

Noise Exposure Assessment Among Workers in Construction Sector

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Structured Abstract

Background: High levels of noise in the environment are one of the most common global occupational health hazards. The construction sector is often associated with high levels of noise, which can have a harmful effect on the health and well-being of workers. The primary sources of construction noise include machinery such as excavators, piling machines, cutting equipment, and cranes, with noise levels often peaking during active working hours. This study aims to assess noise exposure levels among workers in the construction sector, develop comprehensive noise mapping for construction activities, and evaluate individual noise exposure to identify potential occupational hazards. Furthermore, this study will highlight how important it is to manage sound exposure level in construction settings, particularly in the selected area and by implement the control measure to secure the excessive noise. By analyzing the impact noise exposure levels and relating with the noise mapping area, the study will understand the effect on the workers.

Methods: The area monitoring was conducted to measure noise level by using sound level meter (SLM). The data recorded was used to develop the noise mapping and the personal monitoring was measure using noise dosimeter.

Results: The research found that noise levels in the construction site ranged from 75.6 dBA to 94.7 dBA, with several areas exceeding the Noise Exposure Limit (NEL) of 85 dBA. Block 3 recorded the highest noise levels, particularly near bending and cutting machines, placing it in the hazardous red zone. Personal monitoring revealed that workers' exposure ranged from 85.0 dBA to 90.2 dBA, with one worker experiencing a peak level of 144.4 dBC, exceeding the permissible limit of 140 dBC. Noise mapping identified high-risk zones, requiring workers to maintain safe distances or use personal hearing protection (PHP). These findings highlight the need for immediate noise control measures and ongoing monitoring to protect workers' health.

Conclusion: In conclusion, the findings of this study indicated that critical areas with excessive noise levels exceeding regulatory limits, emphasizing the need for improved noise control measures. Future studies should focus on long-term monitoring of noise exposure, evaluating the effectiveness of engineering controls, and exploring innovative technologies to reduce noise at construction sites.

Keywords: Noise Hazard, Construction Site, Noise-induced Hearing Loss, Noise Exposure Limits

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