



Occupational Health Risks and Safety Awareness among Welders in Bhaktapur, Nepal

Authors

Jyoti Lamichhane¹, Bikash Koirala¹, Barsha Rijal¹, Srijana Basnet¹, Dr. Jiban Karki²

Affiliations

¹PHASE Nepal

²Liverpool School of Tropical Medicine

Background

- Over 2.3 million people die annually from job-related diseases or injuries, with an additional 313 million suffering non-fatal occupational ailments [1].
- Welding is a particularly hazardous profession, with risks ranging from burns and electrocution to exposure to harmful fume [2].
- In Nepal, most welding factories operate as small-scale industries, where occupational safety practices are often limited [3].
- Occupational risks in these small-scale industries are quite common but are often under-reported which can be attributed to low awareness concerning occupational safety and health as well as poor working conditions [4].

Objective

- To explore occupational health risks and safety awareness among welders, and their adherence to occupational safety and health regulations

Methodology

- **Study method :** Qualitative
- **Study design:** Cross sectional
- **Study area:** Suryabinayak Municipality, Bhaktapur, Nepal
- **Study Population:** Welders working in study area
- **Sample size:** 26
- **Sampling technique:** Snowball sampling
- **Inclusion criteria:** Welders aged 18 years and above, with at least six months of work experience in welding

Methodology

- **Data Collection tool:** Semi structured interview guideline
- **Data collection technique:** In-depth Interviews
- **Data collection duration:** April to May 2023
- **Data analysis:**
 - Transcription and translation of audio recordings
 - Inductive thematic approach
 - Data management using NVivo 12 Pro Software
- **Ethical consideration:** Ethical approval received from NHRC (Ref no. 2563)

Results

Theme 1: Occupational Health Risks and Management of Healthcare Costs

- Prevalence and perceptions of occupational health risks
- Economic and systemic challenges in occupational health and safety

Theme 2: Occupational safety awareness and practices

- Knowledge Vs Implementation gap in Personal protective Equipment (PPE) Usage
- Availability and quality of PPEs
- Working conditions
- Limited policy awareness and absence of regulatory enforcement
- Limited Access to professional training

Results

Theme 1: Occupational Health Risks and Management of Healthcare Costs

Prevalence and perceptions of occupational health risks

- Burning and stinging sensations in eyes, risk of electric shocks, and physical exhaustion leading to fatigue and depression
- Accidents such as cuts and injuries, attributed to personal negligence
- Normalization of the symptoms

"Initially during welding, our eyes feel a burning sensation and the smoke affects our skin as well. But it gets normal after we are habituated."

IDI_OSH_16

Results

Economic and systemic challenges in occupational health and safety

- Concern over the lack of insurance provided by factories
- Personal health insurance through government initiatives or welding associations, but it only covered minor injuries
- Lack of insurance coverage partly attributed to the mobile nature of the workforce

“They have enrolled us in an insurance policy however, it doesn’t cover all health care related expenses. The policy only covers expenses related to minor cuts and injuries, for critical injuries we need to bear all expenses by ourselves.” **IDI_OSH_08**

Results

Theme 2: Occupational safety awareness and practices

Knowledge Vs Implementation gap in Personal protective Equipment (PPE) Usage

- Awareness on PPE importance but failure in implementation
- Improper use of equipment and negligence

“Normally we have to use the black glasses which are made for welding purposes only. But some are careless and use the black sunglasses instead which do not protect from the light that comes during welding.”

IDI_OSH_03

Results

Availability of PPEs

- Limited availability of quality PPEs
- High financial burden; self purchased equipment
- Workplace budget constraints for safety gears

*"Even if it is available, we can only buy it from limited hardware shops, and these are very expensive thus we cannot afford that." **IDI_OSH_19***

Results

Working conditions

- Highly irregular working hours, ranging from 6 to 12 hours daily
- Substantial workload fluctuations
- Low awareness of respiratory protection despite harmful fumes exposure
- Reliance on self medication for workplace injuries

"Sometimes we have to work from morning till late evening while sometimes we have to stay idle. Sometimes we just work for 5 days a month while sometimes for the whole month." **IDI_OSH_05**

Results

Limited policy awareness and absence of regulatory enforcement

- Unaware of government safety and health policies
- Reporting of unfair wage practices
- Work perceived as undervalued

“The government should create rules, but they haven't done anything so far. However, I expect the government to take positive action in the future and provide the necessary facilities for employees. Rules should be established.” **IDI_OSH_13**

“There is no specific regulation in this occupation. Anyone can raise or deduct the rate to run their business. Even if I work very hard, it is just limited to cover basic necessities” **IDI_OSH_26**

Results

Limited access to professional training

- Skills acquired informally through observation and hands on experience
- Available trainings targeted for outbound migrant workers

“We just learn from co- workers. Training is available for working in the grill factories from CTEVT (Centre for Technical Education and Vocational Training) if we apply to work abroad. But to work in Nepal, there is no such training available.” **IDI_OSH_16**

Conclusion

- Our study reveals significant gaps in occupational safety practices in Nepal's small-scale welding industries. We identified a clear disconnect between knowledge and practice regarding PPE usage, inadequate health insurance coverage, limited awareness of safety regulations, and an absence of formal training opportunities.
- These findings highlight the urgent need for collaborative efforts among government agencies, industry associations, and health organizations to create safer working environments for welders in Nepal.

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Researcher Bio

Jyoti Lamichhane, MPH, is a public health researcher with expertise in qualitative and quantitative research, as well as participatory photo and video methodologies. Currently serving as a Research Associate at PHASE Nepal, she brings experience in public health academia and is deeply committed to evidence-based interventions. Her work is driven by a strong dedication to fostering meaningful public health advancements.



Thank You