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**Title: Occupational Hazards in Lead-acid Battery Factories in Bangladesh: Assessing Excess Heat, Noise, Chemical Exposures, and Health Impacts on Workers**

**Abstract:**

**Background:** Lead-acid battery (LAB) manufacturing is growing in Bangladesh because of the expanding automotive industry and low lead prices. Although these factories employ a big workforce, the working environment has led to concerns about the possible health risks for employees. This study aimed to address this issue by investigating workplace chemical and physical hazards in three LAB industries and evaluating health outcomes among workers.

**Methods:** A cross-sectional study was conducted among 72 LAB factory workers, and participants were recruited by simple random sampling. A validated questionnaire was used to collect information on self reported exposures to physical and chemical risks and related health effects. Data analysis was performed by using statistical software SPSS version 25.

**Results:** The age and work experience (Mean \_ SD) of the participants were 34.2 \_ 7.7 and 10.0 \_ 5.7 years, respectively. High workplace temperature and noise from machinery, chemical odors, and skin exposure to acid (H2SO4) were reported by 52.8%, 51.4%, and 20.8% of workers, respectively. Insomnia (25.0%), abdominal pain (18.1%), joint pain (38.9%), memory loss (19.4%), headache (15.3%), low back pain

(47.2%), eyesight problem (19.4%), physical weakness (47.2%), and hypertension (19.4%) were all common symptoms among the workers.

**Conclusion:** Our study findings indicate that workers in LAB factories in Bangladesh are exposed to extreme temperatures, hazardous materials, and uncomfortable levels of noise, which can lead to serious health risks. To ensure the safety and well-being of employees, the LAB manufacturing sector in Bangladesh requires the immediate implementation of proper occupational health and safety standards.