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Menstrual Health, Worker Productivity and Well-being among Female Bangladeshi Garment Workers

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Abstract

We conducted a randomised controlled trial (RCT) on a sample of 1,000 female garment workers in three factories in Bangladesh, offering access to free sanitary pads at work to 500 of the workers. We cross-randomised participation in information sessions for hygienic menstrual health care implemented by an experienced local NGO, and we vary the salience of commonly perceived taboos in the pad collection process. We find effects of the free pads and information sessions on self-reported pad use, but not of the taboo variations. We find effects on absenteeism and adherence to traditional restrictive and health-adverse taboos surrounding menstruation, but not on worker turnover or self-reported well-being at work.

PRELIMINARY VERSION: The trial is currently being repeated between September 2019 and April 2020, with an additional 1,000 workers to reach the final targeted sample size.

Keywords: Menstrual Health, Taboos, Productivity, Export Manufacturing
JEL Code: O14, O15, O35, M54, J32, J81

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1 Introduction

The importance of menstrual health in affecting the work, well-being, earning capabilities and other aspects of women's lives in poor countries has recently been recognised in development economics. While the evidence on whether women's work lives in richer countries are affected by the menstrual cycle is inconclusive (Ichino and Moretti (2009); Sullivan (2011); Herrmann and Rockoff (2012, 2013)), there are many reasons to believe that poorer women in developing countries are affected more strongly. They often lack access to hygiene products to manage their period, resulting in potentially severe health risks (Ahmed and Yesmin (2008); Sumpter and Torondel (2013); Hulland et al. (2015); Garikipati and Boudot (2017); Kaur et al. (2018)). These women are also subject to widespread taboos and stigmatisation of menstruation, hindering their access to information and products for adequate menstrual health management (Ali and Rizvi (2010); McMahon et al. (2011); Crichton et al. (2013); Mason et al. (2013)).

The literature on menstrual health and development so far has had a strong focus on whether adolescent girls drop out of school when they reach menarche, limiting human capital accumulation (El-Gilany et al. (2005); Oster and Thornton (2011); Montgomery et al. (2012, 2016); Alam et al. (2017); Girod et al. (2017); van Eijk et al. (2017); Benshaul-Tolonen et al. (2019); Khanna (2019)). The severity of this problem seems to vary substantially across countries, though broadly improving over time.

Less is known about how limited access to menstrual health products affects working women in poor countries. This question is important because absenteeism or low productivity could translate more imminently into earnings on the job. Furthermore, secondary schooling rates are still low in many developing countries, particularly among girls.[1] Nevertheless, many of the girls missing out on education still participate in the labour force later on, as they are often from the poorest segments of society. Thus, working women constitute a different population

[1]For example, secondary schooling rates for girls are 73 percent in Bangladesh in 2017, and only 38 percent among all low income countries across the world in 2017 (data.worldbank.org).

than adolescent school girls for research on menstruation, productivity, health and well-being.[2]

We present the results from a randomised trial in which poor working women in Bangladesh are provided with either free hygienic menstrual health products (disposable sanitary pads), information on the importance of hygienic menstrual health management (henceforth MHM) for their overall health and well-being, or both. This trial mirrors randomised trials that provide free MHM products to school girls (Oster and Thornton (2011); Montgomery et al. (2012, 2016); Benshaul-Tolonen et al. (2019)), but is, to the best of our knowledge, the first that targets working women.[3] More specifically, the trial is conducted at three large export-oriented garment factories in Bangladesh, which provide an ideal setting for this study as these factories predominantly employ female migrant workers, who earn around 80-160USD per month for full time work. The Bangladeshi garment sector is the second largest in the world, employing more than four million workers over more than 4,000 factories, while paying among the lowest wages among the garment export sectors in the world (ILO (2014)). Nevertheless, the opportunity for women, even without formal skills, to find work in the sector has been credited with marked improvements in their socio-economic position in the country (Heath and Mobarak (2015)), similar to what has been shown for other export manufacturing sectors in developing countries around the world (Atkin (2017); Getahun and Villanger (2018); Tanaka (forthcoming)).

In our sample, 41 percent of women report using disposable sanitary pads regularly at baseline, while another 9 percent report using them occasionally, with the remainder using "traditional" MHM remedies such as old cloth, rags, or tissue paper. The randomised trial is designed to relax independently the main potential constraints to widespread adoption of

[2]An exception to the general scarcity of research on the link between menstrual health and work life in developing countries are Krenz and Strulik (2019), who find that in Burkina Faso, access to sanitary pads reduces work absenteeism by around 20 percent, using propensity score matching. Sommer et al. (2016) make the case for more research in this area from a broader policy perspective. Also, Garikipati and Boudot (2017) stress that the most vulnerable populations in developing countries to lack access to good menstrual health products may not be schoolgirls anymore but rather marginalised communities beyond school age, particularly in the South Asian context.

[3]It also differs from the first two trials as they provided menstrual cups and reusable pads, respectively, while our trial provided disposable sanitary pads. Benshaul-Tolonen et al. (2019) provide both sanitary pads and menstrual cups in different treatment arms. However, in our study we focused on providing the most commonly known "modern" menstrual product in our setting, disposable sanitary pads, to maximise take-up, and did not attempt to compare the effectiveness of different MHM products.

sanitary pads by the workers. After extensive discussions with relevant NGOs and experts in our setting, we identified three main constraints: financial burden, lack of information and stigmatisation.[4] First, we relax financial constraints through the provision of free sanitary pads at the workplace. Second, we relax information constraints through information and awareness sessions implemented by an experienced NGO that has conducted such sessions for many years in garment factories in Bangladesh. Third, we relax stigma-related constraints, which we address through variations in each of the two main treatments arms. In the free-pads treatment arm we vary exogenously whether the pads can be collected from a male or female distribution worker. This mirrors the widespread concern in the country that women do not like to buy pads in the shops that sell them, because they are predominantly staffed by men. Meanwhile, in the information sessions, we randomly vary their information content. While half of the sessions focus on the message that using hygienic MHM products improves workers' health, the other half has an additional module stressing that sanitary pads have a better absorbing capacity than traditional materials used during the menstrual cycle, such as cloth. Therefore, they reduce the risk of "embarrassing" leakage which would reveal that a worker has her period to others, a main concern reported by workers during preliminary work in our setting.[5] Thus, we can test whether a stigma-reduction message has a different effect on worker's MHM compared to a health-improvement message.

We find that, half a year after the information sessions and availability of free pads in the time in between, the workers with access to free pads are 10 percentage points more likely to report using pads, regardless of whether they also attend the information session. The workers who only attend the information session but did not have access to free pads are 6-7 percentage points more likely to report using pads. Among workers who report not using pads at baseline and are still at the factory for the follow-up survey, the effects are 22 and 13 percentage points,

[4]These experts are based at BRAC University, the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), Business for Social Responsibility™ HERProject, SNV Netherlands Development Organisation, and Phulki.

[5]The fear of revealing one's menstrual status to others, particularly to males, is also widely reported in studies on MHM among school girls, e.g. in WaterAid (2009).

respectively. Regarding further downstream outcomes, we find that workers who have only access to free pads, or who have only attended the information session, have 15 percent and 25 percent fewer absent days at work, respectively. However, we do not find such an effect among workers who both have access to free pads and attend the information sessions. We also do not find statistically significant effects on earnings, overtime hours, worker turnover, or on self-reported well-being at work. We find that workers who have access to free pads have a higher willingness to pay for pads at follow-up (elicited through the incentivised Becker-DeGroot-Marschak mechanism), but those who have both the access to free pads and attend the information session do not.

Whether the information sessions contain the "stigma" module or not does not make a difference for either the self-reported use of pads or further downstream results, and, perhaps surprisingly, workers collect free pads from the male distribution worker at the same rate as from the female distribution worker. This suggests that these stigma-related constraints are not binding in this setting, at least in the particular way we relax them. However, in the follow-up survey we find that workers who attend the information sessions (with or without the stigma module) are less likely to agree with a number of common taboos surrounding menstruation in Bangladesh. For example, they report to adhere less to the taboo on drying the cloth used during the period outside in the sun after washing it. These effects show up both in response to questions on personal behaviours as well as on perceived social norms regarding such behaviours. The questions on social norms are incentivised for truthful revelation of these norms, to minimise desirability bias in answers.

Thus, increased awareness about good MHM practice and availability of free pads increase self-reported pad use, may reduce work absenteeism, and increase the valuation of pads. Furthermore, the information sessions, at a minimum, increase awareness about the harmfulness of traditional taboos surrounding menstruation. For example, the common taboo to not dry one's menstrual cloth outside in the sun after washing it is harmful because drying the cloth

inside (usually within cupboards to be hidden even from the view of family members) keeps it damp, and susceptible to fungus. Furthermore, UV light would disinfect the cloth, making its use more hygienic (Ahmed and Yesmin (2008)). We caution the reader that this trial has so far been run on a sample of 1,000 workers, and a second iteration of the trial with more than 1,000 additional workers from a different factory is planned to start in September 2019. Only with these workers added to the sample will we have reached the targeted sample size and statistical power of this study. We are planning to keep collecting administrative data from the Human Resource (HR) departments of the first three factories on absenteeism, turnover, overtime, and earnings. Thus, for these important outcome variables, our dataset will not only increase in the cross-section, but also along its longitudinal dimension.

The Bangladeshi garment export sector is an interesting and relevant setting to study the effects of workplace MHM interventions on worker outcomes and well-being, not only due to the millions of jobs it creates for poor migrant workers, who otherwise can typically only access informal, casual or family based employment. Even more, export manufacturing sectors across the world, while being credited with generating growth and poverty reduction (Harrison (2007); Berg et al. (2012); Haraguchi et al. (2017)), often struggle with high worker absenteeism and turnover rates. For example, Blattmann and Dercon (2018) find 77 percent annual turnover for factory jobs in Ethiopia, while for the Bangladeshi garment export sector, Menzel and Woodruff (2019) find daily absenteeism rates of 3-4 percent and monthly worker turnover rates of 5 percent.[6] Given the large number of female workers that export manufacturing employs around the world,[7] addressing one of their primary health needs, menstrual health, could lead to health improvements for many people in these countries and at the same time improve the productivity of these sectors, through reduced absenteeism rates and increased output on the job. Using detailed production data from a larger set of factories in Bangladesh, we estimate

[6]See also the consultancy reports McKinsey (2011) and Impactt (2011, 2012, 2013) for more evidence on relatively high absenteeism and turnover rates in the Bangladeshi, Indian, and Chinese garment export sectors.

[7]For example, in a sample of 70 large garment factories in Bangladesh employing around 108,000 workers, 73 percent of all workers are female (Menzel and Woodruff (2019)).

that the 20 percent reduction of absenteeism that we see on average in the groups of workers that either receive free pads or attend the information sessions would lead to a 0.8 percent increase in line output. We can use the average monthly worker wage of 115USD in our sample to obtain a lower bound of 0.90USD on the value of the increased output per worker from such a reduction in absenteeism. Given the costs of providing free pads to workers of less than 0.42USD per worker and month, investing into female workers menstrual health could bring significant returns for the factories.

Beyond menstrual health, this paper also contributes to a larger literature on adoption of health promoting behaviour in developing countries. For example, Luby et al. (2004), Hussam et al. (2017) and Bennett et al. (2018) all test for the effectiveness of interventions promoting more frequent hand washing in Bangladesh and Pakistan. Lack of information and lack of habit formation are shown to slow down the adoption of this crucial health behaviour. On the other hand, interventions designed to change social norms around this behaviour seem less effective in this setting (Guiteras et al. (2016)). Meanwhile, an information campaign regarding unsafe drinking water in Bangladesh, with a clear and directly associated health risk, leads to large and swift behaviour changes (Madajewicz et al. (2007)). Regarding other health related behaviour, Banerjee et al. (2010) test for the effect of a vaccination campaign, including financial incentives, in rural India, while Rhee et al. (2005) and Cohen and Dupas (2010) study take-up of anti-malaria nets, with the latter showing that even small "symbolic" prices can deter take-up. Due to the stigmatised nature of menstruation, our paper is also close to studies on other stigmatised health problems, such as HIV (De Walque (2007); Dupas (2011); LoPiccalo et al. (2016)). These papers point towards the effectiveness of information campaigns, even if their effectiveness may correlate with general education levels of the recipients. Our contribution to this literature is to look at the adoption of a different health product, sanitary pads. And while this health concern shares its stigmatised nature with HIV, the fact that we address an arguably less imminent, more long-run and also less novel health risk, could make the adjustment of associated restrictive

norms more challenging. Furthermore, menstrual health can be easily addressed by employers, who may directly benefit from doing so through reduced absenteeism, linking our study to the larger literature on management practices in developing countries (Bloom et al. (2012, 2013)). We furthermore aim to disentangle a more exhaustive list of possible constraints to adoption, namely financial, information, and taboo related constraints, while the above cited papers usually either focus on one of these constraints, or bundles of them which they struggle to separate.[8]

In the next section we present more details about the garment sector in Bangladesh, and the design of the randomised trial. We present the results on the adoption of pads in section 3 and the outcomes based on administrative data from the factories' HR departments in section 4. In section 5, we look at further self-reported outcomes regarding well-being, mobility, and social norms at the work-place and beyond. In section 6 we conclude.

2 Background and Data

The Bangladeshi garment sector emerged in the 1980s, and has grown rapidly ever since, employing more than four million workers today, more than 70 percent of whom are female (McKinsey (2011); Heath and Mobarak (2015); Menzel and Woodruff (2019)). Garment workers typically start working in the sector at the age of 18-20, and female workers largely leave the sector by the age of 30. One reason for that may be that unlike men, they have few opportunities to advance beyond basic sewing machine operator positions, e.g. to supervisor, quality inspector, or mechanic positions (Macchiavello et al. (2015); Menzel and Woodruff (2019)).

The sector is concentrated around the two largest cities of the country, Dhaka and Chittagong, and the majority of workers migrate to these industrial areas from the countryside. Factories are mostly locally owned and managed, and contract with international brands for

[8] Oster and Thornton (2012) analyse a complementary determinant of take-up of a menstrual product (menstrual cups) to ours, spill-over within social networks of women.

the production of garments such as t-shirts, dress-shirts, pants, or jackets. Starting wages for both men and women without higher education or sector specific experience is around 60-70USD per month to work for six days per week and 8-12 hours per day, depending on overtime run by the factories. On the other hand, an experienced sewing machine operator can earn around 150USD per month, depending again on overtime worked.

For this trial, we work with three factories in Bangladesh that expressed interest in participation. Two factories nominated 200 female workers each for the trial, while the third nominated 600. The factories each employ between 1,200-1,800 female workers. Table 1 summarises characteristics of the 1,000 female workers in the sample. For some of the variables, we can compare the averages from our sample with the averages from a survey of ca. 1,600 randomly-drawn female sewing operators from 70 other factories in Bangladesh, analysed in more detail in Menzel and Woodruff (2019). Workers in our sample are on average 24 years old and report to have spent on average 6.9 years in school, compared to 5.7 schooling years in the larger survey, where workers are on average 25 years old.[9] 82 percent report to be married, close to the number in the extended sample, while 63 percent report having children, somewhat less than in the extended sample. The larger sample was collected between 2012-2017, whereas the baseline survey for this project was done in 2018. Therefore the relatively modest differences could represent cohort effects, particularly as schooling extended rapidly in recent decades in the country. Workers report that on average 2.6 people live in their household (including the worker herself). Based on administrative data from the factories, at baseline they earn on average 8,400BDT per month with overtime pay included, around 100USD, and miss on average 0.6 days of work each month without excuse (being "absent") and another 0.15 days with medical excuse ("sick leave").[10] Given a standard month of 24 production days, this implies that 3 percent of female

[9]Six workers in our sample report to be 17 years old, and two workers 15 and 16 years old, respectively. National laws prohibit the employment of minors in the sector, but the country is lacking a consistent ID system to verify worker age, and widespread poverty is pushing minors to seek employment also in the garment sector. More advanced factories use medical checks by medically trained staff to estimate worker age, but this system remains imperfect.

[10]Note that half way through the pad distribution period, with the start of the year 2019, the minimum wage in the sector was increased, resulting in a new average pay in our sample of 115USD per month.

workers are absent on an average working day. Absenteeism values are significantly higher in the extended sample of 70 factories, where the combined absenteeism rate is around 5 percent. It is not immediately clear from the data what causes these differences.

Turning to menstrual health practices among the sample of workers for our study, 41 percent report to use sanitary pads regularly at work, while 50 percent report to have never used it, with the remaining 9 percent using a mix between modern and traditional products.[11] The self-reported use of pads is strongly negatively correlated with age or having children, and strongly positively correlated with education. These variables, however, are correlated among themselves, and in a regression of baseline pad use on all of these variables, age looses its statistical significance, while the other two remain significant predictors. Self-reported use at baseline is also positively correlated with willingness to pay for pads, as elicited via the incentive-compatible Becker-DeGroot-Marschak mechanism (Becker et al. (1964)). 13 percent of workers in the sample report having missed work in the past 12 months due to menstrual health related problems, with 4 percent reporting having missed work due to a lack of adequate MHM products. We suspect that these values may represent a lower bound to the true extent of menstrual health related absenteeism, given that the surveys were done on factory premises.[12] 80 percent of workers in our sample report feeling more tired at work during their period, 70 percent state that they struggle more to reach their work targets, and 58 percent report worrying that their absorbant leaks during work. Thus, in our setting menstrual health does affect self-reported worker well-being and productivity in a first-order way.

[11] The share of workers using pads regularly varies between 37 percent and 53 percent across the three factories in our sample. These numbers also fit with the 40 percent of workers who report to use pads during their last period at a baseline survey for an in-house evaluation of an MHM project by the NGO SNV in 20 Bangladeshi garment factories (SNV (2017)).

[12] Note however, that no factory staff was allowed into the rooms in which we conducted the surveys at the factories, and workers were told that no information at the individual level would be shared with the factory management.

2.1 Experimental Design

The randomised trial is designed to relax three main constraints to the broader use of modern hygienic MHM products: financial, information, and taboo related constraints. The basic design is a two-by-two trial with two cross-randomised main treatment arms, generating four treatment cells of equal size (250 workers per cell). All randomisation is stratified at the level of the three participating factories. The first main treatment arm is access to free sanitary pads at the factory premises, to relax the financial constraint. More precisely, workers randomised into this treatment can collect one pack of eight sanitary pads per month from the "medical rooms" of the factories during lunch-breaks, whose locations are typically well-known to workers.[13] All workers in the sample who do not receive access to free pads receive a placebo present (beauty kit) of comparable value, to counteract wealth effects on our outcomes. At the two factories that nominated 200 workers for the trial, the pads can be collected during two days of the week, while at the third factory that nominated 600 workers, they can be collected four days per week. The days in the week are always the same over time at the individual factories, to minimise confusion for workers. On the respective days, the pads can be collected from a distribution worker stationed in the medical room and employed by us for the project, who checks eligibility of the workers looking for pads, and hands out the pack of pads.

The second main treatment arm, addressing the information constraint, is the attendance of a 45 minute long information and awareness session conducted by the staff of an experienced NGO, which has conducted such sessions for many years in other garment factories in the country. The sessions are held during work time, so only workers absent from work on the days the sessions are held do not attend them (conditional on being randomised into this treatment). The sessions provide an anatomical background for what causes menstruation and stress the importance of hygienic MHM, either through the use of modern disposable absorbants

[13] We limit the number of free pads a worker can collect to one pack of eight pads per month, to reduce the possibility of workers sharing pads with others not randomised into this treatment, which would cause spill-overs that would bias downwards the estimates of our treatment effects.

(disposable sanitary pads) or through washing of reusable absorbants and subsequent drying of them in the sun. Furthermore, the sessions provide advice for remedies against period pain and for communicating about MHM with adolescent girls. The NGO generally provides these courses to a mixed audience of male and female workers, but for our project the sessions are held for a purely female audience, to minimise the project complexity and possible sources of distraction of the participants during the sessions.

Taboo based constraints are addressed through two variations in the two main treatment arms. In the free access to pads treatment, the medical room in which workers can collect the pads is staffed on one day per week by a male, and the other day by a female distribution worker (two days per week each in the factory with four distribution days). The days in the week with the male and female distribution workers are swapped each month, to avoid confounding the effect of the sex of the distribution worker on collection rates with day of the week effects. The basic outcome of interest is whether workers are more likely to collect the pads from the female distribution worker than from the male. This would be predicted by the widely held concern in the country that women do not adopt sanitary pads in larger numbers because the shops selling them are mainly staffed by males, with the taboo encompassing menstruation being more salient in cross-gender interactions.

The second way we address taboo-based constraints is by randomly varying the information content in the information and awareness sessions. While half of them (attended by around 20 workers per session) focus solely on the established medical and hygiene message of the NGO, the other half of the sessions contain an additional 10 minutes long module at the end, in which the teacher demonstrates the better absorbing capacity of sanitary pads compared to traditionally used cloth. For this test, actual pads, cloth and blue liquid are used, not unlike what is shown in TV adds for sanitary pads in Bangladesh and elsewhere. The teacher engages some workers from the audience in the trial, creating an interactive teaching experience, and stressing that using pads not only has health benefits but also reduces the risk of absorbant leakage, a main worry

of workers during their period, as already shown in the summary statistics above. Workers are randomised into whether they attend a session with or without this additional module, allowing us to test whether a message of minimising the risk of the major stigma triggering incident – leakage during work – has a separate additional effect on pad adoption.

2.2 Balance and Attrition

To test balance, we regress 50 worker observables (38 based on baseline surveys and 12 based on administrative HR data) on five dummies for the five treatment categories: (i) free pads without information session, (ii) free pads with information session, (iii) only information session, while (iv) and (v) are interactions of the latter two for information sessions that also include the "stigma module" discussed in the previous sub-section. Table 2 reports p-values from F-Tests for the joint significance of the five treatment allocation dummies. Among the 50 variables, the joint significance is below the 5 percent level for only one variable (hourly overtime pay rate from administrative data), and below the 10 percent level for only one further variable (social appropriateness of discussing period aspects with mother).

We have an attrition rate of 11.9 percent from baseline to endline. These are workers who we neither manage to survey at the factory at endline, nor reach in the endline phone survey that we conduct among the remaining workers. We test whether attrition is differential in each of the three main treatment groups relative to the control group along the 50 worker observables, which implies 150 individual statistical tests. Of these, the tests are significant at the 5 percent level for seven comparisons, and at the 10 percent level for 22 comparisons (none are at the 1 percent level), pointing to only minor, and at most marginally statistically significant differential attrition.[14]

[14]For example, relative to the control group, non-attriting workers in some treatment groups are slightly older (information only), slightly more likely to be married (free pads with information), less likely to still live with parents (information only), earn more (free pads only), or have slightly higher absenteeism rates (information only). We control for workers age and marital status in all basic regressions, and in HR data based analysis, we use worker fixed effects in difference in difference specifications that control for time invariant worker characteristics.

2.3 Treatment Uptake

The take-up of the information treatment is near perfect, as it is done during work time, with the factory management instructing the workers randomised into this treatment to attend the sessions. Meanwhile, Figure 1 shows the uptake of the access to free pads treatment. The solid lines show, for each month and each of the three participating factories, the share of eligible workers collecting their package of pads from the distribution worker. The line for Factory 3 starts only in November 2018, as baseline surveys had only finished by that time, while the treatment had already started at the other two factories. While at two of the three factories (including the one that contributed 60 percent of the sample), collection rates at the first month available for collection are 70-80 percent, they are less than 20 percent at the third factory.

For the following months, collection rates follow a slight downward trend at the two factories with high collection rates, which is mainly explained by the continued exit of workers in the sample from the factories, as indicated by the dash-dotted lines.[15] Conditional on still working at the factory, collection rates remain between 70-80 percent, only dropping off at the last month of distribution, May 2019. This month coincides with Ramadan, a time of heightened production pressure before the most important holiday of the year in the country, Eid al-Fitr, around which factories close for 1-2 weeks. Meanwhile, among workers still working in the factory, collection rates reach 25-30 percent at the third factory after a few months of distribution, but then collapse to almost zero at the last two months. The main reason we eventually learned for the low collection rates at that factory is that both the collection room and the collection times during the lunch-breaks are inconvenient for the workers at this factory.

Meanwhile, Figure 1 already reveals a first result on the hypotheses laid out above, with the dashed lines indicating the share of pads collected each month from the male distribution worker at the three factories. Workers collect pads at roughly equal rates from the male and

[15]The drop in collection rates at "Factory 1" in December is due to unrest in the industrial area surrounding this factory in connection with the controversial increase of the minimum wage of the sector at that time, with the unrest leading to the closure of the factory for more than a week.

female distribution workers at each of the three factories. In fact, more of the pads are collected from the male distribution worker at 15 of the 23 factory-months of distribution, and also overall, more pads are collected from the male than from the female distribution worker. This is *prima facie* evidence against the hypothesis that workers prefer to obtain pads from female distributors. Interestingly, the workers collect pads at higher rates from the female distribution worker during the first month of distribution at each of the three factories. This indicates that workers may quickly overcome any initial reluctance to obtain pads from male distribution workers. Nevertheless, these results are not consistent with the hypothesis that women have a strong preference to obtain pads from other women.

We can also look at the correlates of pad collection (or treatment uptake) among workers who are randomly provided access to the pads. As shown in Table 3, older workers are more likely to collect the pads, while interestingly, workers with a higher willingness to pay have a lower take-up. We saw above that willingness to pay is positively correlated with pad use at baseline. Thus, it may be likely that these workers already have established access to pads for everyday use, and are therefore less in need for pads. On the other hand, workers in general who reported using pads at baseline are neither more nor less likely to collect the pads, if randomised into this treatment arm. Being randomised also into attending the information session is positively correlated with collection rates, mainly among those workers who do not report using pads at baseline, implying that information is complementary to pad adoption. Finally, and possibly most surprisingly, the information treatment do not have an effect on pad collection when it includes the stigma module on the superior absorbing capacity of pads (regardless of whether the worker use pads at baseline or not).

3 Adoption of Pads

Before showing results for the different treatment arms on outcomes such as worker absenteeism, well-being, or adherence to taboos, we first show results on the intermediary outcome

of pad use, as reported by workers at the endline survey. Pad use is both of interest in its own right, given the health benefits associated with modern hygienic MHM products, and as a first check whether the treatment arms have their desired first stage effects on increased adoption of hygienic MHM products.[16] We note that the endline survey is done during the last month of distribution of free pads. Thus, increased pad use among workers randomised into the free pad treatment arm would be consistent with these workers reporting higher use because they collect and use the free pads. Thus, heightened pad use rates in this case would imply that offering free pads does lead to higher pad use rates, or that the price of sanitary pads is a binding constraint on their adoption. On the other hand, this implies that our current results should not be readily interpreted from a learning perspective, insofar that access to free pads allows workers to learn about the benefits of pads and start purchasing them at market rates. Whether this particular learning mechanism is active in our trial or not will have to be left for later research, through surveys on pad use after the distribution of free pads has ended. However, we can test already whether the treatments affect willingness to pay for pads at the endline survey, which would be consistent with learning effects.

Table 4 shows the effects of the different treatment arms on self-reported pad use at endline. Pad use was asked on a four-step Likert scale on whether the worker uses pads "always", "often", "sometimes", or "never". However, to better interpret our results, we define a dummy variable taking value one for using pads "always" or "often", and value zero for "sometimes" or "never" as main outcome variable for this table (results are qualitatively the same when using the four-scale measure directly, and also with ordered probit, as shown Table 9 of Appendix A). Column 1 shows that workers randomised into the free pad treatment are ca. 10 percentage points more likely to use pads at endline, while workers who attend the information session are around 7 percentage points more likely. The effects seem not to be additive; workers who receive both

[16] In principle, other "modern" MHM products such as tampons, menstrual cups, or reusable pads (if cleaned properly after use) have similar health benefits as disposable sanitary pads. However, tampons or menstrual cups are largely unknown in our setting, while the benefits of reusable pads depend on their proper cleaning and drying after use, which due to lack of knowledge and prevailing taboos is not universal. For that reason, in this study, we equate "modern" MHM products with disposable sanitary pads.

access to free pads and attend the information session are not more likely to use pads than those workers who only have access to free pads. These results remain unchanged when controlling for a battery of worker observables (column 2).[17] As expected, the results are entirely driven by workers who report to not have used pads at baseline, for whom the effects are about twice as large (column 3). The effects of access to free pads are larger among those workers still working at the factory at endline, with access to free pads increasing the self-reported pad use rate by 22 percentage points among those who did not use pads at baseline (column 4), though the differences in the coefficients from column 3 are not statistically significant.[18,19]

Again perhaps surprisingly, but consistent with the results from Table 1, the information session have a weaker effect on adoption when including the additional stigma module, with the difference to the effect of the information treatment without this module, being statistically significant among the workers who get access to both free pads and the information session (column 5 of Table 4). While we prefer to defer further discussions of possible reasons for this negative effect to after further data collection, we note that both our experimental variations aiming to detect whether taboos are binding constraints to pad adoption do not show the effects that would be consistent with that hypothesis being true. Thus, even though we will show that workers in our sample do adhere to some of the common taboos on menstruation, these taboos do not seem to constrain pad adoption in this setting, at least not along the explicit dimensions we varied their salience.

Finally, we remark that even the control group exhibits a large increase in self-reported pad use from baseline to endline survey, from 46 percent that reported using pads "always"

[17] They also remain qualitatively unchanged when applying Lee bounds to address the attrition of 119 workers from the sample. Setting pad adoption for all these workers who could not be interviewed at endline either equal to zero (no pad use) or one (pad use) does not change the estimated coefficients or standard errors qualitatively.

[18] We conducted phone surveys with those workers not working at the factories anymore by the time of the endline, in which we managed to reach 105 out of the 224 of these workers.

[19] Note that the three main independent variables are group-specific treatment indicator variables for each of the three treatment groups of free pads, information session, and free pads plus information session. In particular, the coefficient on the free pads plus information sessions treatment shows the difference in the mean of outcome variables between that treatment group and the control group. Thus, one does *not* need to add up the three treatment group coefficients to get the mean outcome differences between control group and free pads plus information session treatment group. This also holds for all further tables in the paper.

or "often" to 83 percent. 73 percent of workers from the control group who reported to not have used pads at baseline reported to use them at endline. This increase must be due to some combination of time trends in pad adoption, spill-overs from treated groups, the effects of going through a detailed 30-minutes long baseline survey on MHM practice on subsequent pad adoption, and some form of desirability bias in reporting to use pads that is triggered by a repeated survey on MHM practice, after having already gone through the baseline survey (see Zwane et al. (2011); Dupas and Miguel (2017) on discussions of the latter two effects).

To at least separate the first two from the latter two effects, we survey shortly after the end of the endline surveys an additional sample of 200 female workers at the three factories, proportional to the number of workers from each factory in the main sample. These workers have not been part of any previous activity related to the project, such as surveys or treatments. Thus, their average pad use rate can be regarded as free of survey effects or repeated-survey desirability effects. However, as these additional 200 workers are not randomised into this role, we have to be careful in interpreting differences in pad use rates between these 200 workers and the 250 from the main sample randomised into the control group. Thus, we use propensity score matching (nearest neighbour, with replacement) to assign each worker from the main sample's control group a matched worker from the additionally surveyed women from the same factory. In the matched sample, the pad use rate is 70 percent, or 13 percentage points less than the 83 percent of workers from the control group who report using pads at baseline.[20] Therefore, 13 of the 37 percentage points of the increase in reported pad use rate for the control group from baseline to endline, is estimated to be due to survey effects or desirability effects in repeated surveys, while the remaining 24 are time trends, or spill-over from the treated groups.[21]

[20] We match on pay-grade, age, years of schooling, and whether worker has any child. We match exactly on working in the same factory. In the raw data from the 200 additional surveys, the pad use rate is 59 percent.

[21] We plan to implement two additional features to the design of the study in the second iteration of the trial that will help us better disentangling these possible drivers of an increase in pad adoption in the control group. First, we will have two control groups into which workers are randomised. One which goes through the standard baseline survey with lengthy modules on current menstrual practices and attitudes, and one which only goes through a brief demographic background module in the baseline survey. This overcomes the need for matching workers in the sample with workers from outside the sample to separate out survey effects on (reported) adoption. Second, we will collect network data among the sample of workers at baseline. Spill-over effects from treatment

4 Worker Outcomes Based on Administrative HR Data

Having seen that workers randomised into the free pads or information treatments are more likely to report using sanitary pads at endline, we next study whether we see effects on the main outcome variables that we collect in form of monthly HR records for individual workers. Our main outcome variables of interest are worker absenteeism, overtime hours, earnings, and worker turnover. So far, we have collected these variables starting from April 2018, half a year before the start of the interventions, until May 2019, seven months after the intervention. Thus, we can run difference in difference specifications, for example with worker fixed effects and treatment arm specific dummy variables indicating that the observation is from a post-treatment start month.

Figure 2 shows mean values for our primary outcome variable of interest, worker absenteeism, for each of the three main treatment cells and the control group, for seven months prior to seven months after the start of the treatment at the factory.[22] Before turning to differences in means between the groups, we note a large spike in absenteeism in the second month of treatment. This spike is entirely driven by the data from one factory, which is located in an area that experienced worker unrest related to a controversial increase in the sector's minimum wage. This factory contributes 200 workers to our sample. The dashed lines in the graph indicate how the group specific trends look if, for that one month, we drop these 200 workers from the sample. In this case the means for that month are in line with the overall trends in the data. Since such spike in absenteeism likely introduces a lot of noise in the data, our preferred sample does not include the observations from the 200 workers from that factory for that month, though we show results with and without including these observations in the estimation.

to control groups are likely to occur mostly along established social ties between workers, both in terms of sharing (freely collected) pads, and in terms of sharing information received in the sessions (compare Bandiera and Rasul (2006) and Conley and Udry (2010), who show that take-up of new agricultural technologies spreads mainly along social network lines, or Banerjee et al. (2013) and Cai et al. (2015) who show the same for take-up of new microfinance services). Thus, network data would allow to disentangle time trend and spill-over effects in network adoption.

[22] Pre- and post-month to treatment start are normalised across factories, as in one factory the treatments started a month later than at the two other factories, for logistical reasons.

To see more clearly if the time series of means for the different groups behave differently pre- and post-treatment start, Figure 3 plots the deviations of the monthly means of the three main treatment groups from those of the control group, including 95 percent confidence intervals. The picture is not clear cut, possibly because we have not yet reached our targeted final sample size. However, the trends in absenteeism of the pad-only and the information-only treatment groups experience a drop around the start of the treatment relative to that of the control group, though month-specific confidence intervals mostly still include the zero. No trend is visible for the group of workers who receive both treatments. To test if the average reductions in absenteeism over the months after the start of the treatment relative to the months before are statistically significant, and to control for further worker observables, Table 5 shows the results of running the following difference in difference model on this data:

$$Y_{ifm} = \beta^G T_m^G + \gamma_i + \delta_{fm} + \epsilon_{ifm} \tag{1}$$

T_m^G is a set of three treatment dummies for randomisation into the three main treatment groups G (Free Pads, Information Session, Free Pads & Information Session), taking value 1 for post-treatment months m (or post-treatment start in case of the free pad treatments). Thus, β^G are ITT treatment effects of the three treatment arms G. Meanwhile, γ_i is a set of worker fixed effects, controlling for time-invariant characteristics of workers, δ_{fm} is a set of fixed effects on the factory-month level, controlling for factory-specific time trends and seasonality, while ϵ_{ifm} is the error term. Standard errors are clustered at the worker level.

Table 5, column 1, shows the results of estimating equation 1 using monthly number of worker's absent days as outcome variable, as in Figures 2 and 3. We can see a marginally negative effect on absenteeism among those workers who only attend the information session. The effect among the workers who only receive free pads is slightly smaller and its p-value is just above conventional levels for statistical significance (0.122). If we drop the one month of data

from the factory suffering from unrest, as discussed above, the coefficients become larger, and their statistical significance increases to the five and ten percent level, respectively, as shown in column 4 of the table. Given an average absenteeism level of 0.64 days per month in the control group, we estimate that either access to free pads or attending the information session reduces absenteeism by around 15 percent and 25 percent, respectively, given the coefficient sizes. Surprisingly, though, no such effect is visible among the group that both has access to free pads and attend the information session. Our trial does not provide us with an answer for the lack of effect among this group. In the pre-treatment period, absenteeism rates in this group seem to fluctuate more widely compared to the other groups, as can be seen in Figure 3. The planned repetition of the trial with additional 1,000 workers from further factories provides a useful opportunity to see if this pattern replicates, which would indicate a non-zero interaction effect of the two main treatments on worker behaviour.

Regarding overtime hours, we do not find any statistically significant effects (columns 2 and 5, Table 5). It is not clear ex-ante what effect to expect. On the one hand, if the treatments make workers more productive, they could finish their daily assignment earlier, reducing overtime needs. On the other hand, it could make them volunteer for overtime, to increase earnings, as overtime is, by law, paid at 150 percent of the standard hourly rate of a worker. However, we show the effects as we specified this outcome in the pre-analysis plan. With respect to earnings, we find a marginally significant effect of the free pads only treatment arm, increasing earnings by around 1.7 percent relative to the average earnings of the control group of around 9,700BDT (column 6, Table 5). However, in the pre-treatment period, earnings in that treatment group are on average marginally significantly lower, so the effect may at least partly be a return to the mean effect (see Figure 4). On the other hand, it could be explained by the reduction in absenteeism in that treatment group which comes along with the treatment. In fact, controlling for absenteeism reduces the coefficient on this treatment by around a quarter, and the p-value to 19 percent (column 7).

A final important outcome variable is worker turnover, which has been often cited by local industry insiders as a main constraint on operational productivity growth (McKinsey (2011)). We create an outcome variable measuring whether the worker still works at the factory at the time of the endline survey, based on monthly HR records, and regress it on the treatment indicator variables. While all three main treatment groups show positive coefficients, none are statistically significant at conventional levels (with the coefficient on the information treatment having a p-value of 0.13).

To conclude, we do find some statistically and economically meaningful effects of our two main treatments on at least one of our main outcome variables, worker absenteeism as measured by factory administrative data. However, combined, the two treatments do not have the same effect. These results are not statistically significantly different for workers who report using pads at baseline. Neither does the additional stigma module in the information session affects the outcomes (see Table 10 in Appendix A), concurrent with them not increasing pad collection or general pad take-up. In the next section, we test how the treatments affect self-reported well-being at work, behaviours and social norms beyond the workplace.

5 Work Place Satisfaction, Norms and Behaviour beyond Work

5.1 Willingness to Pay for Sanitary Pads

This section analyses the data from the endline survey conducted after six months of distribution of free pads. We first look at willingness to pay. Given the positive effects on absenteeism from Table 5, which also seem to translate into earnings, we may expect that workers willingness to pay for pads is positively affected by the treatments. A positive effect on willingness to pay, particularly in the free-pad treatment, would also point towards a learning mechanism. Access to free pads allows workers to learn about the utility they can provide, and thus update their willingness to pay. We elicit willingness to pay at baseline and endline survey using the

experimental Becker-DeGroot-Marschak mechanism, which is incentive compatible with providing truthful information on valuation of goods (Becker et al. (1964)). Table 6 shows the effects of regressing willingness to pay at endline on the treatment indicator variables, controlling for a number of workers characteristics, including willingness to pay at baseline. We find a marginally significant positive effect from the free pad-only treatment, amounting to an eight percent higher willingness to pay compared to the control group, but not from the information treatment, or among workers with access to both treatments. While it is again surprising to see that the combined treatment has no effect, these results are at least consistent with those workers who have access to free pads and experience positive effects on absenteeism increasing their willingness to pay. The additional stigma module in the information session has a positive effect, though it is not statistically significant (p-value of 0.11 in the group that also receives free pads - column 2). Interaction effects with having used pads already at baseline do not show systematic effects (column 3).

5.2 Self-reported Well-being at Work

Table 7 tests for effects of our treatments on a battery of eight self-reported dimensions of well-being at work, such as if workers feel tired during their period, whether it is more difficult to reach their work targets, whether they worry about leakage of their absorbant or about odour, or whether they feel isolated during the period, or more easily irritated. In short, we do not find much effects on these self-reported outcomes. Workers who attend the information session (but do not receive free pads) report feeling more energetic during their period by endline. On the other hand, we see a negative statistically significant effect of free pads on whether workers report to find it easy to reach their work targets among the workers who receive free pads only. This effect goes against our prior that access to modern MHM products should make work easier at the margin. Given the fairly large number of estimated coefficients shown in this table, this negative effect may by a statistical outlier.

To reduce the number of estimated coefficients, we also create two summary variables over the eight outcomes, one summarising the four "ease of work" variables (tiredness, targets, energy, irritation), and one summarising the four "psychological burden" variables (shame, isolation, worry about leakage and odour), using principal component analysis. However, as shown in the last two columns of Table 7, we only find insignificant effects on these variables.

5.3 Mobility, Behaviour and Social Norms beyond the Workplace

Even if the trial is conducted within a work-place context, we expect it to affect behaviour and social norms beyond the workplace as well. For example, the information sessions discuss content beyond the work-place, as how to communicate about MHM with family members, or relaxation exercises against period pain. Table 8 summarises in its three panels the results of the treatment arms on three types of outcome variables: simple self-reported behaviour and mobility during period (Panel 1), injunctive social norms, or what the worker thinks about what norms say the worker *should* do regarding these behaviours (Panel 2), and descriptive norms, or what the worker thinks the majority of her peers do (Panel 3) (Bicchieri (2005); Bicchieri and Dimant (2019)). The questions shown in Panel 2 and 3 are incentivised to reveal perceived norms, not personal preferences. Workers receive a small payment if their answer on a four-item Likert scale on the appropriateness (Panel 2) or commonality (Panel 3) of a given behaviour matches the modal answer among other workers in the factory.[23] Thus, the questions reveal whether the treatments change the worker's behaviour (Panel 1), whether the treatments lead the workers to update their understanding of social norms on that behaviour (Panel 2), or their understanding about majority behaviour among their peers (Panel 3).

We can see consistent changes in both personal behaviour and understanding of social norms for two behaviours in Table 8, both towards less adherence with restrictive traditional taboos. The first is on the common taboo in the region that women should not eat with others during

[23] After the worker goes through all the questions on injunctive and descriptive norms, respectively, one question in each set is randomly chosen and compared to the modal answer, to determine whether the worker receives the bonus.

her period.[24] As shown in column 2, women who receive free pads and attend the information session report to be more likely to eat jointly with their family members during their period, and perceive this practice to be more common among their peers. The effect on own behaviour is also visible among those women who only attend the information session. The effect is not just family specific. As shown in column 3, also (injunctive and descriptive) norms against eating with non-family members are loosened, at least among those workers who receive both treatments.

The second consistent effect we observe is a lower adherence to the taboo that one should not dry the cloth used during menstruation outside, after washing it (column 8). Again, this is one of the most prominent taboos in South Asia surrounding menstruation (Ahmed and Yesmin (2008)). This taboo has particularly negative implications for women and it leads them to dry the cloth inside the house, often inside cupboards to shield it from the views of even family members. This prevents the cloth from properly drying, keeping it damp and increasing the health risk associated with its use. Instead, if dried outside, the sun's UV light would disinfect the cloth. This taboo is also directly addressed in the core curriculum of the information session on good MHM practice. Therefore, the positive effects in Panel 1 on own behaviour may be confounded by recall bias. Workers remember what they learned at the information session, and reproduce it at the endline survey. However, the effects on this taboo are even stronger when looking at the answers to the incentivised questions on injunctive and descriptive norms. This suggests that workers indeed adjust their views on what their peers find appropriate.

The two taboos discussed in the last two paragraphs lie on opposite extremes in terms of their prevailing strength in this context, as represented by the "Mean Control Group" statistic in each Panel of Table 8, which shows how much workers in the control group adhere to the taboo at endline. A lower value on the 0-3 scale means stronger adherence, showing that the

[24] It is one manifestation of the common stigmatisation of menstruating women in South Asia that separates them from other family members in all kind of household activities, in extreme forms making them sleep outside the family dwelling (Ahmed and Yesmin (2008)).

taboo to not dry the cloth outside is still adhered to strongly. On the other hand, the taboo on not eating with others during one's period, in particular family members, is already not widely followed anymore in this setting.

We see a number of effects of specific treatments in certain panels, loosening a number of further taboos, for example to not go to the market during period, or to not visit newborns. However, these effects lack both consistency across the three panels, and across the treatment cells, unlike the effects on the two taboos previously discussed. Furthermore, the treatments mostly have effects on traditional norms, but less on mobility not subject to norms. For example, we find no effects on the likelihood that workers report not walking long distances or using buses during their period.

Finally, the table presents a contradictory set of treatment effects on the taboo for a women to not going to religious sites during her period (Garg et al. (2001); Ahmed and Yesmin (2008); Dasgupta and Sarkar (2008)).[25] The taboo is still very strongly reproduced among the workers, as shown by very low mean values among control workers. For example, in the incentivised norms questions in Panels 2 and 3, practically every control worker reports that the taboo is still widely followed. We see some effects on loosening the injunctive norm on avoiding religious sites among workers who receive free pads (with or without information session). On the other hand, in Panel 1, the same workers are more likely to report adhering to this taboo in their personal behaviour, and we also see a concurrent effect among the workers in the information only treatment group. We do not see any effect on descriptive norms. Given the inconsistent results on this dimension, we postpone the final discussion of these effects until we can study them on the final, complete sample of the study.

[25]Mosques, and temples among the sizeable Hindu minority in Bangladesh (ca. 10 percent of population). Hindus are also relatively well represented among workers in the country's garment sector.

6 Conclusion

We present the results of the first randomised trial that, to the best of our knowledge, distributes free hygienic menstrual health products (disposable sanitary pads) to poor working women in a developing country context, the Bangladeshi garment export sector. Awareness and information sessions on hygienic menstrual health management (MHM) by an experienced NGO were cross-randomised with the free pad treatment, in order to alleviate possible information constraints on the adoption of pads. We also vary exogenously the sex of the distribution worker from which the pads can be collected by eligible workers, as well as the information content of the awareness sessions, between a solely medical message and additional messages showing that sanitary pads are more reliable compared to traditional remedies in reducing the risk of leakage. We have so far implemented the trial on a sample of 1,000 workers, and are planning to conduct it with 1,000 additional workers before the end of the year 2020. This paper presents the results on our main outcome variables from the first half of the sample.

We find that both information provision and the provision of free pads increase self-reported use of pads relative to the control group. At the same time, we also observe a substantial increase in pad use in the control group, suggesting survey effects on MHM behaviour, next to spill-over effects to the control group and general time trends in pad adoption. We find effects of both free pads and the information sessions on reduced worker absenteeism, though not in the group of workers who are randomised into both treatments. We postpone discussions of possible reasons for this pattern until we can test if it replicates in the second round of implementation of the trial. We find some effects on willingness to pay for workers assigned to the pads only treatment, no systematic effects on self-reported well-being at work, but meaningful effects on adherence to traditional restrictive taboos with adverse health consequences, both in terms of personal behaviour and in terms of perception of the strength of the underlying social norms.

Turning to our original classification of possible constraints to the more widespread of adop-

tion of sanitary pads – financial, information, and taboo based – our results point towards both financial and information constraints being binding. On the other hand, experimentally varying the salience of taboos in the process of obtaining menstrual pads, either by removing a commonly named source of stigmatisation (male clerks at points of access to pads), or by demonstrating the higher reliability of pads in preventing stigmatised situations (leakages), does not affect the outcomes in any systematic way. Evidently, these variations may not capture the binding dimensions of menstrual taboos in this context, and we plan to test for additional dimensions of taboos in the remaining sample for this study.

However, if cost and lack of information turn out to be the binding constraints to adoption, and if loosening them leads to reduced worker absenteeism, then providing free pads could be a promising investment for these factories in Bangladesh, and similar factories elsewhere. To gauge the returns for the factories from investing in their female worker's menstrual health, we use production data from Macchiavello et al. (2015), with daily, line-wise output and absenteeism data for all lines in seven factories in Bangladesh over one year. Using line and factory-month fixed effects, and assuming that the number of workers absent on a given day and line is as good as an exogenous shock for the factories, we estimate that a one standard deviation reduction in daily absenteeism increases daily output by 0.065 standard deviations. A 20 percent reduction of absenteeism, as we estimated in some of our treatment groups, would increase output by around 0.8 percent. Meanwhile, we can establish an absolute lower bound on the revenue per worker that these factories must make, on the assumption that it has to cover at the very minimum the worker's wage, which is on average 115USD per month in our sample (after the minimum wage increase at the beginning of 2019). Thus, an increase in output of 0.8 percent would imply at a minimum an increase in revenue of 0.90USD per worker and month. The packs of eight pads we distribute each month currently cost less than 0.42USD for wholesale in Bangladesh, despite being introduced in the country only a few years ago. Thus, further price reductions could be expected. But it suggests that already now the factories would reap a sizeable return

on distributing pads to their workers.[26] Since this does not yet include the positive externalities on worker welfare through improved MHM, government subsidies for factories to offer pads, or even regulatory requirements to do so, can be considered.

[26]The share of labor costs over revenues is commonly reported to be below 20 percent in the sector, with material inputs (fabrics) by far the largest cost factor. Thus, even if the reduced absenteeism comes at a higher wage bill, as the factories can offset some of the costs of absenteeism through lower wage payments to the workers, this should be more than made up through higher revenue.

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7 Tables

Table 1: Worker Characteristics

	Trial Sample				Menzel and Woodruff (2019)			
	Mean	Min	Max	N	Mean	Min	Max	N
Age	24.0	15	43	1,000	25.1	16	35	1,599
Years of Schooling	6.91	0	17	1,000	5.68	0	12	1,588
Married	0.82	0	1	1,000	0.83	0	1	1,599
Children	0.63	0	1	1,000	0.77	0	1	801
People in Houshold	2.57	1	7	1,000				
Village Origin	0.97	0	1	982				
Sanitary Pads Regular	0.41	0	1	1,000				
Sanitary Pads Never	0.50	0	1	1,000				
Period - Absent	0.13	0	1	1,000				
Period - Absent, no MHM Product	0.04	0	1	1,000				
Period - More Tired	0.81	0	1	1,000				
Period - Difficult Target	0.71	0	1	1,000				
Period - Worry Leak	0.58	0	1	1,000				
Wage (BD Taka)	8,389	4,900	15,600	797	7,508	0	19,487	56,716
Monthly Absent Days	0.61	0	5	997	0.98	0	31	46,810
Monthly Sick	0.15	0	1.46	200	0.23	0	14	8,499

Notes: Table shows mean, minimum and maximum values of observable worker characteristics in our data for the 1,000 workers nominated by the participating three factories for the trial. Right-hand side panel shows comparison values from data collected from representative set of workers from 70 garment export factories in Bangladesh in 2012-2017, and analysed in Menzel and Woodruff (2019), for those variables available in both datasets.

Table 2: Treament Balance

	Mean Control	F-Test: Six Treatments
Survey Data:		
Grade	4.672	0.835
Age	23.76	0.511
Years of Schooling	6.752	0.583
Married	0.820	0.215
Husband same Factory	0.178	0.423
Number Children	0.832	0.694
Any Children	0.624	0.516
Number Boys	0.404	0.721
Number Girls	0.428	0.872
Age Youngest Child	5.91	0.668
Household Size	2.59	0.598
Living with Husband	0.772	0.625
Living with Mother	0.128	0.520
Living with Father	0.088	0.785
Living with Sister	0.076	0.822
Living with Brother	0.52	0.726
Living with In-Laws	0.048	0.753
Living Alone	0.084	0.583
Share Bathroom	0.46	0.270
Absent due to Period	0.104	0.505
Absent, Lack of MHM Product	0.036	0.922
Absent, Afraid Leakage	0.012	0.836
Period Tired	1.792	0.614
Period, Reach Target Harder	2.140	0.817
Period, Feel Ashamed	2.284	0.145
Period, Worry Odour	2.672	0.987
Period, Irritated	2.02	0.600
Norm: No Cooking	3.668	0.911
Norm: Eat with Husband	3.804	0.753
Norm: Eat with Others	3.352	0.795
Norm: Go to Religious Site	1.02	0.523
Norm: Go to Bazaar	2.696	0.420
Norm: Go to Workplace	3.760	0.641
Norm: Buy Pad	3.604	0.958
Norm: Talk Period Mother	3.908	0.098*
Norm: Talk Period Husband	3.916	0.248
Norm: Dry Pad Outside	2.196	0.633
Willingness to Pay, Pad	29.878	0.932
Administrative Data:		
Grade	4.488	0.205
Gross Salary	7154.7	0.210
Present Days	22.09	0.290
Absent Days	0.577	0.371
Sick Days	0.033	0.322
Attendance Bonus	451.4	0.421
Absenteeism Deduction	80.92	0.555
Overtime Hours	33.80	0.942
Overtime Rate	42.25	0.012**
Paid Wage	8330.1	0.421
Late Arrival 1	0.037	0.250
Late Arrival 2	0.217	0.319

Notes: OLS regression of each variable on set of five dummies for following randomly allocated treatments: Free Pads - No Info sessions, Free Pads + Info Sessions + No Stigma Module, Free Pads + Info Sessions + Stigma Module, No Pads + Info Sessions + No Stigma Module, No Pads + Info Sessions + Stigma Module. Second column reports p-values from F-Test on joint significance of all five dummies. Administrative data averaged between July-September 2018. Robust standard errors in parentheses: * $<$ 0.1, ** $<$ 0.05, *** $<$ 0.01.

Table 3: Correlates of Pad Collection among Eligible Workers

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:		Collect Free Pads (months)			
Information Session		0.349	0.532*	0.686***	0.895***
		(0.215)	(0.282)	(0.250)	(0.337)
Information Session			-0.401		-0.450
× Use Pads Baseline			(0.439)		(0.518)
Information Session with Stigma Module				-0.669**	-0.696*
				(0.292)	(0.386)
Information Session with Stigma Module					0.044
× Use Pads Baseline					(0.607)
Use Pads Baseline	0.146	0.171	0.366	0.164	0.372
	(0.222)	(0.221)	(0.315)	(0.220)	(0.316)
Age	0.049*	0.050*	0.051*	0.054**	0.055**
	(0.028)	(0.027)	(0.028)	(0.027)	(0.028)
Years of Schooling	-0.020	-0.024	-0.024	-0.026	-0.026
	(0.038)	(0.038)	(0.038)	(0.038)	(0.038)
Married	-0.138	-0.109	-0.103	-0.111	-0.103
	(0.303)	(0.304)	(0.305)	(0.302)	(0.303)
Children	-0.014	-0.009	-0.033	-0.036	-0.062
	(0.274)	(0.274)	(0.277)	(0.273)	(0.276)
Village Born	0.930	0.940	0.895	1.001	0.950
	(0.771)	(0.783)	(0.777)	(0.823)	(0.818)
Willingness to Pay	-0.031**	-0.032**	-0.031**	-0.032**	-0.031**
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Mean Collection Rate	3.761				
Factory FE	Y	Y	Y	Y	Y
R-squared	0.281	0.285	0.286	0.292	0.293
Observations	482	482	482	482	482

Notes: Table shows results from regressing a variable indicating the number of months a worker collected pads on a number of worker observables. Column 2 adds a dummy equal to one if the worker is also randomised into the information treatment arm, while column 3 interacts this with whether the worker used pads already at baseline. Column 4 controls for whether the worker is randomised into the information treatment with the additional stigma module, while column 5 interacts this again with baseline pad use. The sample includes all workers randomised into free pads collection treatment. Willingness to pay elicited through Becker-DeGroot-Marschak mechanism. Robust standard errors in parentheses: * $<$ 0.1, ** $<$ 0.05, *** $<$ 0.01.

Table 4: Pad Use (Self Reported) at Endline Survey

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	Pad Use at Endline				
Free Pads	0.103***	0.100***	0.189***	0.220***	0.100***
	(0.029)	(0.029)	(0.047)	(0.047)	(0.029)
Free Pads			-0.200***	-0.211***	
× Use Pads Baseline			(0.055)	(0.054)	
Information Session	0.071**	0.060*	0.136***	0.127**	0.085**
	(0.032)	(0.031)	(0.051)	(0.054)	(0.035)
Information Session			-0.167***	-0.150**	
× Use Pads Baseline			(0.059)	(0.062)	
Free Pads & Information Session	0.108***	0.105***	0.165***	0.191***	0.137***
	(0.029)	(0.029)	(0.048)	(0.048)	(0.029)
Free Pads & Information Session			-0.138***	-0.163***	
× Use Pads Baseline			(0.052)	(0.054)	
Information Session with Stigma Module					-0.050
					(0.040)
Free Pads & Information Session					-0.065**
with Stigma Module					(0.031)
Use Pads Baseline		0.112***	0.239***	0.232***	0.112***
		(0.019)	(0.044)	(0.048)	(0.019)
Mean Pad Use Rate at Endline, Control Group	0.83				
Factory FE	Y	Y	Y	Y	Y
Worker Controls		Y	Y	Y	Y
R-squared	0.056	0.097	0.113	0.133	0.102
Observations	881	856	856	758	856
Sample				workers still at factory	

Notes: Table shows results from regressing self-reported pad use at endline survey on indicator variables of the three main treatment groups (Free Pads, Information Session, and Free Pads & Information Session), plus interactions terms of the three variables with indicator variable whether worker reported to use pads already at baseline (column 3). Column 4 repeats column 3 on the sample of those workers still working at the factory at the time of the endline survey. Column 5 adds indicator variables whether the information sessions also included the "Stigma Module", showing the superior absorbing capacity of pads relative to traditionally used cloth. Workers Controls are worker age, marital status, parental status, years of schooling, baseline willingness to pay for pads, and whether born in village vs city. Robust standard errors in parentheses: * < 0.1, ** < 0.05, *** < 0.01.

Table 5: Main Results, HR Data based Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Excluding Month of Unrest at 1 Factory				
Dependent Variable:	Absent	Overtime	Earnings	Absent	Overtime	Earnings	Earnings	Stay at Factory
Free Pads	-0.115	-0.783	164.696*	-0.133*	-0.806	165.986*	127.146	0.028
	(0.074)	(0.630)	(94.557)	(0.076)	(0.642)	(96.153)	(95.277)	(0.035)
Information Session	-0.151*	-0.715	99.244	-0.170**	-0.727	101.871	50.744	0.052
	(0.084)	(0.679)	(93.748)	(0.085)	(0.691)	(95.120)	(93.446)	(0.034)
Free Pads & Info Sessions	0.034	-0.942	-31.546	0.027	-0.964	-32.105	-27.422	0.038
	(0.078)	(0.673)	(98.407)	(0.080)	(0.687)	(100.057)	(97.176)	(0.035)
Absent							-280.2***	
							(11.68)	
Mean Control Group:	0.640	29.23	9711.5	0.550	29.53	9710.5	9710.5	0.796
Factory-Month FE	Y	Y	Y	Y	Y	Y	Y	
Worker FE	Y	Y	Y	Y	Y	Y	Y	
Factory FE								Y
R-squared	0.256	0.697	0.825	0.197	0.693	0.825	0.848	0.011
Observations	12,164	12,164	11,913	11,977	11,977	11,726	11,726	997

Notes: Table shows results from regressing outcome variables on the worker-month level from administrative HR data from the factories on indicator variables for the three main treatment groups (Free Pads, Information Session, and Free Pads & Information Session). Columns 1-7 show Difference in Difference regressions with worker and factory-month fixed effects. Treatment started in the middle of month at each factory (October 2018 at two factories, November 2018 at third), so data from this month is omitted. "Absent" is numbers of days worker was absent in the month, "Overtime" is number of monthly overtime hours (legally defined as any hour beyond 8 hours of work per day), while "Earnings" are full earnings in Bangladeshi Taka, including overtime pay and deductions for absent days. Column 8 shows regression on the worker level of a dummy indicating that worker still works at Factory around endline survey (April 2019) on the treatment dummies and factory fixed effects. "Mean Control Group" shows average of outcome variable among workers in control group in the post treatment start period. Standard errors clustered at the worker level in parentheses: * < 0.1, ** < 0.05, *** < 0.01.

Table 6: Willingness to Pay for Sanitary Pads

	(1)	(2)	(3)
Dependent Variable:	Willingness to Pay (Endline)		
Free Pads	1.764*	1.770*	0.619
	(1.011)	(1.012)	(1.373)
Free Pads × Use Pads Baseline			2.369
			(2.006)
Information Session	1.179	0.691	1.319
	(1.007)	(1.248)	(1.372)
Information Session with Stigma Module		0.967	
		(1.364)	
Information Session × Use Pads Baseline			-0.272
			(1.992)
Free Pads & Information Session	-0.593	-1.708	-0.023
	(1.040)	(1.260)	(1.343)
Free Pads & Information Session		2.337	
with Stigma Module		(1.451)	
Free Pads & Information Session			-1.344
× Use Pads Baseline			(2.023)
Use Pads Baseline	0.384	0.368	0.167
	(0.740)	(0.741)	(1.445)
Mean Control Group:	21.71		
Factory FE	Y	Y	Y
Surveyor FE	Y	Y	Y
Worker Controls	Y	Y	
R-squared	0.166	0.170	0.170
Observations	758	758	758

Notes: Table shows results from regressing willingness to pay for sanitary pads (one pack of eight pads, same as distributed in free pads treatment) at endline survey on indicator variables of the three main treatment groups (Free Pads, Information Session, and Free Pads & Information Session), plus interactions terms of the three variables with indicator variable whether worker reported to use pads already at baseline (column 2). Column 3 adds indicator variables for whether the information session also included the "Stigma Module", showing the superior absorbing capacity of pads relative to traditionally used cloth. Willingness to pay elicited through Becker-DeGroot-Marschak mechanism. Worker Controls are worker age, marital status, parental status, years of schooling, and whether born in village vs city. Robust standard errors in parentheses: * < 0.1, ** < 0.05, *** < 0.01.

Table 7: Well-being at Work during Menstruation, Self Reported (Endline Survey)

Dep. Variable:	(1) Less Tired	(2) Easier to Reach Target	(3) More Energetic	(4) Feel Shame	(5) Worry Leakage	(6) Worry Odour	(7) Feel Alone	(8) Feel Irritated	(9) PCA Work Ease	(10) PCA Psych. Burden
Free Pads	0.001	-0.185**	0.116	-0.085	-0.061	0.003	0.041	-0.026	-0.055	-0.045
	(0.090)	(0.089)	(0.083)	(0.099)	(0.095)	(0.087)	(0.083)	(0.104)	(0.112)	(0.112)
Info Session	0.045	-0.000	0.213***	-0.055	0.099	0.016	-0.053	-0.010	0.084	-0.001
	(0.089)	(0.089)	(0.082)	(0.098)	(0.094)	(0.086)	(0.082)	(0.103)	(0.112)	(0.112)
Free Pads & Info Session	0.056	-0.048	0.129	-0.077	-0.052	-0.041	0.093	0.056	0.064	-0.047
	(0.090)	(0.090)	(0.083)	(0.100)	(0.095)	(0.087)	(0.083)	(0.104)	(0.113)	(0.118)
Factory FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Worker Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Surveyor FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
R-squared	0.203	0.336	0.449	0.246	0.375	0.442	0.360	0.275	0.371	0.450
Observations	846	818	846	845	846	846	846	846	818	845

Notes: Table shows results from regressing self-reported well-being at work along eight dimensions at endline survey on indicator variables of the three main treatment groups (Free Pads, Information Session, and Free Pads & Information Session). Worker Controls are worker age, marital status, parental status, years of schooling, and whether born in village vs city. PCA Work Ease is first principal component of outcomes of columns 1, 2, 3, 8, while PCA Psych. Burden is first principal component of outcomes from columns 4-7. Robust standard errors in parentheses: * $<$ 0.1, ** $<$ 0.05, *** $<$ 0.01.

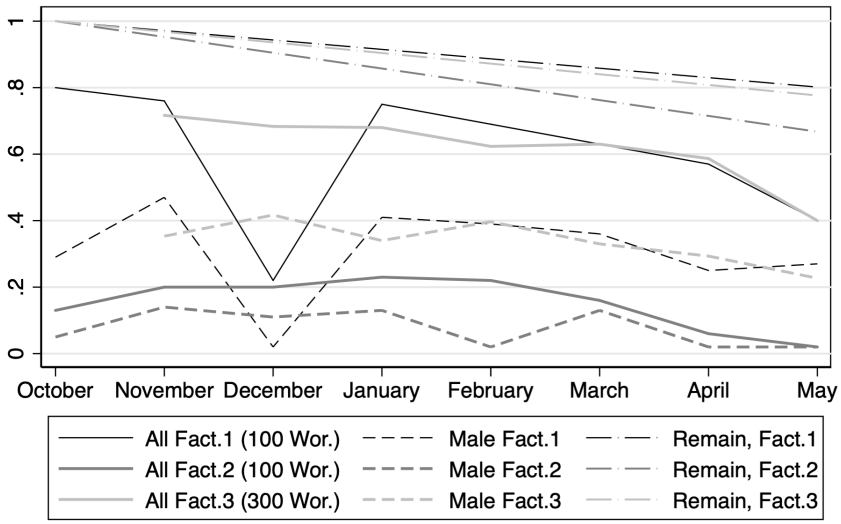
Table 8: Mobility, Behaviour and Social Norms beyond Work-Place

Dep. Variable:	(1) Cook	(2) Eat with Husband	(3) Eat with Others	(4) Religious Activity	(5) Go to Market	(6) Visit Sick	(7) Visit Newborn	(8) Dry Cloth Outside	(9) Walk Distance	(10) Take Bus
Panel 1: Self Reported Mobility										
Free Pads	0.015	0.123		-0.146**	-0.001	0.009	0.010	0.037	0.054	-0.012
	(0.084)	(0.083)		(0.065)	(0.099)	(0.101)	(0.114)	(0.071)	(0.087)	(0.084)
Info Session	0.107	0.188**		-0.180***	0.104	0.074	0.045	0.135*	0.042	0.049
	(0.083)	(0.082)		(0.065)	(0.099)	(0.100)	(0.113)	(0.071)	(0.086)	(0.083)
Free Pads	0.074	0.163**		-0.127*	0.080	0.059	0.151	0.142**	0.004	0.052
& Info Session	(0.084)	(0.083)		(0.065)	(0.100)	(0.101)	(0.114)	(0.072)	(0.087)	(0.084)
Mean Control Group:	2.50	2.40		0.30	1.88	1.72	1.43	0.18	1.99	2.31
Observations	851	851		851	850	851	851	851	849	849
Panel 2: Injunctive Norms										
Free Pads	-0.010	-0.001	0.027	0.050*	-0.030	0.109	0.158*	0.092**		
	(0.086)	(0.083)	(0.105)	(0.026)	(0.083)	(0.090)	(0.096)	(0.047)		
Info Session	0.037	0.097	0.156	0.028	0.057	0.116	0.123	0.277***		
	(0.085)	(0.080)	(0.102)	(0.019)	(0.081)	(0.091)	(0.097)	(0.061)		
Free Pads	0.094	0.103	0.225**	0.055**	-0.048	-0.026	0.118	0.220***		
& Info Session	(0.086)	(0.080)	(0.101)	(0.025)	(0.082)	(0.088)	(0.098)	(0.057)		
Mean Control Group:	2.44	2.47	1.71	0.00	1.78	1.82	1.44	0.08		
Observations	844	844	844	845	845	844	844	845		
Panel 3: Descriptive Norms										
Free Pads	-0.029	0.004	0.033	0.029	0.005	0.005	0.023	0.037		
	(0.053)	(0.059)	(0.081)	(0.020)	(0.065)	(0.070)	(0.083)	(0.048)		
Info Session	-0.080	-0.004	0.023	0.004	0.119*	0.070	0.092	0.182***		
	(0.050)	(0.059)	(0.080)	(0.003)	(0.063)	(0.072)	(0.087)	(0.063)		
Free Pads	0.058	0.125**	0.191**	0.000	0.051	-0.046	0.021	0.165***		
& Info Session	(0.045)	(0.051)	(0.075)	(0.002)	(0.067)	(0.074)	(0.087)	(0.058)		
Mean Control Group:	2.79	2.72	2.26	0.00	2.08	2.21	1.97	0.11		
Observations	758	758	758	758	758	758	758	758		
Factory FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Surveyor FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Worker Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Notes: Table shows results from regressing self-reported behaviours (Panel 1), or perceived strength of restrictive norms around these behaviours (Panel 2 + 3) at endline survey on indicator variables of the three main treatment groups (Free Pads, Information Session, and Free Pads & Information Session). Outcomes measured on four-item Likert scale 0-3, with higher values indicating higher likelihood in engaging in behaviour during period (Panel 1), or less restrictive perceived norms on that behaviour during periods. "Injunctive" norms (Panel 2) describe what worker thinks people "should" do, while "Descriptive" norms (Panel 3) describe what worker thinks most people actually do. Responses in Panels 2 and 3 incentivised with small bonus if worker answer matched modal answer among workers. "Mean Control Group" indicates mean answer among control workers at endline on 0-3 Likert scale. Worker Controls are worker age, marital status, parental status, years of schooling, and whether born in village vs city. Robust standard errors in parentheses: * < 0.1, ** < 0.05, *** < 0.01.

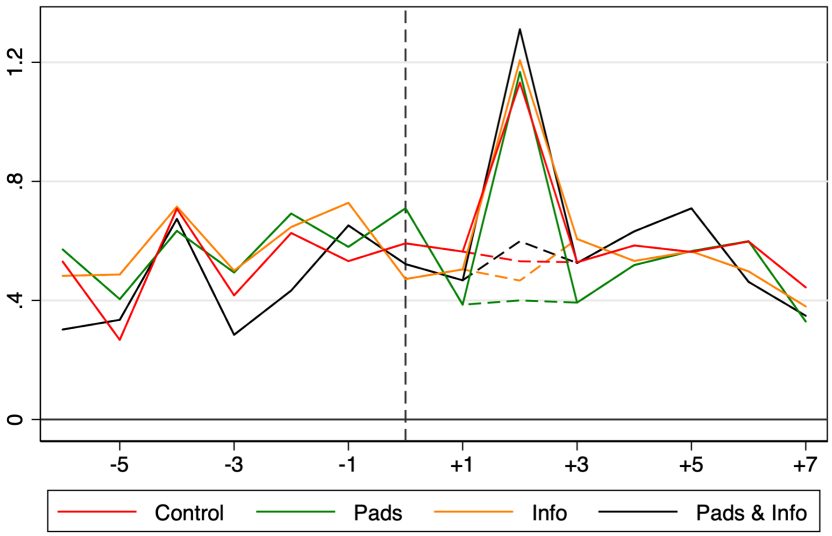
8 Figures

Figure 1: Share of Workers Collecting Pads Each Month



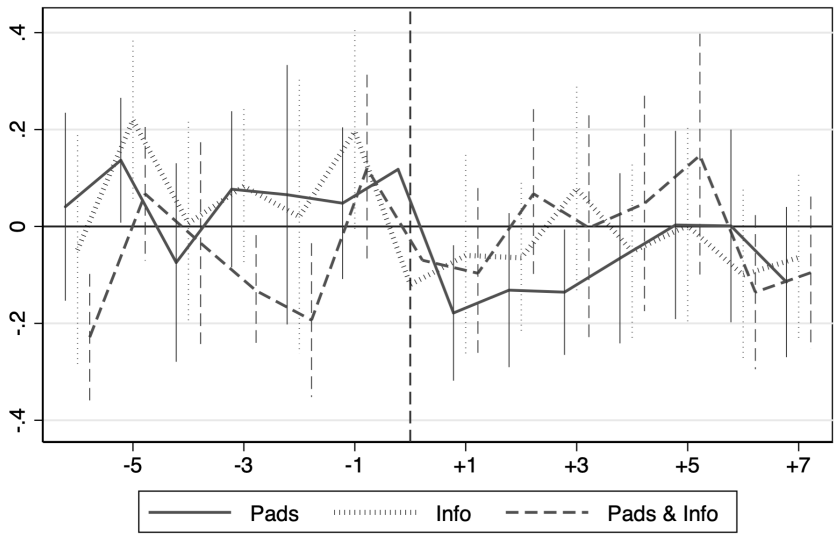
Notes: Figure shows month-by-month the share of workers randomised into receiving free pads who collected them from the distribution workers at the three factories. The dashed lines show the share of workers each month who collected them from the male as opposed to the female distribution worker. The dashed-dotted lines show the share of the workers still working at the factory at that month.

Figure 2: Absent Days: Time Series of Average Worker Absenteeism



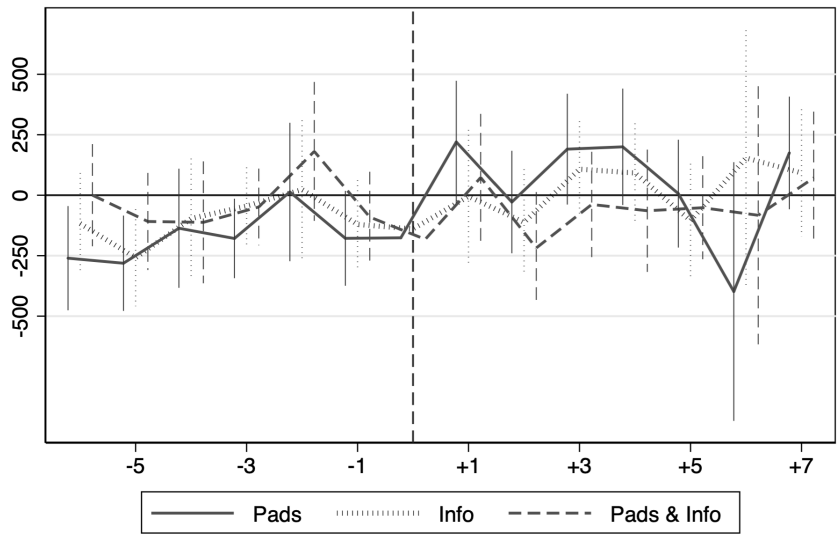
Notes: Graph shows the month-by-month time series of average worker absenteeism (number of days worker was absent per month) in each of the three main treatment groups and the control group in the month prior and after the information sessions and start of the distribution of pads. Dashed lines show means when dropping the 200 workers from factory with unrest for December 2018.

Figure 3: Absent Days: Deviation of Average Worker Absenteeism



Notes: Graph shows the month-by-month time series of deviation of average worker absenteeism (number of days worker was absent per month) of each of the three main treatment groups from the control group, in the month prior and after the information sessions and start of the distribution of pads. Spikes show 95% confidence intervals. Without data from 200 workers for December 2018 from factory with unrest.

Figure 4: Earnings: Deviation of Average Worker Pay



Notes: Graph shows the month-by-month time series of deviation of average worker pay (including overtime pay and deductions for absenteeism) of each of the three main treatment groups from the control group, in the month prior and after the information sessions and start of the distribution of pads. Earning in Bangladeshi Taka (BDT). Spikes show 95% confidence intervals. Without data from 200 workers for December 2018 from factory with unrest.

9 Appendix A: Additional Tables

Table 9: Pad Use at Endline with four-item Likert Scale (Ordered Probit)

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	Pad Use at Endline				
Free Pads	0.523***	0.506***	0.799***	0.999***	0.507***
	(0.157)	(0.164)	(0.203)	(0.251)	(0.164)
Free Pads			-1.043***	-1.054**	
× Use Pads Baseline			(0.376)	(0.425)	
Information Session	0.258*	0.150	0.420**	0.473**	0.219
	(0.144)	(0.149)	(0.185)	(0.197)	(0.181)
Information Session			-0.896***	-0.884**	
× Use Pads Baseline			(0.338)	(0.353)	
Free Pads & Information Session	0.543***	0.512***	0.600***	0.840***	0.699***
	(0.164)	(0.168)	(0.194)	(0.224)	(0.214)
Free Pads & Information Session			-0.334	3.209***	
× Use Pads Baseline			(0.434)	(0.374)	
Information Sessions with Stigma Module					-0.131
					(0.224)
Free Pads & Information Sessions					-0.349
with Stigma Module					(0.266)
Use Pads Baseline		0.710***	1.307***	1.242***	0.709***
		(0.131)	(0.269)	(0.275)	(0.131)
Mean Pad Use Rate at Endline, Control Group	2.48				
Factory FE	Y	Y	Y	Y	Y
Worker Controls		Y	Y	Y	Y
R-squared	0.056	0.097	0.113	0.133	0.102
Observations	881	856	856	758	856
Sample				workers still at factory	

Notes: Table replicates Table 4, but using the raw four-item pad adoption at endline variable as outcome, coded as 0 "Never", 1 "Sometimes", 2 "Often", and 3 "Always". All specifications estimated by ordered probit. Worker Controls are worker age, marital status, parental status, years of schooling, baseline willingness to pay for pads, and whether born in village vs city. Robust standard errors in parentheses: * < 0.1, ** < 0.05, *** < 0.01.

Table 10: HR Data based outcomes, with Stigma Module in Information Session

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Excluding Month of Unrest at 1 Factory				
Dependent Variable:	Absent	Overtime	Earnings	Absent	Overtime	Earnings	Earnings	Stay at Factory
Free Pads	-0.115	-0.783	164.688*	-0.133*	-0.806	165.978*	127.151	0.028
	(0.074)	(0.630)	(94.565)	(0.076)	(0.642)	(96.162)	(95.286)	(0.035)
Information Session	-0.189*	-1.339*	85.880	-0.206**	-1.349*	87.880	30.402	0.052
	(0.102)	(0.766)	(112.989)	(0.104)	(0.782)	(114.806)	(112.427)	(0.041)
Free Pads & Info Session	-0.053	-0.538	9.807	-0.057	-0.543	12.958	-3.959	0.066
	(0.092)	(0.839)	(113.284)	(0.094)	(0.857)	(115.377)	(113.017)	(0.040)
Information Session	0.076	1.238	26.722	0.071	1.235	27.955	40.650	-0.000
with Stigma Module	(0.125)	(1.008)	(126.232)	(0.127)	(1.027)	(128.104)	(123.525)	(0.046)
Free Pads & Info Session	0.177	-0.816	-83.319	0.170	-0.850	-90.626	-47.188	-0.055
with Stigma Module	(0.109)	(0.994)	(139.531)	(0.112)	(1.015)	(142.114)	(135.076)	(0.047)
Absent							-280.106***	
							(11.686)	
Mean Control Group:	0.640	29.23	9711.5	0.550	29.53	9710.5	9710.5	0.796
Factory-Month FE	Y	Y	Y	Y	Y	Y	Y	
Worker FE	Y	Y	Y	Y	Y	Y	Y	
Factory FE								Y
R-squared	0.256	0.697	0.825	0.197	0.694	0.825	0.848	0.013
Observations	12,164	12,164	11,913	11,977	11,977	11,726	11,726	997

Notes: Table replicates Table 5, but adding two independent variables. The first is an indicator variable for those workers that were randomised into information sessions that also included the stigma module, but not into access to free pads. The second is an indicator variable for those workers who were randomised into access to free pads and the information session with the stigma module. Both variables interacted with post-treatment start dummies. The definitions of the variables "Information Session" and "Free Pads & Info Session" remains unchanged from Table 5. Thus the coefficients on the two new variables show the difference in average outcomes between those workers attending information sessions with stigma modules, and those who are randomised into the same treatments ("Information Session" and "Free Pads & Info Session"), just without the stigma module. * < 0.1, ** < 0.05, *** < 0.01.

Abstrakt

Provádíme randomizovanou kontrolovanou studii na vzorku 1000 pracovnic oděvní výroby v třech továrnách v Bangladéši. V rámci studie nabízíme 500 vybraným pracovnicím menstruační vložky zdarma. Provedli jsme křížovou randomizaci s účastí na informační schůzce o hygienické menstruační zdravotní péči, která je implementována lokální zavedenou NGO, a měníme zastoupení běžně vnímaných tabu v procesu získávání vložek. Zjišťujeme, že vložky zdarma a informační schůzky mají vliv na používání vložek dle subjektivního hlášení účastnic programu. Naproti tomu nenalézáme vliv změn v zastoupení tabu. Nacházíme vliv na absentérství a dodržování tradičních omezujících a zdravotně nepříznivých tabu obklopujících menstruaci, ale žádný vliv na obrat pracovníků v práci nebo zdraví pracovnic založeného na subjektivních hlášení.

Předběžná verze: Studie je aktuálně opakována v období od září 2019 do dubna 2020 s dodatečnými 1000 pracovnicemi k dosažení finální velikosti vzorku.

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