

Investigation on the Health and Safety Hazards of Construction Workers

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Abstract: The construction workers might be at the risk of many occupational injuries and illnesses. To protect workers from various hazards, industrial health and hygiene systems were specified for the construction workers by law. It is important to know the actual health and safety(H&S) conditions by tasks and the characteristics of injuries and illnesses of construction workers. This study was designed to investigate the actual conditions of construction workers exposed to various harmful substances and work elements including evaluation of health status of each worker and general H&S system. Questionnaire was sent to 600 construction workers nationwide and totally 367 people responded to it having 61.67% of response rate. The common construction hazards were dust(29.6%), noise(19.3%), repetitive motions(12.0%), handling excessive heavy materials(11.2%) in order. The repetitive motions and handling heavy materials related to muscle disorders accounted for 23.2%. The accident and injury types were in order of overexertion, falling, overturning, dropping or flying, electric shock, collision, etc.

Key words: construction workers, hazards, accident & injury types, arthralgia

1. Introduction

The construction workers are exposed to a wide variety of health and safety(H&S) hazards. Workers might be at the risk of many occupational injuries and illnesses. To prevent injuries and illnesses industrial health and hygiene systems were specified for the construction workers by law. The Korean government have made regulations and clearly assigned responsibilities of the company to protect construction workers from hazards.

Controlling construction hazards it is important to know the actual H&S conditions by tasks and the characteristics of injuries and illnesses of construction workers. Also we should clarify what task is dangerous to workers by hazards assessment.

ILO(International Labor Organization) prepared convention between main and sub-contractor with a particular consideration of each body's role. The United States have made H&S regulation, 29 CFR 1926 for construction industry separately from the general H&S management system for all industries. A lot of researches and

preventive measures for the H&S of construction industry are being developed by NIOSH (National Institute of Occupational Health and Safety). In Japan, the appointment of H&S manager and health examination are enforced in the construction industry differently from Korea. Also there are health-related regulations for construction workers who are engaged in organic solvent work, asbestos work and etc. Contrarily, in Korea there have been only a few researches on general H&S conditions for the construction workers.

Therefore, this study was designed to investigate the actual conditions of workers exposed to various harmful substances and harmful work elements including evaluation of health status of each worker and general H&S system.

2. Questionnaire survey

Questionnaire was composed of items asking job description, harmful and potential risk factors related to occupational injuries and illnesses during work. We also asked about current health status, experiences of occupational injuries or illnesses, e.g. falling, hearing disturbance, joint discomfort, chronic muscle pain, etc.

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Questionnaire sheets were sent to 600 construction workers nationwide and totally 367 people responded to it having 61.67% of response rate.

3. Questionnaire result

1) The common health hazards of construction workers were dust(29.6%), noise(19.3%), repetitive motions (12.0%), handling excessive heavy materials(11.2%) in order. The repetitive motions and handling heavy materials that related to muscle disorders accounted for 23.2 %.

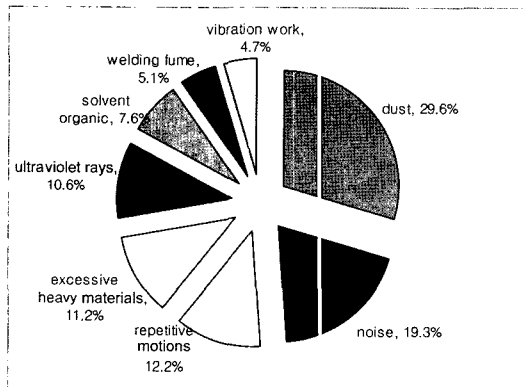


Fig. 1. The health hazards of the construction workers.

2) The possible accident and injury types were in order of overexertion(19.3%), falling(18.3%), overturning(16.7%), dropping & flying(11.0%), electric shock, collision, jamming, intoxication of harmful substance, suffocation, fire, collapse.

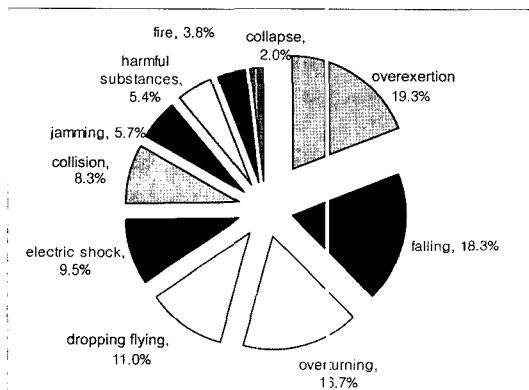


Fig. 2. The possible accident and injury types during work.

3) The 31.1% of respondents answered that their own work could affect badly on their health. The 42.5% of them answered as medium and 26.5% of them did not know for certain.

4) Whether to get health education and safety training

for their work, the 92.8% of them answered “yes” and this means that almost all of them completed training courses.

5) For “Do you think it is necessary to wear protection equipment?”, the 83% of all answered that it is necessary to wear, 9.5% for medium, 7.5% for unnecessary to do.

6) For “Experience of injury or accident during work”, the 46.3% experienced almost accident, 9.4% experienced outpatient hospital treatment for more than four days, for 8.5% admission and getting operation, for 3.5% suffer from aftereffects

7) For “Health effect due to work”, the 20.6% complained of chronic muscle pain or neuralgia, worsened joint in 17.8%, worsened health in 16.7%. One of five construction workers suffered from chronic muscle pain or neuralgia.

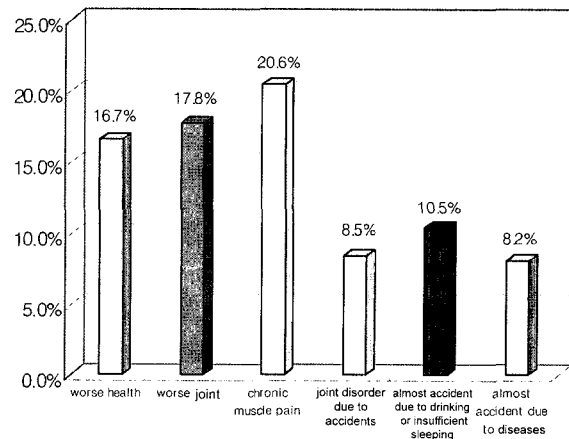


Fig. 3. The effect on the health and safety due to work.

8) The 10.5% had experienced almost accident due to drinking or insufficient sleeping in the previous day, while the 8.2% due to being sick. It suggested that personal physical condition should be a important factor of almost accident.

4. Analysis

The correlation among related factors have been analyzed here.

1) The common labor, painter, carpenter, stone cutters were more exposed to handling excessive heavy materials.

2) The stone cutter, mechanic, equipment operators,

plasterer, painter, landscaper in order were exposed to repetitive motions.

3) The common labor, stone cutter, rebar placer, painter, welder, cleaner, electrician in order showed that it would be possible to have accident due to overexertion.

4) The mechanic, landscaper, stone cutter, painter, plumber, welder in order had experienced joint discomfort during work.

5) The experiences of chronic muscle pain or neuralgia during work were more frequent in stonecutter, landscape, rebar placer.

5. Conclusion

Conclusions through the above analysis were summarized as follows;

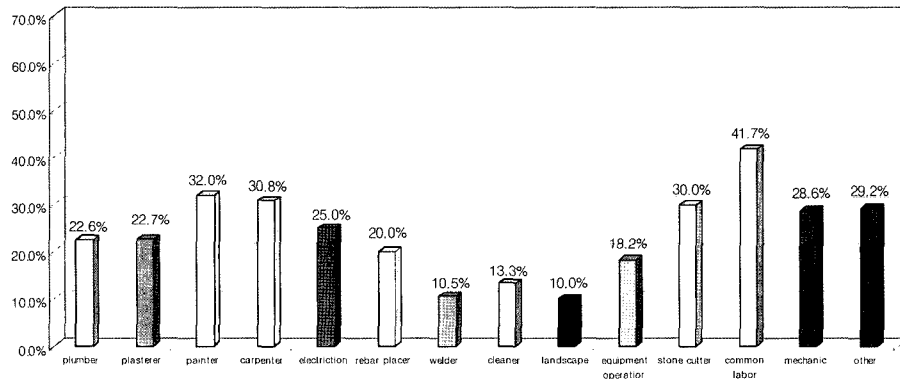


Fig. 4. Exposure to handling excessive heavy materials.

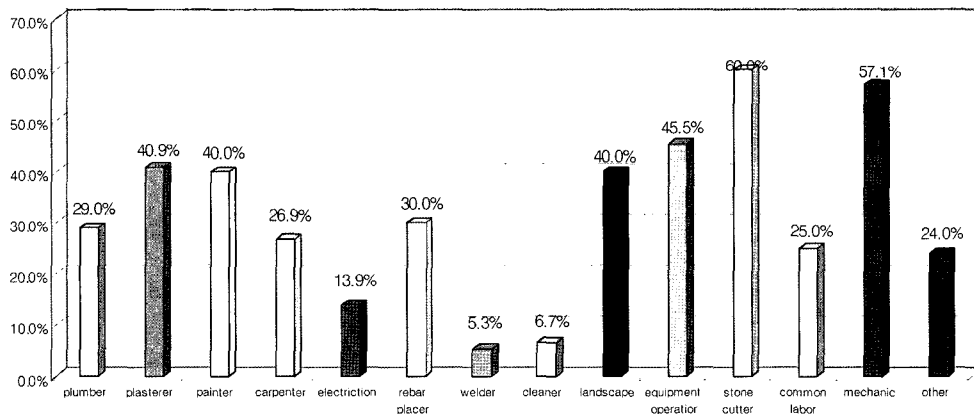


Fig. 5. Exposure to repetitive motions.

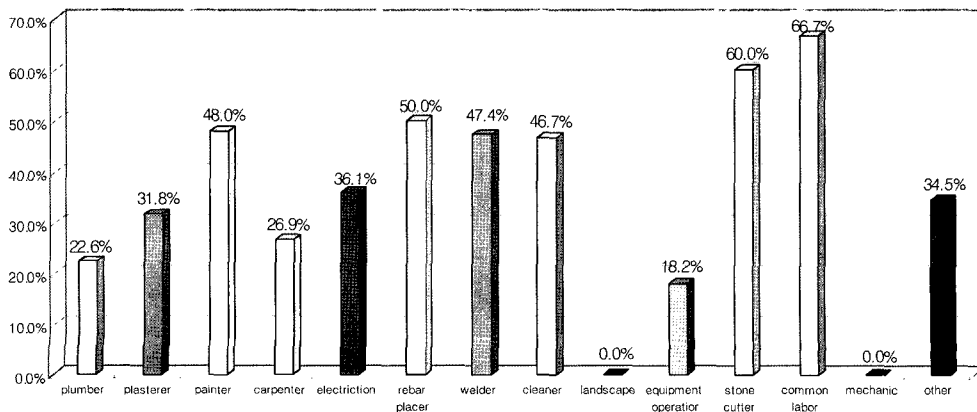


Fig. 6. Potential accident due to overexertion.

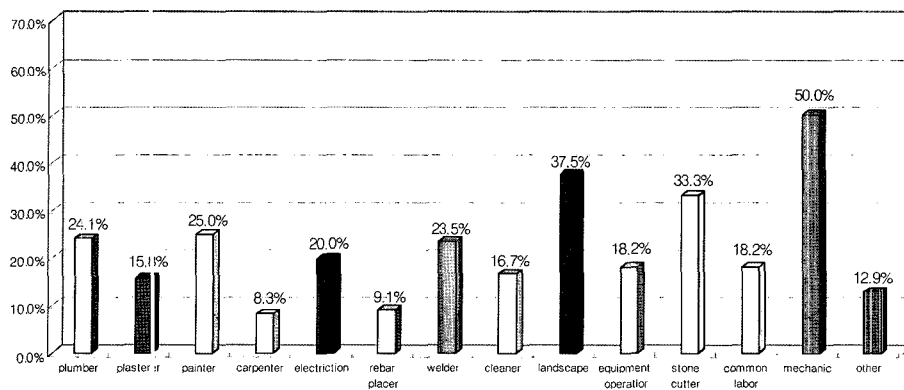


Fig. 7. Experience of joint discomfort(arthralgia) during work.

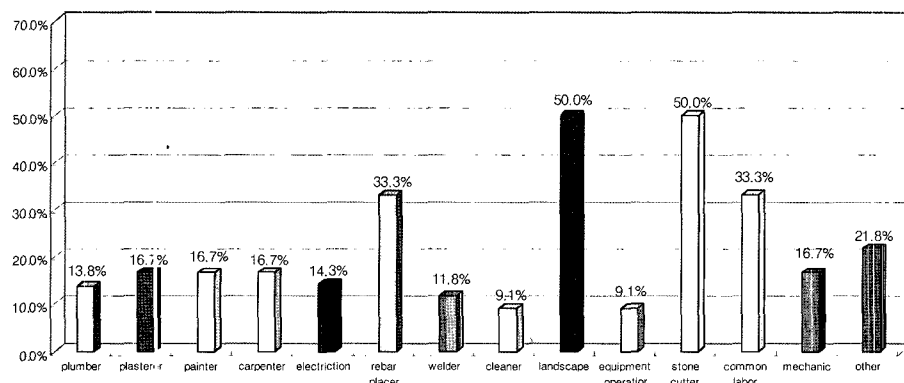


Fig. 8. Experience of chronic muscle pain or neuralgia.

1) The common hazardous factors exposed were dust(29.6%), noise(19.3%), repetitive motions (12.0%), handling excessive heavy materials (11.2%) in order.

2) The accident and injury types were in order of overexertion, falling, overturning, dropping or flying, electric shock, collision, etc.

3) The common labor that had not been considered as dangerous job had the highest risk of injury due to overexertion.

4) The mechanic had complained of joint discomfort (arthralgia) as high as 50.0%, that might indicate involuntarily handling heavy materials would increase the risk of injury.

5) Chronic muscle pain or neuralgia were exceedingly high in landscape, meaning this work could be handled manually rather than mechanically.

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