heterogenous treatment effects by this proxy on the participants' savings choices (see Table 9).[30] Hence, lack of financial understanding is unlikely to be driving our results.

Peer effects:

The program we evaluate uses a group format to deliver psychological training, by design. One may worry that the scope for social interaction and information flows among participants due to this format could independently be driving the results. To address such a 'peer effect' concern, we would like to reiterate that in our setting, most interactions typically takes place between sex workers living in the same brothel rather than across different brothels (see Section 3.2). This implies that information transmission would be easier in groups where a greater number of group members were drawn from the same brothel. Our experimental design generates random variation in the fraction of women from the same brothel who end up in each training group (see Section 3.2). We exploit this experimental variation to test whether the savings choices of treated sex workers varies by the proportion of team members who come from the same brothel as themselves. The results are reported in Table 10. We find no differential impact on saving product choices by group composition measured in this way. This suggests that our findings are unlikely to be driven by the greater potential for social interaction presented by the format of the training program.

Commitment Savings:

Another alternative channel that is known to affect an individual's future-oriented choices is self-control. Given that this channel is widely studied in economics (Gul and Pesendorfer, 2001; Fudenberg and Levine, 2006; Ashraf et al., 2006), it would be useful to clarify why we believe this channel is unlikely to be driving our results. In principle, the training program could have made a sex worker more aware of her lack of self-control as a reason for poor life outcomes. Such increased awareness may then have induced her to choose the fixed deposit option as a commitment savings product (Ashraf et al., 2006).

A key element of investment products designed to tackle self-control issues is that investments in such products cannot be liquidated without cost, until the maturity date. This is not true in our setting. A participant could always liquidate a fixed deposit at some intermediate stage and still get the return she would have enjoyed had she invested in the lower return current account. Thus investment in the illiquid option does not act as a commitment

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[30]We also use whether the participants have non-zero baseline savings in their USHA bank account as an alternative proxy for prior financial experience. The results, reported in Appendix Table A11, are similar.

device in our context, implying that an increased preference for commitment savings products is unlikely to be the explanation for our participants' savings choices. In addition, the content of the training program does not attempt to explicitly address self-control issues in any way.

Reciprocity and Trust:

Another alternative mechanism could be that the participants chose the 'right' options (i.e. a fixed deposit) as a reciprocity gesture to the trainers (who are from Durbar) for spending time training them. This channel seems an unlikely explanation in our context, for several reasons. First, if reciprocity were the driving mechanism, then one would expect the treatment group to make the 'right' choice from the first session itself. The divergence in the choice behavior between treatment and control groups from the fourth session onwards is less easy to explain using this mechanism. Such divergence is also unlikely to be driven by increasing trust towards Durbar over the duration of the program, since the NGO has been known and respected within these sex worker communities for the last two decades.

Second, any reciprocity gesture, if present, is more likely to be observed for those participants who are members of Durbar, since their relationship with the NGO is a repeated game. Participants who are non-members, on the other hand, are less likely to exhibit a similar pattern of choices regarding these savings product over the course of the training. However, we find that there is no differential effect of being a member of Durbar (measured at baseline) on participants' choice (Table 11). In other words, members and non-members are equally likely to take up a fixed deposit relative to current account over the course of the intervention. The rate of take-up of membership of Durbar does increase in the treatment group relative to the control in the endline compared to baseline ($\approx 7\%$ points) but this is not statistically significant, and is primarily being driven by Bowbazar. However, the pattern of saving product choice is similar across all three localities in our study (see Appendix Table A12). Finally, as pointed out in Section 3.2, the participants revealed their choices not to the trainers themselves but to members of our field staff, towards whom the participants are less likely to feel such a sense of obligation. Hence, it appears unlikely that reciprocity is driving our results.

Nudging:

There is a sharp increase in the treatment group's choices in favour of a fixed deposit after Session 3. One may worry that although this session was about the importance of collective agency, using the example of the cooperative bank may have "nudged" participants to choose a fixed deposit. To allay this concern, the next subsection presents evidence on another form of future-oriented behavior that was not discussed at any point of the training program: preventive health behavior.

In summary, the evidence and robustness checks presented in this section suggest that the enhancement of sex workers' self-image through exposure to the program led to an increase in future-oriented (savings) choices among treated sex workers.

6.2.3 Health-seeking Behavior

As mentioned earlier, a potential concern with the findings on savings choices is that participants may have been"nudged" towards the fixed deposit options, consciously or unconsciously. To allay this concern, we present evidence of the impact of exposure to the training program on another future-oriented decision particularly important for sex workers, but was not mentioned explicitly during the training program at all: preventative health-seeking behavior.

We proxy health-seeking behavior by self-reported frequency of regular visits to the doctor. Column 1 in Table 12 indicates that the treatment group is 9 pp more likely to have visited a doctor in the past week or montth compared to the control group, which represents an increase of approximately 11% of the baseline mean of 0.77. This result is replicated using a difference-in-difference specification in Column 2, and although the coefficient is no longer statistically significant at conventional levels, the magnitude is very similar to that obtained in Column 1. However, in case of health-seeking behavior, the correlation between baseline and endline levels is -0.01. Hence, following McKenzie (2012), we check using ANCOVA instead of difference-in-differences in column 3 of Table 12 and find the treatment effect to be once again positive and significant.

We also find that the treated sex workers do not service more clients nor earn more as a result of exposure to the training program (Appendix Table A13). Hence, the increase in these doctor visits appear to be driven by regular, preventive check-ups rather than being 'need-based'.

We also bolster the self-reported analysis by examining clinic-level administrative data on health visits made by sex workers in our areas. As mentioned in Section 5.1.2 , owing to confidentiality reasons, we are unable to identify our study subjects in this data, and hence present results for all sex workers living in our treatment and control brothels. The clinic-level data objectively confirms the findings from our self-reported data. Sex workers in treatment brothels are found to be significantly more likely to visit the clinic for regular health check-ups, using endline analysis, difference-in-difference and ANCOVA (Table 16 Columns 1, 3 and 5). In fact, the coefficients across all the specifications are larger than those using self-reported data, and consistently statistically significant. This further addresses the concern that social desirability bias may be driving our findings on health-seeking behavior. However, we are not able to disentangle whether this effect is being driven solely by our study subjects or in some measure by spillovers on untreated sex workers in the treated brothels as well.

7 Medium-term Impacts

7.1 Program Accounts and Balances

A common concern with the effects of psychological empowerment methods relates to their persistence over the long run. The findings presented above focus on immediate program impacts, i.e. those measured either during, immediately after, or within three months of the conclusion of the program – which may raise some skepticism about the 'true' and enduring impact of the training program. In the context of saving behavior in particular, we are interested in testing whether the overall positive response to the training program is merely a short-term 'feel-good' response to a new type of training, or whether it is representative of a more lasting change in participants' behavior.

To address this issue, we examine the participant's likelihood of closing the program accounts twelve and fifteen months after the program ended, as well as their final account balances fifteen months later.

Table 13 reports the results on the likelihood of program account closures at various points in time. The dependent variable is a binary variable that takes the value 1 if the account has been closed at a given point in time and zero otherwise. The three points in time we focus on are: immediately after the program ended (December 2012), twelve months after the program ended (January 2014) and fifteen months after the program ended (March 2014). Column 1 indicates that the treatment group is 53 pp less likely to close their program account(s) immediately after the program ended (control mean is 0.57). This pattern continues to hold up to twelve months after the program (column 2). However, for the sample of accounts that still remained open immediately after the program, there is no significant difference between treatment and control in terms of account closures after twelve months (column 3). This suggests that some participants in the treatment group closed their accounts once they had received their due pay-offs from their savings product choices after the lock-in period of twelve months was over. However, any concern that such a mechanical reason is key driver of lower account closures in the treatment group overall is allayed by the fact that even fifteen months after the program (i.e. when the lock-in period is no longer binding), the treatment group continues to be significantly less likely to close their accounts relative to control group (columns 4-5).

The program accounts could be fixed deposits or standard current account, depending on the final choices made by the participant at the end of the training program. Table 14 shows that the impact on the rate of account closure fifteen months after the program is similar for both types of accounts.

Apart from account closure, we are also interested in final balances in these accounts since people may not bother closing their accounts even if they have very small balances in them.

Table 15 presents the results for final balances in these program accounts fifteen months after the program concluded. We assign account balance to 0 for accounts that were closed before the fifteen month-mark was reached. Column 1 shows that the treatment group had Rs. 404 higher balance in their accounts compared to their control counterparts, and this coefficient is highly significant. This corresponds roughly to a 4 times higher savings balances for the treatment group relative to the control group. Column 2 shows that this result is robust to the inclusion of controls.

7.2   Health-seeking Behavior

We also find persistence in the program's positive impact on clinic-reported frequency of health visits made by sex workers in our study areas over a 21 month period after the program ended. Sex workers in our treatment brothels remain 15 pp. more likely to have visited the health clinic (in 3-month intervals) relative to those in the control brothels, using both endline and ANCOVA estimates (Table 16 Columns 2 and 6). The difference-in-difference coefficient is larger is magnitude and highly statistically significant (Column 4). This pattern is also borne out if we plot the estimated treatment coefficients over this time period (Fig 4). Before the training program, sex workers in the treatment brothels perform marginally worse relative to their counterparts in control brothels in terms of frequency of health clinic visits. However, once the training program is introduced, they are 12 pp more likely than control to have visited the health clinic in the previous 3 months. This differential effect persists till the end of our 21 month period.

In summary, it is reassuring to find that the training program not only succeeded in changing saving and health behavior in the short term, but that these effects persisted in the medium term as well. These findings are thus encouraging for the sustainability of such initiatives.

8   Conclusion

In this paper, we take seriously the view that facing stigma and social exclusion can distort an individual's self-image in ways that may, in turn, lead to sub-optimal life choices. We evaluate a novel approach to help overcome these adverse effects of stigma: a training program focused on reshaping the attitudes and beliefs of those who face it, about *themselves*. Our study population is one that faces acute stigma and discrimination: sex workers in Kolkata, India. We find significant positive short-run effects of the training program on their self-image, and in their savings and health choices. We also find evidence of medium-term persistence of such positive effects for related savings behavior fifteen months after, and health-seeking behavior 21 months after the conclusion of the program. Our findings have important implications for

public health initiatives, given that stigma and discrimination against female sex-workers has been identified as a significant barrier in progress towards HIV prevention across the world.

We also believe that the core content of our findings have implications beyond our setting and sample. They offer a rationale for exploring the potential of suitably adapted psychological training to improve the welfare and life choices of other marginalized groups, such as ethnic and racial minorities, and the poor. Future work could also consider introducing such training in conjunction with existing schemes and programs to support these groups. This could offer valuable insights on the scalability of such measures, as well as the efficiency implications of potential interaction effects across different approaches to tackling discrimination.

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Figure 1: Percentage of sex workers choosing to put money into current account (over a fixed deposit), by session
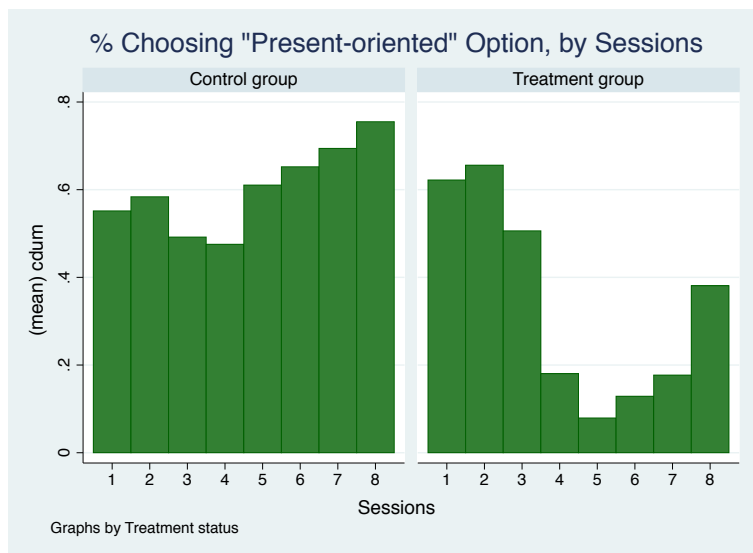
Figure 2: Coefficients of Interactions of Treat*Session Dummy in Savings Product Choice Regression
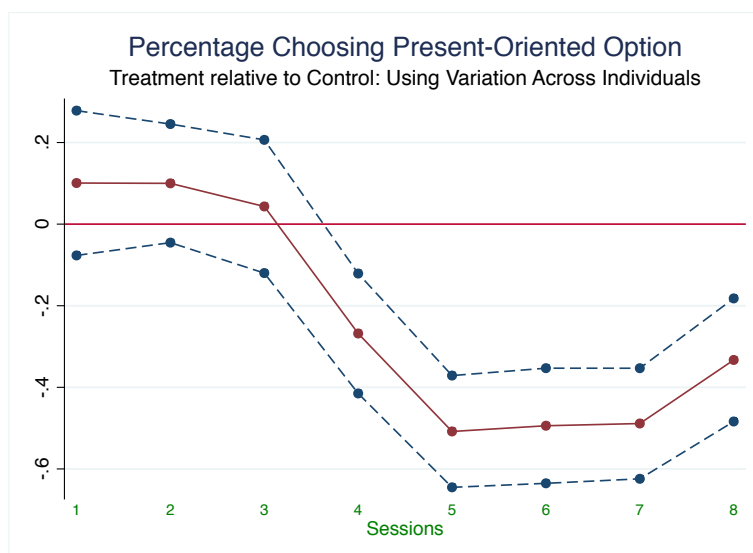
Figure 3: Coefficients of Interactions of Treat*Session Dummy in Savings Product Choice Regression, with Individual Fixed Effects
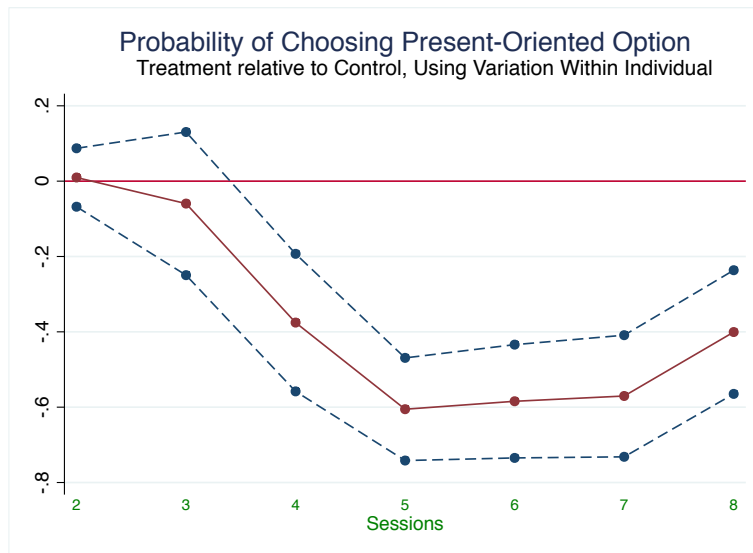
Figure 4: Coefficients of Interactions of Treat*3-month Interval Dummy in Health Visits over 21 months after Program
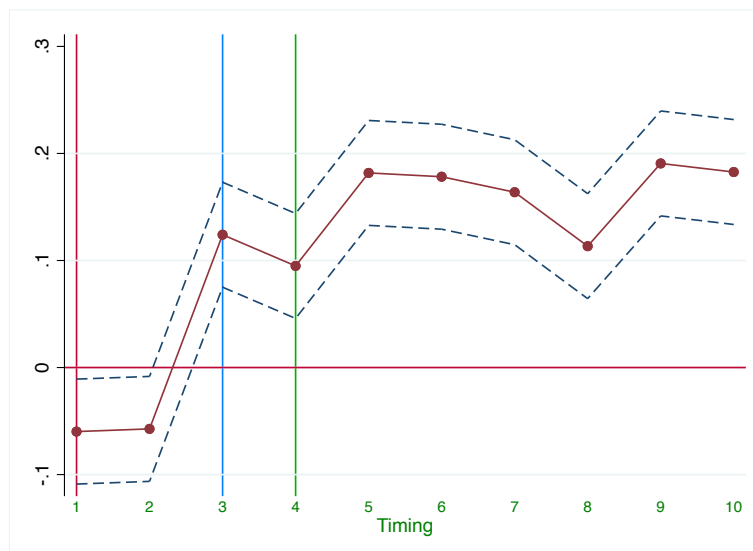
Red vertical line indicates baseline survey. Blue vertical line indicates intervention. Green vertical line indicates endline survey. The horizontal axis depicts 3 month intervals, up to 21 months after program ended.

Table 1: Summary Statistics – Individual Characteristics at Baseline

	Control	Treatment	Difference
Age (years)	32.47	32.08	0.38
	(7.09)	(7.62)	[0.92]
Muslim (%)	0.13	0.22	-0.09**
	(0.34)	(0.41)	[0.04]
Low caste (%)	0.42	0.35	0.06
	(0.49)	(0.48)	[0.05]
Education (years)	2.11	1.73	0.38
	(2.92)	(2.81)	[0.26]
Has fixed client (%)	0.26	0.31	-0.05
	(0.44)	(0.46)	[0.04]
Years in profession	9.36	8.87	0.49
	(8.06)	(7.57)	[0.91]
Adhiya contract (%)	0.06	0.18	-0.12**
	(0.24)	(0.38)	[0.04]
Self-employed contract (%)	0.57	0.47	0.10
	(0.50)	(0.50)	[0.07]
Flying contract (%)	0.37	0.36	0.01
	(0.48)	(0.48)	[0.06]
Rate per sex act (w/ condom, Rs.)	129.13	121.06	8.07
	(128.54)	(54.90)	[8.90]
Rate per sex act (w/o condom, Rs.)	175.00	150.00	25.00
	(91.57)	(50.00)	[40.60]
No. of customers per day	3.13	3.14	-0.01
	(1.24)	(1.16)	[0.14]
Monthly income (Rs.)	8576.63	9701.32	-1124.69
	(5617.70)	(19434.31)	[1271.93]
Uses condom (%)	0.99	1.00	-0.01
	(0.10)	(0.00)	[0.01]
Member of the NGO (%)	0.81	0.77	0.04
	(0.39)	(0.42)	[0.04]
Has bank a/c (%)	0.43	0.45	-0.02
	(0.50)	(0.50)	[0.06]

Notes: The sample contains sex workers who are surveyed at baseline (N=467). Standard deviations are in parentheses. Standard errors, clustered at the brothel level, are in brackets. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Default group for religion is Hindu and for caste is High Caste. Education refers to years of completed education. *Adhiya* contract implies that the sex worker is in a sharing contract where she splits her monthly earnings 50:50 with the landlady of the brothel. Self-employed contract, the omitted group here, implies that the sex worker pays the landlady a fixed rent from her monthly earnings and keeps the rest for herself. Flying contract implies that the sex worker does not reside in the brothels but comes to work there from outside the 'red-light' area. Bank account refers to having account with USHA, which is associated with the NGO.

Table 2: Summary Statistics – Means of Key Dependent Variables at Baseline

	Control	Treatment	Difference
Shame (0/1)	0.66	0.61	0.05
	(0.48)	(0.49)	[0.05]
Self-worth (0/1)	0.15	0.20	-0.04
	(0.36)	(0.40)	[0.04]
Ability to face challenges raw score (0-1)	0.43	0.41	0.02
	(0.25)	(0.24)	[0.03]
Ability to face challenges z-score	-0.02	-0.11	0.09
	(1.00)	(0.99)	[0.11]
Comfort in public raw score (0-1)	0.41	0.38	0.03
	(0.27)	(0.28)	[0.02]
Comfort in public z-score	0.01	-0.11	0.11
	(0.98)	(1.04)	[0.08]
Happiness (0/1)	0.48	0.51	-0.02
	(0.50)	(0.50)	[0.05]
Aspiration (0/1)	0.77	0.75	0.02
	(0.42)	(0.43)	[0.05]
Decision-making raw score (0-1)	0.77	0.78	-0.01
	(0.15)	(0.15)	[0.01]
Decision-making z-score	-0.11	-0.06	-0.05
	(0.98)	(1.01)	[0.09]
Visited doctor in health clinic (0/1)	0.76	0.77	-0.01
	(0.43)	(0.42)	[0.05]

Notes: The sample contains sex workers who are surveyed at baseline (N=467). Standard deviations are in parentheses. Standard errors, clustered at the brothel level, are in brackets. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. See text in Sections 5.2.1 and 5.2.2 for details on the various dependent variables.

Table 3: Program Impact on Proxies of Self-Image

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Panel A: Endline					Panel B: Diff-in-diff				
	Shame	Self-worth	Ability to face challenge	Comfort in public	Self-image summary index	Shame	Self-worth	Ability to face challenge	Comfort in public	Self-image summary index
Treatment	-0.40***	0.68***	0.43***	0.30***	0.28***	-0.05	0.05	-0.05	-0.15*	0.02
	(0.04)	(0.04)	(0.09)	(0.09)	(0.02)	(0.04)	(0.04)	(0.10)	(0.08)	(0.02)
Post						-0.09	0.07*	-0.14	-0.13	0.04
						(0.06)	(0.04)	(0.09)	(0.08)	(0.02)
Treatment*Post						-0.35***	0.64***	0.51***	0.45***	0.26***
						(0.06)	(0.05)	(0.13)	(0.12)	(0.03)
Area fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Raw control mean in endline	0.57	0.23	-0.16	-0.13						
Adj. R-sq	0.17	0.47	0.05	0.04	0.35	0.16	0.43	0.04	0.03	0.30
N	429	435	437	437	409	891	895	896	895	854

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10%, ** significant at 5%, *** significant at 1%. Columns 1-4 report differences between treatment and control using endline survey while columns 5-8 use differences-in-differences. See text in Sections 5.2.1 and 5.2.2 for details on the various dependent variables. Details on the self-image summary indices are presented in Section 6.1.

Table 4: Program Impact on Other Psychological Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A: Endline				Panel B: Diff-in-diff			
	Happiness	Aspiration	Decision-making	Psych. Summary Index	Happiness	Aspiration	Decision-making	Psych. Summary Index
Treatment	0.12**	0.03	0.04	0.02	0.03	-0.00	0.04	0.01
	(0.05)	(0.04)	(0.10)	(0.02)	(0.05)	(0.04)	(0.09)	(0.02)
Post					-0.00	-0.00	0.17*	0.03
					(0.04)	(0.03)	(0.10)	(0.02)
Treatment*Post					0.11	0.04	-0.01	0.01
					(0.07)	(0.05)	(0.14)	(0.03)
Area fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Raw control mean in endline	0.48	0.77	0.06					
Adj. R-sq	0.02	0.01	-0.01	0.00	0.01	0.02	0.00	0.01
N	437	434	437	414	897	893	896	859

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10%, ** significant at 5%, *** significant at 1%. Columns 1-4 report differences between treatment and control using endline survey while columns 5-8 use differences-in-differences. See text in Sections 5.2.1 and 5.2.2 for details on the various dependent variables. Details on the psychological summary indeices are presented in Section 6.1.

Table 5: Program Impact on Saving Product Choices

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dummy=1 if Current Account chosen							
Sessions:	1	2	3	4	5	6	7	8
Treatment	0.09	0.09	0.06	-0.25***	-0.51***	-0.50***	-0.48***	-0.36***
	(0.07)	(0.06)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	(0.06)
Area fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Raw control mean in endline	0.55	0.58	0.49	0.48	0.61	0.65	0.69	0.75
Adj. R-sq	0.01	0.02	0.08	0.20	0.35	0.31	0.31	0.14
N	448	432	434	427	412	394	396	361

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10%, ** significant at 5%, *** significant at 1%. Columns report relative differences in savings product choice made between treatment and control over the course of the training program. The dependent variable is a dummy which equals 1 if the participant chooses payment as an injection to the current account and 0 if she chooses it as an injection into a fixed deposit account.

Table 6: Program Impact on Saving Product Choices, with Individual fixed effects

	(1)	(2)
	Dummy=1 if Current Account chosen	
Treatment*Session 1	0.10	-
	(0.08)	
Treatment*Session 2	0.10	0.01
	(0.06)	(0.04)
Treatment*Session 3	0.04	-0.06
	(0.08)	(0.10)
Treatment*Session 4	-0.27***	-0.38***
	(0.07)	(0.09)
Treatment*Session 5	-0.51***	-0.61***
	(0.06)	(0.08)
Treatment*Session 6	-0.49***	-0.58***
	(0.06)	(0.08)
Treatment*Session 7	-0.49***	-0.57***
	(0.07)	(0.09)
Treatment*Session 8	-0.33***	-0.40***
	(0.08)	(0.10)
Session 2	0.03	0.03

	(0.02)	(0.02)
Session 3	-0.06	-0.05
	(0.07)	(0.07)
Session 4	-0.08	-0.07
	(0.06)	(0.06)
Session 5	0.06	0.07
	(0.04)	(0.05)
Session 6	0.10*	0.10*
	(0.05)	(0.05)
Session 7	0.14**	0.14**
	(0.06)	(0.06)
Session 8	0.19**	0.17**
	(0.07)	(0.07)
Area fixed effects	Yes	No
Individual fixed effects	No	Yes
Adj. R-sq	0.21	0.56
N	3304	3304

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. The dependent variable is a dummy which equals 1 if the participant chooses payment as an injection to the current account and 0 if she chooses it as an injection into a fixed deposit account. In each column, the coefficient on *Treatment*Session i* captures the relative difference in savings product choice of the treatment group relative to control for session *i*. Column 1 of this table provides similar results as in Table 5, but using a pooled regression equation with data from all sessions. In Column 2, the inclusion of individual fixed effects addresses concerns of selective attrition across the training sessions that Table 5 is unable to address.

Table 7: Program Impact on Switching Behaviour

	(1)
	Switch to future-oriented product in last session
Treatment	0.32***
	(0.03)
Area fixed effects	Yes
Adj. R-sq	0.16
N	459

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10%, ** significant at 5%, *** significant at 1%. Column reports relative differences between treatment and control in the last session of the training program. The dependent variable is a dummy which equals 1 if the participant switched to a fixed deposit account in the last session.

Table 8: Program Impact on Saving Product Choices, by Baseline Shame

	(1)	(2)	(3)	(4)	(5)
	Dummy=1 if Current Account chosen				
Treatment	-0.22***	-0.16***	-0.16***	-0.13**	0.07
	(0.05)	(0.05)	(0.05)	(0.05)	(0.63)
Treatment*Shame		-0.10*	-0.09*	-0.13**	-0.13*
		(0.05)	(0.05)	(0.06)	(0.07)
Shame		0.04	0.04	0.06	0.07
		(0.04)	(0.04)	(0.04)	(0.05)
Area fixed effects	Yes	Yes	Yes	Yes	Yes
Session fixed effects	No	No	Yes	Yes	Yes
Controls	No	No	No	Yes	Yes
Treatment*Controls	No	No	No	No	Yes
Adj. R-sq	0.09	0.09	0.15	0.15	0.15
N	3304	3268	3268	3098	3098

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Columns 1-2 report relative differences in choices made between treatment and control across all sessions of the training program, while columns 3-5 include session fixed effects in order to estimate the treatment effect within session. The dependent variable is a dummy which equals 1 if the participant chooses payment as an injection to the current account and 0 if she

chooses it as an injection into a fixed deposit account.

Table 9: Program Impact on Saving Product Choices, by USHA bank account

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dummy=1 if Current Account chosen							
Sessions:	1	2	3	4	5	6	7	8
Treatment	0.09	0.05	0.04	-0.26***	-0.51***	-0.46***	-0.49***	-0.33***
	(0.09)	(0.09)	(0.08)	(0.07)	(0.07)	(0.07)	(0.08)	(0.07)
Treatment*has USHA a/c	-0.01	0.11	0.04	0.00	-0.00	-0.08	0.03	-0.09
	(0.10)	(0.11)	(0.10)	(0.08)	(0.07)	(0.08)	(0.09)	(0.08)
Has USHA a/c	0.03	0.01	-0.02	0.00	0.02	0.07	-0.02	0.01
	(0.07)	(0.08)	(0.08)	(0.06)	(0.06)	(0.07)	(0.06)	(0.06)
Area fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-sq	0.00	0.02	0.07	0.19	0.35	0.31	0.31	0.14
N	447	430	432	425	410	392	394	360

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10%, ** significant at 5%, *** significant at 1%. Columns report differences in choices made between treatment and control during various sessions of the training program. The dependent variable is a dummy which equals 1 if the participant chooses payment as an injection to the current account and 0 if she chooses it as an injection into a fixed deposit account. Possession of bank account is measured at baseline.

Table 10: Program Impact on Saving Product Choices, by Group Composition

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dummy=1 if Current Account chosen							
Sessions:	1	2	3	4	5	6	7	8
Treatment	-0.02	-0.13	-0.06	-0.23**	-0.59***	-0.57***	-0.57***	-0.41***
	(0.12)	(0.12)	(0.12)	(0.10)	(0.10)	(0.10)	(0.12)	(0.14)
Treatment*% of women from same brothel	0.31	0.63*	0.44	-0.04	0.24	0.21	0.22	0.11
	(0.33)	(0.33)	(0.30)	(0.26)	(0.23)	(0.23)	(0.30)	(0.37)
% of women from same brothel	-0.08	-0.21	0.09	0.04	-0.08	-0.06	-0.14	-0.10
	(0.24)	(0.23)	(0.24)	(0.21)	(0.21)	(0.20)	(0.26)	(0.22)
Area fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-sq	0.01	0.03	0.09	0.19	0.35	0.31	0.31	0.13
N	448	432	434	427	412	394	396	361

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10%, ** significant at 5%, *** significant at 1%. Columns report relative differences in choices made between treatment and control during various sessions of the training program. The dependent variable is a dummy which equals 1 if the participant chooses payment as an injection to the current account and 0 if she chooses it as an injection into a fixed deposit account.

Table 11: Program Impact on Saving Product Choices, by NGO membership

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dummy=1 if Current Account chosen							
Sessions:	1	2	3	4	5	6	7	8
Treatment	0.18	0.10	0.13	-0.17	-0.50***	-0.52***	-0.55***	-0.30**
	(0.13)	(0.13)	(0.11)	(0.12)	(0.09)	(0.09)	(0.10)	(0.12)
Treatment*NGO member	-0.12	-0.00	-0.08	-0.10	-0.00	0.03	0.08	-0.08
	(0.12)	(0.13)	(0.11)	(0.12)	(0.09)	(0.10)	(0.10)	(0.13)
NGO member	0.08	0.03	0.01	0.08	0.04	0.01	-0.07	0.02
	(0.10)	(0.11)	(0.09)	(0.10)	(0.07)	(0.07)	(0.06)	(0.07)
Area fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-sq	0.01	0.01	0.08	0.19	0.35	0.31	0.31	0.13
N	445	429	431	424	409	391	393	360

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10%, ** significant at 5%, *** significant at 1%. Columns report differences in choices made between treatment and control during various sessions of the training program. The dependent variable is a dummy which equals 1 if the participant chooses payment as an injection to the current account and 0 if she chooses it as an injection into a fixed deposit account. Membership of the NGO, Durbar, is measured at baseline.

Table 12: Program Impact on Self-Reported Health-Seeking Behaviour

	(1)	(2)	(3)
	Visited doctor in health clinic		
	Endline	Diff-in-diff	ANCOVA
Treatment	0.09**	-0.00	0.10**
	(0.04)	(0.04)	(0.04)
Post		0.03	
		(0.05)	
Treatment*Post		0.08	
		(0.07)	
Visited health clinic in baseline			0.00
			(0.04)
Area fixed effects	Yes	Yes	Yes
Raw control mean in endline	0.79		
Adj. R-sq	0.01	0.01	0.01
N	424	882	416

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10%, ** significant at 5%, *** significant at 1%. Column 1 reports relative differences between treatment and control using endline survey, Column 2 uses differences-in-differences, and Column 3 uses ANCOVA that controls for the baseline values of the outcome variable. The dependent variable is a dummy that equals 1 if the participant reports having visited a doctor in the local Durbar-run health clinic at least once in the previous month, and zero otherwise.

Table 13: Program Impact on Account Closures

	(1)	(2)	(3)	(4)	(5)
	Dummy variable=1 if a/c closed:				
	Immediately after program	Up to 12 months after program		Up to 15 months after program	
Treatment	-0.53***	-0.40***	-0.05	-0.52***	-0.53***
	(0.05)	(0.06)	(0.08)	(0.06)	(0.11)
Area fixed effects	Yes	Yes	Yes	Yes	Yes
Sample	Full	Full	A/c still open immediately after program	Full	A/c still open 12 months after program
Raw control mean in endline	0.57	0.71	0.33	0.89	0.62
Adj. R-sq	0.36	0.14	0.01	0.23	0.24
N	349	349	283	349	202

Notes: This table uses data from Kalighat and Chetla. Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10%, ** significant at 5%, *** significant at 1%. Columns report relative differences between treatment and control at various points in time after the conclusion of the training program. The dependent variable in Column 1 is a dummy that equals 1 if an account was closed immediately after the program ended, and zero otherwise. The dependent variables in Columns 2-3 are dummy variables that capture if an account was closed up to 12 months after the program ended, while those in Columns 4-5 capture if it was closed up to 15 months after the program ended.

Table 14: Program Impact on Account Closures After 15 months, by Account Type

	(1)	(2)	(3)	(4)
	Dummy variable=1 if a/c closed up to15 months after program			
A/c type:	Fixed Deposits		Current Account	
Treatment	-0.53***	-0.62***	-0.52***	-0.50***
	(0.11)	(0.18)	(0.05)	(0.10)
Area fixed effects	Yes	Yes	Yes	Yes
Sample	Full	A/c still open 12 months after program	Full	A/c still open 12 months after program
Raw control mean in endline	0.88	0.71	0.89	0.59

Adj. R-sq	0.16	0.22	0.24	0.24
N	121	80	228	122

Notes: This table uses data from Kalighat and Chetla. Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10%, ** significant at 5%, *** significant at 1%. Columns report relative differences between treatment and control 15 months after the conclusion of the training program. The dependent variable is a dummy that equals 1 if an account was closed up to 15 months after the program ended, and zero otherwise.

Table 15: Program Impact on Account Balances After 15 months

	(1)	(2)
	Final Balance	
Treatment	404.81***	455.91***
	(122.49)	(150.47)
Area fixed effects	Yes	Yes
Controls	No	Yes
Raw control mean in endline	95.56	
Adj. R-sq	0.01	0.00
N	349	333

Notes: This table uses data from Kalighat and Chetla. Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. The dependent variable is measured in current rupees.

Table 16: Program Impact on Clinic-level Health-Seeking Behaviour After 21 months

	(1)	(2)	(3)	(4)	(5)	(6)
	Visited doctor in health clinic					
	Endline		Diff-in-diff		ANCOVA	
	Up to 3 months after	Up to 21 months after	Up to 6 months before and up to 3 months after	Up to 6 months before and up to 21 months after	Up to 3 months after	Up to 21 months after
Treatment	0.13***	0.15***	-0.04	-0.06***	0.13***	0.15***
	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)
Post			-0.12***	-0.26***		
			(0.03)	(0.02)		
Treatment*Post			0.15***	0.21***		
			(0.03)	(0.02)		
Visited clinic in baseline					0.00	0.00
					(0.02)	(0.01)
Area fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Raw control mean in endline	0.70	0.70				
Adj. R-sq	0.19	0.02	0.08	0.03	0.19	0.01
N	1520	12160	3040	15200	1520	12160

Notes: Treatment indicates if some residents of the brothel were invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10%, ** significant at 5%, *** significant at 1%. Unlike the other tables, sample in this table contains the universe of sex workers in our three study red-light districts who were aged 35 years or less at the time of our baseline in Feb-Apr'12, and registered at the clinic by end 2011. This data was provided to us in anonymized format for confidentiality reasons (since it included sensitive STD test information), and hence we could not match it to the specific participants in our study sample. We know which brothel each sex worker lived in, hence present results for all sex workers living in our treatment brothels relative to control brothels during this time. Intervention took place Oct-Dec'12. Column 1 reports relative differences between treatment and control during period of endline survey up to 3 months after program ended (Jan-Mar'13), Column 2 reports the same for up to 21 months after program ended (Jan'13-Sep'14). Column 3 reports differences-in-differences estimates using period just after baseline survey (Apr-June'12) i.e. up to 6 months before and period of endline survey (Jan-Mar'13) which was upto 3 months after. Column 4 reports the same for up to 6 months before program started (Apr-Sep'12) and up to 21 months after it ended (Jan'13-Sep'14). Columns 5-6 uses the same timelines as in Columns 1-2 but presents ANCOVA results that control for the baseline values of the outcome variable. The dependent variable is a dummy that equals 1 if the participant visited the clinic at least once in every 3 month period, and zero otherwise.

Appendix

A Additional Figures and Tables
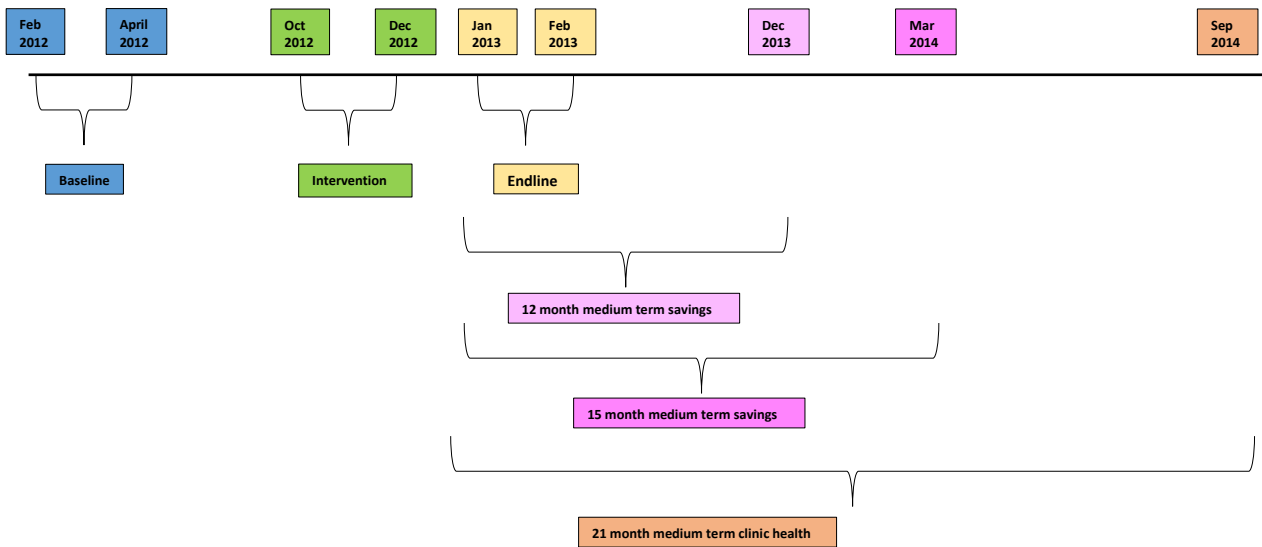
Figure 5: Project Timeline Flowchart

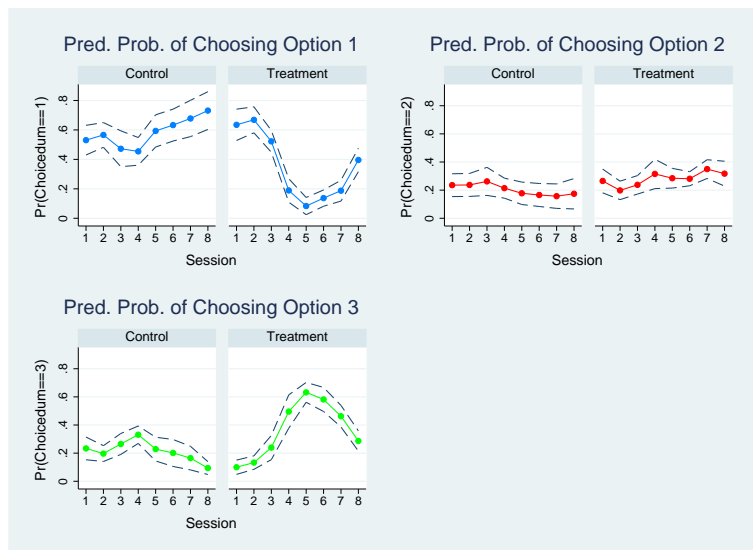Figure 6: Probability of Choosing Option 1, 2 or 3 using Multinomial Logit

Table A1: Program Impact on Proxies of Self-Image, with Baseline Controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A: Endline				Panel B: Diff-in-diff			
	Shame	Ability to face challenges	Self-worth	Comfort in public	Shame	Ability to face challenges	Self-worth	Comfort in public
Treatment	-0.40***	0.39***	0.68***	0.31***	-0.05	-0.01	0.06	-0.05
	(0.04)	(0.10)	(0.04)	(0.09)	(0.05)	(0.10)	(0.04)	(0.09)
Post					-0.10*	-0.10	0.08*	-0.12
					(0.05)	(0.10)	(0.04)	(0.09)
Treatment*Post					-0.35***	0.48***	0.62***	0.41***
					(0.06)	(0.13)	(0.05)	(0.12)
Area fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-sq	0.17	0.05	0.45	0.05	0.19	0.05	0.42	0.07
N	405	412	410	412	844	848	845	848

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10%, ** significant at 5%, *** significant at 1%. Columns 1-4 report differences between treatment and control using endline survey while Columns 5-8 use differences-in-differences. See text in Sections 5.2.1 and 5.2.2 for details on the various dependent variables. Baseline controls include age, education, religion, marital status, whether or not has fixed client, contract, whether or not member of the NGO, whether or not has bank account and log of reported monthly income.

Table A2: Program Impact on Other Psychological Outcomes, with Baseline Controls

	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: Endline			Panel B: Diff-in-diff		
	Happiness	Aspiration	Decision-making	Happiness	Aspiration	Decision-making
Treatment	0.10*	0.01	0.04	0.03	-0.03	0.04
	(0.05)	(0.04)	(0.11)	(0.05)	(0.04)	(0.09)
Post				0.01	-0.00	0.12
				(0.04)	(0.03)	(0.10)
Treatment*Post				0.09	0.04	0.01
				(0.07)	(0.05)	(0.14)
Area fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-sq	-0.00	0.01	-0.01	0.01	0.04	0.00
N	412	409	412	849	845	848

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10%, ** significant at 5%, *** significant at 1%. Columns 1-4 report differences between treatment and control using endline survey while Columns 5-8 use differences-in-differences. See text in Sections 5.2.1 and 5.2.2 for details on the various dependent variables. Baseline controls include age, education, religion, marital status, whether or not has fixed client, contract, whether or not member of the NGO, whether or not has bank account and log of reported monthly income.

Table A3: Program Impact on Savings Product Choices, by Baseline Religion

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dummy=1 if Current Account chosen							
Sessions:	1	2	3	4	5	6	7	8
Treatment	0.08	0.08	0.04	-0.23***	-0.50***	-0.50***	-0.48***	-0.35***
	(0.07)	(0.07)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	(0.06)
Treat*Muslim	-0.00	0.07	0.09	-0.10	-0.10	-0.03	-0.08	-0.12
	(0.15)	(0.15)	(0.12)	(0.11)	(0.11)	(0.12)	(0.09)	(0.11)
Muslim	0.03	-0.03	-0.05	0.04	0.15	0.09	0.17**	0.18**
	(0.12)	(0.12)	(0.10)	(0.10)	(0.10)	(0.10)	(0.07)	(0.08)
Adj. R-sq	0.00	0.01	0.07	0.20	0.36	0.31	0.32	0.14
N	448	432	434	427	412	394	396	361

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10%, ** significant at 5%, *** significant at 1%. The dependent variable is a dummy which equals 1 if the participant chooses payment as an injection to the current account and 0 if she chooses it as an injection into a fixed deposit account.

Table A4: Program Impact on Saving Product Choices, by Baseline Contracts

	(1)	(2)	(3)
	Dummy=1 if Current Account chosen		
Treatment	-0.22***	-0.08	-0.08
	(0.05)	(0.10)	(0.10)
Treatment*Self-employed		-0.12	-0.12
		(0.12)	(0.11)
Treatment*Flying		-0.20	-0.19
		(0.12)	(0.12)
Self-employed		0.06	0.06
		(0.11)	(0.11)
Flying		0.10	0.10
		(0.11)	(0.11)
Area fixed effects	Yes	Yes	Yes
Session fixed effects	No	No	Yes
Adj. R-sq	0.09	0.09	0.15
N	3304	3186	3186

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10%, ** significant at 5%, *** significant at 1%. Columns 1-2 report differences in choices made between treatment and control across all sessions of the training program, while Column 3 includes session fixed effects in order to estimate the treatment effect within session. The dependent variable is a dummy which equals 1 if the participant chooses payment as an injection to the current account and 0 if she chooses it as an injection into a fixed deposit account. The omitted contract category is *adhiya*.

Table A5: Summary Statistics - Individual Characteristics at Baseline, excluding Bowbazar

	Control	Treatment	Difference
Age (years)	34.10	32.98	1.12
	(8.23)	(7.72)	[1.62]
Muslim (%)	0.17	0.20	-0.03
	(0.37)	(0.40)	[0.05]
Low caste (%)	0.39	0.38	0.02
	(0.49)	(0.49)	[0.05]
Education (years)	2.43	1.92	0.51
	(3.06)	(3.10)	[0.48]
Has fixed client (%)	0.26	0.29	-0.03
	(0.44)	(0.46)	[0.06]
Years in profession	10.77	10.17	0.59
	(9.23)	(8.06)	[1.39]
Adhiya contract (%)	0.11	0.22	-0.11
	(0.31)	(0.41)	[0.07]
Self-employed contract (%)	0.64	0.56	0.07
	(0.48)	(0.50)	[0.09]
Flying contract (%)	0.25	0.22	0.04
	(0.44)	(0.41)	[0.08]
Rate per sex act (w/ condom, Rs.)	142.47	129.74	12.72
	(159.87)	(59.27)	[16.10]
Rate per sex act (w/o condom, Rs.)	248.75	175.00	73.75
	(106.96)	(35.36)	[73.33]
No. of customers per day	2.84	3.00	-0.16
	(0.84)	(1.16)	[0.16]
Monthly income (Rs.)	8283.41	9267.95	-984.53
	(4167.96)	(7544.67)	[884.83]
Uses condom (%)	1.00	1.00	0.00
	(0.00)	(0.00)	[0.00]
Member of Durbar (%)	0.82	0.81	0.01
	(0.39)	(0.39)	[0.05]
Has bank a/c (%)	0.58	0.57	0.01
	(0.50)	(0.50)	[0.06]

Notes: The sample contains sex workers in Kalighat and Chetla who are surveyed at baseline. Standard deviations are in parentheses. Standard errors, clustered at the brothel level, are in brackets. * significant at 10%, **

significant at 5%, *** significant at 1%. Default group for religion is Hindu and for caste is High Caste. Education refers to years of completed education. *Adhiya* contract implies that the sex worker is in a sharing contract where she splits her monthly earnings 50:50 with the landlady of the brothel. Self-employed contract, the omitted group here, implies that the sex worker pays the landlady a fixed rent from her monthly earnings and keeps the rest for herself. Flying contract implies that the sex worker does not reside in the brothels but comes to work there from outside the red-light area. Bank account refers to having account with USHA, the NGO's banking arm.

Table A6: Summary Statistics - Means of Key Dependent Variables at Baseline, excluding Bowbazar

	Control	Treatment	Difference
Shame (0/1)	0.65	0.56	0.09
	(0.48)	(0.50)	[0.07]
Self-worth (0/1)	0.12	0.17	-0.06
	(0.33)	(0.38)	[0.04]
Ability to face challenges raw score (0-1)	0.37	0.37	0.00
	(0.24)	(0.23)	[0.04]
Ability to face challenges z-score	-0.27	-0.27	0.01
	(0.98)	(0.95)	[0.14]
Comfort in public raw score (0-1)	0.42	0.41	0.01
	(0.27)	(0.27)	[0.03]
Comfort in public z-score	0.02	0.00	0.02
	(0.99)	(1.00)	[0.13]
Happiness (0/1)	0.47	0.44	0.03
	(0.50)	(0.50)	[0.08]
Aspiration (0/1)	0.70	0.69	0.00
	(0.46)	(0.46)	[0.07]
Decision-making raw score (0-1)	0.77	0.79	-0.01
	(0.14)	(0.13)	[0.02]
Decision-making z-score	-0.09	0.00	-0.09
	(0.91)	(0.89)	[0.12]
Visited doctor in health clinic (0/1)	0.82	0.86	-0.04
	(0.39)	(0.34)	[0.05]

Notes: The sample contains sex workers in Kalighat and Chetla who are surveyed at baseline. Standard deviations are in parentheses. Standard errors, clustered at the brothel level, are in brackets. * significant at 10%, ** significant at 5%, *** significant at 1%. See text in Sections 5.2.1 and 5.2.2 for details on the various dependent variables.

Table A7: Program Impact on Proxies of Self-Image: ANCOVA Results

	(1)	(2)	(3)	(4)
	Shame	Self-worth	Ability to face challenges	Comfort in public
Treatment	-0.40***	0.68***	0.43***	0.30***
	(0.04)	(0.04)	(0.09)	(0.09)
Shame at baseline	0.03			
	(0.04)			
Self-worth at baseline		0.00		
		(0.05)		
Ability to face challenges at baseline			0.09	
			(0.06)	
Comfort in public at baseline				0.06
				(0.06)
Area fixed effects	Yes	Yes	Yes	Yes
Adj. R-sq	0.17	0.47	0.05	0.04
N	424	429	429	429

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10%, ** significant at 5%, *** significant at 1%. See text in Sections 5.2.1 and 5.2.2 for details on the various dependent variables.

Table A8: Program Impact on Other Psychological Outcomes: ANCOVA Results

	(1)	(2)	(3)
	Happiness	Aspiration	Decision-making
Treatment	0.11**	0.03	0.05
	(0.05)	(0.04)	(0.10)
Happiness at baseline	0.03		
	(0.05)		
Aspiration at baseline		0.05	
		(0.04)	
Decision-making at baseline			-0.03
			(0.06)
Area fixed effects	Yes	Yes	Yes
Adj. R-sq	0.01	0.01	-0.01
N	430	426	429

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the house level. * significant at 10%, ** significant at 5%, *** significant at 1%. See text in Sections 5.2.1 and 5.2.2 for details on the various dependent variables.

Table A9: Program Impact on Various Outcomes: SUR Analysis

	Treatment
Shame	-0.42***
Self-worth	0.71***
Ability to face challenges	0.46***
Comfort in public	0.30***
Happiness	0.15***
Aspiration	0.04
Decision-making	0.02
Visited health clinic	0.10***
Joint test (*p*-value)	0.00

Notes: SUR estimation of the impact of program on various psychological variables and health seeking behaviour, listed on the left. See text in Sections 5.2.1 and 5.2.2 for details on the various dependent variables. Treatment indicates if individual was invited to training workshop. * significant at 10%, ** significant at 5%, *** significant at 1%. The last row shows the joint significance of the coefficients from SUR estimation.

Table A10: Adjusting for Multiple Hypothesis Testing using Anderson (2008) for Composite Summary Index

	(1)	(2)
	Panel A: Endline	Panel B: Diff-in-diff
	Combined index	Combined index
Treatment	0.31***	0.03
	(0.03)	(0.03)
Post		0.06*
		(0.03)
Treatment*Post		0.27***
		(0.04)
Area fixed effects	Yes	Yes
Adj. R-sq	0.27	0.25
N	406	851

Notes: Treatment indicates if individual was invited to training workshop. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10%, ** significant at 5%, *** significant at 1%. Columns 1and 2 use differences-in-differences. This table uses the method from Anderson (2008) to adjust for multiple hypothesis testing. "Combined index" is a composite psychological index constructed using all 7 psychological variables. See text in Sections 5.2.1 and 5.2.2 for further details on the relevant individual dependent variables.

Table A11: Program Impact on Saving Product Choices, by Baseline Savings

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dummy=1 if Current Account chosen							
Sessions:	1	2	3	4	5	6	7	8
Treatment	0.07	0.02	-0.01	-0.30***	-0.53***	-0.46***	-0.51***	-0.33***
	(0.09)	(0.09)	(0.08)	(0.08)	(0.07)	(0.07)	(0.08)	(0.08)
Treatment*has savings	0.03	0.18	0.15	0.10	0.04	-0.09	0.06	-0.08
	(0.10)	(0.11)	(0.10)	(0.10)	(0.09)	(0.08)	(0.09)	(0.09)
Has savings	0.00	-0.05	-0.10	-0.07	-0.04	0.06	-0.05	0.01
	(0.08)	(0.08)	(0.09)	(0.08)	(0.08)	(0.07)	(0.07)	(0.07)
Adj. R-sq	0.00	0.02	0.08	0.20	0.35	0.31	0.31	0.13
N	448	432	434	427	412	394	396	361

Notes: Treatment indicates if individual was invited to training workshop. The dependent variable is a dummy which equals 1 if the participant chooses payment as an injection to the current account and 0 if she chooses it as an injection into a fixed deposit account. Standard errors, in parentheses, are clustered at the house level. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. "Has savings" is a binary variable measuring whether or not the individual had non-zero savings at baseline.

Table A12: Program Impact on Saving Product Choices, by Location

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dummy=1 if Current Account chosen							
Sessions:	1	2	3	4	5	6	7	8
Treatment*Kalighat	0.05	0.11	0.29***	-0.13	-0.62***	-0.60***	-0.68***	-0.58***
	(0.11)	(0.09)	(0.08)	(0.08)	(0.10)	(0.10)	(0.07)	(0.10)
Treatment*Bowbazar	0.06	0.10	-0.04	-0.35***	-0.52***	-0.54***	-0.48***	-0.26***
	(0.10)	(0.10)	(0.10)	(0.09)	(0.09)	(0.08)	(0.09)	(0.08)
Treatment*Chetla	0.19	0.04	-0.02	-0.16**	-0.32***	-0.19**	-0.19	-0.44***
	(0.12)	(0.10)	(0.10)	(0.08)	(0.10)	(0.09)	(0.12)	(0.16)
Kalighat	0.14	0.00	-0.26***	-0.02	0.30**	0.31**	0.36***	0.19
	(0.13)	(0.09)	(0.09)	(0.09)	(0.14)	(0.12)	(0.12)	(0.14)
Bowbazar	0.19	0.11	0.25**	0.41***	0.34***	0.40***	0.43***	-0.01
	(0.12)	(0.10)	(0.11)	(0.09)	(0.12)	(0.10)	(0.13)	(0.16)
Constant	0.41***	0.52***	0.41***	0.24***	0.33***	0.33***	0.35***	0.73***
	(0.09)	(0.06)	(0.08)	(0.06)	(0.10)	(0.08)	(0.11)	(0.14)
Adj. R-sq	0.00	0.01	0.09	0.21	0.36	0.33	0.34	0.15
N	448	432	434	427	412	394	396	361

Notes: Treatment indicates if individual was invited to training workshop. The dependent variable is a dummy which equals 1 if the participant chooses payment as an injection to the current account and 0 if she chooses it as an injection into a fixed deposit account. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent.

Table A13: Program Impact on Income and No. of Clients

	(1)	(2)	(3)	(4)
	Log(income)		No. of clients	
Treatment	0.10	-0.05	0.16	0.20
	(0.07)	(0.08)	(0.14)	(0.53)
Post		-0.03		-0.91***
		(0.08)		(0.16)
Treatment*Post		0.15		0.04
		(0.10)		(0.50)
Area fixed effects	Yes	Yes	Yes	Yes
Adj. R-sq	0.00	0.00	0.00	0.01
N	422	876	388	755

Notes: Treatment indicates if individual was invited to training workshop. The dependent variable for Columns 1 and 2 is the natural log of monthly income in Rupees. The dependent variable for Columns 3 and 4 is the number of clients serviced by the sex worker on the previous day. Standard errors, in parentheses, are clustered at the brothel level. * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent.

B Theoretical Model

It is fair to say that our key empirical findings do not neatly fit into a conventional rational choice framework: Sex workers – both in the treatment group (initially) and in the control group – invest in the dominated current account option, despite its lower return and no penalty to breaking the fixed deposit investment. Also, with regard to the psychological intervention we evaluate, there is no rational reason why (changes to) a person's self-image should influence her decisions.

In this section, we outline a framework to show how (a) self-image impacts on choices due to a 'fear of failure' to accomplish tasks undertaken, (b) when the individual internalizes a negative self-imapge due to stigma, this leads to can lead to sub-optimal choices,

To see this more concretely, consider a three period world ($t = 0, 1, 2$) where an individual must make a decision about an investment opportunity that presents itself today, at $t = 0$. This opportunity could be of a financial nature, or it could be related to skill development or improving long-term health. A key feature is that the gain from this activity is deferred to two periods from today, while the likelihood of realizing this gain depends upon an individual's ability to persist with this investment in the face of challenges, in the interim period ($t = 1$). For simplicity, we will assume that she is sure to face one or more such challenges next period ($t = 1$).

The action chosen by the individual (corresponding to the investment decision at $t = 0$) is denoted by $e \in \{0, 1\}$ that the individual chooses today (invest or not). Self-image is modelled as a belief that an individual has about her own ability to persist in the face of challenges and is indexed by $\alpha \in [0, 1]$. In the model, we make the simplifying assumption that ability is entirely determined by self-image. Of course, an individual's ability will be determined by a range of other factors as well. However, our assumption allows us to simplify the exposition of the theoretical model while focusing on the role played by self-image in determining the perceived ability.

Choosing $e = 1$ commits a unit of initial resources (say wealth, or health) to the investment opportunity and yields her a return $(1 + R)$ $(R > 0)$ at $t = 2$ provided she successfully perseveres against the period 1 challenge; otherwise, she simply ends up where she started at $t = 0$, i.e. with a return of 1. Thus, when she chooses $e = 1$, her expected return from the investment, as a function of her beliefs at $t = 0$, is: $\alpha(1 + R) + (1 - \alpha) > 1$.

Individual utility has two components. The first component depends on the returns from investment in wealth, skill or health described above; the utility from material gains is represented by $u(.)$.[31] We call this component the material payoffs of the individual.

There is a second belief-dependent component to individual utility, which captures the

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[31]Although these returns are realized at $t = 2$, we assume no discounting of such later returns, purely for simplicity of exposition.

idea that individual actions result in psychological payoffs that reflect whether or not the individual successfully perseveres in the face of adversity or fails to do so. Formally, we consider v, an psychological belief-dependent payoff function, elaborated as follows:

$$v(\alpha) = \begin{cases} 0, \text{if } e = 0 \\ B > 0, \, if \, e = 1 \text{ and } w_1 = w_0(1 + R) \\ -C(\alpha) < 0, \, if \, e = 1 \text{ and } w_1 = w_0 \end{cases}$$

The weight that an individual attaches to this psychological component of utility, $\pi(\alpha)$, is a decreasing function of $\alpha \in [0, 1]$ with $\pi(0) = 1$ and $\pi(1) = 0$: the lower her self-image, the higher is this weight The direct utility cost of failure is assumed to be a function of the individuals self-image. Specifically, the lower the self-image, the higher the cost so that $-C(\alpha) > -C(\alpha'), \alpha < \alpha', \alpha, \alpha' \in [0, 1]$ with $C(0) > B > C(1) = 0$. The key point is that the lower her self-image, the higher is the utility cost associated with the 'fear of failure'.

When the individual chooses $e = 0$, the utility of the individual is belief independent and simply depends on the initial endowment of the individual given by $U_0 = u(w_0)$.

Given the features of a person's utility, her ex-ante utility when she is chooses to invest $(e = 1)$ is:

$$U_1(\alpha) \equiv \alpha u(w_0(1 + R)) + (1 - \alpha)u(w_0) + \pi(\alpha)[\alpha B - (1 - \alpha)C(\alpha)]$$

In the above set of expressions, note that a person's utility level is lower when she chooses to invest but fails to achieve her goal, than when she chooses not to invest at all. When $v(0) = -C(0)$, the expression captures her disappointment that her final outcome does not live up to her (higher) expectations. When α is low in value, (so that $\pi(\alpha)$ is close to one) this leads to a 'fear of failure', especially among those with a low self-image, who may therefore choose not to invest at all – despite the higher expected *material* returns from investment. Of course, a person who chooses to invest $(e = 1)$ at $t = 0$ and manages to persevere in the face of the period 1 challenge ends up at the highest possible utility level and an associated ego boost, above those who don't invest as well as those who invest at $t = 0$ and do not overcome this challenge.

Taking these various possible outcome scenarios into account, in a world with discrete effort (action) choices, a person will therefore choose to invest in this opportunity $(e = 1)$ iff $U_1(\alpha) \geq U_0 = u(w_0)$ i.e.

$$\alpha u(w_0(1 + R)) + (1 - \alpha)u(w_0) + \pi(\alpha)[\alpha B - (1 - \alpha)C(\alpha)] \geq u(w_0)$$

The following result summarizes the key features of the model:

Result. Assume that $-\frac{\pi(\alpha)}{\alpha\pi(\alpha)} \geq 1$. Then, $U_1(\widetilde{\alpha})$ is an increasing, continuous function of α.

Therefore, there exists a threshold level of personal adequacy in one's self-image $\overline{\alpha}$, $0 < \overline{\alpha} < 1$, such that when $\alpha \geq \overline{\alpha}$, $e = 1$ and when $\alpha < \overline{\alpha}$, $e = 0$. Furthermore, if $\pi''(\alpha) < 0$ and $C''(\alpha)0$, for values of α in the vicinity of 0, $U_1''(\alpha) > 0$.

Proof. By computation, it follows that

$$\frac{\partial U_1(\alpha)}{\partial \alpha} = u(w_0(1+R)) - u(w_0) + [\pi'(\alpha)\alpha + \pi(\alpha)]\,[B + C(\alpha)]$$
$$-\pi'(\alpha)C(\alpha) + \pi(\alpha)C'(\alpha)(1-\alpha).$$

As $B > 0, C(\alpha), \pi(\alpha) \geq 0$, $C'(\alpha) > 0$ and $\pi'(\alpha) < 0$, it follows that $\frac{\partial U_1(\alpha)}{\partial \alpha} > 0$ as long as $[\pi'(\alpha)\alpha + \pi(\alpha)] \geq 0$ which is equivalent to requiring that $-\frac{\pi(\alpha)}{\alpha\pi(\alpha)} \geq 1$. As $U_1(0) < U_0 < U_1(1)$, it follows that there exists a threshold level self-image $\overline{\alpha}, 0 < \overline{\alpha} < 1$, such that when $\alpha \geq \overline{\alpha}$ the individual with a high self-image will choose to invest ($e = 1$), but those whose self-image falls short of this threshold (with a low self-image) will not ($e = 0$).

Next, by computation, note that

$$\frac{\partial^2 U_1(\alpha)}{\partial \alpha^2} = [\pi''(\alpha)\alpha + 2\pi(\alpha)]\,[B + C(\alpha)] + [\pi'(\alpha)\alpha + \pi(\alpha)]C'(\alpha)$$
$$-\pi''(\alpha)C(\alpha) - \pi'(\alpha)C'(\alpha) + \pi'(\alpha)C'(\alpha)(1-\alpha)$$
$$+\pi(\alpha)[C''(\alpha)(1-\alpha) - C'(\alpha)]$$

Simplifying and rearranging terms we obtain:

$$\frac{\partial^2 U_1(\alpha)}{\partial \alpha^2} = -\pi''(\alpha)[\alpha B - (1-\alpha)C(\alpha)] + 2\pi(\alpha)C(\alpha) + C''(\alpha)(1-\alpha)$$

As $C''(\alpha) \geq 0$, $C''(\alpha)(1-\alpha) \geq 0$; moreover, $2\pi(\alpha)C(\alpha) \geq 0$. Further, when α is close enough to zero, $\alpha B - (1-\alpha)C < 0$, so that $-\pi''(\alpha)[\alpha B - (1-\alpha)C] > 0$ if $\pi''(\alpha) > 0$. Then, $\frac{\partial^2 U_1(\alpha)}{\partial \alpha^2} \geq 0$ for α close enough to zero. ∎

The condition that $-\frac{\pi(\alpha)}{\alpha\pi(\alpha)} > 1$ is a restriction on the elasticity of the weight (attached to psychological payoffs) with respect to self-image. The requirement that $\pi(\alpha)$ has a elasticity greater than one (the weight attached to psychological payoffs is very responsive to small changes in self-image) ensures that there is complementarity between self-image α and action taken at $t = 0$. It also implies that the single-crossing condition is satisfied. Another implication of this condition is that $U_1(\alpha)$ is convex in α for values of α in the vicinity of zero. Hence, for a small change in self-image, the marginal benefit of investing is highest for those individuals with the lowest initial self-image.

In the above analysis, we could assume that self-image depends entirely on a socially generated signal $\widetilde{\alpha}$ (i.e. $\alpha = \widetilde{\alpha}$) (stigma resulting in low self-image). If the individual belongs

to a marginalised group then the stigmatised individual receives a social signal that is consistent with a low self-image (stigma). Consistent with Akerlof and Kranton (2000), as the pyschological cost of failure, $C(.)$ is an increasing function, when a marginalised group is stigmatised (so that stigma is part of the group's identity) resulting in a low self-image for all its members, individual's in the stigmatised group choose low effort.

Alternatively, we could also consider the plausible scenario where effort e and self-image $\widetilde{\alpha}$ are required to be mutually consistent. In other words, the action chosen by the person also affects her self-image (e.g. "I invest, hence I'm a person who takes charge of her life) through the realized outcome which, in turn, impacts on the social generated signal she receives both from intra-group (other members of the marginalised group) and inter-group interaction (the mainstream of the society in which the individual lives). Then, our stylized model leads to multiple equilibria[32], where $(e = 1, \widetilde{\alpha} = \alpha_H)$ is one possible self-fulling outcome and $(e = 0, \widetilde{\alpha} = \alpha_L)$ is the other. Notice that $[0, \overline{\alpha})$ is the basin of attraction for the welfare dominated equilibrium $(e = 0, \widetilde{\alpha} = \alpha_L)$ and $(\overline{\alpha}, 1]$ is the basin of attraction for the welfare optimal equilibrium $(e = 1, \widetilde{\alpha} = \alpha_H)$. Therefore, whenever the initial social signal is $\widetilde{\alpha} \in [0, \overline{\alpha})$ (respectively, $\widetilde{\alpha} \in (\overline{\alpha}, 1]$) then the individual converges on the welfare dominated (respectively, welfare dominant) equilibrium.[33] The welfare dominated self-fulfilling scenario can be interpreted as corresponding to the notion of self-fulfilling pessimism described by Loury (1999) justifying statistical discrimination.

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[32]The multiple equilibria feature of the stylized model recalls a simillar feature for the Bravery Game, introduced in Geanakoplos et al. (1989), where the preferences of the only active player depends on the beliefs of the other player.

[33]The welfare dominated equilibrium is a particular instance of a personal equilibrium (Köszegi, 2010) or a self-fulfilling mistake (Dalton and Ghosal, 2017).