



Endline Report of the HALOW+ Health Intervention: Worker and Supervisors

Ana Antolin
Laura Babbitt
Drusilla Brown

13 December 2019

Contents

Contents	2
List of Tables	3
List of Figures	3
1. Intro	4
2. Methodology and Data	5
Experimental Design	5
Analytical Model	6
Data Descriptive Statistics	8
3. Factory Level Results	10
Supervisor Buy-in and Zero-Sum Beliefs	10
Supervisor Rehumanization of Workers	12
Worker and Supervisor Perceived Power Composition of Factory	13
Supervisor and Worker Morale	15
Workplace Harassment and Abuse	18
Perceptions of Factory Facilities	21
4. Worker Level Effects	23
Symptoms	23
Changes in Knowledge and Behavior	25
Household Decision Making and Spending	28
5. Key Findings	30
Appendix: Worker Items and Summary Statistics	32
Appendix: Supervisor Items and Summary Statistics	40

List of Tables

Table 1 Worker Demographic Information	8
Table 2 Supervisor Demographic Information	9
Table 3 Supervisor Perspective on HALOW+ Effectiveness and Zero-sum Beliefs	11
Table 4 Supervisor Rehumanization of Workers	13
Table 5 Power Ladder Placements of Workers and Supervisors	15
Table 6 Supervisor Morale.....	16
Table 7 Worker Morale and Empowerment	17
Table 8 Supervisors Results on Accountability, Sexual Harassment, and Verbal Abuse	19
Table 9 Worker Reports of Verbal Abuse and Sexual Harassment.....	20
Table 10 Worker Perceptions of Factory Facilities	21
Table 11 Worker Symptoms that Worsened After Treatment	23
Table 12 Worker Symptoms that Improved After Treatment.....	24
Table 13 General Health and Female Nutrition	25
Table 14 Handwashing Knowledge and Behavior.....	26
Table 15 Reproductive and Women's Health Knowledge and Behavior.....	27
Table 16 Household Outcomes and Female Decision Making.....	28
Table 17 Household Assets.....	29

List of Figures

Figure 1 Experimental Timeline	5
Figure 2 Worker Placement on Power Ladders, all data	14
Figure 3 Supervisor Placement on Power Ladders, all data	14

1. Intro

HALOW+ (an extension of the Health Access and Linkage Opportunities for Workers project) is a partnership among GSK, M&S, and CARE, aimed at increasing Bangladeshi factory workers' knowledge, empowerment, and access to health services. These workers often have low economic and social status, making it difficult for them to advocate for their needs. Because there is significant room for improvement in workers' health (e.g., anemia is prevalent), and improved health is not just a benefit to workers but also facilitates greater productivity, this project combines the expertise of the three partner organizations to improve worker health and factory outcomes.

The program begins by engaging factory management to improve understanding of the project, communication, and buy-in. Then workers in factories are identified and trained as Health Champions—i.e., workers who will be responsible for training fellow workers in communicating health and social needs, making decisions and negotiating, health topics (including hygiene and nutrition) and gender topics (including gender discrimination and violence against women). These identified workers are not necessarily the workers who are surveyed and whose data contributes to the findings of this report. Master trainers (e.g., supervisors and managers) offer support to Health Champions. Other aspects of the project include improvement of factory health services (e.g., iron and folic acid supplements and vaccinations) and strengthening referral networks. Chain drills are then run to fully disseminate information throughout the factory.

The structure of this report differs from the structure of the baseline and midline reports. **Instead of dividing findings by health topics, we instead group the findings by changes at the factory level and changes at the worker level. This enables us to explore different patterns that happen across health outcomes.** The report sections are as follows: Section 2 includes a description of the experiment designed to assess the effectiveness of HALOW+, the analytical approach to the collected data, and the basic characteristics of workers and supervisors; Section 3 includes findings at the factory level, including supervisor buy-in, aspects of factory culture, and worker perceptions of factory facilities; Section 4 contains all worker-level findings and is where worker health outcomes are discussed, along with other information like their household dynamics; Section 5 concludes as a summary of the key findings of the report.

2. Methodology and Data

Experimental Design

The HALOW+ program evaluation was designed as a control trial in which 15 participating factories were divided evenly into 3 batches. The introduction of the HALOW+ intervention was then staggered between batches to allow us to both control for changes that occurred over time that were unrelated to the program and then also short-term and long-term of program exposure. Comparing short-term and long-term exposure helps to identify cases of “decay,” where there are initially strong treatment effects that fade overtime, or “curing,” where treatment effects are lagged and do not arise until later in the program. Three data collections occurred: a baseline, midline, and endline, in which workers, supervisors, and managers from all 15 factories were surveyed on of health knowledge, access to health services, empowerment, productivity, and health outcomes.

Figure 1 gives a timeline of the program evaluation. It shows approximately when each factory batch began HALOW+ and then what level of program exposure (just treated, treated long ago, or treated long long ago) they had at the following data collection. The first batch of factories started HALOW+ soon after the baseline occurred, the second batch received treatment several months later, and the third batch received treatment after the completion of the midline data collection.

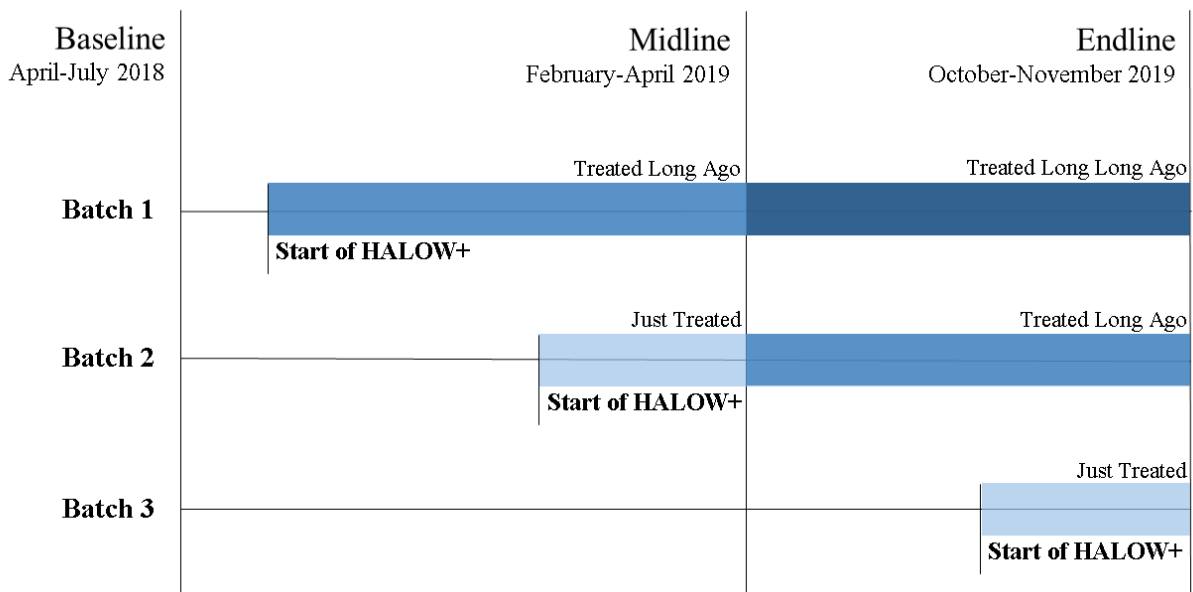


Figure 1 Experimental Timeline

It is worth noting possible limitations of the analysis in this report. First, the number of months represented by the “treated long ago” group is different between Batch 1 and Batch 2. Slightly more time elapsed between the start of HALOW+ in Batch 2 factories and the endline, than the amount of time that elapsed between the start of the program in batch 1 and the midline. This could affect variables in which there is a decaying or curing affect occurs as the number of months is different. It could also the amount of variation in the “treated long ago” group which can increase the standard error and reduce statistical significance.

Second, during the analysis of the midline report, we discovered that the control factories in Batch 3 experienced sizable changes that were unrelated to HALOW+. This caused the analysis to show statistically significant treatment effects that were not driven by HALOW+, but by some other mechanisms in the control factories. We were able to identify several concurrently running factory interventions that may confound results. The other programs spanned a number of topics including empowerment, financial literacy, social compliance auditing, and health. Many of these programs are controlled for in the analysis. While this limited some of the effects happening in the Batch 3 factories, it did not eliminate them, meaning that there are still some instances where a statistically significant treatment effect is instead caused by a significant change in the Batch 3 factories between the baseline and midline, during which time it was the control batch. We make note of these instances in the report.

Finally, due to unforeseen setbacks, the introduction of HALOW+ into Batch 3 factories was delayed, which meant that not all factories had completed the whole HALOW+ program by the endline. All factories had completed the training modules, but the chain drills were ongoing. Two of the five Batch 3 factories had completed 50% or less of the chain drill intervention. This may lead to an underestimation of the immediate treatment effect.

Analytical Model

Within the 15 factories and across the three data collections, we analyze data from two different sources: workers and supervisors. Using data from these sources provides depth to findings that we would not have otherwise, especially with regard to changes made at the factory level. We are able to compare the perspectives of each group to see where there are complementary findings between groups or where the groups are affected differently by HALOW+.

At the worker level, we use GLS regression modeling with standard errors clustered by factory. Results tables display the primary variables of interest: *justtreated*, *treatedlongago*, and *treatedlonglongago*, which estimate HALOW+ effects immediately following the end of the program, a few months after the end of the program, and many months after the end of the program respectively. Time trends at the midline and endline are also displayed to show how outcomes changed across factories. Not displayed in result tables are factory fixed effects, the controls for the concurrently running programs, and controls for worker characteristics including: gender, age, education, marital status, experience within their current factory, and their overall fulltime experience.

Certain outcomes are specific to a subgroup of workers, such as questions about children that are asked only to married workers, or may be different between subgroups, for example, women may display different symptoms than men, or their symptoms may have different causes. In these cases, regressions are run only on that subgroup of workers and this is clearly labeled in the results tables.

The approach to supervisor data is nearly identical, using GLS regression modeling with the same factory controls and treatment variables of interest. The main differences are that there are no tests divided by supervisor subgroups and the supervisor characteristics controlled for are gender, age, years of experience as a supervisor, work history before becoming a supervisor, and the number of workers they supervise.

Averages of all worker and supervisor survey questions, even if the variable is not in the text of the report, are included in the appendices.

Explaining Statistical Significance

In regression analysis, we are generally asking the question “Are these variables related?” We will never know the “true” value of a relationship between variables, but we can estimate it. To do so, we use the estimated coefficients and standard errors (shown in regression tables respectively as the numeric values outside and inside the parentheses) and consider the likelihood that the “true” relationship value between variables is not zero. A value of zero would mean there is no evidence of a relationship. In the regression tables in this report, one star (*) on a coefficient means that there is a 90% chance that the “true” value is not zero, meaning that there is a 90% chance that the variables are related. This does not necessarily mean that there is a

90% chance that the “true” value matches the estimated coefficient, only the likelihood it is not actually zero. Two stars (**) means that there is a 95% chance that the “true” value isn’t zero. Three stars (***) means that there is a 99% chance that the two variables are related; we consider three stars to be strongly significant.

Data Descriptive Statistics

Workers

There are 2,221 worker observations with full demographic information across all three data collections. At the baseline, a primary survey group and a back-up group were randomly selected from a roster from the factory. For the following data collections, workers that were surveyed in the previous data collections and were still working in the factory were surveyed again. Then, a random selection of workers were surveyed to replace workers no longer at the factory and fill out the sample. Retention was low, with slightly more than half of respondents being surveyed in only one of the three data collections. There were 338 workers who responded to two out of three collections and only 142 workers answering in all three. Table 1 displays the demographic information of the sample.

The sample is nearly balanced by gender with 49.6% of respondents identifying as women. Nearly 70% of respondents are married. Workers are on average between 21 and 25 years old with 6-8 years of schooling. The average number of years the workers have worked full time is 3, but the mode is 7 years. Of those years of experience, workers have generally spent two years in their current factory.

Table 1 Worker Demographic Information

VARIABLES	N	mean	sd	min	max
Female	2,221	0.496	0.500	0	1
Has never been married	2,221	0.288	0.453	0	1
Currently married	2,221	0.692	0.462	0	1
Age scale	2,221	3.589	1.169	1	7
Education scale	2,221	3.565	1.260	1	6
Experience in factory scale	2,221	2.440	0.775	1	3
Years of fulltime work scale	2,221	3.848	2.182	1	7

Supervisors

We have complete demographic data for 471 supervisor observations across all data collections. Retention of supervisors is higher with less than a third (132) of supervisors responding in only one of the three survey rounds. There were 84 respondents who answered in two of the three rounds and 57 supervisors responded in all three.

The gender divide is more imbalanced for supervisors with fewer than 10% of respondents being women. Supervisors are also slightly older than their workers, being on average 26-30 years old. The supervisors have on average worked two years as a supervisor, but the mode is 5-8 years. The vast majority of the supervisors (90%) have worked previously as workers. About one third of supervisors have been promoted from within their own factory while half have been at a worker at a different factory before becoming a supervisor in their current factory. The supervisors on average have about 39 workers reporting to them directly.

Table 2 Supervisor Demographic Information

VARIABLES	N	mean	sd	min	max
Female	471	0.0955	0.294	0	1
Age scale	471	4.304	1.043	2	7
Years of experience as a supervisor scale	471	7.285	3.073	1	11
Has been a worker in current factory	471	0.357	0.480	0	1
Has been a worker in another factory	471	0.529	0.500	0	1
Number of workers supervised	471	38.96	49.23	1	450

3. Factory Level Results

Supervisor Buy-in and Zero-Sum Beliefs

Buy-in items measure whether supervisors believe that HALOW+ is effective, which can in turn affect how much they learn from the training and whether they will proceed to make changes in the factory. Findings in the supervisor data suggest that program buy-in increases following treatment. These findings are supported by responses in the manager surveys which suggest that managers also may have increased their buy-in over time and expressed more interest in making organizational changes in the factory.

Questions regarding supervisor buy-in are:

- Training through the HALOW+ program is not a good use of time. (agree scale: 1 *Strongly Disagree* to 5 *Strongly Agree*)
- Training through the HALOW+ program leads to better results for the factory. (agree scale)
- Training through the HALOW+ program is good for workers. (agree scale)

We also use a buy-in composite, which is the average of the two statements regarding whether HALOW+ leads to better results and if it is good for workers; these two items are strongly correlated with each other ($p < .001$). Across all data collection rounds, we find that supervisor buy-in is high. The averages of the two items in the composite are both above 4, meaning that supervisors tend to agree or strongly agree with the statements. Responses to the item “HALOW+ is not a good use of time” are slightly more neutral with an average of 2.256, which lies between “disagree” and “neither agree nor disagree;” however, this item may have been processed differently because it was negatively worded rather than positively worded (see, e.g., Lindwall et al., 2012).

Table 3 shows regression results for supervisor buy-in. Columns 1 and 2 show that buy-in to HALOW+ is delayed but improves significantly many months after initial treatment. Supervisors are less likely to agree that HALOW+ is not a good use of time (a positive result) and more likely to agree that it leads to better results in the factory.

Interestingly, supervisor responses about whether HALOW+ is good for workers become slightly (but not significantly) more negative. This item does however drive the estimates in the buy-in composite variable, which suggests that buy-in declines several months after treatment and then returns to baseline levels. **Ultimately this may suggest that supervisors see the value of HALOW+ within the factory but do not feel as strongly about its direct impact on workers.**

Beyond supervisors' specific perspectives on HALOW+, we see a temporary shift away from zero-sum beliefs regarding the interchange between improving conditions and factory performance. If supervisors believe that improving working conditions can only worsen factory performance, they will be less likely to think that improving conditions is a good idea. Column 5 looks at treatment effects on supervisors' responses to the statement, "When working conditions for workers improve, factory performance goes down" on the agree scale. Several months after treatment, supervisors' zero-sum beliefs decline. The effect is limited, however, given that it is only weakly significant and disappears in the following months.

Table 3 Supervisor Perspective on HALOW+ Effectiveness and Zero-sum Beliefs

VARIABLES	All Supervisors				
	(1) Buy-in: Not Good Use of Time	(2) Buy-in: Better Results	(3) Buy-in: Good for Workers	(4) Buy-in Composite	(5) Zero-Sum Beliefs
justtreated	-0.180 (0.349)	0.0737 (0.104)	-0.211 (0.152)	-0.107 (0.114)	-0.241 (0.207)
treatedlongago	-0.568 (0.556)	0.0849 (0.109)	-0.435 (0.270)	-0.243* (0.132)	-0.371* (0.198)
treatedlonglongago	-1.175* (0.668)	0.488** (0.192)	-0.409 (0.447)	-0.0590 (0.270)	-0.325 (0.203)
midline	-0.525* (0.287)	-0.0881 (0.0997)	0.183 (0.201)	0.0948 (0.114)	0.254 (0.206)
endline	-0.192 (0.557)	-0.242 (0.161)	0.419 (0.365)	0.174 (0.197)	0.476** (0.218)
Observations	387	440	433	427	459
Number of uniqueID	243	263	262	258	270

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Supervisor Rehumanization of Workers

Evidence from supervisors and managers suggests that they have an improved view of the workers in their factory. The regression results in Table 4 show the changes in the extent to which supervisors see their workers in dehumanized terms. The dehumanization composite is a variable that averages the responses of six statements about dehumanization:

- The workers in this factory do not think for themselves and must be told what to do. (agree scale)
- The workers in this factory do not understand complicated ideas. (agree scale)
- The workers in this factory respond better to scolding than encouragement. (agree scale)
- The workers in this factory will not work hard unless we force them to. (agree scale)
- The workers in this factory are likely to go work in another factory if they think they can make even a little bit more money there. (reversed agree scale)¹
- The workers in this factory are motivated by money more than anything else. (reversed agree scale)

Column 1 suggests that there is a brief decline in the extent to which supervisors view their workers in dehumanized terms immediately after treatment but, unfortunately, it disappears over time. Columns 2 and 3 show individual dehumanization questions with statistically significant treatment effects. The columns show that after considerable exposure to HALOW+, supervisors are less likely to think that they must force their workers to work hard but are more likely to believe that their workers are primarily driven by money.

¹ The extent to which this statement and the one following it are measures of dehumanization is debatable. They can be seen as supervisors having negative views about their workers' intent and underestimating the extent to which workers are motivated by a desire to learn or find meaning in their work, or it can capture the extent to which the supervisor is being realistic about worker loyalty to the factory. However, the fact that these questions are strongly correlated with the other dehumanization questions suggests the former interpretation rather than the latter.

Table 4 Supervisor Rehumanization of Workers

VARIABLES	All Supervisors		
	(1) Dehumanization Composite	(2) Dehumanization: Must Force Workers to Work Hard	(3) Dehumanization: Workers Motivated Mostly by Money
justtreated	-0.266* (0.143)	-0.115 (0.157)	0.0349 (0.238)
treatedlongago	-0.252 (0.194)	-0.241 (0.149)	0.490* (0.271)
treatedlonglongago	-0.262 (0.308)	-0.537** (0.263)	1.016*** (0.309)
midline	0.0182 (0.151)	0.0295 (0.146)	-0.397** (0.190)
endline	0.0568 (0.253)	0.289 (0.233)	-0.863*** (0.260)
Observations	376	448	410
Number of uniqueID	244	270	255

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Worker and Supervisor Perceived Power Composition of Factory

Both workers and supervisors were given questions about relative power in the factory, with power represented by ladders. Respondents chose a rung on the ladder, from 1 (least powerful) to 10 (most powerful), for various people in the factory. Workers placed themselves, their most direct supervisor, and their manager. Supervisors placed themselves and their manager. So, for example, a worker who feels especially disempowered might put themselves on the bottom rung, a value of 1, and put their supervisor and manager on top rungs, 9 and 10. The placement distributions for workers and supervisors are presented visually in Figures 2 and 3. Using all data, we see that 20% of workers place themselves on the bottommost rung of the power ladder while over a third place their managers on the topmost rung. Comparatively few supervisors place themselves on the bottommost rung, instead using the third, fourth, or fifth lowest, but a significant number still place their manager on the topmost rung. In regression analysis, we also measure the difference between where the worker places themselves and their superiors to test how powerful they feel relative to those in higher positions.

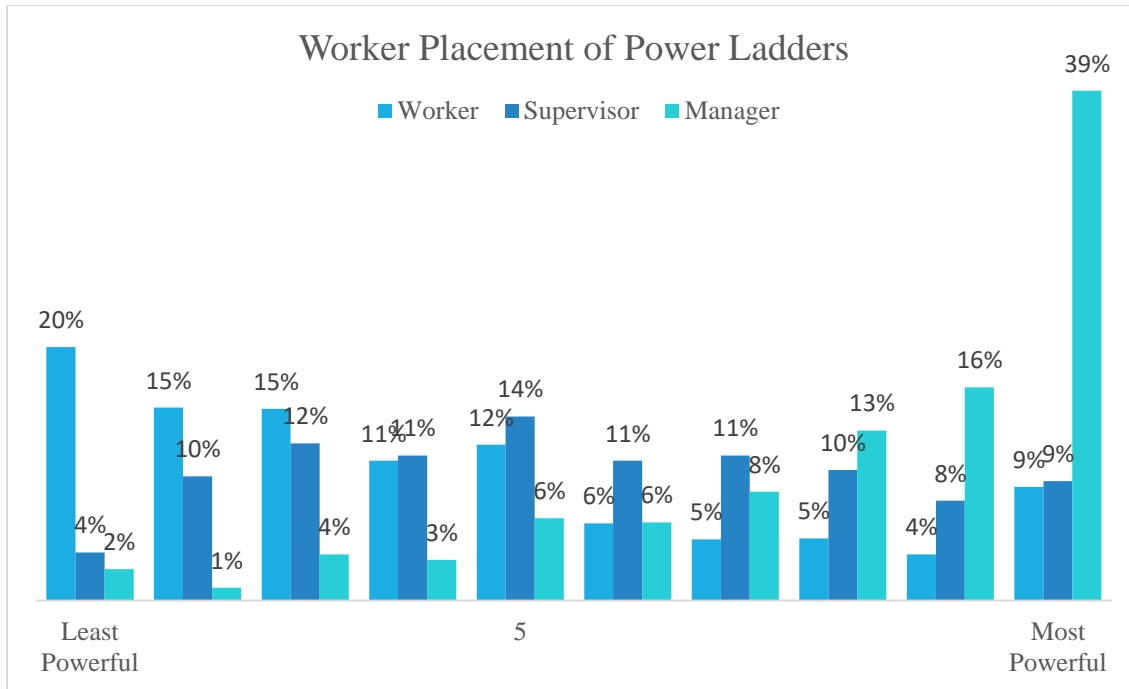


Figure 2 Worker Placement on Power Ladders for Themselves, Supervisor, and Manager, all data

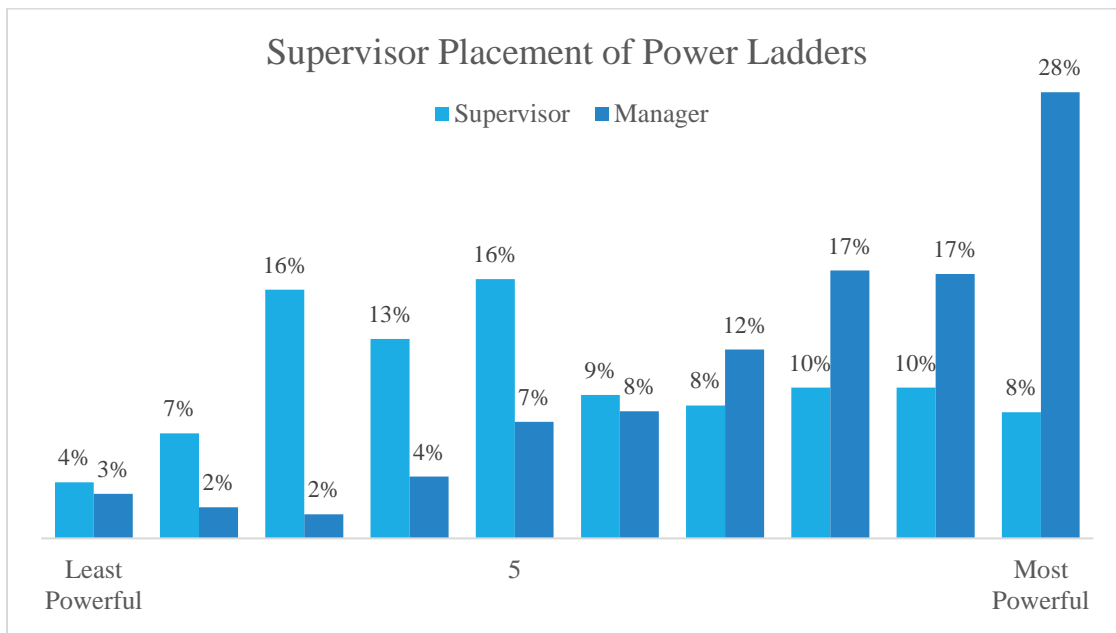


Figure 3 Supervisor Placement on Power Ladders for Themselves and Manager, all data

Table 5 shows statistically significant changes to ladder placements for both workers and supervisors. In the case of workers, columns 1, 2 and 3 show that they perceive that people at all levels in the factory become more powerful. The change of perception is immediate and cures over time. While workers see themselves as more powerful, in column 4 we see that they perceive their supervisors as gaining even more power, to the extent that the perceived power differential increases. Fortunately, this effect decays in the long run.

Conversely, while workers see themselves and supervisors gaining power, supervisors temporarily believe that they are losing power. Neither group, however, perceives a change in the power dynamic between themselves and their manager.

Table 5 Power Ladder Placements of Workers and Supervisors

VARIABLES	All Workers				All Supervisors
	(1) Worker Self Placement	(2) Worker Supervisor Placement	(3) Worker Manager Placement	(4) Difference between Self and Supervisor Placements	(5) Supervisor Self Placement
justtrained	0.628*** (0.176)	1.090*** (0.215)	0.792*** (0.240)	0.498** (0.196)	-0.785 (0.671)
trainedlongago	0.698*** (0.173)	1.243*** (0.303)	1.044*** (0.284)	0.544* (0.309)	-0.927** (0.451)
trainedlonglongago	0.952*** (0.291)	1.766*** (0.507)	1.256** (0.494)	0.743 (0.474)	-2.092 (1.336)
midline	-0.600*** (0.156)	-0.655*** (0.163)	-0.013 (0.145)	-0.164 (0.159)	0.908** (0.410)
endline	-0.795*** (0.185)	-1.231*** (0.308)	-0.514* (0.277)	-0.490* (0.275)	2.876*** (0.779)
Observations	2,166	2,131	2,124	2,102	435
Number of uniqueID	1,568	1,549	1,541	1,533	262

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Supervisor and Worker Morale

HALOW+ appears to have positive, however limited, effects on supervisor morale, making them less stressed and more stimulated at work and less likely to feel like difficult problems arise. Table 6 shows supervisor responses with statistically significant treatment effects. *Stress* measures supervisor responses to “How often do you feel stressed, tense, restless,

nervous or anxious, or are not able to sleep at night because your mind is troubled?” on the frequency scale, 1 (*Never*) to 5 (*Always*). Column 1 shows that supervisor stress declines slightly several months after treatment, but the effect is weak and disappears over time.

Heaviness of workload is a measure of cognitive load and refers to the question “How heavy was your workload during the last month?” on a 1-5 scale where 1 means “Often not enough to keep me busy,” 3 means “Just the right amount,” and 5 means “Entirely too much for me to handle.” The overall average response is 2.716, suggesting that supervisors may in general, feel slightly under-stimulated by their work. The treatment effect of 0.359 several months after the program is positive because it means that supervisors are generally trending toward feeling like they have just the right amount of work. However, this effect decays over time and is counteracted by a negative time effect.

Column 3 shows results for the question, “In the last month, how often did difficult problems arise in your work for which there were no immediate solutions?” (frequency scale), which is a measure of supervisor cognitive load. There is a delayed, but strongly significant decline in the frequency of difficult problems. It is possible that this is related to managers’ intentions to increase supervisor training and improve grievance procedures within the factory, which better equips supervisors to handle issues that arise in the factory.

Table 6 Supervisor Morale

VARIABLES	All Supervisors		
	(1) Stress	(2) Heaviness of Workload	(3) Difficult Problems
justtreated	-0.278 (0.240)	0.263 (0.170)	-0.138 (0.116)
treatedlongago	-0.634* (0.383)	0.359* (0.207)	-0.358*** (0.0937)
treatedlonglongago	-0.734 (0.519)	0.506 (0.314)	-0.312*** (0.106)
midline	0.300 (0.296)	-0.337* (0.186)	0.229*** (0.0811)
endline	0.512 (0.421)	-0.500* (0.269)	0.295*** (0.102)
Observations	450	440	422
Number of uniqueID	266	265	256

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

From the worker’s perspective, HALOW+ has a mixed effect on morale. Table 7 shows worker responses to questions about morale and empowerment. Columns 1 and 2 show that **worker job satisfaction worsens but their turnover intention (Feel like Quitting) improves**. Both effects are strongly significant and appear to have delayed but lasting effects. The magnitude of the effect on turnover intention is roughly twice the size of the effect on job satisfaction. The negative effect on job satisfaction is counteracted a bit by positive time trends while there are no significant time effects on turnover intention. Interestingly, job satisfaction and turnover intention are not correlated with each other. Later in this section, we discuss possible explanations for these changes, with **one theory being that workers may be simultaneously less satisfied with the conditions of their workplace but also aware of improvements in the workplace culture which make them more likely to stay**.

Table 7 Worker Morale and Empowerment

VARIABLES	All Workers			
	(1) Job Satisfaction	(2) Feel Like Quitting	(3) Knows Rights	(4) Receive Productivity Bonus
justtreated	-0.045 (0.077)	-0.207 (0.188)	-0.085 (0.058)	0.015 (0.063)
treatedlongago	-0.185** (0.085)	-0.316** (0.160)	-0.159* (0.090)	-0.070 (0.075)
treatedlonglongago	-0.386*** (0.123)	-0.545*** (0.189)	-0.268 (0.173)	-0.234** (0.115)
midline	0.198*** (0.066)	0.089 (0.155)	0.028 (0.057)	0.015 (0.076)
endline	0.256** (0.113)	0.269 (0.169)	0.005 (0.126)	0.053 (0.105)
Observations	2,165	2,029	2,135	2,004
Number of uniqueID	1,572	1,496	1,557	1,481

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In addition to changes in morale, workers appear to have mixed findings in terms of empowerment. In the previous section we saw that workers perceived themselves as more powerful overall, but that the difference between how powerful they felt and how much power their supervisor had increased. Another empowerment variable that has a statistically significant effect is the extent to which workers believe they know their rights. **There is a weakly significant decline in the amount that workers agree that they know their rights several months after**

treatment. This was also observed at the midline, but we have yet to identify why workers would feel like they know less.

The percentage of workers receiving productivity bonuses is also included in Table 7 since incentivized pay may influence job satisfaction if it affects overall worker pay. In other research, we have also found that incentivized pay can sometimes be exploited by workers' superiors and increase the risk of abuse at work. Consistent with the findings that managers were considering altering their pay system, in the long run it appears that fewer workers are reporting receiving productivity bonuses, an estimated effect of 23.4%.

Workplace Harassment and Abuse

Results from worker and supervisor data suggest an improvement in factory culture, such that verbal abuse is seen as less acceptable and declines, and workers may be more comfortable coming forward and reporting instances of sexual harassment.

Three questions from the supervisor survey regarding sexual harassment, verbal abuse, and supervisor accountability had statistically significant treatment effects and are shown in Table 8:

- My evaluations of workers are sometimes reviewed by managers. (agree scale)
- (If a supervisor in this factory has said that he can make things very difficult for a female worker by treating her badly unless she has sex with him.) There is a very good chance she would be taken seriously if she made a formal complaint. (agree scale)
- In this factory, it's seen as acceptable for supervisors or managers to yell at workers who make mistakes or need to work faster. (agree scale)

After long-term exposure to HALOW+, supervisors report that there is both an increase in their accountability to managers and the extent to which reports from workers about inappropriate behavior from supervisors would be taken seriously. The results are not only significant but have a large magnitude. In the case of accountability, there was an increase of nearly a point (0.867) and in the case of reports being taken seriously, the treatment effect is greater than a single response level (1.059). These indicate a decline in a culture that implicitly tolerates sexual harassment and suggest that the factories may be working to improve the ways in which workers can report. These findings may be related to managers reporting increased evaluations of supervisors and considering changing grievance reporting procedures.

Table 8 Supervisors Results on Accountability, Sexual Harassment, and Verbal Abuse

VARIABLES	All Supervisors		
	(1) Worker Evaluations Reviewed by Manager	(2) Sexual Harassment Reports Taken Seriously	(3) Verbal Abuse Seen as Acceptable in the Factory
justtreated	0.103 (0.226)	0.293 (0.268)	-0.392 (0.337)
treatedlongago	0.253 (0.213)	0.425 (0.391)	-0.710** (0.346)
treatedlonglongago	0.867** (0.377)	1.059** (0.504)	-0.890** (0.444)
midline	0.0666 (0.194)	0.119 (0.187)	0.397 (0.320)
endline	-0.368 (0.278)	-0.380 (0.343)	0.755** (0.343)
Observations	421	443	451
Number of uniqueID	255	264	265

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The changes observed at the supervisor level are consistent with findings at the worker level regarding their experience of verbal abuse and sexual harassment. Table 9 gives workers' responses to the questions:

- How often does your supervisor yell at you to make you work faster, or for making mistakes? (frequency scale)
- Do any of the supervisors or managers ever talk to you or touch you in a sexual way? (1 *No, never* to 4 *Yes, often*)
 - We also made this question into a binary variable in which 0 means “No, never” and 1 is any response other than “No.” This is meant to capture the idea that any amount of sexual harassment is too much. It also allows us to look at the percent change as time passes after treatment.
 - We also focus on female workers as the primary target of harassment.

Reported occurrences of verbal abuse and sexual harassment are low. Their respective averages are 1.756 and 1.084, meaning that most workers respond between “never” and “rarely”

for sexual harassment and that verbal abuse happens more often (or workers are more likely to report verbal abuse than sexual harassment).

Table 9 Worker Reports of Verbal Abuse and Sexual Harassment

VARIABLES	All Workers (1)	Female Workers Only	
	Supervisor Yelling	(2) Sexual Harassment	(3) Sexual Harassment (Binary)
justtreated	-0.081* (0.043)	0.074** (0.037)	0.020 (0.016)
treatedlongago	-0.190** (0.086)	0.125** (0.059)	0.044** (0.022)
treatedlonglongago	-0.142 (0.126)	0.216** (0.093)	0.087** (0.042)
midline	0.196*** (0.064)	-0.103* (0.056)	-0.034* (0.018)
endline	0.281** (0.123)	-0.172* (0.090)	-0.062* (0.033)
Observations	2,188	1,083	1,083
Number of uniqueID	1,584	783	783

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Column 1 suggests that there was an immediate decrease in verbal abuse following the end of HALOW+ and persisting several months after. The effect does however decay and become nonsignificant in the long run. At first glance, the findings in Columns 2 and 3 are concerning. Worker reports of the severity of sexual harassment increase significantly immediately following treatment and increase over time. Many months after treatment, workers are nearly 9% more likely to report any level of sexual harassment. While this could suggest that supervisors are worsening their treatment, there is also the possibility that the increase is an effect of greater reporting. The findings from supervisor data suggest that reports are taken more seriously. If this is happening, then women are likely to feel more comfortable reporting harassment.

Perceptions of Factory Facilities

Worker perceptions of factory facilities were either unchanged or worsened. Table 10 displays the statistically significant findings for the questions:

- Toilet facilities for workers in this factory are... (1 *never clean, private, and easy to get to* to 5 *always clean, private, and easy to get to*)
- How often is there nutritious food available at the factory canteen? (frequency scale)
- How often is there a covered bin available for sanitary napkin disposal in the factory washroom? (asked only to women) (frequency scale)

With all three variables, worker perceptions of these facilities worsened at least temporarily. Workers' view of the factory's toilet facilities declines several months after treatment, but then returns to baseline levels over time. In the case of seeing nutritious food in the canteen, the time effect is immediate and intensifies over time. Many months after treatment, worker reports of the frequency of nutritious food have declined by nearly a response level.²

Table 10 Worker Perceptions of Factory Facilities

VARIABLES	All Workers		Female Workers Only
	(1) Toilet Quality	(2) Nutritious Food in Canteen	(3) Covered Bin for Sanitary Napkins
justtreated	-0.034 (0.050)	-0.421*** (0.116)	-0.174 (0.125)
treatedlongago	-0.142** (0.068)	-0.429** (0.190)	-0.415*** (0.090)
treatedlonglongago	-0.100 (0.117)	-0.902** (0.373)	-0.418*** (0.087)
midline	0.020 (0.042)	0.271** (0.131)	0.352*** (0.079)
endline	0.068 (0.092)	0.268 (0.197)	0.497*** (0.095)
Observations	2,211	1,964	1,083
Number of uniqueID	1,592	1,443	776

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

² Despite the decline in the perception that canteens have nutritious food, immediately after the program, female workers were 13% more likely to meet the Minimum Dietary Diversity for Women (MDD-W) standard. This is discussed more in following section on worker-level findings.

There was also a delayed but persistent decline in how often female workers reported having a covered bin for sanitary napkin disposal. Not having a covered bin can be an issue for several reasons. First, it is unsanitary to not have a designated area for sanitary napkin disposal. Lack of a private disposal area can also dissuade women from using sanitary napkins for fear of revealing that she is menstruating and being shamed.³

There was no change following treatment in reports on the availability of soap and water for handwashing in washrooms, the number of workers getting their sanitary pads from the factory clinic, and the percentage of workers who went to the factory clinic to seek care. One indication of improvement in factory services is that workers reported being more likely to get their birth control methods from the factory clinic following treatment (see next section), but this may be an effect of HALOW+ providing condoms to workers.

One explanation for the decline in the perception of the quality of certain factory facilities is that when HALOW+ trains workers, it teaches them what they should expect from a healthy environment. While the manager data suggests some increase in the availability of certain services, the quality of services may not improve to the level that workers expect after being educated—or could even worsen.

It is important to continue looking at factory facilities for workers because, in the SEM analysis of the baseline report, access to healthcare and facilities were some of the best indicators of improved health outcomes. Factory facilities also have a strong positive correlation with job satisfaction; all the variables in Table 10 are correlated at the $p < 0.0001$ level. We also found in the SEM analysis of the midline report that perceptions of canteen food mediated the negative treatment effect on job satisfaction: Because workers saw their food as less nutritious, they were less satisfied with their job.

³ This finding may be a case in which changes in Batch 3 are affecting the results. On average, workers' scores increased across batches but there was an especially large positive change in Batch 3 factories between the baseline and the midline (i.e., before training occurred in that batch). However, there was a decline in the average worker response in Batch 2 factories between the midline and the endline, so we are not entirely able to rule out the possibility that HALOW+ did worsen worker perceptions, especially when controlling for other worker characteristics. Average perceptions of toilets and canteens did worsen over time, especially after factories entered treatment.

4. Worker Level Effects

Symptoms

A list of 32 symptoms and conditions was given to workers to track specific health outcomes they had experienced in the last three months. It is difficult to interpret the cause of these symptoms as health conditions can present differently in different people and are self-reported by workers who likely do not have a medical background, but symptom responses can still give us insight into what workers consider to be their most persistent health concerns. Over the course of the experiment, the three most commonly reported symptoms, reported by more than a third of respondents, were headaches, weakness, and fever.

Table 11 shows the symptoms that were worsened following factories starting HALOW+. Using the data from all workers, there were increased reports of depression, diarrhea, peptic ulcers, and tuberculosis (TB) immediately after treatment. In the cases of depression, peptic ulcers, and TB, the effect did not continue in the months following. Many months after treatment, however, reports of depression increased again by 12.4%, but the effect was only weakly significant. Diarrhea is likely a falsely significant treatment effect caused by significant changes in Batch 3 factories between the baseline and the midline (two of the three factories had no reports of diarrhea at the midline). Body pain worsened several months after treatment and continued to be worse many months after treatment, but with a lower level of significance.

Table 11 Worker Symptoms that Worsened After Treatment

VARIABLES	All Workers					Female Workers Only	
	(1) Depression	(2) Body Pain	(3) Diarrhea	(4) Peptic Ulcer	(5) TB	(6) Backache	(7) Chest
justtreated	0.071** (0.030)	0.049 (0.045)	0.040** (0.020)	0.030* (0.017)	0.012** (0.006)	0.069* (0.039)	0.076* (0.043)
treatedlongago	0.067 (0.049)	0.089** (0.043)	0.063** (0.029)	0.048 (0.032)	0.008 (0.009)	0.042 (0.064)	0.032 (0.050)
treatedlonglongago	0.124* (0.067)	0.093* (0.055)	0.080** (0.039)	0.030 (0.051)	0.015 (0.014)	0.086 (0.081)	-0.041 (0.053)
midline	-0.035 (0.037)	-0.082** (0.035)	-0.064*** (0.020)	-0.016 (0.014)	-0.008 (0.005)	-0.019 (0.044)	-0.014 (0.032)
endline	-0.064 (0.063)	-0.082** (0.040)	-0.107*** (0.035)	-0.027 (0.032)	-0.015 (0.012)	-0.050 (0.065)	0.014 (0.048)
Observations	2,160	2,142	2,110	2,110	2,139	1,080	1,063
Number of uniqueID	1,561	1,554	1,538	1,538	1,558	777	768

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

When testing symptoms using data only from female workers, we see a temporary and weakly significant increase in reports of backaches and chest pain.

Table 12 shows results from symptoms that declined following treatment. For all workers, there was a delayed improvement in reports of shoulder pain and convulsions many months after the end of HALOW+. The effect on convulsions is only weakly significant. Reports of asthma also declined among workers. The effect does not arise until several months after treatment but persists over time.

Female workers experience less knee pain and fewer menstrual problems immediately after treatment. The effects increase and continue to be significant several months later. The effect eventually decays for menstruation problems, but workers in factories many months after introducing HALOW+ are an estimated 30% less likely to report knee pain. Female workers also briefly experience a decline in eye problems several months after treatment and in the long term there is a weakly significant indication that instances of food poisoning decline.

Table 12 Worker Symptoms that Improved After Treatment

VARIABLES	All Workers			Female Workers Only			
	(1) Shoulder Pain	(2) Convulsion	(3) Asthma	(4) Knee Pain	(5) Eye Problem	(6) Food Poisoning	(7) Menstruation Problem
justtreated	-0.026 (0.057)	-0.008 (0.014)	-0.000 (0.014)	-0.095** (0.048)	-0.007 (0.053)	-0.005 (0.025)	-0.099* (0.057)
treatedlongago	-0.104 (0.077)	-0.017 (0.017)	-0.039** (0.020)	-0.144* (0.075)	-0.117*** (0.044)	-0.020 (0.025)	-0.139* (0.083)
treatedlonglongago	-0.212** (0.106)	-0.044* (0.023)	-0.042** (0.021)	-0.308*** (0.110)	-0.054 (0.073)	-0.069* (0.040)	-0.135 (0.112)
midline	0.068 (0.064)	0.002 (0.013)	0.018 (0.012)	0.123* (0.066)	0.047 (0.031)	-0.037** (0.016)	0.089 (0.062)
endline	0.134 (0.093)	0.009 (0.022)	0.035* (0.019)	0.257** (0.105)	0.063 (0.051)	-0.006 (0.023)	0.135* (0.079)
Observations	2,142	2,110	2,139	1,063	1,069	1,062	1,049
Number of uniqueID	1,554	1,538	1,558	768	771	772	764

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Changes in Knowledge and Behavior

In many areas of health, we see that the effects of HALOW+ on knowledge and behavior were largely positive, suggesting that, unlike factory-level changes such as health facilities, in the areas where workers could take action, there was improvement. However, we also see a decaying of positive behavioral changes, despite retained knowledge.

General Health and Female Nutrition

Table 13 General Health and Female Nutrition

VARIABLES	All Workers (1) Received Care in Last 3 Months	Female Worker Only	
		(2) MDDW	(3) MDDW_yes
justtreated	-0.041 (0.053)	0.480* (0.282)	0.130* (0.067)
treatedlongago	-0.039 (0.044)	0.533* (0.308)	0.125 (0.101)
treatedlonglongago	-0.089*** (0.033)	0.290 (0.320)	0.081 (0.126)
midline	0.051 (0.039)	-0.141 (0.237)	-0.066 (0.079)
endline	0.047 (0.036)	-0.202 (0.320)	-0.106 (0.104)
Observations	2,138	1,011	1,100
Number of uniqueID	1,556	739	789

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

At the midline, we observed an increase in workers reporting going to qualified care providers if they did seek out health care; unfortunately, the effect is no longer significant with the inclusion of new data.

In terms of nutrition, despite declining views of food in the factory canteen, female workers were 13% more likely to meet the minimum standard of dietary diversity for women (MDD-W) immediately after treatment.⁴ Female workers also increased the number of food groups counted in the MDD-W measurement immediately following treatment and several months after. All treatment effects are only weakly significant, however.

⁴ This measurement is calculated per the Food and Agriculture Organization and USAID instructions. More information can be found at <http://www.fao.org/3/a-i5486e.pdf>

Handwashing

Table 14 shows the two handwashing items with statistically significant treatment effects. The effects on knowledge and behavior were positive, if only temporarily or weakly significant. Workers were asked “At what times during the day should you wash your hands?” and were given six options, all of which are important times for handwashing. Timing knowledge, shown in column 1, measures how many of the options the workers selected; a value of 0 means that workers chose none of the given options and 6 means they correctly chose all the options. Similarly, workers were also asked “In the last 24 hours, at what times did you wash your hands with soap and water?” and given the same six options. Responses are captured by the Timing behavior score in column 2.

Table 14 Handwashing Knowledge and Behavior

VARIABLES	All Workers	
	(1) Handwashing Timing Knowledge Score	(2) Handwashing Timing Behavior Score
justtreated	0.180 (0.148)	0.297* (0.162)
treatedlongago	0.403* (0.212)	0.358 (0.266)
treatedlonglongago	0.664* (0.401)	0.403 (0.446)
midline	0.363** (0.152)	0.248* (0.139)
endline	0.225 (0.268)	0.107 (0.256)
Observations	2,219	2,219
Number of uniqueID	1,598	1,598

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

After several month post-HALOW+, workers identified more appropriate times to wash their hands. While the effect is weakly significant, the knowledge grows and persists over time. In terms of behavior, immediately following HALOW+ workers reported washing their hands at more of the given appropriate times. However, this behavior decayed after several months. Both handwashing effects are complemented with a positive time trend at the midline, but that also decays by the endline.

Reproductive and Women's Health

There were positive treatment effects on reproductive health knowledge and behavior. Workers showed increased knowledge of eclampsia symptoms both several months after training and many months later. Worker behavior also changed, showing that they were more likely to use condoms between these time intervals as well (which was counter to declines in condom use

over time, indicated by negative midline and endline effects). Workers were marginally less likely to use the unreliable withdrawal method of birth control immediately after training, but this effect decayed and was no longer significant at later time points. In addition to asking about birth control methods, we asked workers where they obtained birth control. There was a marginal decrease in worker reports of receiving birth control from “other” – i.e., a source not listed in the survey – several months after training. **Workers were significantly more likely to report obtaining birth control from the factory clinic immediately after training, several months later, and many months after that.** The increased use of the factory clinic for birth control may be one example of factory services improving. HALOW+ works with the Bangladeshi family planning department to supply factory clinics with birth control such as condoms based on factory need. **This training effect also ran counter to a decline in receiving birth control from the factory over time, as indicated by negative midline and endline effects.**

Finally, there were positive training effects for female participants in terms of menstruation knowledge several months after training (though this effect decayed and was no longer significant many months later) and in the use of sanitary pads (though this effect also decayed and was significant only immediately after training).

Table 15 Reproductive and Women's Health Knowledge and Behavior

VARIABLES	All Workers					Female Workers Only	
	(1) Eclampsia Knowledge	(2) Uses Condom	(3) Uses Withdrawal	(4) Birth Control from Factory Clinic	(5) Birth Control from “Other” Source	(6) Menstruation Knowledge	(7) Uses Sanitary Pads
justtreated	0.119 (0.175)	0.054 (0.043)	-0.023* (0.013)	0.100*** (0.031)	-0.026 (0.024)	0.281 (0.188)	0.104** (0.051)
treatedlongago	0.418** (0.196)	0.103*** (0.033)	-0.013 (0.022)	0.162*** (0.034)	-0.050* (0.030)	0.526** (0.213)	0.064 (0.085)
treatedlonglongago	0.706** (0.317)	0.112** (0.054)	-0.019 (0.031)	0.111** (0.055)	-0.050 (0.047)	0.359 (0.265)	0.078 (0.138)
midline	-0.039 (0.179)	-0.059** (0.028)	-0.002 (0.018)	-0.088*** (0.023)	0.031 (0.025)	-0.010 (0.221)	0.077 (0.064)
endline	-0.089 (0.263)	-0.091*** (0.032)	0.005 (0.027)	-0.141*** (0.039)	0.049 (0.035)	0.057 (0.262)	0.202** (0.096)
Observations	2,219	1,536	1,536	1,536	1,536	1,100	1,100
Number of uniqueID	1,598	1,169	1,169	1,169	1,169	789	789

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Household Decision Making and Spending

The HALOW+ program improved—at least temporarily—household outcomes and female participation in decision-making. There were immediate positive effects on whether a worker’s family saved money, as shown in column 1, though this effect decayed. Both immediately after training and several months after training, women were more likely to be involved in deciding how to spend the family’s income (column 2), though the effect decayed and was no longer significant many months after training. Women were also more likely to be involved in making health care decisions immediately after training; this effect remained significant (though marginal) over time. And among married workers with children, there were positive training effects on the health of their sons (but not daughters) both immediately and several months after training, and a marginally significant positive effect many months later. There were negative midline and endline effects that are similar in magnitude to the positive training effects on health and income decision making. This means that HALOW+ countered a negative time effect: instead of reporting fewer women being involved in household decisions over time, reports for workers in HALOW+ factories did not change.

Table 16 Household Outcomes and Female Decision Making

VARIABLES	All Workers			Married Workers Only	
	(1) Family Saved Money	(2) Female Involved in Income Decisions	(3) Female Involved in Health Decisions	(4) Health of Son	(5) Health of Daughter
justtreated	0.085** (0.041)	0.042* (0.022)	0.067*** (0.020)	0.220** (0.101)	-0.066 (0.188)
treatedlongago	0.074 (0.073)	0.073** (0.033)	0.048* (0.027)	0.392** (0.179)	0.091 (0.274)
treatedlonglongago	0.123 (0.106)	0.080 (0.060)	0.063* (0.037)	0.443* (0.237)	-0.202 (0.341)
midline	0.043 (0.053)	-0.045** (0.022)	-0.036** (0.016)	-0.207 (0.137)	0.012 (0.204)
endline	-0.007 (0.092)	-0.053* (0.031)	-0.062** (0.030)	-0.412* (0.225)	-0.081 (0.297)
Observations	2,216	2,194	2,208	961	985
Number of uniqueID	1,597	1,580	1,593	746	766

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 17 shows changes in workers' responses about what assets their household possessed. Although there appear to be negative treatment effects on household assets, these effects are largely due to preexisting differences in the assets held by workers in different batches and significant changes to Batch 3 factories between the baseline and midline. Overall, however, there are gains in household assets over time, as indicated by positive effects at the midline and endline.

Table 17 Household Assets

VARIABLES	All Workers					
	(1) Running Water	(2) Radio	(3) Refrigerator	(4) Concrete Floor	(5) Electricity	(6) Television
justtreated	-0.103*** (0.035)	-0.065* (0.038)	-0.084* (0.045)	-0.075** (0.030)	-0.029 (0.021)	-0.064** (0.030)
treatedlongago	-0.194*** (0.041)	-0.126*** (0.043)	-0.110** (0.044)	-0.140*** (0.045)	-0.055 (0.035)	-0.045 (0.045)
treatedlonglongago	-0.235*** (0.049)	-0.231*** (0.067)	-0.155** (0.061)	-0.150** (0.065)	-0.077** (0.037)	0.034 (0.069)
midline	0.177*** (0.024)	0.158*** (0.026)	0.204*** (0.043)	0.132*** (0.031)	0.052*** (0.018)	0.168*** (0.032)
endline	0.231*** (0.046)	0.187*** (0.047)	0.297*** (0.058)	0.173*** (0.051)	0.108*** (0.035)	0.101* (0.057)
Observations	2,178	2,178	2,178	2,178	2,178	2,178
Number of uniqueID	1,575	1,575	1,575	1,575	1,575	1,575

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

5. Key Findings

- Factory Level
 - There were many positive, though sometimes temporary or marginal, effects on the culture of the factory.
 - Supervisors bought-in to the effectiveness of HALOW+ and temporarily decreased their belief that there is a zero-sum relationship between working conditions and factory performance
 - There was temporary rehumanization of workers in the eyes of supervisors.
 - Workers saw themselves as more powerful in the factory, but also perceived a growing power difference between themselves and their supervisors
 - Supervisors were less stressed and more stimulated at work. They were also less likely to report difficult problems arising.
 - Factory norms about verbal abuse improved and worker reports of verbal abuse declined.
 - Supervisor accountability increased as well as the belief that workers who report sexual harassment will be taken seriously. We believe this is consistent with an increase of reporting from workers.
 - Unfortunately, in factory outcomes specifically related to health, workers were not satisfied.
 - There were declines in perceptions of the nutrition of food in the canteens and the quality of washrooms.
 - For female workers, there was also a decline in the availability of covered bins for sanitary napkin disposal.
 - The quality of these services was strongly correlated with worker job satisfaction; perceptions of declining quality were accompanied by a drop in worker job satisfaction.
 - Interestingly, turnover intention declined too, which may be a result of improved factory culture.

- Worker Level
 - For health-related outcomes that workers could control—knowledge and behaviour—there were improvements in the areas of handwashing and women’s general and reproductive health.
 - However, many of these positive outcomes, especially behaviour changes, decayed over time.
 - The exception to both the decline in the perceptions of factory facilities and worker behaviour is the use of condoms that were likely supplied by the factory. The effect was immediate and lasted long after the end of HALOW+.
 - Outcomes for workers outside of the factory setting also improved.
 - Households were temporarily more likely to save their money and have a woman contribute to decisions regarding spending and health care.
 - The health of sons increased temporarily while the health of daughters remained unchanged.

Appendix: Worker Items and Summary Statistics

Variable	Response Options	N	mean	sd	min	max
Did you receive a productivity bonus the last time you were paid?	Binary	2,006	0.598	0.49	0	1
How often does an A-grade jumper or other co-worker have to help you complete your production quota?	1- Never to 5- Always	2,168	1.829	1.014	1	5
Do you have an hourly, daily or weekly production target?	Hourly	2,173	0.636	0.481	0	1
	Daily	2,173	0.171	0.377	0	1
	Weekly	2,173	0.0152	0.122	0	1
{If Hourly} How often do you complete your hourly production target within an hour?	1- Never to 5- Always	1,371	4.164	1.064	1	5
{If Daily} How often do you complete your daily production target during the regular work day?	1- Never to 5- Always	366	4.224	0.933	1	5
{If Weekly} How often do you complete your weekly production target within the week?	1- Never to 5- Always	33	4.212	0.857	2	5
I often think about quitting.	1- Strongly Disagree to 5- Strongly Agree	2,030	2.639	1.306	1	5
My supervisor cares about whether I am healthy.	1- Strongly Disagree to 5- Strongly Agree	2,148	3.731	1.229	1	5
Managers in this factory understand what workers need to stay healthy	1- Strongly Disagree to 5- Strongly Agree	2,130	3.926	1.154	1	5
Managers in this factory care about workers.	1- Strongly Disagree to 5- Strongly Agree	2,169	4.009	1.106	1	5
I believe it is appropriate for women to speak up if they need something at work.	1- Strongly Disagree to 5- Strongly Agree	2,130	4.092	1.061	1	5
How often do you feel angry, frustrated, or unimportant after talking to your supervisor?	1- Never to 5- Always	2,179	1.756	0.987	1	5
How often does your supervisor yell at you to make you work faster, or for making mistakes?	1- Never to 5- Always	2,190	1.795	0.942	1	5
Toilet facilities for workers in this factory are clean, private, and easy to get to	1- Never to 5- Always	2,213	4.624	0.783	1	5
How often is there a covered bin available for sanitary napkin disposal in the factory washroom?	1- Never to 5- Always	1,084	4.696	0.924	1	5
How often is there nutritious food available at the factory canteen?	1- Never to 5- Always	1,965	3.823	1.596	1	5
I know my rights as a worker. Do you agree?	1- Strongly Disagree to 5- Strongly Agree	2,137	4.07	0.979	1	5
During the past month, did your family:	Save money	2,218	0.309	0.462	0	1
	Spend as much as you earned	2,221	0.268	0.443	0	1
	Spend some savings	2,221	0.331	0.471	0	1
	Spend savings and borrow money	2,221	0.154	0.361	0	1

Variable	Response Options	N	mean	sd	min	max
Which of the following does your family have? Select all that apply.	Running water	2,180	0.544	0.498	0	1
	Indoor toilet	2,180	0.841	0.366	0	1
	Electricity	2,180	0.839	0.368	0	1
	Television	2,180	0.664	0.472	0	1
	Radio	2,180	0.191	0.393	0	1
	Refrigerator	2,180	0.511	0.5	0	1
	Concrete floor	2,180	0.521	0.5	0	1
What is the source of drinking water for your home?	Supply/WASA	2,211	0.489	0.5	0	1
	Deep tubewell water	2,211	0.153	0.36	0	1
	Tubewell water	2,211	0.32	0.466	0	1
	Mineral water	2,211	0.024	0.153	0	1
	Other	2,211	0.0136	0.116	0	1
I think that if water looks clean, it is probably safe to drink.	1- Strongly Disagree to 5- Strongly Agree	2,179	3.187	1.518	1	5
I am confident that I can access clean water for cooking and drinking.	1- Strongly Disagree to 5- Strongly Agree	2,188	4.096	1.098	1	5
How often do you use boiled or purified water?	1- Never to 5- Always	2,189	3.738	1.542	1	5
Who decides how the family income is spent?	I do	2,196	0.349	0.477	0	1
	My spouse does	2,196	0.403	0.491	0	1
	Another family member does	2,196	0.107	0.31	0	1
	I decide together with my spouse or another family member	2,196	0.14	0.347	0	1
Who in your family makes decisions about the health care you receive?	I do	2,210	0.365	0.482	0	1
	My spouse does	2,210	0.36	0.48	0	1
	Another family member does	2,210	0.0955	0.294	0	1
	I decide together with my spouse or another family member	2,210	0.179	0.384	0	1
(if married) I am confident that I can decide how many children I have.	1- Strongly Disagree to 5- Strongly Agree	1,448	3.285	1.431	1	5
How is the overall health of your daughter(s)?	1-Very Poor to 6-Excellent	987	3.893	1.121	1	6
How is the overall health of your son(s)?	1-Very Poor to 6-Excellent	963	3.989	1.107	1	6
I am confident that I can stay healthy.	1- Strongly Disagree to 5- Strongly Agree	2,176	3.942	1.091	1	5
How often do you feel tired for most of the day?	1- Never to 5- Always	2,210	2.379	0.824	1	5
In the last month, how many times have you missed work because you were sick?	1- None to 6- Five or More Days	1,930	1.692	2.45	0	10
In the last month, how many times did you go to work even though you were sick?	1- None to 6- Five or More Days	1,965	1.15	1.873	0	5

Variable	Response Options	N	mean	sd	min	Max
What vaccines have been given to your youngest child? Select all that apply.	BCG for tuberculosis given as injection on upper arm that leaves scar	611	0.789	0.408	0	1
	Polio given orally as drops	611	0.871	0.336	0	1
	Penta given as injections	611	0.735	0.442	0	1
	Measles/MR given as injection	611	0.712	0.453	0	1
	Hepatitis B as injection	611	0.424	0.495	0	1
	PCV given as injections	611	0.326	0.469	0	1
	Other	611	0.152	0.36	0	1
Have you experienced any of the following in the last 3 months, including now	Weakness	2,161	0.394	0.489	0	1
	Anemia	2,161	0.0652	0.247	0	1
	Sadness or Depression	2,161	0.0694	0.254	0	1
	Tiredness	2,161	0.313	0.464	0	1
	Headache	2,161	0.46	0.498	0	1
	Backache	2,161	0.219	0.414	0	1
	Neck pain	2,144	0.316	0.465	0	1
	Shoulder pain	2,144	0.142	0.349	0	1
	Wrist pain	2,144	0.0984	0.298	0	1
	Knee pain	2,144	0.166	0.372	0	1
	Whole body pain	2,144	0.201	0.401	0	1
	Chest pain	2,144	0.181	0.385	0	1
	Lower abdomen pain	2,111	0.202	0.402	0	1
	Peptic ulcer pain	2,111	0.0502	0.218	0	1
	Fit/convulsion/seizure	2,111	0.0294	0.169	0	1
	Loose motion/diarrhea	2,111	0.0838	0.277	0	1
	Dysentery	2,111	0.0398	0.196	0	1
	Eye problem	2,111	0.137	0.344	0	1
	Vomiting	2,141	0.102	0.302	0	1
	Fever	2,141	0.34	0.474	0	1
	Food poisoning	2,141	0.0565	0.231	0	1
	Difficulty in breathing	2,141	0.0696	0.255	0	1
	Asthma	2,141	0.022	0.147	0	1
	Allergy	2,141	0.185	0.389	0	1
	TB	2,141	0.00747	0.0861	0	1
	Ear problem	2,081	0.073	0.26	0	1
	Skin infection	2,081	0.0303	0.171	0	1
Vaginal discharge	2,081	0.0538	0.226	0	1	
Urinary tract infection	2,081	0.0514	0.221	0	1	
Menstruation problem	2,081	0.108	0.311	0	1	
Accident or injury	2,081	0.0259	0.159	0	1	

Variable	Response Options	N	mean	sd	min	max
Did you receive any health care in the last 3 months? If so, from where? Select all that apply.	No, did not receive health care	2,221	0.348	0.477	0	1
	Yes, from an MBBS doctor, nurse, or paramedic	2,221	0.155	0.362	0	1
	Yes, from a family welfare visitor or community health care provider	2,221	0.0275	0.163	0	1
	Yes, in the factory clinic	2,221	0.331	0.471	0	1
	Yes, from a pharmacy	2,221	0.191	0.393	0	1
	Yes, from a village doctor, traditional healer, or religious person	2,221	0.068	0.252	0	1
	Yes, from another provider	2,221	0.0572	0.232	0	1
(if female) What do you use during your menstrual period usually? Select all that apply.	Sanitary pad	1,102	0.577	0.494	0	1
	Cotton pad	1,102	0.176	0.381	0	1
	Cloths	1,102	0.265	0.442	0	1
	Tampon	1,102	0.172	0.378	0	1
	Other	1,102	0.0445	0.206	0	1
(if no to sanitary pad) Why don't you use sanitary pads? Select all that apply.	Costly	546	0.101	0.301	0	1
	Not easily available	546	0.0568	0.232	0	1
	I am happy with what I use now	546	0.562	0.497	0	1
	No privacy to use pad	546	0.0678	0.252	0	1
	Other reasons	546	0.0769	0.267	0	1
(if yes to sanitary pad) Where do you get sanitary pads? Select all that apply.	Pharmacy	636	0.73	0.445	0	1
	Supermarket	636	0.153	0.36	0	1
	Factory clinic	636	0.384	0.487	0	1
	Family members	636	0.0928	0.29	0	1
	Friends/colleagues	636	0.0708	0.257	0	1
	Other	636	0.0283	0.166	0	1
How often do the women in your family use sanitary napkins during their menstrual cycles?	1- Never to 5- Always	1,758	3.489	1.354	1	5
(if female) I am confident that I can use sanitary napkins if I want to.	1- Strongly Disagree to 5- Strongly Agree	1,058	4.174	1.021	1	5
Do you know when the chance of becoming pregnant is greatest during the monthly menstrual cycle?	During menstruation	1,446	0.174	0.379	0	1
	In the middle of the cycle	1,446	0.158	0.365	0	1
	In the last week of the cycle	1,446	0.606	0.489	0	1
	Other	1,446	0.0622	0.242	0	1
Do you have a specific place to wash your hands at home?	Binary	2,207	0.908	0.289	0	1

Variable	Response Options	N	mean	sd	min	max
What should be done during the menstruation period? Select all that apply.	Eat healthy food	1,102	0.693	0.461	0	1
	Drink more water	1,102	0.742	0.438	0	1
	Use sanitary pads	1,102	0.744	0.437	0	1
	Change pads regularly	1,102	0.764	0.425	0	1
	Avoid exercise	1,102	0.349	0.477	0	1
	Bathe regularly	1,102	0.775	0.418	0	1
(If married) If applicable, which of these methods are you/your partner currently using to prevent pregnancy? Select all that apply.	Oral pill or injection	1,538	0.547	0.498	0	1
	Condom	1,538	0.224	0.417	0	1
	Long-lasting method (IUD, implant, female or male sterilization)	1,538	0.0195	0.138	0	1
	Withdrawal	1,538	0.013	0.113	0	1
	Safe period/fertility awareness	1,538	0.0566	0.231	0	1
	Other	1,538	0.0319	0.176	0	1
Where do/did you receive family methods from? Select all that apply.	MBBS doctor, nurse, midwife, hospital, or clinic outside the factory	1,538	0.283	0.451	0	1
	Family planning worker, family welfare visitor, community health care provider, or community based skilled birth attendant	1,538	0.267	0.443	0	1
	Factory clinic	1,538	0.262	0.44	0	1
	Pharmacy	1,538	0.299	0.458	0	1
	Village doctor, kobiraj/traditional healer, traditional birth attendant, or religious person	1,538	0.0917	0.289	0	1
	Other	1,538	0.0663	0.249	0	1
	How often is there soap and water available for hand-washing in the factory washroom?	1- Never to 5- Always	2,201	4.682	0.838	1
I think that it's important to wash your hands with soap and water to prevent disease.	1- Strongly Disagree to 5- Strongly Agree	2,200	4.472	0.836	1	5
I am confident that I can wash my hands when I need to.	1- Strongly Disagree to 5- Strongly Agree	2,199	4.317	0.957	1	5
Which of the following are part of proper handwashing? Select all that apply.	Wash both hands	2,221	0.43	0.495	0	1
	Wash with water only	2,221	0.113	0.317	0	1
	Wash with water and soap	2,221	0.935	0.246	0	1
	Wash with water and ash	2,221	0.222	0.415	0	1
	Wash with water and mud	2,221	0.189	0.391	0	1
	Wash for at least 20 seconds	2,221	0.458	0.498	0	1

Variable	Response Options	N	mean	sd	min	max
In the last 24 hours, at what times did you wash your hands with soap and water? Select all that apply.	Before eating food	2,221	0.897	0.304	0	1
	After using the toilet	2,221	0.86	0.347	0	1
	Before feeding children	2,221	0.504	0.5	0	1
	Before preparing food	2,221	0.624	0.485	0	1
	Before serving food	2,221	0.593	0.491	0	1
	After cleaning children's stool	2,221	0.465	0.499	0	1
At what times during the day should you wash your hands? Select all that apply.	Before eating food	2,221	0.933	0.249	0	1
	After using the toilet	2,221	0.864	0.343	0	1
	Before feeding children	2,221	0.702	0.458	0	1
	Before preparing food	2,221	0.769	0.422	0	1
	Before serving food	2,221	0.738	0.44	0	1
	After cleaning children's stool	2,221	0.672	0.47	0	1
Yesterday during the day or at night, did you eat or drink:	Any foods made from grains, like: Rice, bread, noodles or other foods made from grains	2,188	0.909	0.288	0	1
	Any vegetables or roots that are orange- coloured inside, like: Pumpkin, carrots, or sweet potatoes that are yellow or orange inside	2,197	0.636	0.481	0	1
	Any white roots and tubers or plantains, such as: White potatoes, white yams, or any other foods made from white-fleshed roots	2,189	0.737	0.44	0	1
	Any dark green leafy vegetables, such as: Spinach, poi sag, methi, or kolmi	2,200	0.646	0.478	0	1
	Any fruits that are dark yellow or orange inside, like: Ripe mango, ripe papaya, ripe kathal	2,186	0.365	0.482	0	1
	Any other fruits: Bananas, grapes, apples	2,195	0.702	0.458	0	1
	Any other vegetables: Cabbage, patal, kopi	2,195	0.526	0.499	0	1
	Any meat made from animal organs, such as: Liver, kidney, heart or other organ meats or game meats	2,176	0.209	0.406	0	1

Variable	Response Options	N	mean	sd	min	Max
Yesterday during the day or at night, did you eat or drink:	Any other types of meat or poultry, like: Beef, goat, chicken, or goat	2,198	0.579	0.494	0	1
	Any eggs: Eggs from poultry or any other bird	2,203	0.686	0.464	0	1
	Any fish or seafood, whether fresh or dried, like: Fish or shrimp	2,201	0.771	0.42	0	1
	Any beans or peas, such as: beans, peas, or lentils	2,192	0.595	0.491	0	1
	Any nuts or seeds, like: Any tree nut, groundnut/peanut, or seeds	2,184	0.305	0.46	0	1
	Any milk or milk products, such as: Milk, cheese, yoghurt or other milk products, such as paneer	2,196	0.503	0.5	0	1
Anemia can be prevented by which of the following? Select all that apply.	dal	2,221	0.462	0.499	0	1
	fish	2,221	0.529	0.499	0	1
	fruit	2,221	0.683	0.465	0	1
	meat	2,221	0.524	0.5	0	1
	rice	2,221	0.334	0.472	0	1
	vegetables	2,221	0.822	0.382	0	1
	wheat	2,221	0.334	0.472	0	1
Have you taken iron/folic acid tablets regularly in the last 3 months?	1-Yes, daily to 4- No, not often or never	2,087	1.644	0.99	1	4
I am confident that I can eat nutritious food when I want to.	1- Strongly Disagree to 5- Strongly Agree	2,174	4.078	1.09	1	5
I think that there is no harm in getting pregnant again soon after giving birth.	1- Strongly Disagree to 5- Strongly Agree	1,829	2.661	1.564	1	5
For which of the following should pregnant women be taken immediately to the hospital or clinic? Select all that apply.	Severe headache or blurred vision	2,221	0.534	0.499	0	1
	Vaginal bleeding	2,221	0.678	0.467	0	1
	Mild fatigue	2,221	0.396	0.489	0	1
	Fever and weakness	2,221	0.458	0.498	0	1
	Sudden swelling of hands, face, or feet	2,221	0.528	0.499	0	1
	Fits/convulsions	2,221	0.6	0.49	0	1
	Fast or difficult breathing	2,221	0.558	0.497	0	1

Variable	Response Options	N	mean	sd	min	Max
Which of the following danger signs of labor require going to hospital or clinic immediately? Select all that apply.	Bleeding that gets worse	2,221	0.765	0.424	0	1
	Mild abdominal cramps	2,221	0.583	0.493	0	1
	High fever	2,221	0.461	0.499	0	1
	Discharge, pain or redness that doesn't go away or gets worse	2,221	0.569	0.495	0	1
	Red streaks or painful lump in your breast	2,221	0.432	0.495	0	1
	Chest pain or trouble breathing	2,221	0.515	0.5	0	1
	Severe headache or blurred vision	2,221	0.481	0.5	0	1
How satisfied are you with your job overall?	1- Completely Dissatisfied to 6- Completely Satisfied	2,167	4.223	1.145	1	5
I can change my life by changing my behavior.	1- Strongly Disagree to 5- Strongly Agree	2,145	4.265	0.94	1	5
Do any of the supervisors or managers ever talk to you or touch you in a sexual way?	1- No, never to 4- Yes, often	2,098	1.084	0.412	1	4
Imagine that a supervisor in this factory has said that he can make things very difficult for a female worker by treating her badly unless she has sex with him. It would be extremely risky for her to make a formal complaint against him.	1- Strongly Disagree to 5- Strongly Agree	1,837	2.966	1.596	1	5

Appendix: Supervisor Items and Summary Statistics

Variable	Response Options	N	mean	sd	min	max
How often during the day do you notice work piling up at work stations?	1- Never to 5- Always	459	2.041	0.944	1	5
How often during the day do you notice workers sitting idle waiting for work?	1- Never to 5- Always	465	1.366	0.537	1	4
How heavy was your workload during the last month?	1- Often not enough to keep my busy to 5- Entirely too much for me to handle	440	2.716	0.925	1	5
In the last month, how often did difficult problems arise in your work for which there were no immediate solutions?	1- Once a week or less to 5- Five or more times a day	422	1.223	0.634	1	5
During a normal workweek, how frequently do unexpected issues arise in your work?	1- Once a week or less to 5- Five or more times a day	366	1.191	0.545	1	4
How hard is it to maintain the level of performance that is expected of you?	1- Extremely easy to 5- Extremely hard	455	2.048	0.879	1	5
Training through the HALOW+ program is not a good use of time.	1- Strongly Disagree to 5- Strongly Agree	387	2.256	1.377	1	5
Training through the HALOW+ program is good for workers.	1- Strongly Disagree to 5- Strongly Agree	433	4.109	0.988	1	5
Training through the HALOW+ program leads to better results for the factory.	1- Strongly Disagree to 5- Strongly Agree	440	4.230	0.854	1	5
I think more about what my workers can do for me than what I can do for them.	1- Strongly Disagree to 5- Strongly Agree	432	3.111	1.463	1	5
I tend to communicate with my workers only when I need something from them.	1- Strongly Disagree to 5- Strongly Agree	454	2.335	1.417	1	5
The relationship with my workers is important to me primarily because it helps me accomplish my goals.	1- Strongly Disagree to 5- Strongly Agree	450	3.973	1.173	1	5
How often do you meet with workers away from the production line?	select_one often_scale	460	2.322	1.044	1	5
The workers in this factory are very intelligent.	1- Strongly Disagree to 5- Strongly Agree	455	4.075	0.818	1	5
The workers in this factory do not think for themselves and must be told what to do.	1- Strongly Disagree to 5- Strongly Agree	441	2.315	1.226	1	5
The workers in this factory do not understand complicated ideas.	1- Strongly Disagree to 5- Strongly Agree	428	2.334	1.212	1	5

Variable	Response Options	N	mean	sd	min	max
The workers in this factory learn new skills quickly.	1- Strongly Disagree to 5- Strongly Agree	463	4.091	0.768	1	5
The workers in this factory respond better to scolding than encouragement.	1- Strongly Disagree to 5- Strongly Agree	450	1.556	0.882	1	5
The workers in this factory are more productive if they feel comfortable and safe at work.	1- Strongly Disagree to 5- Strongly Agree	451	4.109	0.919	1	5
The workers in this factory will not work hard unless we force them to.	1- Strongly Disagree to 5- Strongly Agree	448	1.960	1.117	1	5
Happy workers are more productive than unhappy workers.	1- Strongly Disagree to 5- Strongly Agree	446	3.955	1.137	1	5
The workers in this factory are likely to go work in another factory if they think they can make even a little bit more money there.	1- Strongly Disagree to 5- Strongly Agree	441	2.247	1.162	1	5
The workers in this factory are motivated by money more than anything else.	1- Strongly Disagree to 5- Strongly Agree	410	2.380	1.196	1	5
My evaluations of workers are sometimes reviewed by managers.	1- Strongly Disagree to 5- Strongly Agree	421	3.580	1.153	1	5
I'm not accountable to others when I decide how to treat, reward, or punish workers.	1- Strongly Disagree to 5- Strongly Agree	422	2.178	1.242	1	5
If I evaluated a worker unfairly, a manager would probably find out.	1- Strongly Disagree to 5- Strongly Agree	424	3.741	1.170	1	5
When working conditions for workers improve, factory performance goes down.	1- Strongly Disagree to 5- Strongly Agree	459	1.601	0.925	1	5
It doesn't really affect me if my workers are unhappy.	1- Strongly Disagree to 5- Strongly Agree	440	1.618	0.910	1	5
It doesn't really affect me if my workers are not healthy.	1- Strongly Disagree to 5- Strongly Agree	437	2.055	1.248	1	5
My job is easier if workers are healthy.	1- Strongly Disagree to 5- Strongly Agree	469	4.320	0.837	1	5
I am able to successfully resolve conflicts when they arise.	1- Strongly Disagree to 5- Strongly Agree	454	4.104	0.867	1	5
It would be extremely risky for her to make a formal complaint against him.	1- Strongly Disagree to 5- Strongly Agree	422	2.038	1.276	1	5

Variable	Response Options	N	mean	sd	min	max
There is a very good chance she would be taken seriously if she made a formal complaint.	1- Strongly Disagree to 5- Strongly Agree	443	4.167	0.917	1	5
There would be very serious consequences for him if she made a formal complaint.	1- Strongly Disagree to 5- Strongly Agree	446	3.749	1.184	1	5
According to my own beliefs, it's acceptable for supervisors or managers to make sexual comments to or try to sexually touch workers.	1- Strongly Disagree to 5- Strongly Agree	428	1.687	0.941	1	5
In this factory, it's common for supervisors or managers to make sexual comments to or try to sexually touch workers.	1- Strongly Disagree to 5- Strongly Agree	437	1.483	0.765	1	5
In this factory, it's seen as acceptable for supervisors or managers to make sexual comments to or try to sexually touch workers.	1- Strongly Disagree to 5- Strongly Agree	443	1.639	1.044	1	5
According to my own beliefs, it's acceptable for supervisors or managers to yell at workers who make mistakes or need to work faster.	1- Strongly Disagree to 5- Strongly Agree	457	2.228	1.183	1	5
In this factory, it's common for supervisors or managers to yell at workers who make mistakes or need to work faster.	1- Strongly Disagree to 5- Strongly Agree	456	2.171	1.168	1	5
In this factory, it's seen as acceptable for supervisors or managers to yell at workers who make mistakes or need to work faster.	1- Strongly Disagree to 5- Strongly Agree	451	2.038	1.170	1	5
How often do you feel stressed, tense, restless, nervous or anxious, or are not able to sleep at night because your mind is troubled?	1- Never to 5- Always	450	1.793	0.833	1	5
You can learn new things, but you can't really change your basic intelligence.	1- Strongly Disagree to 5- Strongly Agree	403	2.462	1.287	1	5