

Assessing the feasibility of interventions to prevent injury and improve work safety in metal factories: participatory before-and-after intervention study.



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Background

In Bangladesh:

- 11.7 thousand workers suffer from fatal incidents
- 24.5 thousand die from work-related diseases each year.

Since 2014, MSF has provided occupational health (OH) care to factory workers in Kamrangirchar, a peri-urban area of Dhaka. From 2017, hazard assessments were conducted inside factories to identify occupational risks faced by workers, and implementation of interventions to mitigate them began.

Addressing occupational injury and disease has been declared a national priority, however there remains a critical lack of evidence on interventions to mitigate workplace risks.

Aim

To assess the feasibility of collaborating with factory owners/workers and to design and implement occupational health interventions to improve work safety in two metal factories.

Our findings will inform the development of a model that could be implemented more widely in similar neglected contexts.

Conclusions

- It was feasible to implement the study in collaboration with owners/workers
- Incidents were frequent and the majority led to injuries
- Triangulation of findings consistently identified machine operators and children under 18 yrs old to be most at risk
- Poor ergonomics, chemicals, insufficient light, poor ventilation, high noise levels, untidy floors, and lack of personal protective equipment (PPE) are the main hazards
- Workers recognised hazards but accepted them as an inevitable part of their work, largely due to practical barriers to mitigating them.

Next steps

- Co-design of mitigation interventions with owners and workers based on Phase 1 findings;
- Co-implementation of interventions;
- Overall assessment of feasibility and acceptability of implementing OH interventions.

Methods

Participatory mixed methods before-and-after study, articulated over three phases (figure 1). Analysis was conducted for adults (≥18 yrs old) and children (<18 yrs old)

Quantitative data from: hazard and ergonomic assessments (NMQ-E), OH clinical data and surveillance

Qualitative data from: in-depth interviews and focus group discussion (FGD)

Findings from all datasets were triangulated at the end of phase 1. Preliminary analysis of phase 1 data are presented

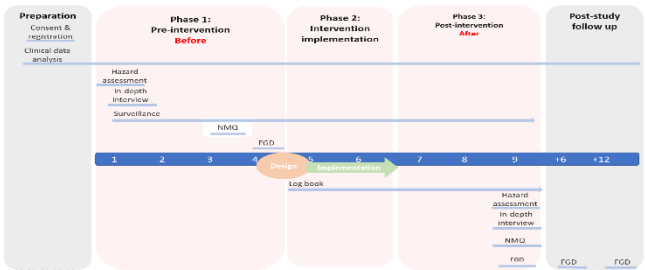


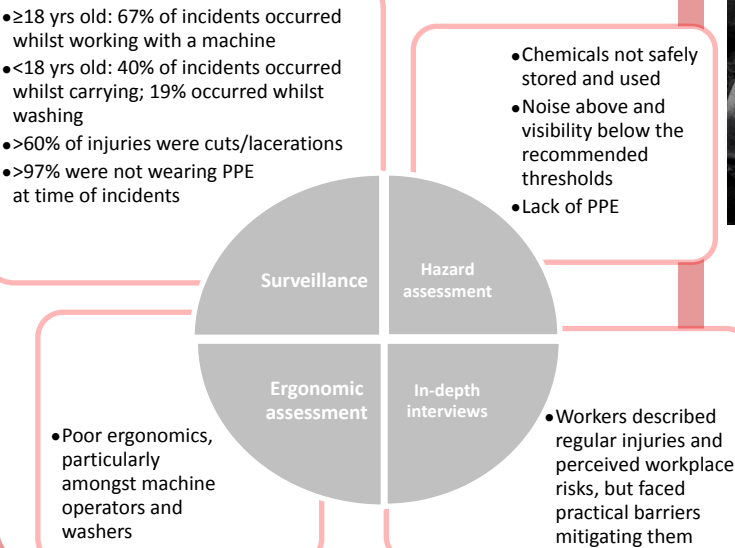
Figure 1 : Study overview

Results

- 67 workers participated in the study:
 - 54 adults, 13 children under 18 years old, 10 women
 - 32 in-depth interviews were conducted
- Incidents and injuries**
- Since the start of the study until 31 July 2019:
- 166 incidents, of which 129 (78%) were injuries (table 1)
 - 72% of the incidents occurred involved adults and 28% children
 - 95% of the incidents occurred among male workers and 5% among women
 - All children under 18 years experienced incidents; 60% of whom experienced multiple incidents

Table 1: Overall number of incidents, near miss events, and Injury				
N of incidents	N of incidents involving ≥18 yrs and <18 yrs old		N near-miss events	N injuries
	≥18 yrs old	<18 yrs old		
166	119	47	37	129

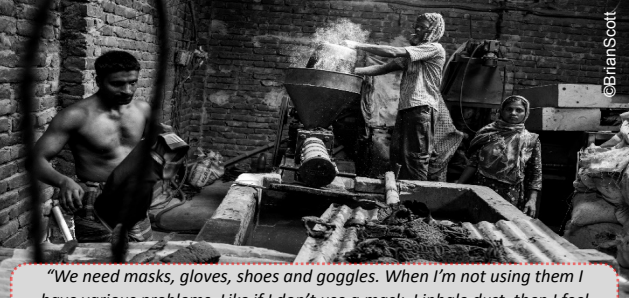
Figure 2: Key preliminary findings from different study sources



Risk perception

Disclaimer: the photos below are not connected to the participant quotes. Permission has been taken from the workers to use photos externally.

“Working with the machine is very risky. When the die comes off and hits others, it can cause death of anyone.” [adult female worker]



“We need masks, gloves, shoes and goggles. When I’m not using them I have various problems. Like if I don’t use a mask, I inhale dust, then I feel respiratory problems. When dust goes in my eyes I also have problems...” [adult male worker]



“Accidents can happen anywhere. Like I put the circles too dry, I can easily trip and fall off the roof and get fractures. Like the kids were just poking each other and suddenly fell off the roof.” [child worker]

Ethical Statement

This study was approved by the MSF Ethics Review Board and the ethical review board of the Centre for Injury Prevention and Research, Bangladesh (CIPRB).

Acknowledgements

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