

Occupational Accident Frequency and Personal Protective Equipment Usage of Technical Staff Working in A State University

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How to cite this article:

Mehmet Erdem Güney, Sevil Özger İlhan. Occupational Accident Frequency and Personal Protective Equipment Usage of Technical Staff Working in A State University. Indian J Forensic Med Pathol. 2020;13(1 Special):197–207.

Abstract

It is aimed to reveal the occupational accident situation, PPE usage situation and, accordingly, the difficulties that may be encountered in working and social life of the employees who work as a technical staff in a state university and the current job satisfaction, in this study. To calculate the findings of the study, percentage, frequency, mean and standard deviation have been used; to compare qualitative data chi-square test has been used and significance has been evaluated at $p < .05$ level. Spearman correlation analysis has been used to examine the relationship between variables. According to the results of the research, the majority of the employees do not receive any occupational safety training before and after they start work. Besides, according to the results of the study, it can be said that the expected and observed negativities will be minimized if the employees receive training on OHS materials.

Keywords: Occupational accident; Occupational disease; OHS.

Introduction

Although people always want a healthy and safe environment in working life, it has been realized that occupational safety is accepted as a social need.¹⁴ The development of industry has brought about the concept of occupational health and safety with economic contributions. Occupational health and safety aim to improve the conditions of employees in the workplace.² The issue of occupational

health and safety is considered to have gained importance along with the industrial revolution, which created conditions that pose a danger to the health of workers.⁵ In labor law, there is a condition of providing occupational safety as a result of the undertaking of the worker to undertake to work with labor.¹⁴ The right granted to the employee as occupational safety ensures that the events that affect the life of the person being protected from the negativities that will be encountered during the work. Protecting the life and body integrity of the worker is also within the scope of job security.⁷ Occupational safety can also be defined as a set of legal, technical and medical measures to be taken to ensure that the employee does not suffer physical and mental harm due to the hazards arising from the construction of the current job and the hazards arising both inside and outside the enterprise. From a wide-angle, occupational safety can be interpreted as the use of the state's facilities to the benefit of the employee in addition to the work related to the performance of the work. It covers the principle of social state and protection of workers on the basis of occupational safety which covers a wide range of

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subjects including wage security and job security.⁸

Occupational Health and Safety

In the globalization process, the flow of goods, services, and capital has accelerated. As a result of these developments, changes in the economy and the working life of countries have occurred. Under these circumstances, the concept of competition emerged and became compulsory. Struggling with competitors inside and outside the country, reaching more customers, production speed and capital development efforts are within the scope of competition. New conditions create new risks and hazards in enterprises. Measures are taken and implemented against this situation. Occupational health and safety measures have become compulsory in today's conditions. Although this situation is observed as an economic burden by most organizations, the experienced results may lead to more painful results over a wide period of time.¹⁰

The concept of occupational health is considered as minimized the hazards that may arise from the environment and equipment in working environment.⁶ With the health and safety of workers, individuals also aim to develop a sense of protection and safety from risks from general to private.¹⁶ Occupational safety also refers to the whole set of rules for eliminating the dangers that are parallel to worker health.⁶ The concept of occupational health and safety is defined as the studies that will be carried out in order to create a human environment and eliminate the conditions that will pose a danger to the employee's work.¹⁸

Occupational health and safety is essential to ensure employee happiness. It can be thought that the employees will feel safe and the productivity level will increase in the environment where they feel comfortable. OHS, which aims to ensure the harmony of the employees with the work, also protects the employer and protects the treatment processes by identifying the possible work accidents and occupational diseases. OHS is an area of expertise that provides the social, spiritual and physical well-being of employees.⁹

The concept of Occupational Health and Safety, which is based on the material and moral well-being of the employee, is not a new phenomenon. As a matter of fact, human beings have been in working life since somehow to meet their needs. Based on this idea, it is possible to predict that the process of meeting the concepts of work, health and safety

at the same denominator in history can go back to ancient times. It is known that the document, which is the first source related to OHS, was produced by Herodotus, who reveals the necessity of consuming high-calorie foods in order for employees to be productive.¹² The same style of work continued by Hippocrates and Dioscorides. The first study on a scientific basis was Ramazzini's book on measures in 1713.²¹

The developing world and technological activities turned into a race with the hard-working conditions of the countries and the conditions became more difficult for the employee. If we look at our own history, the guild activities of the Ottoman period are noteworthy for the craftsmen to protect their apprentices. The late industrial period we experienced led us to follow up on OHS developments compared to other countries. Dilaver Pasha's Regulation and the 1869 Maadin Regulation helped the workers in the coal mines provide some degree of convenience. On the other hand, the most important step of OHS developments can be thought to be the subject that came into force in 1937 in the history of the Republic.¹² Under the influence of modernism, improving work and working conditions, increasing the importance given to workers, providing employer supervision and so on formations have occurred. Thus, measures have been taken to protect the material and moral integrity of the employee and employer and laws have been established. One of the rights cited in this context is the right to social security.

Social security is an indispensable right for everyone without any discrimination. In using this right, it is applied regardless of age, sex, income level or any other characteristics of the person. It can also be considered as providing a life worthy of human dignity in relation to the state's right to social security. The social security right is also included in the Declaration of Human Rights and it is observed that everyone is determined to have the right to be a member of society. Social security is a natural right of people and in no way can be taken away.²³

Social security is a duty assigned to the state and it is a right that can be demanded from a human perspective. The State will establish all the organizations necessary to meet this duty. Mainly the protection of the economic right of the person lies in protecting the person from social events but also affects the development of happiness and personality.¹¹ According to Article 60 of our Constitution; "Everyone has the right to social security. The state shall take the necessary

measures to ensure this security and establish the organization.

This article together with Article 2 of the Constitution stipulates that the Republic of Turkey is a social state of law if the assessment of the need to protect the safety and health of employees can be concluded that in our Constitution. The provision of the right to occupational safety to the person acts as a measure against compensation and occupational risks by the state.²⁰ It is also known that a person equipped with social rights will overcome the social and economic barriers to a dignified and healthy working life.⁴

In order to protect the right to social security, it is important to know the concepts that are closely related to the concept of occupational health and safety and to take necessary measures. Among these concepts, occupational accidents and occupational diseases come first.

Work Accident

The accident is defined in the literature as a bad event that may cause loss of property and life.²² The definition of the accident is considered from a legal dimension and from a narrow and wide-angle. While the accident in a narrow sense is the death of the person and the violation of the integrity of the body, in the broad sense; the damage is added to this definition. A work accident is a special case of the concept of accident in a narrow sense. The incident that caused the occupational accident was not requested by the person and should be caused by a sudden and external factor within a short time.¹¹

The occupational accident is regulated in Article 13 of the Social Security and General Health Insurance Law no 5510.

Work accident; According to Article 3 (g) of Law No. 6331, it is defined as the event that occurs in the workplace or due to the execution of the work, causing death or rendering body integrity mentally or physically disabled.¹⁹

According to Article 13 of Law No. 5510, in order for an accident to be considered as a work accident, it must meet any of the following conditions:

- a. While the insured is in the workplace,
- b. If the insured is working independently on his/her behalf and account due to the work carried out by the employer,
- c. In the period of time that the insured working under an employer is sent to another place as an official,

- d. In the times allocated for breastfeeding the female insured to provide milk to her child in accordance with the labor legislation,
- e. It is the event that occurs during the arrival of the insured by a vehicle provided by the employer to the place where the work is carried out and which immediately or subsequently makes the insured physically or mentally disabled.

In the absence of the above-mentioned factors, situations that may occur are not considered as occupational accidents.¹⁵

Occupational Disease

The concept of occupational disease according to Law No. 5510; Occupational disease is defined as a temporary or permanent illness, physical or mental disability that the insured undergoes for a recurring reason due to the nature of the work that he or she works or due to the conditions of execution of the work. Considering the possibility that each insured person's illness is not an occupational disease, the situation is examined according to the Regulation on the Determination of the Loss Rate of Workforce and Earnings in the Profession. In this regulation, methods for determining occupational diseases are determined. In addition, it is stated how long it will take for the worker who has an occupational disease to start work.¹⁹ In order to benefit from the rights determined by the law for the employee who has an occupational disease; In compliance with the procedures of the health service provider authorized by the institution, the health committee report and the medical documents obtained shall be determined by the health committee of the institution by examining the inspection reports and other necessary documents (Law no. 5510, Art: 14/2). In order to consider one disease as an occupational disease, the employee must first be considered as insured. The existing illness of the employee should eventually create disability in the physical or mental state of the person. The obstacle situation should be in a causal connection with the work being carried out by the person.¹³ The causal link between occupational accident conditions is not as important as an occupational disease. However, there is a direct connection between occupational diseases and workplace conditions.³

Notification of Work Accident and Occupational Disease to the Institution

In accordance with the law no 5510 in force in our country, the employer must notify the authorized law enforcement authorities immediately at the

place of the accident and at the latest within three working days after the accident. Within the scope of the same article, it is obligatory to notify the Institution directly or by registered mail by means of work accident and occupational disease notification within three working days after the insured's disability does not prevent him/her from notifying his/her condition not to exceed one month.¹

This situation is designed to vary in terms of employee diversity. Within the scope of Law No. 2925, agricultural workers make the notification within two days after the accident.¹³ The period of notification can be submitted to the organization within three working days after the day it does not interfere in case of reporting the discomfort by the independent employees for a period not exceeding one month. If independent employees do not notify the institution within the required period, they will be deprived of disability allowances during those days.¹⁹

Assistance to the Insured or Rights Holders due to Occupational Accidents and Occupational Diseases

It is known that the insured employee will suffer loss as a result of the problems. The depreciation of these losses and temporary incapacity allowance or permanent incapacity income, which is considered to be some support. If the insured dies, the funeral allowance, death income, and marriage allowance can be given to the employee by the institution. If these aids are examined under headings:

Benefit for temporary incapacity

As a result of an occupational accident or occupational disease, it is carried out by the institution with the aim of minimizing the material losses of the employee during the period of inability to work. This allowance is paid from the first day for each day of absence. In addition, the working time or the starting time is not taken into consideration for the benefit of the employee.²² In order for the insured to benefit from the temporary incapacity benefit, if there are contractual or non-contractual health service providers, it is essential that he receives a rest report from the doctors authorized by the Ministry of Health and that the incapacity benefit is paid to the insured by the Authority.¹³

Permanent incapacity income

As a result of an occupational accident or occupational disease, the person suffers financial loss. The insured is given temporary disability

benefits by the medical and institution in order to prevent loss. If it is found that the person's ability to earn in the profession decreases by 10% at the end of the treatment process, the person is paid disability by the institution continuously.¹⁵

Certain conditions for continuous disability payment include: in order to connect income to the insured, the insured has lost his or her earning power due to illnesses and obstacles caused by occupational accident or occupational disease, or has lost at least 10% of his earning ability by continuing to work in his profession.¹¹ Monthly earnings are determined primarily for the calculation of continuous disability income. This is the same method as calculating temporary disability income. The Authority notifies the result to the person within 3 months as of the examination of the documents required for payment. If the insured has previously benefited from a temporary disability allowance, the date of termination of this allowance is permanently incapacitated without the determination of temporary disability. If the person is not bound by the employment contract, the insured must pay all premiums and debts in order to benefit from the allowance.

Funeral allowance

It is made in case of death to the insured who lost their lives as a result of an occupational accident or occupational disease. In order to be able to receive this benefit, the employers who are working under the employer must have provided at least 360 days of long-term insurance premiums. 360-day premium payment is required for independent employees. The amount of payment to be made by the Authority is determined by the board of directors and made in accordance with the tariff approved by the related minister. Assistance can be paid first to the spouse, or else by following the order of the child, parents or siblings (Article 37/3 of Law no. 5510).

Death income

It is not necessary for the insured to have worked for a certain period or paid certain premiums in order to be able to attach death income to the relatives of the insured who died as a result of an occupational accident or occupational disease. The death income of the person who has been identified on the day of the insured's employment and the cause of the occupational accident will be attributed to the beneficiaries. For the benefit of the beneficiaries of independent employees, premiums and premium-related debts must be paid (Art. 19/3 of Law no. 5510).

Marriage allowance for girls

After the death of the insured, the income is deducted in the event of the marriage of the girl whose income has been tied to her.

Materials and Methods

The research group consisted of 139 technical staff, 133 males and 6 females, working at Gazi University. This survey, which was conducted on 139 people, was developed by HakanSaraç in 2014 as an Occupational Health and Safety Survey for Employees at Republic of Turkey, Ministry of Education Course instruments center and State Books Revolving Fund. This questionnaire, which was applied to the participants, was carried out by the supervisors by going to the unit where the staff worked together with the determination of the content of the questionnaire and completely voluntarily. Percentage, frequency, mean and standard deviation were used to calculate the descriptive statistics of the participants; the chi-square test was used to compare qualitative data and significance was evaluated at $p < .05$ level. Spearman Correlation analysis was used to examine the relationship between variables. SPSS 23.0 Package Program was used for data analysis.

Results

In this section, findings related to research problems are given

According to Table 1, 112 (81%) of the study group consisted of individuals in the 24-50 age range.

According to Table 2, 133 (95.7%) of the study group were male and 6 (4.3%) were female.

According to Table 3, the frequencies of the total sample are given as follows with respect to the education status: 53 (38.1%) high school students, 38 (27.3%) college, 24 (17.3%) universities, 16 (11.5%) and 8 (5.8%) are primary school students.

According to Table 4, 119 (85.6%) of the study group were married and 20 (14.4%) were single.

According to Table 5, the average age of participants is 42.97. The lowest participant is 24 years old and the largest participant is 63 years old. The average date of commencement of work-life is 24.17. Participants have been working for at least 1 year and maximum 49 years. The average date of starting the current job is 16.18. Participants have been working in their current job for at least 1 year and working for 41 years at most. The average starting date of the participants at the current workplace is 12.85. Participants have been working at the current workplace for at least 1 year and have been working for 33 years at most.

Table 1: Distribution of research sample in terms of age variable

Age	F	%
24	1	0.7
25	4	2.9
27	3	2.2
28	3	2.2
29	3	2.2
30	2	1.4
31	4	2.9
32	3	2.2
33	4	2.9
34	3	2.2
35	5	3.6
37	4	2.9
38	5	3.6
39	4	2.9
40	3	2.2
41	4	2.9
42	4	2.9

(Contd...)

Age	F	%
43	11	7.9
44	3	2.2
45	2	1.4
46	5	3.6
47	8	5.8
48	9	6.5
49	6	4.3
50	9	6.5
51	6	4.3
52	4	2.9
53	2	1.4
54	3	2.2
55	2	1.4
56	2	1.4
57	2	1.4
58	1	0.7
60	1	0.7
61	1	0.7
62	1	0.7
63	2	1.4
Total	139	100

Table 2: Distribution of research sample in terms of gender variable

Gender	F	%
Males	133	95.7
Females	6	4.3
Total	139	100

Table 3: Distribution of the research sample in terms of the state of education variable

State of Education	F	%
Primary School	8	5.8
High School	53	38.1
Middle School	16	11.5
University	24	17.3
College	38	27.3
Total	139	100

Table 4: Distribution of research sample in terms of marital status variable

Marital Status	F	%
Married	119	85.6
Single	20	14.4
Total	139	100

Table 5: The average values of the research sample in terms of the variable of starting work, starting the current job, and starting years at the current workplace

Variables	N	Minimum	Maximum	Average	Std. Deviation
Birth Date	139	24	63	42.97	9.193
Date of Commencement of Work Life	139	1	49	24.17	9.422
Date of Starting The Current Job	139	1	41	16.18	9.456
Start Date of Work At The Current Workplace	139	1	33	12.85	8.549

According to Table 6, 23 (16.5%) of the research sample group was in wood working unit, 5 (3.6%) in biomedical unit, 12 (8.6%) in dye unit, 1 (0.7%) in storage unit, 14 (10.1%) in other units, 33 (23.7%) in

electrical units, 20 (14.4%) in administrative units, 5 (3.6%) in printing units, 10 (7.2%) in plastic units, 16 (11.5%) in the sanitary unit.

Table 6: Distribution of research sample in terms of worked department variable

Department	F	%
Wood Working	23	16.5
Biomedical	5	3.6
Dye	12	8.6
Storage	1	0.7
Other	14	10.1
Electrical Units	33	23.7
Administrative Units	20	14.4
Printing Units	5	3.6
Plastic Units	10	7.2
Sanitary Unit	16	11.5
Total	139	100

According to Table 7, 12 (8.6%) of the study group were workers, 1 (0.7%) engineers, 28 (20.1%) mechanic, and 98 (70.5%) technicians.

regulations while 63 (45.3%) did not.

According to Table 8, 76 (54.7%) of the study group had knowledge of the relevant laws and

According to Table 9, 33 (23.7%) of the participants received occupational accident training while 106 (76.3%) did not.

Table 7: Distribution of research sample in terms of title variable

Title	F	%
Worker	12	8.6
Engineer	1	0.7
Mechanic	28	20.1
Technician	98	70.5
Total	139	100

Table 8: Distribution of research sample in terms of knowledge status variable, laws and regulations related to the work

Knowledge of law	F	%
Yes	76	54.7
No	63	45.3
Total	139	100

Table 9: Distribution of the research sample in terms of occupational accidents in life and occupational accidents in the institution

	F	%
Occupational accidents in life		
Yes	42	30.2
No	97	69.8
Occupational accidents in the institution		
Yes	33	23.7
No	106	76.3
Total	139	100

According to Table 10, 89 (64.0%) of the study group did not report any accidents at work, 17 (12.2%) were in the wood section, 8 (5.8%) in the paint section, 1 (0.7%) in the storage section, 2 (1.4%) in the other section, 14 (10.1%) in the electrical section, 2 (1.4%) in the administrative section, 6 (4.3%) in the plastic section of the accident.

According to Table 11, 71 (51.1%) of the study group did not specify the type of the last occupational accident, 3 (2.2%) were head trauma, 22 (15.8%) sinking of object and 1 (0.7%) other, 4 (2.9%) electric shock, 3 (2.2%) burring, 10 (7.2%) fractures, 2 (1.4%) explosion, 4 (2.9%) substance fall, 5 (3.6%) compression, 1 (0.7%) traffic, 2 (1.4%) limb rupture, 2 (1.4%) burning, 7 (5.0%) falling from high, 2 (1.4%) had an intoxication.

Table 10: The place/department where the latest work accident occurred in your workplace

The latest work accident occurred in your workplace	F	%
NA*	89	64.0
Wood	17	12.2
Dye	8	5.8
Storage	1	0.7
Oher	2	1.4
Electric	14	10.1
Administrative	2	1.4
Plastic	6	4.3
Total	139	100

Table 11: Distribution of the research sample in terms of the occupational accident type

Work Accident Type	F	%
NA *	71	51.1
Head Trauma	3	2.2
Sinking of Object	22	15.8
Other	1	0.7
Electric Shock	4	2.9
Burring	3	2.2
Fractures	10	7.2
Explosion	2	1.4
Substance Fall	4	2.9
Compression	5	3.6
Traffic	1	0.7
Limb Rupture	2	1.4
Burning	2	1.4
Falling From High	7	5.0
Intoxication	2	1.4
Total	139	100

According to Table 12, 77 (55.4%) of the study group stated that they did not get any injuries as a result of occupational accidents, 9 (6.5%) received minor wounds and 30 (21.6%) were away from work for 1/3 days; 12 (8.6%) stayed 3 days/1 week away from work, 2 (1.4%) 8 days/1 month away from work, 3 (2.2%) 2 months/1 year away from work, 4 (2.9%) stated that they were away from work for more than 1 year.

According to Table 13, 1 (.7%) of the study group did not specify the reason for working in the current job, 74 (53.2%) were job security, 6 (4.3%) were adequate wage, 49 (35.3%) social security, 3 (2.2%) social facilities/shelter-food-local, 2 (1.4%) good OHS conditions, 4 (2.9%) stated the reasons for working in the current job as other reasons.

Table 12: Distribution of the research sample in terms of variable as a result of occupational accidents

Variables	F	%
* No injury	77	55.4
Got minor wounds	9	6.5
Away from work for 1/3 days	30	21.6
Away from work for 3 days/1 week	12	8.6
Stayed away from work for 8 days/1 month	2	1.4
Stayed away from work for 2 months/1 year	3	2.2
Aaway from work for more than a year	4	2.9
Other (.....)	2	1.4
Total	139	100

Table 13: Distribution of the research sample in terms of the reason for working in the current job

The reason why that you are working current workplace	F	%
Na*	1	0.7
Job Security	74	53.2
Adequate Wage	6	4.3
Social Security	49	35.3
Social Facilities / Shelter-Food-Local	3	2.2
Good OHS Conditions	2	1.4
Other	4	2.9
Total	139	100

According to Table 14, when the relationship between occupational accidents and satisfaction with the institution they work with is evaluated. It was seen that 33 (23.7%) of the participants who were satisfied with the institution they worked

in had work accidents and 106 (76.3%) did not. There was no significant difference between being satisfied with the institution and working accident. ($\chi^2 (2) 1.892^a, p = 0.388$).

Table 14: Evaluation of satisfaction status of the worker who injured as a result of work accidents working at the institution

Groups	Work Accident at the Institution			DF	χ^2	p
	Job Satisfaction	Yes	No			
Very Pleased		6	21	27	1.892 ^a	0.388
		22.2%	77.8%	100%		
Satisfied		21	75	96	2	
		21.9%	78.1%	100%		
Not Satisfied		6	10	16	2	
		37.5%	62.5%	100%		
Total		33	106	139		
		23.7%	76.3%	100%		

According to Table 15, when the relationship between the reasons for working at the current workplace and the situation of having an accident is examined; it is seen that 33 (23.7%) of the participants who work in the current workplace

have occupational accidents and 106 (76.3%) have not. There were no significant differences between working in current workplace and occupational accidents for various reasons. ($\chi^2 (6) 5.633^a, p = .466$).

Table 15: Evaluation of the reasons for working in the current workplace and the situation of having an accident

Groups The Reasons For Working In The Current Workplace	Work Accident at the Institution					
	Yes	No	Total	DF	χ^2	P
NA*	0	1	1			
	0.0%	100%	100%			
Job Security	17	57	74			
	23.0%	77.0%	100%			
Adequate Wage	0	6	6	6		
	0.0%	100%	100%	6	5.633 ^a	0.466
Social Security	13	36	49	6		
	26.5%	73.5%	100%			
Social Opportunities	0	3	3			
	0.0%	100%	100%			
Good OHS Conditions	1	1	2			
	50.0%	50.0%	100%			
Other	2	2	4			
	50.0%	50.0%	100%			
Total	33	106	139			
	23.7%	76.3%	100%			

Discussion

This study has been carried out with regard to occupational accident status, PPE use situations and the difficulties that may be encountered in working and social life of the employees working as technical personnel in a state university and the measurement of job satisfaction at present.

According to the results of the research, the majority of the employees do not receive training on occupational safety before and after they start.

While it is expected that there will be a meaningful relationship between the satisfaction of the persons who have had work accidents in the institution and the institutions they work with, this situation could not be caught in the analyses performed in this study. The reason for this situation can be explained by the fact that the study is carried out in one of the state institutions instead of the private sector.

Conclusion

The conclusion stated in the study that 'no significant difference was found between working in the current workplace and occupational accidents for various reasons can be explained by the fact that there is a work guarantee in the public institutions. Furthermore, according to the results of the study,

it can be said that the expected and observed negativities will be minimized if the employees receive training on OHS materials.

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