

Main Causes and Prevention of Occupational Slipping Tripping and Falling in Thailand

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Abstract

The purpose of this study was aimed to identify the main causes and prevention of occupational slipping, tripping and falling in Thailand. The results revealed that number of the accidents caused by the occupational slipping, tripping, and falling was high ranked of all occupational accidents in every worldly part. This study consisted of 6 operational processes. Firstly, it involved seeking for statistic data and information about number of the accidents, the Office of Social Security 2008. Secondly, analysis of most frequently-occurred businesses in Thailand was performed. Thirdly, survey planning was established by which the questionnaires were instrumental to gather data and interviewing was carried out with those concerned personnel. Fourthly, selecting the survey site, and lastly, analysis and conclusion was made to identify the causes of the accidents as well as recommendation on prevention of the accidents. The results indicated that the causes of problem consisted of the three following factors; personnel, work-associated equipments and tools, and workplace environment. For personnel factor, the workers were inadvertent while on duty, low educated, lacked of experience and safety skill training, seniority, drunkard or drug addicted. Regarding to work-associated equipments and tools, the workers did not wear the preventive equipments, safety helmet, safety shoes, or working barefooted. Regarding to workplace environment, the ground were blocked, wet and rough, including the climate in wet season from the month of May to October. There were no sign or warning sign of danger. It's suggested that the preventive action for accidents included providing the appropriate training before real performance, prohibiting the alcoholic beverage dirking or the use of illicit drug. Some behaviors should be modified, for examples; the elder workers should be put in the job that is lesser in risk. Consciousness and campaign on safety should be urged. It should invest on safety equipments and safety shoes; including inspecting the ground and installing the easily visual sign or warning sign in risky area.

Keywords: Slipping Tripping and Falling

1. Introduction

The work-associated accidents cause the enormous loss to the injured, operators, and country directly and indirectly. According to the 2008 statistic data from the Workmen's Compensation Fund (WCF) [4], the figures showed 158,687 occupational accidents; accounted for 89.90% of those overall (176,502) accidents. Of them, number of the occupational slipping, tripping and falling was 15,465 people which of them, 89 people died of the accident, 5 disabled, 88 lost the body organs, and 5,574 people leaved the job of sequential over 3 days. In the United States of America [1], it reported 700 people died of the slipping, tripping and falling which was the second mostly frequent cause of all occupational deaths. Each year, there were 300,000 injured people suffering from the slipping, tripping and falling, total medical expense was \$28,000 individually. Similarly, there were 300,000 injured people suffering from the occupational causes of slipping, tripping and falling annually. In Britain [2], the 2008 statistic figures reported 27,594 accidents. One third was caused by the occupational slipping, tripping, and falling. In Australia [3], it reported average 28,000 injured people annually caused by the occupational slipping, tripping, and falling.

The statistic references indicated that the occupational accidents of slipping, tripping, and falling were a big problem leading to the enormous loss and affecting the national productivity. The objectives of this study was to present the information and data about

slipping, tripping, and falling caused by occupational accidents, referred to the Workers Compensation Fund (WCF). Then, the observation was made and enquiring the data from actual work site to identify the causes of the accidents. Lastly, the results are expected to provide the useful recommendations for prevention or reduction in risk of the occupational accidents; slipping, tripping, and falling.

2. Material and Method

In present study, to identify the causes and prevention of the occupational slipping, tripping, and falling, the following stages were taken;

2.1 Search for statistic data about the work-associated accidents of slipping, tripping, and falling in Thailand and the outcomes derived from the Workmen's Compensation Fund (WCF) 2008.

2.2 Analyze what activities involve in most frequency leading to slipping, tripping, and falling accidents.

2.3 Make a survey plan for accident-associated data through using the questionnaires to interview those who involved the slipping, tripping, and falling accidents while on duty.

2.4 Select the prospective places and number of questionnaires to be used.

2.5 Analyze and summarize the questionnaires for causes of the occupation accidents.

2.6 Propose the suggestion and preventive measures to avoid the slipping, tripping, and falling accidents.

3. Results

3.1 Results of data analysis derived from the Workmen's Compensation

Fund (WCF)2008 were described in Table 1.

Table1 Slipping, Tripping, and Falling Occupational Accident in Thailand in 2008

Description	Number
1.Number of Labors (million)	
1.1 Overall labors in Thailand	37.02
1.2 Number of employees under Social Fund Coverage	9.29
1.3 Employees under the Social Fund Coverage of overall labors	25.10%
2.Number of accidents	
2.1 Overall numbers of occupational accidents	176,502
2.2 Number of slipping, stripping, and falling accidents	15,465
2.3 Slipping, stripping, and falling of all occupational accidents	8.76 %
3. Number slipping, stripping, and falling accidents by business	
3.1 Construction	6,580 (42.55%)
3.2 Food and Beverage	4,558 (29.27%)
3.3Others	4,327 (27.98%)
4. Severity	
4.1 Death	8
4.2 Disabled	5
4.3 Loss of organs	88
4.4 Over 3-day absenteeism	5,574
4.5 Less 3-day absenteeism	10,712

It showed that number of employees under the Workmen's Compensation Fund (WCF) coverage in 2008 totaled of 9.29 million people, or accounting for 25.10% of all labors in Thailand. In year studied, the number of the occupational accidents was 176,502

people (Statistic data from the Office of Social Security). The number of slipping, tripping and falling accidents was 15,465 people, or 8.76% of all accidents. Regarding to the severity of slipping, tripping and falling accidents was as follows; 86 people died, 5 disabled people, 88 people lost the organs, over 3-day absenteeism was 5,574 people, and less 3-day absenteeism was 10,712 people.

3.2 From Table 1, it found that construction activity reported highest number of slipping, tripping and falling accidents, 6,580 injured people or 42.55% of all occupational accidents. This was a major reason the researcher was interested to make a survey on this area.

3.3 Survey plan was developed to examine the falling accident. The questionnaires were along together with interviewing method to enquire the information directly from concerned personnel who suffered the slipping, tripping, and falling accidents. The author-developed questionnaires consisted of thirty-two items dividing into 7 parts as follows;

- A. Respondent's details 3 items
- B. Injured Personal details 5 items
- C. Accidental details 7 items
- D. Accident environment details 8 items
- E. Accidental outcomes 4 items
- F. Accident prevention 3 items
- G. Accident coverage 2 items

3.4 Place of collecting data is the constructing site in Nakornratchasima, Smuthsakon, Rayong, Smuthprakan, and Bangkok. Collecting data use the 103 Industrial Engineering students, Rajamangala University of Technology Nakornratchasima. Duration of survey

lasted about 45 days during June 10, 2009 to July 25, 2009

3.5 A total of 1,545 people completely filled-out questionnaires over 515 sections were returned (See Appendix B). The main causes of occupational slipping, tripping, and falling results were summarized as follows;

1 Employees

- a) Inadvertency – 62.97% of all occupational accidents on slipping, tripping, and falling were caused by employees' inadvertency.
- b) Low education – 78.58% of all the injured finished junior high school.
- c) A lack of work experience and training on safety skills. The results showed that the injured got the accidents frequently in the first year of employment, accounted by 22.33%. After the first year of service, they were more familiar with working; the accident rate was reduced to 3%. However, the employees' training on safety skills was small, accounted for 25.82% of all employees.
- d) Older age – The results showed that employees with higher experience reported lower accidents. However, when they become older, 45 years of age or higher, the possibility of accident was higher. It found that the injured employees aged of 45 years or higher experienced the accident by 79.93%.

- e) Alcoholic beverage drinking or drug use, another main cause of occupational accident of slipping, tripping, and falling stemmed from drunkard and drug use, accounted for 56.50% of all occupational accidents.

2 Equipments

- a) Employees did not wear preventive equipments such as glove, eyeglasses, safety helmet, and so on. This led to accidents more easily. It found that employees did not wear the preventive equipment experienced the accident up to 85.45%.
- b) Shoe – the results found that 52.94% accidents were caused by employees wearing the sandal on duty while 6.86% accidents were caused by employees working on barefoot, all led to the accident more easily.

3 Workplace Environment

- a) Ground condition – the floor surface that caused the occupation accidents mostly included the obstacle surface, wet surface, and rough surface, accounted for 29.25%, 24.91%, and 17.99% respectively.
- b) Climate – higher frequency of accidents took place from May to October by 76.18%.
- c) Danger warning – 76.95% occupation accidents were found in the organizations without danger warning sign.

4. Conclusion

As surveyed in realistic work condition, the analysis of data was performed jointly between researcher and the organization surveyed; we agreed and summarized that preventive action for occupation could be taken by the following;

1. Provide the employees with the appropriate skills prior to commencement of their actual work

2. Set out the rule and regulation and provide the supervisor to control the performance strictly.

This is to prevent them from carelessness and teasing during work hours.

3. Senior employees should be put into other less risk work.

4. Nurture employees' consciousness of safety. Campaign and practicing should be carried out regularly.

5. The organization invests more on safety equipments and always trains the employees correctly on how to use the safety equipments.

6. Employees always wear the safety shoes at any time on duty to avoid slipping.

7. Employees' safety should be emphasized strictly, particularly in wet season. Working while raining should be avoided.

8. Signs should be provided visibly in dangerous risky area.

9. Inspect the ground and surfaces and make sure that they are tidy, flat and dry during working.

Lastly, the researcher's suggestions include training proper skills before actual working. Alcohol drinking and drug use must be prohibited absolutely.

Senior employees should be changed to replace the less risky position. Employees' consciousness on safety would be concentrated. Safety equipments and shoes should be provided. Ground and surface inspection should be conducted regularly, and visual sign should be provided in dangerous area.

5. References

- [1] Bureau of Labor Statistics, 2008. *Workplace Injury and Illness Summary*. Available source; <http://www.bls.gov/news.release/osh.nr0.htm> March 9, 2008
- [2] Health and Safety Executive, 2008. *The annual statistics report*. Available source; www.hse.gov.uk/slips/statistics.htm, 2008.
- [3] The Australian Building Codes Board, 2008, *Slips Trips and Falls in Buildings*. Available source; <http://www.abcb.gov.au> February 18, 2008
- [4] Workmen's Compensation Fund (WCF), Thailand, 2008. *Social Security Statistics*. Available source; <http://www.sso.go.th/sites/default/files/userfiles/file/stat261151.pdf>