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METAL SEKTÖRÜNDE ÇALIŞAN PERSONELİN İŞÇİ SAĞLIĞI VE İŞ GÜVENLİĞİ FARKINDALIĞININ ARAŞTIRILMASI (KONYA İLİ ÖRNEĞİ)/Investigation of Occupational Health and Safety Awareness of Workers in Metal Industry (Konya Province Example)

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ÖZ

İş kazalarının azaltılması ve önlenmesinde işçi sağlığı ve iş güvenliği alanındaki farkındalığın yüksek olması önem arz etmektedir. Bu çalışmada Konya ilinde faaliyette bulunan metal sektörü işletme çalışanlarının çalışma ortamlarında işçi sağlığı ve iş güvenliği konusundaki farkındalıkları araştırılmıştır. Çalışanların düşünce ve görüşlerini öğrenmek, memnuniyetlerini ölçmek ve iş kazasına maruz kalma durumlarını analiz etmek hedeflenmiştir. Çalışma Mart- Nisan 2018 tarihleri arasında 9 farklı işletmede çalışan 204 çalışana uygulanan anket yardımıyla gerçekleştirilmiştir. Anket aracılığıyla, bilgilendirilme ve eğitim, iş güvenliği bilinci, çalışan davranışları, İSG profesyonellerinin rolü ve işyeri ortamı konularında çalışan görüşleri alınmıştır. Çalışma sonucunda Konya ilinde metal sektör içerisinde yer alan işletme çalışanlarından 70 kişinin çalışma hayatlarının belli bir döneminde iş kazası geçirdiği görülmüştür. Çalışanlardan iş kazası geçirenlerin mesleki tecrübe, yaş ve eğitim durumları analiz edilmiştir. Çalışmaya katılanların yaklaşık yüzde %52'sinin iş kazası geçirmiş olmasına rağmen ankete verilen cevapların ortalaması 3.64 ile "katılıyorum" likert maddesi elde edilmiştir. Bu duruma göre, çalışanların veya işletme sahiplerinin işçi sağlığı ve iş güvenliği açısından geçmişte yaptıkları hatalardan etkilenmiş oldukları düşünülmektedir.

Anahtar Kelimeler: *Metal Sektörü, İşçi Sağlığı ve İş Güvenliği, İş Güvenliği Farkındalığı*

ABSTRACT

It is important to have a high awareness of occupational health and safety in the reduction and prevention of occupational accidents. In this study, the awareness of metal sector employees working in Konya province on occupational health and safety issues was investigated. It is aimed to learn the thoughts and opinions of the employees, to measure their satisfaction and to analyze the situation of occupational accidents. The study was conducted between March and April 2018 with the help of a questionnaire applied to 204 employees working in 9 different enterprises. Through the survey, information and education, occupational safety awareness, employee behaviors, role of OHS professionals and workplace environment were taken into consideration. As a result of the study, it has been seen that 70 of the employees in the metal sector in Konya have experienced occupational accidents during a certain period of their working lives. The professional experience, age and educational status of the workers who were involved in occupational accidents were

analyzed. Despite the fact that about 52% of the participants in the study had an occupational accident, the average of the answers to the questionnaire was 3.64 and the "agree" likert item was obtained. According to this situation, employees or business owners are thought to have been affected by the mistakes they have made in the past in terms of occupational health and safety.

Keywords: *Metal Sector, Occupational Health and Safety, Occupational Safety Awareness*

INTRODUCTION

According to the International Labor Organization's (ILO) 2008 report, which continues to work on occupational health and safety in the world, the number of casualties lost every year due to occupational accidents is around 2 million in the whole world. The number of people who lost their lives due to the war is approximately 650 thousand and is much less than the number of people who died from an occupational accident. Construction, mining and manufacturing sectors have the highest count of recorded business accidents which resulted in death. In addition, the same report states that at least half of the deaths caused by an accident can be avoided if the necessary security measures are taken in working life. (Onaran, 2008:6; ILO, 2018). According to the data of the International Labour Organization (ILO) in 2018, more than 2.7 million people die annually as a result of occupational accidents or occupational diseases. 374 million business accidents occur annually (ILO, 2018).

According to the reports of the ILO published in 2008 and 2016, the number of people who died due to accidents, occupational diseases and accidents increased with each passing year. Social Security Institution (SSI) data shares similarities to the ILO reports in Turkey. According to SSI data, there were around 73,000 occupational accidents in Turkey in 2008, and 866 of them resulted in death. Looking at the data of 2016, the number of occupational accidents increased to 286,000 and accordingly, 1405 resulted in death (SGK, 2008, 2018).

Construction, mining and metal sector are among the sectors with the highest death rate in the labour accidents in Turkey. According to SSI statistics of 2016 of these sectors, the number of occupational accidents and the number of deaths due to these accidents are given in Table 1 (SGK, 2016).

Table 1. The sectors with the highest number of work-related accidents and deaths in Turkey in 2016

SECTOR	BUSINESS LINE	NUMBER OF ACCIDENTS	NUMBER OF DEATHS
MINING SECTOR	Extraction of Coal and Lignite	8274	11
	Metal Ore Mining	1037	8
	Other Mining and Quarrying	2045	64
	Mining Support Services	324	0
	TOTAL	**11680**	**83**
METAL SECTOR	Main metal industry	13081	30
	Except for machinery and equipment. Manufacture of fabricated metal products	20616	27
	Manufacture of machinery and equipment not elsewhere classified	6276	8
	Motor vehicle. Manufacture of trailers and semi-trailers	9533	3
	Manufacture of other transport equipment	2166	1
	Installation and repair of machinery and equipment	4277	16
	TOTAL	**55949**	**85**
CONSTRUCTION SECTOR	Building construction	20159	239
	Non-building construction	9516	130
	Special construction activities	14877	127
	TOTAL	**44552**	**496**

Since 1900, industrialized countries have had to turn to occupational health and safety. In Turkey, Labor law No 3008 which made new arrangements on occupational health and safety came into force in 1936. After that, many laws and regulations have been enacted to date. The latest Occupational Health and safety Law No. 6331 dated 30 June 2012 was enacted and was also supported by various regulations (Kaymaz, 2014:2).

Because of occupational accidents caused by adverse conditions of work spaces and individual mistakes, render many employees incapacitated to work. As a result, labor losses cause great losses to our economy and cause social, economic and psychological problems for those who are unable to work. Improving working conditions, observing existing legislation and attaching importance to the training of employees is of great importance for

the avoidance of such sad events. (Spieler, 1994:119; Bilgin, 2001; Milczarek et all, 2007; Sulak, 2016:141).

There are multiple factors that affect occupational accidents. The relationships between these elements have a complicated structure. Determining the factors that cause or trigger occupational accidents is important in order to prevent occupational accidents (Kirschenbaum et all, 2000:631; Neal & Griffin, 2004:68; Girard, 2009).

In this study, occupational safety awareness, information and training activities, employee behaviors affecting occupational safety, role of occupational safety professionals and employee health and occupational safety awareness were investigated using workplace data.

Information about data collection tools and evaluation of data are given in the second section. In the third section the findings obtained from this study are explained. The results are given in the last section.

1. MATERIAL AND METHOD

1.1. Method

The model used in this research is the general survey model. Survey models are research-oriented approaches aimed at describing a situation that exists in the past or the present (Karasar, 2007:77).

1.2. Population and Sampling

The survey population, organized industrial zones in Karatay and Selçuklu districts of Konya. These are employees of various departments of metal industry for instance, welding, painting, assembling, leveling etc. The sampling of the study consists of 204 personnel.

1.3. Data Collection Tools

The scale developed by Mojapelo and his friends in 2016 in order to learn the thought and opinions of the employees on occupational health and safety, as well as to measure their satisfaction has been reorganized in accordance with the Turkish industry. A 4-item option was asked to learn demographic characteristics on this scale. In addition, "Worker Health and Job Security Questionnaire" consisting of 33 items of 5 likert type was used (Mojapelo et all, 2016:112; Mojapelo, 2016). The Likert type scale items are scored in the form of strongly disagree (1), disagree (2), neutral (3), agree (4) and strongly agree (5).

1.4. Collection and Evaluation of Data

The research was carried out between 12 March- 07 April 2018. As a result of the research, percent and frequency values were used in the analysis of the data. In this research, the companies operating in the metal sector were determined and the opinions of the employees in these companies were taken on voluntary basis and statistical studies were carried out by transferring them to the Excel environment. The score ranges for the degree of participation in the scale items of the employees are as follows (Erdem and Anilan, 2000:150): Strongly Agree: 4.21-5.00, Agree: 3.41-4.20, Neutral: 2.61-3.40, Disagree: 1.81-2.60, Strongly Disagree: 1.00-1.80.

2. FINDINGS

A total of 204 employees participated in the study. All employees involved in the research are male. The distribution of the employees according to their professional experience is given in Table 2. As depicted in Table 2, 35 of the employees have 0-1 years of experience, 14 have 1-2 years of experience, 40 have 2-5 years of experience, 58 have 5-10 years of experience and 57 employees are more than 10 years experienced.

Table 2. Distribution of employees according to their professional experience

Professional Experience	Frequency	Percent (%)
0-1 years	35	17.16
1-2 years	14	6.86
2-5 years	40	19.61
5-10 years	58	28.43
10 years and over	57	27.94

The distribution of the employees in the study is given by age in Table 3. 80 of the employees are in the age group of 16-24 years, 47 employees are in the age group of 25-34, 34 employees are in the age group of 35-44, 37 employees are in the age group 45-54 and 6 of them are in the age group of 55 and over.

Table 3. Distribution of employees by age

Age	Frequency	Percent (%)
16-24 years	80	39.22
25-34 years	47	23.04
35-44 years	34	16.67
45-54 years	37	18.14
55 yearsand over	6	2.94

Table 4 summarizes the distribution of employees who had previously been involved in an occupational accident or who had not been involved. While 70 (34.31%) of the workers had an occupational accident before, 134 (65.69%) had never had an occupational accident before.

Table 4. Distribution of employees who have previously been involved in an occupational accident or who had not been involved.

Occupational Accident	Frequency	Percent (%)
I did	70	34.31
I didn't	134	65.69

The distribution of the employees according to their educational status is given in Table 5. The primary school graduates of employees 33 people, secondary school graduates 63 people, high school graduates 72 people, university graduates 36 people. There are no graduate students among the employees.

Table 5. Distribution of employees according to their educational status

Educational Status	Frequency	Percent (%)
Primary School	33	16.18
Secondary School	63	30.88
High School	72	35.29
University	36	17.65
Graduate	0	0

The distribution of the employees involved in the research according to the professional experience of those involved in an occupational accident or not is given in Figure 1. It has been observed that about 34% of the employees with 0-1 years of experience had an occupational accident, about 7% of those with 1-2 years of experience also had an occupational accident. Occupational accidents are similar in percentage for 2-5 years and 5-10 years experience which is accordingly %30 and %33. The highest percentage of having an occupational accident is with 5 to 10 years experience group with a percentage of %45.

Figure 1. Distribution of employees who have had an occupational accident or who have not had an occupational accident before according to their professional experience.

The distribution of the employees involved in the research according to the ages of those involved in an occupational accident or not is given in Figure 2. It has been observed that about 26% of the employees aged 16-24, about 38% of those aged 25-34, about 24% of those aged 35-44, about 49% of those aged 45-54, and about 83% of those aged 55 and over had occupational accidents.

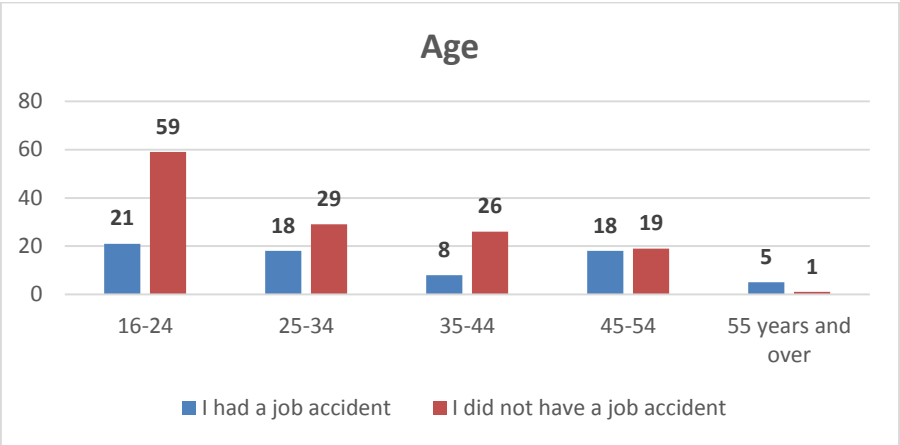

Figure 2. Distribution of employees who have had an occupational accident or who have not had an occupational accident before according to their ages.

The distribution of the employees involved in the research according to the educational status of those involved in an occupational accident or not is given in Figure 3. It has been observed that 52% of primary school graduates, 40% of secondary school graduates, 29% of high school graduates and 19% of university graduates had occupational accidents.

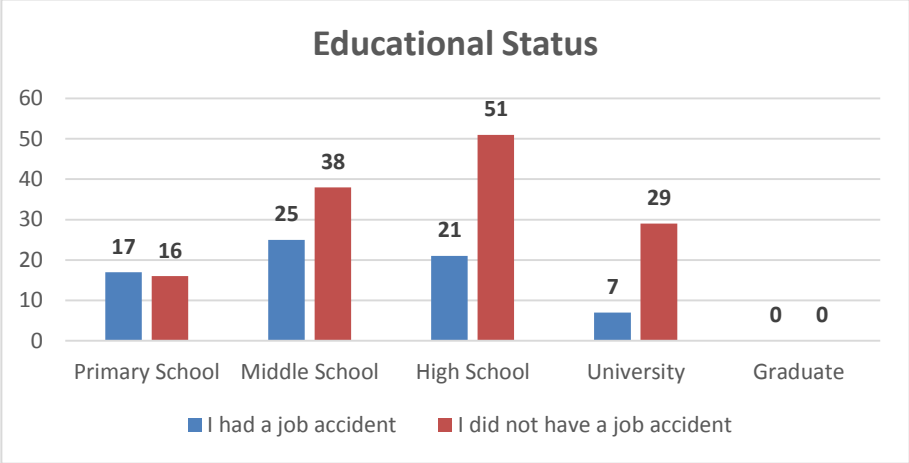

Figure 3. Distribution of employees who have had an occupational accident or who have not had an occupational accident before according to their educational status.

Employees ' occupational health and safety scale consists of 5 groups. The contents of the groups and the number of items in the groups are shown in Table 6.

Table 6. Occupational health and safety scale groups

Group	Group Content	Number Of Items
A	Information and Training	6
B	Occupational Safety Awareness	7
C	Employee Behaviors	7
D	The Role Of Occupational Safety Professionals	6
E	Workplace Environment	7

Group A consists of 6 items related to information and education. The averages of opinions given to group A items are shown in Table 7. In the field of occupational health and safety, the average of the information and education groups of the employees ranges from 3.49 to 3.82.

Table 7. Averages of opinions given to the information and education group

	Items	Description of items	Avarage	Opinion
A	1	My employer wants me to take necessary precautions to protect myself from danger when performing my duties.	3.82	Agree
	2	My employer gives occupational health and safety training to his new employees.	3.70	Agree
	3	The employer trained me on the proper use of Personal Protective Equipment (PPE).	3.49	Agree
	4	My employer provides regular refresher education on occupational health and safety.	3.66	Agree
	5	My employer trained me to recognize hazards at work.	3.69	Agree
	6	The trainings changed our view on health and safety.	3.67	Agree

Group B consists of 7 items related to occupational safety awareness. The averages of opinions given to group B items is are shown in Table 8. In the field of occupational health and safety, the average of the occupational safety awareness groups of the employees ranges from 3.48 to 3.88.

Table 8. Averages of opinions given to the occupational safety awarenessgroup

	Items	Description of items	Avarage	Opinion
B	1	I have sufficient knowledge of the Occupational Health and Safety Act.	3.50	Agree
	2	I know my rights as an employee when it comes to health and safety issues.	3.63	Agree
	3	We are provided with the necessary skills as employees in the organization to perform our work safely.	3.55	Agree
	4	I usually follow safety procedures at work.	3.79	Agree
	5	Awareness of workers' health and occupational safety will cause accidents to diminish.	3.88	Agree
	6	Regarding occupational safety, the views of employees are taken regularly.	3.48	Agree
	7	Field regulations related to work safety are constantly updated.	3.55	Agree

Group C consists of 7 items related to employee behaviors. The averages of opinions given to group C items is are shown in Table 9. In the

field of occupational health and safety, the average of the employee behaviors groups of the employees ranges from 2.87 to 4.09.

Table 9. Averages of opinions given to the employee behavior groups

	Items	Description of items	Avarage	Opinion
C	1	I usually follow safety procedures when doing my job.	3.75	Agree
	2	I prefer to spend more time on a task to ensure it is done safely; rather than rushing to complete.	3.71	Agree
	3	As employees we sometimes ignore safety procedures.	2.89	Neutral
	4	As employees, we sometimes be present unsafe behavior at work.	2.87	Neutral
	5	It is not an obligation for me to do my work safely, it has become a habit.	3.71	Agree
	6	As an employee I am fully aware of hazards in my daily job.	4.09	Agree
	7	Every employee is responsible for their own safety.	3.53	Agree

Group D consists of 6 items related to the role of occupational safety professionals. The averages of opinions given to group D items is are shown in Table 10. In the field of occupational health and safety, the average of the role of occupational safety professionals groups of the employees ranges from 3.50 to 3.85.

Table 10. Averages of opinions given to the role of occupational safety professionals group

	Items	Description of items	Avarage	Opinion
D	1	Our occupational safety professionals ensure that employees are health and safety take it seriously.	3.85	Agree
	2	Our occupational safety professionals regularly make risk assessments.	3.50	Agree
	3	Our occupational safety professionals encourage employees to comply with the Occupational Health and Safety law.	3.83	Agree
	4	Our occupational safety professionals listen to the health and safety concerns of the employee at work.	3.64	Agree
	5	Safety checks are carried out regularly by our occpational safety professionals.	3.73	Agree
	6	Work security professionals are granted access to the workplace and their opinions are assessed by the employer.	3.64	Agree

Group E consists of 7 items related to workplace environment. The averages of opinions given to group E items is are shown in Table 11. In the field of occupational health and safety, the average of the workplace environment groups of the employees ranges from 3.27 to 4.18.

Table 11. Averages of opinions given to the workplace environmentgroup

	Items	Description of items	Avarage	Opinion
E	1	There are signs of warning and warning about health and safety in the workplace environment.	4.18	Agree
	2	There is adequate lighting in the workplace environment.	3.93	Agree
	3	I am satisfied with the level of hygiene at workplace.	3.55	Agree
	4	There is adequate ventilation in my work area.	3.56	Agree
	5	I am satisfied with the thermal comfort (temperature) conditions at workplace.	3.27	Neutral
	6	Safety equipment is available on the machine equipments at my workplace.	3.88	Agree
	7	The chemical substances in the work place are clearly marked and I have information about these substances.	3.75	Agree

When all groups are examined together, the averages of the opinions are calculated as 3.64. As a result of this average value, when we look at the general opinion, we see that agree (4) opinon is more predominant.

DISCUSSION AND RESULTS

According to the results of the research, the information and training group in Table 7 shows that employees are given adequate information and training about occupational health and occupational safety by the employer.

When we look at the occupational safety awareness group in Table-8, It is seen that the employees have a general knowledge of the occupational health and safety issues, they have a legal knowledge of what their rights are, they exchange views with the employees of the occupational health and safety issues and they interact with them.

A high level of employee awareness in security awareness is of paramount importance business-employee interaction to for improvement the safety-related working conditions and OHS procedures. Informing the management about problems and opinions about OHS is important in terms

of ensuring that employees perform safer behaviors when doing their jobs (Dursun, 2013:72).

When we look at the group of employee behaviors in Table 9, they stated that the employees were following the ISG guidelines in their work areas, they were not in a hurry to perform their work, they were aware of the dangers in their work, they stated that employees are responsible for their own safety and that all of this is not a necessity but a habit for them. However, their instability has been observed as they indicate that employees sometimes behave in unsafe and behave in unsafe situations.

To create a healthy and safe working environment, it is important that employees behave consciously and think about safety before they work. In addition to business culture, community and family cul- ture affects employee behavior in order to earn employees a sense of safe behavior (Uslu, 2014:45).

When the role of occupational safety professionals in Table 10 is taken into consideration, occupational safety professionals ensure that employees take the OHS seriously, take into account the concerns of the employees regarding the OHS and it is seen that the business also helps the occupational safety professionals to carry out their work.

It is necessary to take a proactive approach, not reactive, in occupational health and safety. In this context, the philosophy of ISG is to conduct risk assessment studies in enterprises, inform the employees about the hazards in their working areas, educate them and place awareness on prevention by keeping these issues up to date (Yılmaz, 2013:11).

Finally, looking at the workplace environment group in Table 11, many of the employees agree that they meet the required standards for health and safety in workplace environments.

There is an important relationship between workplace layout and occupational accidents. In cases where the workplace environment and the work order are bad, the probability of a job accident increases. The order in the workplace, the harmony in the working environment, the moral and motivations of the employees are the factors that increase. The regularity of the workplace environment reduces the probability and frequency of occupational accidents. In addition, healthy, safe and efficient operation in the enterprises; lighting, noise, temperature and ventilation should be arranged according to the structural and psychological characteristics of the employees (Camkurt, 2007:83).

About 52% of the employees (70 people) who participated in our survey had a job accident in their work life. According to professional experience, when we examine 70 people who have had occupational accidents, approximately 17% of those with 0-1 years of experience, about

2% of those with 1-2 years of experience, about 17% of those with 2-5 years of experience, about 27% of those with 5-10 years of experience, and about constitute a 37% of those with more than 10 years of experience. When we examine these persons according to their ages, we see that those who are between the ages of 16-24 are about 30%, those who are between the ages of 25-34 are about 26%, those aged 35-44 are about 11%, those aged 45-54 are about %26 and those who are over 55 years old constitute about 7% slices. Finally, when we examine these persons according to their educational status, they are about 24% of primary school graduates, about 36% of secondary school graduates, about 30% of secondary school graduates and about 10% of university graduates.

According to these results, it is seen that more than half of the people who had work accidents consisted of employees who had reached a certain level of experience (5 years and over). In addition, among those who have had work accidents, younger workers (ages 16-24) have the biggest share, older workers (aged 55 and over) have the smallest share. Finally, it is seen that more than half (about 60%) of those who have experienced work accidents are primary and secondary school graduates.

Lastly, survey results shows that both employees whom claim they had an occupational accident and employees that claim never had an occupational accident before, adopted occupational health and safety rules and they both consider these rules to be necessary.

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