Tufts UNIVERSITY | Labor Lab

Health and Facilities

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Key Findings

- This brief examines worker health outcomes as a predictor of aspects of worker well-being.
- Health improvement outcomes were observed for all worker types, and Better Work employees were seen shifting to more qualified sources of care.
- In Vietnam, workers in Better Work factories generally reported better health outcomes, were most likely to seek health care if sick, and specifically were more likely to seek health care from their factory clinic rather than from hospitals.
- In Indonesia, workers were also more likely to seek care from their factory when a clinic was available, and less likely to seek underqualified care.
- Over time in Indonesia, Better Work employees may decrease their use of herbal and traditional medicines, and start seeking care more often from a doctor when sick.

While worker health on its own is an important outcome of interest in this study, previous research has found that health can predict other interesting outcomes as well. SEM analysis at the baseline showed that many worker physical health indicators were important predictors of other aspects of worker wellbeing, such as life satisfaction and believing one's job is worthwhile. Better health outcomes also predict a reduction in the likelihood that workers will search for other employment options.

Summary statistics for Vietnam in Table 1 below show that at baseline, there are numerous significant differences between workers in Better Work factories and workers in non-Better Work factories. Better Work employees tended to report better health outcomes, such as better general health, better diets, decreased exposure to uncomfortable temperatures, and decreased instances of achiness in the workplace. Better Work employees also tended to seek more care from their factory through the presence of a health clinic, and seek less care from hospitals. However, they were more likely to see a doctor if they were sick. Even though Better Work employees more often sought care from their factory health clinic than hospitals, they were also less likely to receive no care at all, showing that the clinic was likely an important factor in making sure that workers received the care they needed.

We observe a similar story at baseline in Indonesia. Table 2 below suggests that at baseline, workers in Better Work factories tended to report better health outcomes, such as decreased exposure to uncomfortable temperatures and less hunger in the workplace. Better Work employees tended to seek more care from their factory through the presence of a health clinic, and seek less care from hospitals and their supervisors on the production line. They were also more likely to seek underqualified care by not going to a doctor when sick, or using herbal and traditional medicines. Better Work factories were also more likely to help employees get vaccinations for their children.

In this round of analysis, we see improvements in health outcomes for all worker types and Better Worker employees shifting to more qualified sources of care.

Variable Definitions:

- *Injured*: In the last three months, how often have you been injured because of your work? (commonscale)
- *Injury_Care_Factory/Injury_Care_hospital/Injury_Care_supervisor/Injury_Care_none:* If you are injured at work, how do you receive care? (binaries for Factory Clinic, Local Hospital, On the line by my supervisor, and none)
- *Health_Clinic*: Does your workplace have a health clinic? (binary)
- *Vaccination_Help*: My Factory helps me to get vaccinations for my children (agreescale)
- *Herbal_Medicine*: I prefer to choose herbal or traditional medicine to treat my sickness than go to the doctor (agreescale)
- *Sick_Doctor*: When I or my family is sick we go to the doctor (commonscale)
- *Sell_Assets_Health:* How often are you forced to sell assets to get health care for you and your family? (commonscale)
- *Health*: How is your overall health? (1-Very poor, 2-Poor, 3-Fair, 4-Good, 5-Very good, 6-Excellent)
- *Hot_Cold:* Your factory is uncomfortably hot or cold (commonscale)
- *Dizzy*: In the last three months, how often have you felt dizzy or fainted at work? (commonscale)
- *Ache*: In the last three months, how often are you bothered by headache, backache or suffered from muscle stiffness? (commonscale)
- *Hungry:* You are hungry at work (commonscale)
- *Thirsty:* You are thirsty at work (commonscale)

Table 1 Vietnam Baseline Health Summary Statistics

	Better Work Factories					Non-Better Work Factories					
VARIABLES	N	mean	sd	min	max	N	mean	sd	min	max	Mean Difference
Health	683	3.609	0.776	2	6	653	3.482	0.682	1	6	0.127***
Diet	680	3.996	0.810	1	5	649	3.760	0.982	1	5	0.236***
Hot_Cold	682	1.842	1.204	1	5	650	2.031	1.263	1	5	-0.189***
Dizzy	683	1.303	0.679	1	4	653	1.323	0.688	1	4	-0.02
Ache	682	2.067	1.075	1	5	654	2.196	1.038	1	5	-0.129**
Thirsty	683	1.801	1.127	1	5	654	1.717	1.133	1	5	0.084
Hungry	680	1.765	1.082	1	5	654	1.817	1.154	1	5	-0.052
Injured	683	1.167	0.501	1	4	653	1.176	0.497	1	4	-0.009
Injury_Care_ Factory	648	0.943	0.232	0	1	626	0.859	0.348	0	1	0.084***
Injury_Care_ hospital	648	0.0262	0.160	0	1	626	0.0671	0.250	0	1	-0.0409***
Injury_Care_ supervisor	648	0.00154	0.0393	0	1	626	0.00479	0.0691	0	1	-0.00325
Injury_Care_none	648	0.0293	0.169	0	1	626	0.0687	0.253	0	1	-0.039***
Health_Clinic	683	0.996	0.0662	0	1	652	0.905	0.294	0	1	0.091***
Vaccination_Help	566	2.876	1.155	1	5	587	2.804	1.255	1	5	0.072
Herbal_Medicine	660	2.558	0.998	1	5	640	2.566	1.081	1	5	-0.008
Sick_Doctor	679	3.483	0.850	1	5	654	3.370	0.879	1	5	0.113**
Sell_Assets_Health	670	1.222	0.576	1	5	639	1.211	0.596	1	5	0.011

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

Table 2 Indonesia Baseline Health Summary Statistics

	Better Work Factories					Non-Better Work Factories					
VARIABLES	N	mean	sd	min	max	N	mean	sd	min	max	Mean Difference
Health	205	4.190	0.592	3	6	204	4.201	0.654	2	6	-0.011
Diet	204	3.549	0.789	1	5	204	3.436	0.854	1	5	0.113
Hot_Cold	204	2.534	1.253	1	5	197	3.041	1.106	1	5	-0.507***
Dizzy	205	1.639	0.884	1	4	204	1.544	0.758	1	4	0.095
Ache	204	1.995	0.980	1	4	203	1.995	0.882	1	4	0
Thirsty	204	2.701	1.176	1	5	204	2.838	1.294	1	5	-0.137
Hungry	204	2.480	1.034	1	5	203	2.783	0.924	1	5	-0.303***
Injured	205	1.366	0.740	1	5	204	1.333	0.713	1	4	0.033
Injury_Care_ Factory	205	0.761	0.428	0	1	204	0.574	0.496	0	1	0.187***
Injury_Care_ hospital	205	0.195	0.397	0	1	204	0.314	0.465	0	1	-0.119***
Injury_Care_ supervisor	205	0.0439	0.205	0	1	204	0.108	0.311	0	1	-0.064**
Injury_Care_none	205	0	0	0	0	204	0.00490	0.0700	0	1	-0.0049
Health_Clinic	204	1	0	1	1	203	0.857	0.351	0	1	0.143***
Vaccination_Help	177	3.119	1.013	1	5	182	2.769	1.128	1	5	0.35***
Herbal_Medicine	205	3.112	0.919	1	5	200	2.650	0.955	1	5	0.462***
Sick_Doctor	205	3.073	0.955	1	5	204	3.598	0.934	1	5	-0.525***
Sell_Assets_Health	200	1.415	0.852	1	5	202	1.381	0.828	1	5	0.034

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

Regression Results

In both Better Work and non-Better Work factories in Vietnam, workers report better health outcomes over time. These include increased general health, better diets, and less thirst and hunger. In the case of *Diet* and *Hungry*, outcomes for Better Work employees and non-Better Work employees converged over time. We also observe that exposure to uncomfortable temperatures in Better Work companies seems to persist, while it decreases for non-Better Work employees. Although we saw significant differences in *Hot_Cold* and *Ache* at baseline across factory types, this significance seems to disappear when demographic factors are controlled for.

Columns 3 and 5 in Table 4 and column 1 in Table 5 support that Better Work employees in Vietnam at baseline are more likely to seek care from their factory, and less likely to seek care from a hospital or seek no care at all. Over time, we find that all workers start to seek less care from their factories and more care from hospitals and supervisors on the production line. Unfortunately, we also find that workers in all factories are more likely to use herbal and traditional medicine over time. While seeking care from a qualified source such as a hospital is a favorable result, it is unclear why workers shift from factory health clinic care to the less qualified supervisor care and traditional herbal medicines. In addition, we find that all workers over time are more likely to seek no care at all for work injuries. With no change in the instance of injury over time, it is unknown why workers may be less likely to seek care over time. Over time, we also find that factories are more likely to help provide vaccinations to children of their employees.

Although we saw significant differences in *Health_Clinic* and *Sick_Doctor* across factory types at baseline, we find that this is not the case when we control for demographics. In other words, socio-

economic differences across groups may explain why more Better Work factories tend to have health clinics and why Better Work employees are less likely to see doctors when they are sick.

Table 3 Vietnam Health Outcomes Regression Results

VARIABLES	(1) *Health*	(2) *Health*	(3) *Diet*	(4) *Diet*	(5) *Hot_Cold*	(6) *Hot_Cold*	(7) *Thirsty*	(8) *Thirsty*
bw_factory	0.117**	-	0.228**	-	-0.197	-	0.0748	-
	(0.0498)		(0.0923)		(0.120)		(0.0844)	
endline	0.116***	0.131***	0.317***	0.338***	-0.292***	-0.350***	-0.288***	-0.254***
	(0.0401)	(0.0469)	(0.113)	(0.121)	(0.0714)	(0.0898)	(0.0651)	(0.0712)
bw_endline	-0.0356	-0.0283	-0.320**	-0.330**	0.259**	0.301***	-0.00410	0.00552
	(0.0644)	(0.0644)	(0.129)	(0.129)	(0.105)	(0.101)	(0.0907)	(0.0888)
Constant	4.001***	4.301***	3.847***	5.152***	2.929***	1.451	2.763***	2.633***
	(0.266)	(0.649)	(0.386)	(1.024)	(0.549)	(1.343)	(0.541)	(0.944)
Worker Time Effects	RE	FE	RE	FE	RE	FE	RE	FE
Observations	2,545	2,545	2,526	2,526	2,555	2,555	2,563	2,563
R-squared		0.033		0.053		0.033		0.058
Number of uniqueID	1,334	1,334	1,333	1,333	1,334	1,334	1,335	1,335

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

Table 4 Vietnam Health Outcomes and Sources Regression Results

VARIABLES	(1) *Hungry*	(2) *Hungry*	(3) *Injury_ Care_ Factory*	(4) *Injury_ Care_ Factory*	(5) *Injury_ Care_ hospital*	(6) *Injury_ Care_ hospital*	(7) *Injury_ Care_ supervisor*	(8) *Injury_ Care_ supervisor*
bw_factory	-0.0683	-	0.0782***	-	-0.0418**	-	-0.00864	-
	(0.0885)		(0.0270)		(0.0175)		(0.00638)	
endline	-0.302***	-0.331***	-0.0650**	-0.0414	0.397***	0.437***	0.251***	0.272***
	(0.0686)	(0.0780)	(0.0266)	(0.0339)	(0.0336)	(0.0361)	(0.0444)	(0.0472)
bw_endline	0.194**	0.219**	-0.0325	-0.0318	0.0405	0.0441	0.0145	0.0177
	(0.0933)	(0.0924)	(0.0392)	(0.0393)	(0.0563)	(0.0563)	(0.0660)	(0.0641)
Constant	2.415***	1.299	0.340*	0.946**	0.176	0.689**	-0.0130	0.679**
	(0.389)	(0.927)	(0.203)	(0.424)	(0.210)	(0.338)	(0.0637)	(0.309)
Worker Time Effects	RE	FE	RE	FE	RE	FE	RE	FE
Observations	2,558	2,558	2,465	2,465	2,465	2,465	2,465	2,465
R-squared		0.047		0.066		0.393		0.295
Number of uniqueID	1,335	1,335	1,324	1,324	1,324	1,324	1,324	1,324

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

Table 5 Vietnam Health Sources Regression Results

VARIABLES	(1) *Injury_Care_*	(2) *Injury_Care_*	(3) *Vaccination_*	(4) *Vaccination_*	(5) *Herbal_*	(6) *Herbal_*

	none	*none*	*Help*	*Help*	*medicine*	*medicine*
bw_factory	-0.0426**	-	0.0767	-	0.0137	-
	(0.0181)		(0.137)		(0.0887)	
endline	0.143***	0.141***	0.673***	0.672***	0.504***	0.578***
	(0.0361)	(0.0405)	(0.169)	(0.185)	(0.0944)	(0.111)
bw_endline	-0.0137	-0.0149	0.0469	0.0728	-0.195*	-0.186
	(0.0570)	(0.0573)	(0.198)	(0.201)	(0.113)	(0.118)
Constant	0.424**	0.291	2.611***	2.871**	2.332***	4.199***
	(0.173)	(0.279)	(0.416)	(1.269)	(0.444)	(1.172)
Worker Time Effects	RE	FE	RE	FE	RE	FE
Observations	2,465	2,465	2,302	2,302	2,482	2,482
R-squared		0.113		0.191		0.113
Number of uniqueID	1,324	1,324	1,292	1,292	1,328	1,328

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

Although we saw significant differences in *Hungry*, *Injury_Care_Factory*, *Injury_Care_Hospital*, *Health_Clinic*, and *Vaccination_Help* across factory types at baseline, we find that this is not the case when we control for demographics.

In Indonesia, both Better Work and non-Better Work employees report better health outcomes over time. Table 6 shows that Better Work employees at baseline have less exposure to uncomfortable temperatures at baseline. We see that exposure to uncomfortable temperatures, hunger, and thirst all decrease for all workers from baseline to endline. Unfortunately, non-Better Work workers at endline report higher rates of dizziness. The cause of this is unknown, but Better Work is able to negate these poor time effects so that the baseline levels of dizziness for workers is maintained at the endline for Better Work employees.

Table 7 looks at the changes in health sources for workers over time. While *Injury_Care_Factory* and *Injury_Care_Hospital* were significant in the summary statistics of Table 2, we find that differences in these variables between groups are explained by demographic differences. Table 7 shows that Better Work employees at baseline were less likely to seek care from a supervisor, more likely to use herbal or traditional medicines, and less likely to seek care from a doctor when sick. Over time, we find that Better Work employees may decrease their use of herbal and traditional medicines, and that they start seeking care more often from a doctor when sick.

Table 6 Indonesia Health Outcomes Regression Results

VARIABLES	(1) *Hot_Cold*	(2) *Hot_Cold*	(3) *Dizzy*	(4) *Dizzy*	(5) *Thirsty*	(6) *Thirsty*	(7) *Hungry*	(8) *Hungry*
bw_factory	-0.460*	-	0.0616	-	-0.177	-	-0.323	-
	(0.272)		(0.128)		(0.266)		(0.222)	
endline	-0.388**	-0.385**	0.323***	0.276***	-0.669***	-0.693***	-0.616***	-0.687***
	(0.184)	(0.180)	(0.0746)	(0.0792)	(0.251)	-0.238	(0.188)	(0.171)
bw_endline	0.0734	0.125	-0.449***	-0.445***	0.0111	0.112	0.275	0.343
	(0.199)	(0.185)	(0.109)	(0.110)	(0.275)	-0.25	(0.238)	(0.220)
Constant	2.846***	4.346***	2.288***	1.808***	1.225***	3.078***	1.939***	3.152***
	(0.319)	(0.662)	(0.556)	(0.511)	(0.442)	(0.537)	(0.518)	(0.603)
Worker Time Effects	RE	FE	RE	FE	RE	FE	RE	FE
Observations	766	766	769	769	771	771	770	770
R-squared		0.136		0.162		0.214		0.189
Number of uniqueID	407	407	408	408	408	408	408	408

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

Table 7 Indonesia Health Sources Regression Results

VARIABLES	(1) *Injury_Care_ supervisor*	(2) *Injury_Care_ supervisor*	(3) *Herbal_medicine*	(4) *Herbal_medicine*	(5) *Sick_Doctor*	(6) *Sick_Doctor*
bw_factory	-0.0765*	-	0.416**	-	-0.467**	-
	(0.0429)		(0.176)		(0.196)	
endline	0.0328	0.0269	0.157	0.176	-0.180	-0.141
	(0.0593)	(0.0656)	(0.123)	(0.137)	(0.148)	(0.159)
bw_endline	0.000420	-0.0134	-0.284	-0.312*	0.613***	0.625***
	(0.0596)	(0.0595)	(0.189)	(0.186)	(0.190)	(0.189)
Constant	0.736***	1.281***	4.449***	3.020***	2.227***	3.054***
	(0.216)	(0.226)	(0.260)	(0.543)	(0.259)	(0.410)
Worker Time Effects	RE	FE	RE	FE	RE	FE
Observations	772	772	768	768	771	771
R-squared		0.046		0.097		0.160
Number of uniqueID	408	408	407	407	407	407

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

Table 7 looks at the changes in health sources for workers over time. While *Injury_Care_Factory* and *Injury_Care_Hospital* were significant in the summary statistics of Table 2, we find that differences in these variables between groups are explained by demographic differences. Table 7 shows that Better Work employees at baseline were less likely to seek care from a supervisor, more likely to use herbal or traditional medicines, and less likely to seek care from a doctor when sick. Over time, we find that Better Work employees may decrease their use of herbal and traditional medicines, and that they start seeking care more often from a doctor when sick.