

# **Effects of Occupational Health and Safety Training Conducted in the Workplaces on Safety Behaviour in Turkey: An Evaluation in the Private Security Sector**

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**Abstract:** Private security is a sector where security services are provided to many industries within protection packages for people or the environment. With the occupational health and safety (OHS) training conducted in the workplaces, it is aimed to increase the safety behaviour tendency of all the employees from all sectors and to contribute to the formation of a positive safety culture. The study aims to examine the effect of OHS training given by OHS Specialist and Workplace Physician on safety behaviour and to evaluate this effect within the framework of demographic characteristics of employees. The demographic characteristics of private security personnel based on evaluation are gender, age, educational status, marital status, the condition of an occupational injury at workplaces in which he/she is currently working and worked in the past, occupational tenure, union membership, hazard class perception and position. The research is in cross-sectional and quantitative research design. In this study, the employees working in the private security sector in the Anatolian side of Istanbul constitute the working environment of the study. In total, the valid data from 540 private security personnel were used in research analysis. In the analysis of the study, descriptive statistics, and Mann-Whitney U and Kruskal Wallis H tests from inferential statistics were used. According to the findings of the study, it was determined that the training performed by the OHS Specialist and Workplace Physician had a “high” positive effect on the behaviour of the employees. It is concluded that training affects the behaviour of employee more positively as the employee's age increases, in case of any work-related accident in any period, in the range of 5-10 years of working time, in case of holding position close to the senior management.

**Keywords:** private security, occupational health and safety, training, occupational health and safety specialist, workplace physician

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## INTRODUCTION

The need for security is coeval with the reflex of eating-drinking and continuing the lineage since the early ages of humankind. In human beings, this need firstly arose with the need for shelter, and by the time, it has progressively developed in every action that human beings practised such as travelling and trading. With the transition to the first settled life, security needs were provided by the law enforcement forces of the state (Aydın 2002), and private security systems have emerged today as an additional security element.

The sector's field of activity addresses a wide range of areas such as security of individuals, bank and shopping centre security, hospital, school, factory, hotel and related area security, historic buildings and museum security. The emergence of private security systems is based on the new borders emerging in parallel with the enlargement of the European Union and the terrorist attacks in the second half of the 21<sup>st</sup> century in the United States (Uçkun et al. 2012). The annual report, prepared by a group of experts from the University of Geneva, the Institute of International Alumni and Development Research, reports that the private security industry has proliferated all over the world, and the number of security guards employed by the governments from the private security companies has been more than double the number of police recruitment.

It is observed that the number of private security personnel registered by the Confederation of European Security Services (CoESS) has increased by 200-300% in the last 20-30 years and reached 20 million (CoESS-UNI Report 2005).

The situation in Turkey also supports these quantitative data. Accordingly, the data of the Private Security Department of General Directorate of Security, while the number of private security firms operating in the police and gendarmerie liability area is 1.511, the number of private security personnel (PSP) is 270.845 (<http://sinavsonuc.ozelguvenlik.pol.tr>). According to the report of CoESS, Turkey is the country with the highest number of PSP in European countries (Uçkun et al., 2012). According to the Social Security Institution (SGK) data for December 2018, the total number of permanent or temporary security personnel employed in public or private sectors in Turkey is 312.066 (SGK 2018).

The private security sector includes various risks, intensive workloads and stress in terms of occupational health and safety (OHS)

(Bal 2013). These features of the sector are also supported by the working accident data of SGK. According to the statistics of 2016, a total of 2.273 insured people, of whom 1.929 were male, and 344 were female, and who were employed in private security and investigation activities, experienced an occupational injury. The number of deaths as a result of working accidents is 19 persons, all of them male. There are no personnel suffering from occupational diseases (SGK 2016). However, considering that there are significant differences between the expected occupational diseases and the occupational diseases reported in Turkey (Dursun 2018, 31; Özveri 2018), there may be many occupational diseases or work-related diseases diagnosed without finding any occupational relation in PSP.

PSP communicate with many people with different characteristics face to face within the usual workflow. In this flow, they may have to take initiatives and make important decisions, facing a large number of undesirable situations. Anxiety about facing severe consequences of these decisions, and the reflex of avoiding mistakes constantly, leave employees under the influence of psychological-emotional and physical stress<sup>1</sup> (Best & Thurston 2004).

It is possible to see this situation in examples from other countries too. According to Borritz et al. (2006), most private security workers experience stress specific to their profession, often work under challenging conditions and are exposed to dangerous situations. Not showing the compelling interest in the sector indicates that there is a lack of information about the work carried out by the PSP and/or that these works do not have enough reputation in the community. As a result, this negatively affects the reliability of the sector and the professional appearance of the PSP. When psychosocial risks within the current working relationship are evaluated together with continuous communication with the client and disadvantaged professional reputation, they constitute a severe threat to the psychosocial health of the PSP (ÇASGEM 2018). According to all

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<sup>1</sup>*Physical Stress*: The body's response to threats that are defined as external and hard-handed actions (beating or slapping, punching, kicking, shaking, smacking, etc.) directed against the bodily integrity of people. *Psychological-Emotional Stress*: The body's response to an attitude (such as exclusion, yelling, speaking only by raising the volume to the victim, constantly changing the target, restricting the activities, gossiping about) that disrupts the psychological health of the individual, distressing, hurting, shaking the individual, and making him/her feel under pressure and threatened.

these factors, sector employees are a hazardous group both in terms of working accidents and occupational diseases. Therefore, sector employees need effective services and practices in terms of OHS.

Training at all levels within the business is seen as a means of improving the working conditions and working environment (Alli 2001, 104). OHS training serves this purpose by increasing the ability of employees to perceive and prevent occupational risks, accidents and health problems. In this context, working accidents, occupational diseases, work-related diseases and near-misses in the workplace indicate the lack and/or ineffectiveness of OHS training.

Training plays a vital behaviour shaping role in protecting employees from identified hazards/risks, together with the safety climate. Adequate safety and health training are required to ensure that employees understand how to prevent them from harming themselves and others (Stromme 2013). It is crucial that the educational content goes beyond the general health and safety content and meets the specific safety and health needs specific to the employee's job and workplace. A Clinical Nursing study in Taiwan reveals that attitudes and behaviours towards preventing occupational hazards have been developed in employees through web-based learning (Chen et al. 2014).

The two main subjects of OHS are employees and employers. The personalities and demographic characteristics of the employees are defined as one of the factors affecting OHS (Vahed et al. 2016). In this context, identifying disadvantaged groups in terms of demographic characteristics is essential in terms of identifying risky groups in the workplace.

Safety training conducted in the workplaces is one of the important activities in eliminating the disadvantageous situation of these groups in terms of OHS. It is the employer's responsibility to carry out OHS training of employees in the workplace (Kılıkış & Demir 2012). OHS training to be given to employees in Turkey should be arranged by the provisions of the regulation<sup>2</sup> that came into force for this purpose. The primary purpose of OHS training is to contribute to the development of positive OHS culture by improving awareness of avoiding working accidents and occupational diseases (Sipahi 2006). Thus, as Sungur et al. (2010) also point out, adoption of positive perception of health and

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<sup>2</sup> See Regulation on The Procedures and Principles of Occupational Health and Safety Training of Employees.

safety as a prerequisite for all employees, and the transformation of this perception into a safe attitude and behaviour, can only exist in the culture environment, where all employees participate and adopt and internalize safety as an organisational value.

It is claimed that the employees' knowledge and skills about OHS increase as their training time increases (Arpat 2014). However, it is claimed that only training at the workplace level will be insufficient to improve the OHS awareness of the employees and to reflect the learning outcomes to the attitudes-behaviours (Doğan et al. 2017, 13; Tanır & Ural 2011, 80). Even though enterprises conduct OHS training, the breadth of numerical clarity between safety awareness and safe behaviour tendencies supports this claim (Arpat 2015). It is observed that in Turkey, the curriculum of the Ministry of National Education and universities includes OHS courses to transform individuals' awareness about safety into safety behaviour. However, in undergraduate and graduate programs in universities in Turkey, OHS courses can only be found in the curriculum of a small number of universities and a small number of departments. For this reason, the meeting of employees with OHS training usually coincides with the beginning of work. The fact that an individual receives the first OHS training at the workplace plays an insufficient role in the impact of OHS training at the workplace. Moreover, it does not provide sufficient contribution in terms of understanding the importance and priority of OHS and causes the weak safety consciousness, which is dominant in society culture, to be reflected on the workplace as it is.

#### OCCUPATIONAL HEALTH AND SAFETY TRAINING CONDUCTED IN THE WORKPLACES: CONTENT AND IMPLEMENTATION

Turkey has recently undergone a paradigm shift towards increasing safety awareness and establishing a culture of prevention for employers and employees. In this new understanding, "OHS training" constitutes an essential step of implementation. With this step, it is aimed that the safe working behaviours are reflected in work by ensuring the change of attitude and behaviour of the employees (Kılıkış & Demir 2012).

It is stated that even the OHS training, such as weekly safety briefings or daily safety discussions before the workers start their shifts within the company, has made significant contributions to the OHS if they are programmed on a regular basis (Olson et al. 2016; Athena et

al. 2016). Based on this finding, it is essential to repeat the training with regular and frequent intervals in order to obtain the expected benefit from the OHS training, to remind the employees of the correct and safe behaviour and to gain habits (Arnold 2006, 323). At the same time, managers and especially employees should have an absolute belief that the educational content reflects the management's perspective and OHS training should be in accordance with the knowledge and skills needs of the employee (Swartz 2000).

In Turkey, OHS training conducted for employees in the workplaces is divided into four categories, covering general, technical, health and other subjects specific the hazard-risks at work being done (See Footnote number 2). These training programs (provided that they are not contrary to their area of expertise) are usually carried out by OHS professionals (OHS specialists and occupational physicians). The training subjects in the mentioned categories and the risks that the PSP may face in this context are considered as follows.

#### GENERAL SUBJECTS

a) Information about the labour legislation, b) Legal rights and responsibilities of the employees, c) Cleanliness and layout of the workplace, d) Risks arising from the legal consequences of occupational accidents and diseases:

*Risks arising from the violation of labour legislation (fees, permits, breaks, etc.), the risks of accidents and ailments which may occur due to the breach of general and specific hygiene and order rules of the workplace.*

#### TECHNICAL SUBJECTS

a) Chemical, physical and ergonomic risk factors, b) Manual lifting and transportation, c) Glare, explosion, fire and fire protection, d) Safe use of work equipment, d) Working with display vehicles, e) Electricity, hazards, risks and measures f) Causes of occupational accidents and application of principles and techniques of protection, g) Safety and health signs, h) Use of personal protective equipment, i) General rules of occupational health and safety, and safety culture, j) Risks in discharge and recovery headings:

*Noise, temperature, humidity and ventilation problems, inadequate or excessive illumination, exposure to radiation, very toxic, toxic, harmful, irritating and corrosive substances, physical workload, working by sitting continuously, continuous standing operation,*

*manual handling and lifting, falling, slipping, tripping, hitting and getting stuck, electricity, fire and explosion.*

## HEALTH SUBJECTS

a) Causes of occupational diseases; b) Principles of prevention and application of prevention techniques; c) Biological and psychosocial risk factors; d) First Aid.

*Exposure to infectious diseases, allergies, intoxication, microorganisms that may lead to infection, working in poor hygiene conditions, working in places where there is no healthy drinking and potable water, discrimination, sexual harassment, role ambiguity, role conflict, lack of role, responsibility for persons, job insecurity, interpersonal relations with stress caused by status mismatch, the conflict between work and non-work life, work environment and equipment, task design, workload and speed, mental workload, emotional workload, stress caused by time pressure.*

## OTHER ISSUES SPECIFIC TO THE JOB OF THE EMPLOYEE

Other risks specific to the private security sector:

*Road accidents, dogs, use of weapons, working alone, bullying, violence at work.*

While the health-related topics are in workplace physicians' area of expertise, and technical subjects are related to OHS specialists' expertise, general subjects may be appropriate to the expertise of both groups. Since the training of the other topics specific to the job is separate specialities, it is essential for them to be carried out by the related professionals in order to eliminate the risks of accidents. It is claimed that safety training should be tailored and customised to obtain the desired safety outputs (Karanikas et al. 2018).

OHS training programs that will contribute to the attitudes and behaviours of PSP should be planned in a way to cover the subjects mentioned above, include the risks faced by the employee at work, and the results should be measured. Ineffective training on the employee should be repeated.

## METHODOLOGY

### *Aim and Importance of Research*

The study aims to evaluate the changes in the attitudes and behaviours of the employees in the private security sector after the training they received from OHS professionals in the workplace. This evaluation was carried out in two phases for the training received from OHS

specialist and workplace physician. The assessment of the behavioural impact of the training was made from the perspective of the employee. The effectiveness of OHS training was evaluated in terms of demographic components. The demographic components of the assessment include gender, age, education status, marital status, working accident status at a previous workplace, working accident status at a current workplace, occupational tenure, union membership, position and hazard class perception. The problem sentences of the research were determined as follows:

1. *Does the training of OHS professionals contribute to creating positive behavioural changes in employees?*
2. *Is there a relationship between the demographic characteristics of the trained PSP employees and the behaviour change?*

In this context, in the case that the training programs in the title of other subjects, which may belong to the fields other than the areas of OHS specialist and workplace physician, are conducted, the effect of these training on the behaviour change is excluded from the scope of the research. Workplaces in the research sample were selected from workplaces where general, technical and health-related training were carried out at least once and were conducted by OHS specialist and/or workplace physician.

#### *Research Method and Analysis*

The study was carried out in the cross-sectional structure, quantitative research design and relational screening model. Questionnaire method was used for data collection. The application was carried out after the training of OHS specialist and workplace physician. In all of the workplaces covered by the sample, OHS training programs conducted in the workplaces were carried out by workplace physicians and OHS specialists. Research questions were created by the authors. The application was carried out by distributing the questionnaires in the paper form.

The questionnaire consists of two parts. The first part includes questions about the demographic findings such as gender, age, marital status, educational status, tenure, occupational accident situations and numbers in previous workplaces and current workplace, union membership, position and hazard class perception of existing workplaces. The second part consists of two questions with a five-point Likert scale to identify the contributions of OHS training.

The reliability analysis of the study was carried out with Cronbach's Alpha method, and the normality tests were conducted with Skewness and Kurtosis tests. For inferential statistics, nonparametric Mann-Whitney U and Kruskal Wallis H tests were used.

### *Reliability Analysis*

Reliability is one of the key technical features of the measuring instrument. It is an important indicator of whether the measurement tool can always measure the characteristics measured in the same way (Williams & Shellenberger 1996). In other words, it is the possibility of obtaining similar results in different measurements to be made by applying the same procedure and the same method in other samples selected from the same body.

Reliability is a concept only for data collected from the group being tested (Şencan 2005). There are various methods used in reliability measurement. The most commonly used of these methods is Cronbach's Alpha coefficient. Alpha internal consistency reliability coefficient is used to estimate the internal consistency of items with Likert type weighted scoring tools (Okursoy & Turan 2014). In the study, Cronbach's Alpha value was found to be 0,88. The tests with a range of 0,80 to 1 Cronbach's Alpha coefficient have high reliability (Alpar 2011; Nunnaly 1978). Since Cronbach's Alpha coefficient is in the given range, it is concluded that it is possible to apply statistical analysis to the data obtained from the surveys.

### *Normality Test*

In the determination of the analysis to be made, it is essential to measure whether the data collected within the scope of the survey is normally distributed, or, not. In cases where the data show normal distribution, parametric tests are performed, and in cases where there is no normal distribution, non-parametric tests are used.

One of the most commonly used methods in the normality analysis of data is the examination of skewness and kurtosis values. In this context, it is stated that the data which have the skewness and kurtosis values between -1 and +1 show normal distribution (Huck 2012; Tabachnick & Fidell 2013).

For the questions to determine the contributions of OHS training, the skewness values were -1,19 for OHS specialist training and -1,29 for workplace physician training, and the kurtosis values for them are 2,07 and 2,45 respectively. These values indicate that the data is not

distributed normally. Therefore, nonparametric tests were used for analysis.

## RESULTS

### *Demographic Results*

Table 1 shows the characteristics of the sample such as education status, gender, marital status, age, experience duration, union participation, position, the situation of occupational accidents at the individual's previous (in other workplaces) and current workplace, number of occupational accidents and hazard class perception.

Groups	Frequency	%	Groups	Frequency	%
Education Status			Age Groups		
Primary School	1	0,2	20-30	136	25,2
Middle School	81	15,0	31-41	168	31,1
High School	367	68,0	42-52	61	11,3
Associate Degree	59	10,9	53+	8	1,5
Bachelor's Degree	27	5,0	Unanswered	167	30,9
Unanswered	5	0,9	Total	540	100
Total	540	100	Marital Status		
Gender			Married	303	56,1
Male	387	71,7	Single	217	40,2
Female	153	28,3	Unanswered	20	3,7
Total	540	100	Total	540	100
Experience Duration at the Current Workplace			Position		
Less than 1 Year	111	20,6	Project Manager	3	0,5
1-5 Years	227	42,0	Shift Supervisor-Security Supervisor-Security Personnel Officer	10	1,9
5-10 Years	152	28,1			
More than 10 Years	50	9,3	Private Security Guard	527	97,6
Total	540	100	Total	540	100

Union Participation			Occupational Accident Situation in Previous Workplaces		
Yes	413	76,5	Yes	31	5,7
No	116	21,5	No	486	90,0
Unanswered	11	2,0	Unanswered	23	4,3
Total	540	100	Total	540	100
Number of occupational accidents in previous workplaces			Occupational Accident Situation at Current Workplace		
0	514	95,2	Yes	24	4,44
1	24	4,4	No	511	94,63
2	2	0,4	Unanswered	5	0,93
Total	540	100	Total	540	100
Number of occupational accidents at the current workplace			Hazard Class Perception		
0	516	95,6	Less dangerous	89	16,5
1	16	3,0	Dangerous	352	65,2
2	4	0,7	Very Dangerous	86	15,9
3	4	0,7	Unanswered	13	2,4
Total	540	100	Total	540	100

Table 1. Demographic Characteristics of the Sample

60% of the PSP in the sample are high school graduates, 31,1% are in the 31-41 age group, 71,7% are male, 56,1% are married, 42% have 1-5 year experience, 97,6% conduct operational activities other than the executive/supervisory positions, 76,5% are members of union, 90% had no occupational accidents in previous workplaces, 94,63% had no occupational accidents at the current workplace, and 65,2% describe their work as dangerous.

### *Descriptive Statistical Results*

#### *Results of Employee Participation in the OHS Training Conducted in the Workplaces*

Employees need to be trained by the OHS specialist and the workplace physician in varying periods depending on the hazard class of the workplace (See Footnote Number 2 for training periods).

Table 2 shows the status of the employees in the sample to receive training from the OHS specialist and workplace physician.

	OHS Specialist Training		Workplace Physician Training	
	Frequency	%	Frequency	%
Participated	530	98,1	406	75,2
Not participated	3	0,6	75	10,9
Invalid	7	1,3	59	13,9
TOTAL	540	100	540	100

Table 2. Training Status

According to Table 2, the proportion of those receiving training from the OHS specialist (98,1%) is higher than the rate of those receiving training from the workplace physician (75,2%). According to this result, it is understood that almost all of the employees were trained by OHS specialist, but one of every four employees did not receive training from the workplace physician. According to these results, it can be seen that the PSP could not benefit from the OHS training, which should be given by the workplace physicians. The fact that some of the staff taking the training about “occupational health”, which should be taken from the workplace physician, is not received by the staff may make them unprotected against the risks that threaten their health. This situation may cause employees to face occupational diseases, especially psychosomatic diseases, or other work-related diseases.

*Overall Assessment of OHS Training on the Degree of Contribution to Individual Attitudes*

Table 3 shows the level of contribution of the training from OHS specialist and the workplace physician to employees based on their assessments.

	OHS Specialist Training			Workplace Physician Training		
	Frequency	%		Frequency	%	
Strongly Disagree	4	0,8	4,9	8	1,8	5,7
Disagree	21	4,1		17	3,9	
Indecisive	38	7,4	7,4	39	8,9	8,9
Agree	267	52,3	87,7	237	54,2	85,3
Strongly Agree	181	35,4		136	31,1	
TOTAL	511	100,0		437	100,0	
Average	4,17			4,09		
Median	4,00			4,00		
Standard Deviation	0,796			0,845		

Table 3. The Level of Contribution of OHS Training to Employees

According to Table 3, the level of contribution of OHS specialist and workplace physician to the employee was found to be high<sup>3</sup>. However, the level of behavioural contribution to the training received from the OHS specialist is higher than the training received from the workplace physician. Despite the high averages, 4,9% of the PSP trained by OHS specialists, and 5,7% trained by workplace physicians stated that the training programs were not beneficial for them. This result may have various causes specific to the enterprise and the employee. However, working accident/occupational disease tendencies of people in this situation may be higher than others. For this reason, after OHS training, it is essential not only learning, but also measuring the results and individual behaviours, and making improvement activities, including the repetition of education, by evaluating the results, for the health and safety of the employees.

#### *Inferential Statistical Results*

In this section, the relationship between demographic characteristics and safety behaviour tendencies will be examined. Inferential statistical techniques were used to determine the relations.

#### *Relation Between Demographic Characteristics and Attitudinal/Behavioural Changes*

The impact of the training of OHS specialist and workplace physician on safety behaviour by gender is shown in Table 4.

OHS Specialist Training			Workplace Physician Training		
Groups	Frequency	Mean Rank	Groups	Frequency	Mean Rank
Male	366	254,27	Male	316	215,31
Female	145	260,36	Female	121	228,63
Total	511	Mann-Whitney U= 25903,5	Total	437	Mann-Whitney U= 17952,5
		Z= -0,47			Z= -1,10
		p = 0,64			p = 0,27

Table 4. The Impact of Gender on the Attitudinal Change after OHS Training

<sup>3</sup> Five-point Likert scale has a four-point width. This width is divided into five equal widths, and findings are interpreted as very low between 1.00-1.79, low between 1.80-2.59, moderate between 2.60-3.39, high between 3.40-4.19 and very high between 4.20-5.00 (Yürekli & Kalfa 2016).

According to Table 4, after training received from the OHS specialist, the mean rank of males is smaller than females. However, this difference is not statistically significant ( $p=0,64>0,05$ ). In parallel with this result, it is not possible to mention a non-incidental contribution to different levels based on gender in terms of education received from workplace physician ( $p=0,27>0,05$ ). According to these results, it can be said that the training received from both the OHS Specialist and the workplace physician in the private security sector contributed in similar levels based on the gender variable, and that gender is not an effective demographic variable on OHS training for PSP.

It was determined that safety training did not make a significant difference in terms of attitude change based on gender in Arpat's research on safety culture in the metal sector (2018, 151), Dursun's research on safety culture in automotive industry (2012, 128) and Grau et al.'s research (2002, 130). In the study of Ocaktan (2009), the perception average for men in the safety training programs was higher than women.

The impact of OHS Specialist and workplace physician training on safety behaviours by age is shown in Table 5.

OHS Specialist Training			Workplace Physician Training		
Groups	Frequency	Mean Rank	Groups	Frequency	Mean Rank
20-30	131	162,79	20-30	108	133,45
31-41	163	183,02	31-41	136	154,03
42-52	57	197,67	42-52	49	169,71
53+	6	246,50	53+	8	221,75
Total	357	$p = 0,02$	Total	301	$p = 0,00$

Table 5. The Impact of Age on the Attitudinal Change after OHS Training

According to Table 5, as the average age increases after the training received from the OHS Specialist, the mean rank values increase. This increase is statistically significant ( $p=0,02<0,05$ ). Accordingly, as the age of the employees of the private security sector increases, the degree of the contribution of the training received by the OHS specialists to the attitudes and behaviours increase too.

After the workplace physician training, the mean rank values rise with increasing age too ( $p=0,00<0,05$ ). As is the case with OHS specialist training, it was found that this increase is not coincidental. According to this finding, it can be said that as the age of the PSP

increases, the OHS training received from the workplace physician contributes more positively to attitudes and behaviours.

Karami et al. (2016), Ocaktan (2009, 53), and Cooper and Philips (2004) found that safety training constituted significant differences in safety attitudes based on the age variable after the training. Arpat (2018, 158), Demirbilek (2005, 176), Grau et al. (2002, 130) found that safety training did not make a significant difference in terms of safety attitudes based on age.

The age periods of individuals can affect their attitudes, perceptions, desires and expectations towards their work (Çolakoğlu et al. 2009). The highest scores representing a more positive behaviour change in the highest age group may be due to the progressive age of the PSP and their desire of being entitled to pension healthily and in an accident-free way. The positive behaviour effect in PSP increasing by age can also be explained by the increasing impact of advancing age on organisational commitment (Meyer & Allen 1984). As a result of the more positive attitude that the PSP develops towards the workplace as the age increases, he/she is not only aware of the disadvantageous situation that an accident or illness will cause for himself/herself but also the high costs that the business will have to endure. On the other hand, the high desire to work in a job suitable for the education of individuals who are at the beginning of their working life (Çakır 2001), and the high education-job mismatch due to the high unemployment rate in Turkey (Arpat 2018) may be the reason for the more negative average of PSP, especially in young age groups.

The reasons for declining positive behaviour change by age may be because the hazard-risk tendencies of young people are higher than the elderly, they are less conscious than the elderly in terms of the integrity of body and health, and the feeling of responsibility is lower than that of the elderly.

As a matter of fact, Laflamme et al. (1996), in their research on iron mine workers in Sweden, found that older workers had a lower risk of accidents than young people. In the study of Dizdar and Toprak (2012), which examined fatal occupational accidents that occurred in shipyards in Turkey, it was reported that the risk of fatal occupational accidents reduced by increasing age. Chau et al. (2002) found that workers younger than 30 in the construction sector in the Meurthe-et-Mosell region of France had more accidents than those aged older than 30 years based on two-year accident records.

The problem of young workers' safety culture is also seen as a critical problem affecting the competitiveness and innovation of the economy in the European Union (Hejduk & Tomczyk 2015).

The ageing of the workforce causes negative changes in anthropometry, muscle strength, aerobic capacity, sensory system (balance, vision and feeling) and in the mind system (Oflluğlu & Albar 2017, 335). These changes require more qualified measures in terms of OHS for the ageing workforce and make the behaviour change in the older workforce more important. Due to the increase in retirement age in Turkey in 2008 (Alper 2011, 7), older workers in the labour markets started to take part in a more substantial proportion. According to the findings obtained in Table 5, it can be said that the workforce of the PSP is aware of the anthropometric changes in themselves, and this situation turns into more positive behaviours after training.

The effect of OHS Specialist and workplace physician training on safe behaviours based on the educational level is shown in Table 6.

OHS Specialist Training			Workplace Physician Training		
Groups	Frequency	Mean Rank	Groups	Frequency	Mean Rank
Middle School	76	247,69	Middle School	1	181,00
High School	348	254,65	High School	70	193,01
Associate Degree	55	238,58	Associate Degree	293	219,43
Bachelor's Degree	27	285,44	Bachelor's Degree	43	222,21
Total	506	p = 0,48	Total	27	p = 0,17

Table 6. The Effect of Educational Status on Attitudinal Change after OHS Training

According to Table 6, after the training received from the OHS specialist, the highest mean rank value belongs to the bachelor's degree graduates. This value is followed by high school, middle school and associate degree graduates, respectively. However, these differences between groups were not statistically significant ( $p=0,48>0,05$ ). Accordingly, it is not possible to say that the training received from the OHS Specialist in the security sector makes differentiating contributions on the attitudes and behaviours of the individual depending on the educational situation.

Findings related to the training received from the Workplace Physician are in line with the results of the training received from the OHS Specialist. Although the effect of training received from the

workplace physician on the behaviour change increased as the education level of the participants increased, this difference between the groups was not statistically significant ( $p=0,17>0,05$ ). Accordingly, it can be said that the education level of the PSP does not have an effect on the health and safety behaviours after the workplace physician training.

While in the study of Karami et al. (2016), after the OHS training, a meaningful relationship was found between the safety attitudes based on the education level, in the safety culture research of Arpat (2018, 155), Dursun (2012, 145-146) and Demirbilek (2005, 177-178), there was no significant difference between the perceptions of safety training and employees' education level.

In parallel with high unemployment rates in Turkey, education-employment compliance is known to be weak, especially in university graduates (Karadeniz et al. 2013; Karadeniz 2007). This situation leads to the employment of university graduates in jobs that are far away from their career goals (Yeşil & Arpat 2018). The difficulty of employment in career occupations and the increasing number of university graduates increase employment in the service sector, which is not involved in career professions such as private security (Özsağır & Akın 2012). It can be said that the job dissatisfaction created by this situation in terms of those who have a high level of education does not contribute to a more positive behaviour change in higher education graduates.

The impact of OHS specialist and workplace physician training on safety behaviours based on marital status can be seen in Table 7.

OHS Specialist Training			Workplace Physician Training		
Groups	Frequency	Mean Rank	Groups	Frequency	Mean Rank
Married	287	245,95	Married	245	214,22
Single	206	248,46	Single	177	207,73
Total	493	Mann-Whitney U= 29259,5	Total	422	Mann-Whitney U= 21016
		Z= -0,21			Z= -0,6
		p = 0,83			p = 0,55

Table 7. The Effect of Marital Status on Attitudinal Change after OHS Training

According to Table 7, the mean rank value of the singles after the training received from the OHS Specialist is higher than that of the married. However, this difference is not statistically significant ( $p=0,83> 0,05$ ). Therefore, it is determined that the training given by

the OHS specialist does not create any differences in the behaviour based on marital status in the private security sector.

OHS training performed by workplace physicians also does not create a difference in employee attitude and behaviour in terms of marital status variable as in OHS specialist training ( $p=0,55>0,05$ ). According to this, it can be said that OHS training given by workplace physicians do not constitute a difference in attitude and behaviour based on whether the employees of the security sector are married or single.

Karami and his colleagues conducted a study on agricultural experts in Iran, and in this research, it was found that there is no significant correlation between safety training and the change in attitude (Karami et al. 2016). While in the safety culture research of Arpat (2018, 153), Demirbilek (2005, 177), and Dursun (2012, 129), it was found that there is no significant difference in the safety attitudes of the personnel who receive safety training based on the marital status.

The impact of OHS Specialist and workplace physician training on safety behaviours based on the situation of having an occupational injury at the previous workplaces is shown in Table 8.

OHS Specialist Training			Workplace Physician Training		
Occupational Injury	Frequency	Mean Rank	Occupational Injury	Frequency	Mean Rank
Yes	30	228,93	Yes	28	167,21
No	462	247,64	No	393	214,12
Total	492	Mann-Whitney U= 6403	Total	421	Mann-Whitney U= 4276
		Z= -0,78			Z= -2,20
		p = 0,44			p = 0,03

Table 8. The Effect of Occupational Accidents in Previous Workplaces on Behaviour Change after OHS Training

According to Table 8, the mean rank value of those who did not suffer from working accidents in previous workplaces is higher than those exposed to occupational accidents. However, this difference is not statistically significant ( $p=0,44>0,05$ ). According to this finding, it is understood that having an occupational accident in previous workplaces did not make any difference in the attitudes-behaviours of the PSP after training.

According to Table 8, the mean rank value of those who did not suffer from occupational accidents in previous workplaces is higher

than those who suffered. Unlike the results of the training received from the OHS specialist, it was found that occupational accident at the end of the training of the workplace physician had significant differences on the attitudes and behaviours ( $p=0,03<0,05$ ). It is possible to say that the workplace physician training contributes more positively to the safe conduct for the PSP who have never exposed to working accident before.

Dursun (2012, 127) and (Arpat 2015, 210)'s research found no correlation between occupational accidents and safety training in working life. In the study of Widyanti et al. (2018, 132), it was stated that the workers who had not previously experienced to an occupational injury had a higher tendency to behave safely than the employees with an accident history, but the difference was minimal.

Table 9 shows the effect of OHS specialist and workplace physician training on safety behaviours based on the situation of occupational injury at the current workplace.

OHS Specialist Training			Workplace Physician Training		
Occupational Injury	Frequency	Mean Rank	Occupational Injury	Frequency	Mean Rank
Yes	23	219,24	Yes	23	167,52
No	483	255,13	No	409	219,25
Total	506	Mann-Whitney U= 4766,5	Total	432	Mann-Whitney U= 3577
		Z= -1,27			Z= -2,14
		p = 0,20			p = 0,03

Table 9. The Effect of Occupational Injury at the Current Workplace on Behaviour Change after OHS Training

According to Table 9, after the training received from the OHS specialist, the mean rank of those who did not have an occupational injury at the current workplace is higher than the ones who suffered. However, this difference is not statistically significant ( $p=0,20>0,05$ ). Accordingly, having an accident at the current workplace is not effective on the behaviours after the training received from the OHS Specialist. According to Table 9, the average value of those who did not have work accidents in the existing workplaces after the training received from the workplace physician was higher than the ones who had ( $p=0,03<0,05$ ). Contrary to the effect of training received from the OHS specialist. It is understood that after training, it has a more positive impact on the behaviours of the workers who have not experienced an accident.

In the study of Dursun (2012, 128), (Demirbilek 2005, 180) and (Arpat 2015, 209), there was no correlation between the occupational accident at the current workplace and safety training perception. The perception of risk in work also increases after any injuries to employees because the injury is a clear reminder of the personal sensitivity of the workers (Athena et al. 2016).

Considering that occupational injuries are usually caused by human error, people who have suffered occupational injuries at previous workplaces or current workplaces in PSP are persons with a high tendency of accidents. Employees with a high propensity to accidents are challenging groups for OHS. Directing these employees to safety behaviours requires more time and effort than other employees. As a matter of fact, the mean rank score of the post-training period obtained from the OHS specialist and the workplace physician indicates this difficulty. The fact that the same staff who had previously been involved in occupational injuries had lower scores in the workplace doctor training showed that the illness incidence of these people with high tendency of accidents was higher than other groups.

The reasons why people who experienced working accidents have small scores in terms of behavioural change after workplace physician training might be that these people have never had any occupational disease before or they see a work-related disease as a disease independent of their work, and they have thoughts and attitudes that their work will not pose a risk of disease for their health. In other words, this difference emerged in terms of behavioural effect after training of OHS specialist and workplace physician could be due to the fact that the PSP, who had suffered an accident before, has not yet suffered from an occupational disease or work-related illness.

The effect of OHS specialist and workplace physician training on safety behaviours based on occupational tenure is shown in Table 10.

OHS Specialist Training			Workplace Physician Training		
Groups	Frequency	Mean Rank	Groups	Frequency	Mean Rank
Less than 1 Year	107	251,76	Less than 1 Year	85	213,91
1-5 Years	216	245,54	1-5 Years	191	207,51
5-10 Years	141	281,37	5-10 Years	117	252,09
More than 10 Years	47	237,61	More than 10 Years	44	190,73
Total	511	p = 0,06	Total	437	p = 0,00

Table 10. The Effect of the Occupational Tenure on the Attitudinal Change after OHS Training

According to Table 10, the mean rank value of the participants who have 5-10 years of tenure after the training received from the OHS specialist is the highest. This value is followed by those who have less than one year of tenure, those who have 1-5 years of tenure and those who have more than ten years of tenure. This difference between the groups is not statistically significant at the 95% significance level ( $\alpha=0,05$  error margin) ( $p=0,06>0,05$ ). However, it can be said that there is a significant difference between the groups at the 90% significance level ( $\alpha=0,10$  error margin). Accordingly, it can be said that the occupational tenure in the PSP has an impact on the behaviour change after training received from the OHS specialist.

According to Table 10, the mean rank value of the participants who have 5-10 years of tenure after the training received from workplace physician is the highest. This value is followed by those who have less than one year of tenure, those who have 1-5 years of tenure and those who have more than ten years of tenure. The difference between the groups was statistically significant ( $p=0,00<0,05$ ). According to this result, it is possible to say that the training received from workplace physician has different effects on the behaviours after the training depending on the tenure period of the PSP.

In the study carried out by agricultural experts in Iran, a significant relation was found between the change in attitudes after safety training and the occupational tenure (Karami et al. 2016). In Dursun's study, there was no significant difference in the perceptions of safety training in terms of the total working year (2012, 124); however, it has been found that the seniority of the employee in the current workplace creates significant differences in the perceptions of safety training (2012, 125).

OHS training is repeated every year in Turkey varying periods depending on the hazard level of the workplace (see Footnote 2). With the training programs that are renewed every year, the employees are informed about the fight against new emerging risks/threats and the contents given in previous years about the current risks/threats are repeated. Obtaining the highest behavioural change effect in the training of PSP during the 5-10 years of seniority period shows that awareness and consciousness about occupational risks have reached the highest level, especially during this period.

The effect of OHS training on behaviours reduced to minimum levels in experience periods longer than 5-10 years. This situation may be due to the PSP's perception that they have sufficient safety

knowledge and experience on the job, considering their long tenure. This situation in the training staff with more than ten years of seniority can create excessive self-confidence in the field of OHS and can prepare the ground to occupational accidents and diseases.

The fact that PSP with more than ten years of seniority have lower behavioural gains than other groups may also be caused by the reason related to the educational content and execution.

The reasons such as performing OHS specialist and workplace physician training with same/similar content every year, seeing the trainings as an event that is a waste of time within the organization, poor professional knowledge or inadequate transfer skills of the trainers, ineffective training, maybe the descriptor of a lower level of behaviour change in employees who receive more extended training than other groups since the beginning of the study.

The impact of OHS specialist and workplace physician training on safety behaviours based on the union membership status of the PSP is shown in Table 11.

OHS Specialist Training			Workplace Physician Training		
Union Membership	Frequency	Mean Rank	Union Membership	Frequency	Mean Rank
Yes	391	252,41	Yes	330	213,25
No	109	243,64	No	96	214,38
Total	500	Mann-Whitney U= 20562	Total	426	Mann-Whitney U= 15756
		Z= -0,62			Z= -0,09
		p = 0,53			p = 0,93

Table 11. The Effect of Union Membership Status on the Attitudinal Change after OHS Training

According to Table 11, after the training received from the OHS specialist, the mean rank value of the union member employees is higher than the non-members. However, this difference is not statistically significant ( $p=0,53>0,05$ ). Therefore, it is possible to say that being a union member is not correlated to creating a change in attitude after the training received from the OHS specialist. According to Table 11, after the training received from the workplace physician, the mean rank values of union member and non-member workers are approximately equal. Therefore, it is found that the status of union membership does not make a statistically significant difference in the behaviours after training of workplace physician ( $p=0,93>0,05$ ).

While in Arpat's research (2015, 179), the mean rank value of non-member of union related to the perceptions of safety training is higher than the member ones, Hotaman's (2014) research on 1.620 public officials also supports our findings. 89,67% of the participants stated that they did not have OHS training. Only 2,01% of the participants in the training program found the training program sufficient. Only 8,25% of the respondents see the union, they are a member of, sensitive to OHS, and the rest think that their unions do not give importance to OHS.

The question of whether the participants have notified the union officials of the OHS-related shortcomings was answered by 31,28% of the respondents, and they stated that they did not need to inform the union about it due to the insensitivity of the union to this issue. In light of these results, it is possible to say that the fact that the employee is a union member is not a useful demographic feature on creating attitudinal change after OHS training.

Workers' organisations, like employers, should conduct training and information programs on current and potential occupational hazards in the working environment (Alli 2001, 104). In this framework, the unions should also use the collective bargaining power and the opportunities to mobilise society as a non-governmental organisation in order to improve OHS.

By fulfilling OHS training and other OHS activities for this purpose, they can contribute to the development of OHS awareness in both workplace and society (Akın 2012, 101).

However, the research carried out by Kaya (2017, 2087) in the general affairs, metal and textile sector shows that the union loyalties of union member workers are low and their belief and trust to the union is low.

Along with all these findings, it can be understood that the failure of unions in other working relationship variables is also present in the field of OHS, so, being a union member does not make a difference in terms of training received from OHS specialist and workplace physician.

The effect of OHS specialist and workplace physician training on safety behaviours based on hazard class perception is shown in Table 12.

OHS Specialist Training			Workplace Physician Training		
Hazard Level	Frequency	Mean Rank	Hazard Level	Frequency	Mean Rank
Less Dangerous	83	235,77	Less Dangerous	71	206,78
Dangerous	336	256,54	Dangerous	285	214,82
Very Dangerous	82	243,72	Very Dangerous	70	214,94
Total	501	p = 0,37	Total	426	p = 0,85

Table 12. The Effect of Hazard Class Perception on the Attitudinal Change after OHS Training

According to Table 12, after the training received from the OHS specialist, the mean ranks calculated according to the hazard class perception of the workplace are different. However, this difference is not statistically significant ( $p=0,37>0,05$ ). Along with this finding, it is possible to say that the perception of the hazard class of the PSP is not a compelling factor in the attitude change after training in terms of the training received from the OHS specialist. According to Table 12, after the training received from the workplace physician, the mean ranks calculated based on the danger class perception of the workplace were obtained at different values. However, this difference is not statistically significant ( $p=0,85>0,05$ ). Therefore, in terms of training received from the workplace physician, it is possible to say that there is no correlation between the perception of the hazard class of the employee and the attitude change after the training.

In Arpat’s research (2015, 253), it was determined that the work did not make a significant difference in the safety training perceptions of the hazard class. According to the research of Fuqiang et al. (2018) on the relationship between safety climate and safety performance in the aviation industry, the risk perception of the employees is positively related to the safety results. In this study, a positive correlation was found between - safety attitude and safety perception - and safety behaviour.

Employees in hazardous sectors often tend to think that their work is not dangerous. According to a survey conducted at a pig breeding farm in the US, 2/3 of the workers do not see their work as dangerous. This situation is more common, especially in the manufacturing sector employees (Athena et al. 2016).

However, this ratio is much lower in the private security sector, which is one of the groups in the services sector. In other words, the perceived hazard level and the actual hazard level are close to each other.

Based on this finding, it is possible to say that there is no differentiation in the behaviours based on the hazard perceptions of the PSP.

The effect of OHS specialist and workplace physician training on safety behaviours based on position is shown in Table 13.

OHS Specialist Training			Workplace Physician Training		
Groups	Frequency	Mean Rank	Groups	Frequency	Mean Rank
Project Manager	3	421,00	Project Manager	3	369,50
Shift Supervisor - Security Supervisor - Security Personnel Officer	10	376,20	Shift Supervisor - Security Supervisor - Security Personnel Officer	9	348,78
Private Security Guard	498	252,59	Private Security Guard	425	215,19
Total	511	p = 0,00	Total	437	p = 0,00

Table 13. The Effect of Positions on the Attitudinal Change after OHS Training

According to Table 13, the highest mean rank after training from OHS specialist belongs to the project managers. This value is followed by the mean rank value of the shift supervisors and private security guards, respectively. As the position of the participant in the work approaches, the senior management levels, the positive behaviour tendency increases after the OHS training received from the OHS specialist.

According to Table 13, the highest mean rank after the training received from the workplace physician belongs to the project managers. This value is followed by the mean rank value of the shift supervisors and private security guards, respectively. As the position of the participant in the workplace approached the upper management levels, the positive behaviour trend increased after the OHS training received from the workplace physician.

In the research of Arpat (2015, 201), it is also found that as the titles of the employees approached the level of management, there was a significant increase in the perceptions of safety training. According to Akbaş and Arpat's research on metal sector managers, as the upper

management levels are approached, the level of awareness related to OHS is increased, and the attitude towards OHS communication is also more positive (Akbaş & Arpat 2019). In the research of Widyanti et al. (2018, 132) on gas companies in Indonesia and the study of Watcher and Yorio (2014) in the United Kingdom, it is stated that the employees working in managerial positions show safer behaviours due to the increase in safety-related obligations. In light of these results, it can be said that changes to occur on safe conduct after safety training in the private security sector will be more positive as being approached the management level.

## CONCLUSION

Private security sector employees are under the influence of many threats in terms of OHS, primarily physical, psychological and emotional stresses. The risks faced by the PSP make the effectiveness of OHS training and its impact on employee behaviours important. Demographic characteristics of employees are one of the critical variables that should be taken into consideration when reflecting safe behaviours to work.

The behavioural impact of OHS specialist and workplace physician training in the private security sector was first assessed in terms of participation in training and the degree to which training contributes to the employee. Although the participation of the PSP to the training is high, it can be seen that participation in the training of the workplace physician is not achieved as a whole. Within this framework, the OHS risks of the sector in terms of non-trained groups constitute a constant threat for the employees. Measures should be taken by the sector employers to meet the OHS training needs and to prevent this need from re-emerging. Management systems such as ISO 45001 and OHSAS 18001 can be used for this.

It has been found that the training received by OHS personnel from OHS specialists and workplace physicians contributed at a high level. However, some employees do not have any behavioural gain from training too. After the training, these employees should be identified, and their knowledge and skills deficiencies should be eliminated by including the repetition of training. Management systems can also be used for this improvement.

A statement can be made that the level of reflection of the training of the PSP from the occupational health specialist and the workplace physician does not differ significantly based on gender, level of

education, marital status, union status and perception of the hazard class related to the work of the employee. On the other hand, in terms of demographic characteristics of employees such as age, seniority and position, it has been determined that the training received by OHS specialist and workplace physician at different levels created behavioural changes. While occupational accidents at previous workplaces and existing workplaces do not differ in terms of OHS specialist training, the difference between the groups in terms of the effect of workplace physician training on behaviours is remarkable.

The increasing behavioural safety performance of PSP with advancing age can contribute to the fight against insecure behaviours of people with a high incidence of accidents in the sector. As a matter of fact, in work history, it has been found that people who suffer from work accidents have lower behavioural safety performance after the training. In the working environment, people with a high incidence of accidents and young people working together with older people may cause unsafe behaviours to evolve positively. Thus, while achieving positive results from the OHS training for all staff, on the one hand, it may also become possible to make progress towards the prevention/reduction of accidents, diseases and near misses. Such an improvement develops the safety-related appearance of the organisation and may also contribute to the development/improvement of safety culture.

PSP in Turkey are organised in No.19 *Defence and Security* sector. In parallel with the unionisation in another industry, it is understood that the unions in the *Defence and Security* sector did not operate on OHS (effectively) and contribute to it. The active role of unions, which are operating to protect and develop the rights and interests of employees, can contribute to the development of OHS awareness in both workplace and society. Within this framework, the activities of the unions in the OHS-related workplace and community level may also increase the behavioural performance of OHS training carried out in the workplaces.

As employees' positions at the workplace approach, the upper management level, behavioural safety performance after training increases. As employees' positions at the workplace approach the upper management level, behavioural safety performance increases after training. Accordingly, the safety behaviour output of the shift supervisors that employees communicate and interact with the most is statistically significantly higher than that of the PSP. In order to

improve the safe behavioural tendencies of the PSP, the shift supervisors need to be equipped with skills to ensure their safe behaviour performance and transfer them to the employees. For this purpose, supervisors in the shift supervisor group can be given theoretical and practical training to develop these skills.

In order to achieve the highest contribution from OHS specialist and workplace physician training, training programs in which these people are trained should gain expertise in the field of adult education as well as field knowledge. The implementation of the training as practical as possible can also contribute to the development of behavioural outcomes at the end of the training.

In subsequent studies, designing behavioural performance after training for the measurement of direct results or behaviour rather than from the worker perspective may provide more useful data for the contribution of training to safe behaviours. Thus, significant contributions can be made in the security sector and the development of the public's safety awareness.

In order to achieve better behavioural gains at the end of the training, the training should cover new risks, eliminate the effects of the current threats, execute the training by the requirements of adult education, and encourage the reporting of accidents and near-miss reports persistently. It is possible to increase the impact of safety training on behavioural performance by conducting activities aimed at improving safety climate and safety culture in the private security sector workplaces.

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