

Av Tüfekleri Fabrikasında Çalışanlarının İlk Yardım Bilgi Düzeyleri

[First Aid Knowledge Levels of Employees in a Hunting Rifle Factory]

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Özet

Giriş: Silah fabrikaları tehlikeli çalışma alanlarından birisidir. Yaralanma sırasında veya sonrasında işyerinde ilk yardım bilgi ve becerisinin sağlanması, çalışan sağlığı ve yaşamı üzerindeki istenmeyen sonuçları tersine çevirebilir.

Amaç: Bu çalışmanın amacı, bir av tüfeği fabrikasında çalışanların ilk yardım uygulamaları hakkındaki bilgi düzeylerini ve bu bilgi düzeyini etkileyen bazı faktörleri incelemektir.

Yöntem: Kesitsel nitelikteki çalışma bir silah fabrikasında çalışan 280 personelin %85'ine (n=238) ulaşılarak gerçekleştirilmiştir. Veriler literatürden elde edilen bilgiler doğrultusunda oluşturulan 32 soruluk anket formu ile toplandı. İlk yardım bilgi seviyelerini ölçmek için geliştirilen testte her doğru soru için 1 puan verildi, ankete katılan kişi en fazla 20 ve en düşük 0 puan elde etmiştir. Veri analizi için SPSS 25 paket programı kullanıldı.

Bulgular: Çalışanların ortalama ilkyardım bilgi puanı 11,59 ±3,63'tür. Analizlerde İlk Yardım İndeksi (İYİ) ile eğitim durumu ve ilk yardım alma isteği değişkenleri arasında bir ilişki bulundu (p <0.05). İYİ indeksi ile seçilen değişkenler arasındaki ilişkiyi inceleyen lojistik regresyon modellemesinde, eğitim ve ilk yardım istek değişkenleri arasında bir ilişki bulunmuştur (p <0.05).

Sonuç: Çalışanların çoğunun ilk yardım ortalama bilgi puanı düşük bulunmuştur. Olası yaralanmaları azaltmak için tüm çalışanlara ilk yardım eğitimi verilmelidir.

Abstract

Introduction: Arms factories are one of the dangerous working areas. Providing first aid in the workplace, especially during or after an injury, can reverse the unintended consequences on employee health and life.

Purpose: The purpose of this study is to evaluate the knowledge level of employees in a hunting rifle factory about first aid practices and some factors affecting this knowledge level.

Methods: The cross-sectional study was carried out by reaching 85% (n = 238) of 280 personnel working in a gun factory. The data were collected with a questionnaire form consisting of 32 questions created in accordance with the information obtained from the literature. In the test developed to measure the level of first aid knowledge, 1 point was given for each correct question, the person participating in the questionnaire obtained the maximum score of 20 and the lowest 0. SPSS 25 package program was used for data analysis.

Results: The average first aid knowledge score of the employees is 11.59 ± 3.63. In the analyzes, a relationship was found between the First Aid Index (FAI) and the variables of educational status and desire to get first aid (p <0.05). In the logistic regression modelling, which examines the relationship between the FAI index and the selected variables, a relationship was found between education and first aid desire variables.

Conclusions: The first aid mean knowledge score of most of the employees was found to be low. In order to reduce possible injuries, all employees should be provided with first aid training.

Work-related injuries have become a growing concern for employers and governments due to their enormous impact on workers' health and productivity. The International Labor Organization (ILO) estimates that globally each year there are 270 million occupational accidents, 160 million people are affected by occupational diseases, 3.5 million are disabled, and more than 2.3 million die from work-related injury or diseases.¹ Work-related cancer is the primary cause of death (32%), followed by work-related circulatory system diseases (23%), occupational accidents (18%) and communicable diseases (17%).² 42 million occupational accidents occur each year in the African continent and 54,000 people die in these accidents.³ Deaths from occupational accidents in Turkey are following a trend well above the European Union average. According to statistics of Social Security Institution (SSI), every day 4 people die as a result of work accidents in Turkey.⁴ Almost half of work-related accidents in Turkey and 67% of the deaths occur in the mining, metal / machinery, road transport and construction sector which are the four business lines.⁵

According to the "Workplace Hazard Class Communiqué related to Occupational Health and Safety" published by the Labor and Social Security Ministry of Turkey in the Official Gazette dated 26.12.2012 and No. 28509, workplaces are separated into 3 hazard classes as less dangerous, dangerous and very dangerous in terms of occupational health and safety. The production of pistols, shotguns, non-military firearms and similar devices and the manufacture of their parts take place in the very dangerous business class. Firearm injuries that may occur with an accident in these areas are one of the emergency events that need to be intervened quickly and accurately due to the high risk of death or disability.⁶ For example, gunshot wounds are the third most common cause of traumatic spinal cord injury.⁷ In addition, the severity of the injuries are generally affected by the size or type of the bullet used, the velocity of the bullet, the entry and exit path of the bullet into the wound, and the presence of the bullet in the wound.⁸ Studies have shown that hospitalized armed injury patients are discharged with disabilities at a high rate.⁹ Armed injuries are an important problem because they are common and cause high morbidity and mortality in parallel with the accompanying organ and vascular injuries.¹⁰ Considering, shotguns are technically low speed weapons, but are significantly responsible for soft tissue, nerve, vascular, bone and joint injuries. This results in almost twice the death rate attributable to other weapons.¹¹

Firearms events are regarded as the third cause of injury-related death in Turkey in 2010 and afterward poisoning and motor vehicle accidents.¹² In 2019, 5947 armed events were reflected in the press in Turkey. It was determined that firearms were used in 2867 of these armed incidents.¹³ The only purpose of first aid to be used in these events is to protect life, relieve pain, prevent further injury and/or promote healing. Due to the inherent and intended lethality of firearms, prevention of gun injuries is always more effective than cure.¹⁴ However, life-saving care or first aid when needed is an assessment and intervention of the patient that can be administered by a nearby person minimally and without medical

equipment.¹⁵ Therefore providing first aid in the workplace especially during or after injury can reverse unwanted consequences on employee health and life. Training employees on first aid is an important norm for prevention of health and safety in the workplace.¹⁶ Despite the prevalence and importance of unintentional injuries in workplaces, no study has been found in the literature on the knowledge of first aid of the people in the gun factory.

METHODS

In this study, it is aimed to evaluate the factors affecting the first aid application knowledge and knowledge level of employees in a weapon factory. The universe of the cross-sectional epidemiological study consists of 280 personnel working in a weapon factory. Sampling was not selected and 85% (n=238) of the employees were reached in total. The questionnaire form was collected after being distributed by the researcher and applied under observation in January-March 2019. The questionnaire was applied during resting time in the factory. Participation in the research is entirely voluntary.

SPSS 25.0 package program was used to analyze the data and $p < 0.05$ was considered significant. In the first aid assessment test, one point was given to each question that was answered correctly. The lowest 0 and the highest 20 points can be obtained from the first aid assessment test.

The questionnaire form consisting of 32 questions and 2 parts was prepared to collect the research data. In the first part of the questionnaire, there are questions about some socio-demographic characteristics of the participants and the factors that may affect the first aid knowledge level. The first part consists of 12 questions. The socio-demographic characteristics in the questionnaire are: date of birth (year), gender (male/female), educational status (primary school, secondary school/high school/university), marital status (married/single/divorced), number of children (0/1-2/>2), year of study (<10/10-20/>20), first aid training status (yes/no), source of first aid training (medical staff/book/media/friend and relative/first aid teacher/university/occupational health and safety specialist/driver's license course), state of first aid cabinet information in the institution (yes/no/don't know), finding self-sufficient in first aid (yes/no/don't know), encountering a situation requiring first aid in the last six months (yes/no) and a desire to attend a course in first aid (yes/no). The second part of the questionnaire consists of first aid evaluation test (20 questions). While creating the first aid assessment test, a book called First Aid Question Bank published by Ankara Provincial Health Directorate was used. First aid assessment test includes the topics of general first aid, evaluation of the patient/casualty/scene, basic life support, bleeding and injuries.¹⁷ There are multiple-choice questions in the first aid assessment test.

Since the First Aid Index (FAI) was not normally distributed, a variable with the median cut-off point dichotomous structure (below/above median) was created. In binary analysis, a chi-square analysis was made between FAI and gender, age (over/under 40), educational status (primary school, secondary school/high school/university), marital status (married/

single, divorced), number of children (0 children/1-2 children/>2 child), working year (<10 years/10-20 years/>20 years), first aid competence (yes/no), first aid application in the last 6 months (yes/no) and desire to receive first aid (yes/no, I don't know).

Logistic regression modelling was done with the FAI dichotomous structure. Since high scores in the FAI index are considered positive in terms of first aid knowledge level, scores above the median of the dichotomous of the FAI index in modeling were taken as the reference group. The independent variables getting in analysis with FAI was considered risky above OR 1 and below 1 as protective according to their own reference group. For multivariate analyzes, the binary logistic model Backward (cond) method was used to predict the result between the possible factors determined in previous univariate analyzes ($p < 0.20$) and the dichotomous structure of the FAI index. Logistic regression analysis was established between the variables of FAI and the desire to receive education and first aid training. In the analyzes, the Hosmer-Lemeshow test was used for model fit, and cases with a type 1 error level below 5% were interpreted as statistically significant.

RESULTS

238 of 280 employees ($n = 85.0\%$) participated in the study, 98.7% ($n = 235$) were male, 73.9% ($n = 176$) were married, 70.1% ($n = 167$) had one and more children, 16.4% ($n = 39$) were university graduates. The average age (SS) of the employees is 37.2 (10.3) and 59.8% are under the age of 40. The average working years (SS) in the gun factory worked for 14.9 (11.6) years and 57.6% for more than 10 years (Table 1).

More than half of the employees (69.3%) have received first aid training. First aid knowledge score of trainees is 11.59 ± 3.63 . 60.2% of those have received education from healthcare professionals (11.82 ± 3.75), 11.2% of them from books (9.69 ± 3.82) and 7.2% of them from the media (9.91 ± 5.37). 88.8% of the employees know that there is a first aid cabinet in the factory. Knowledge score of those who know that there is a first aid cabinet in the factory (11.14 ± 3.74) is higher than those who did not know (8.56 ± 4.56). In the last six months, 19.7% of employees have encountered an incident requiring first aid (10.28 ± 4.43). While 35.2% of the employees find themselves competent in first aid, 67.6% stated that they wish to attend a first aid course if it is opened (Table 1).

A chi-square analysis was made between FAI index and gender, age, education, marital status, number of children, working year, first aid competence, first aid application in the last 6 months and desire to receive first aid. In the analyzes, a relationship was found between the FAI index and the variables of educational status and desire to get first aid ($p < 0.05$). Since the variables associated with the binary analysis are used in logistic regression modeling, these analyzes are not presented in a table.

In the logistic regression modelling, which examines the relationship between the FAI index and the selected variables, a relationship was found between education and first aid desire variables. Accordingly, first aid scores of primary-secondary

school (OR = 2.36; GA = 1.09--5.14, $p < 0.05$) and high school level education (OR = 2.56; GA = 1.17--5.60, $p < 0.05$) graduates are lower than those who are educated at university level and the ones who do not want to receive first-aid education (OR = 1.95; CI = 1.08--3.54, $p < 0.05$) are lower than those who want to receive education (Table 2).

DISCUSSION

Studies on the level of first aid knowledge are important in terms of identifying and eliminating the missing information on first aid of the population it represents. There are studies conducted with different groups about first aid knowledge level in the Turkish literature.¹⁸⁻²¹ However, since there is no first aid study on the employees of the gun factory, which is an important branch of the defense industry. We aimed to contribute to national and international literature evaluating the first aid knowledge of first aid workers in this field and factors affecting this knowledge.

In order to reduce and injuries experienced in the workplaces in the recent years in Turkey, it is decided to employ one first aid staff for every 15 employees in the less dangerous workplaces under the scope of occupational health and safety, one first aid staff for the very dangerous workplaces for every 10 employees.²² Gun factories are included in the dangerous work class as stated in the Communiqué on Workplace Hazard Classes Concerning Occupational Health and Safety.²³ In the research, it is thought that the first aid training given in the workplaces during the year should be increased since the first aid knowledge level of the employees in these areas is not sufficient.

Rodriguez et al. states in his study that in case of early intervention in most emergencies, the chance of survival of the casualty will increase.²⁴ The results of this study show that incorrect or insufficient information may worsen the condition of the casualties. For example, 38.7% of the participants gave the correct answer to the question of how much the rib cage should be collapsed during cardiac compression. 53.7% of the participants gave the wrong answer to the question of what are the points where pressure can be applied on the body in bleeding.

The number of those who received first aid training in the study is more than twice those who did not. Those who do not receive first aid training may have an injury while working. In this case, the people who will apply the first intervention are their colleagues. For this reason, people who do not have first aid training should be provided with a first aid training and handbooks explaining basic life support. Training presentations, bandages, detection blends should be easily available at workplaces. In addition, existence of the employees who do not receive first aid training in dangerous and high probable risk areas of injuries is seen as an important deficiency for the factory administration. It should be made a necessity for those working in such workplaces to receive first aid training before starting work.

The fact remains that has been determined that employees who receive first aid training have deficiencies in vital issues. For example, the vast majority of workers do not know

Table 1. Distribution of First Aid Knowledge Scores of Employees by Demographic Variables

Variables		n (%)	First aid knowledge score (Mean ± SS)
Gender (n = 238)	Female	3 (1.3%)	10.97 ± 3.82
	Male	235 (98.7%)	9.33 ± 1.15
Age (n = 214)	≥40	86 (40.1%)	10.98 ± 3.87
	<40	128 (59.9%)	11.24 ± 3.77
Educational status (n = 237)	Elementary-secondary school	105 (44.3%)	10.35 ± 3.98
	High School	93 (39.2%)	10.67 ± 3.63
	Associate degree	25 (10.5%)	12.96 ± 2.92
	Undergraduate	14 (6.0%)	13.64 ± 3.00
Experience period (n = 234)	<10 years	97 (41.5%)	10.91 ± 3.70
	10-20 years	75 (32.0%)	11.33 ± 3.86
	> 20 years>	62 (26.5%)	10.65 ± 3.94
Marital status (n = 238)	Married	176 (73.9%)	10.83 ± 3.98
	Single	59 (24.7%)	11.31 ± 3.24
	Divorced	3 (1.4%)	11.00 ± 4.00
Number of children (n = 226)	0	59 (26.2%)	11.37 ± 3.21
	1-2	111 (47.0%)	11.20 ± 3.91
	>2	56 (24.8%)	9.91 ± 4.14
First aid education status (n = 235)	Yes	163 (69.3%)	11.59 ± 3.63
	No	72 (30.7%)	9.69 ± 3.82
Source of education received (n = 151)	Healthcare professionals	91 (60.2%)	11.82 ± 3.75
	Books	17 (11.2%)	9.69 ± 3.82
	Media (TV, Radio, newspaper)	11 (7.2%)	9.91 ± 5.37
	Friends and other relatives	9 (5.9%)	9 ± 3.39
	First aid teacher	1 (0.6%)	1
	in university	1 (0.6%)	1
	Occupational Health and Safety expert	1 (0.6%)	1
	On the driving in license course	1 (0.6%)	1
	Other	19 (37.1%)	12.21 ± 2.72
	Finding himself/herself sufficient in first aid (n = 238)	Yes	84 (35.2%)
No		109 (45.9%)	10.40 ± 4.22
I don't know		45 (18.9%)	10.40 ± 4.22
Status of the information that there is a first aid cabinet in the factory (n = 236)	Yes	209 (88.8%)	11.14 ± 3.74
	No	18 (7.6%)	8.56 ± 4.56
	I don't know	9 (4.6%)	11.78 ± 1.92
Encounter with an incident requiring first aid in the last 6 months (n = 238)	Yes	47 (19.7%)	10.28 ± 4.43
	No	191 (80.3%)	11.12 ± 3.63
Willingness to attend a first aid course (n = 235)	Yes	159 (67.6%)	11.32 ± 3.60
	No	76 (32.4%)	10.43 ± 3.99

where to perform cardiac compression in adults. In a study conducted similarly by Hatzakis et al. with factory employees, it was seen that factory workers who did not receive first

aid training did not know how and how much to make heart pressure.¹⁶ Park et al. found out that taxi-men and drivers had insufficient heart rate information compared to nursing

Table 2. Logistic Regression Results between the First Aid Index and Some Variables				
		n	FAI OR (95% GA)	p
Education	University (Ref)	39		
	Elementary-secondary school	105	2.36 (1.09-5.14)	0,030
	High School	93	2.56 (1.17-5.60)	0.018
First aid training request	Yes (Ref)	162		
	No	75	1.95 (1.08-3.54)	0,027
Fixed				
CC: Correct Classification:	59.9%			
HL: Hosmer-Lemeshow:	185			
Ref: Reference				
Independent variables included in the analysis: Education, First aid request				

students and traffic police.²⁵ This situation suggests that the employees received first aid training a long time ago, that the training was not efficient for them or they forgot.

Looking at the population distribution of Beyşehir, the district where the study was conducted, by year of 2019, it was seen that the female population (n = 37336, 50.1%) was higher than the male population (n = 37133, 49.9%). The number of women in the study remained at a very low level compared to the district population (n = 3, 1.3%). The reason for this can be attributed to the fact that the jobs in the gun factory are in the dangerous business group, and women prefer to work in this line of business less.

In the study, it was observed that the higher level of education ensured higher rate of correct answers to the questions. Likewise, in a study conducted on employees of a furniture factory, it was found that the first aid knowledge scores increased as the education level increased.²⁶

Limitations

There are some restrictive aspects of the study. Since it was not asked when the first aid training was taken in the study, no evaluation was made on the freshness of the information. Regarding the design of the first aid training, the quality of the first aid training has not been discussed since no evaluation has been made in terms of the location, the number of participants, the duration, the appropriateness of the instructor and training materials in the First Aid Regulation.

There are predominantly male employees in the study and it is difficult to generalize the results to female employees. The study presents as a vision to study women, to investigate the compliance of first aid training in dangerous classed workplaces with the relevant regulations, and the obligation to receive first aid training among the recruitment criteria for further research.

CONCLUSION and RECOMMENDATIONS

In the study, first aid knowledge levels of university graduates and those who want to get first aid training were found to be higher. In particular, it would be good to draw attention to the determination of educational requirements and to provide training at regular intervals and to make assessments. In order to reduce injuries, university graduation can be prefer-

red as a priority criterion among the recruitment criteria in hazardous workplaces. Workers' need for training must be met continuously to reduce injury and associated deaths and injuries. Because, weapons factory employees' having high first aid knowledge is important for their health welfare and the continuity of the defense industry sector.

Ethics

Ethics Committee Approval:

For the study, permission from the ethics committee of Selçuk University Medical Faculty Local Ethics Committee (Date:11.12.2019 and Approval code:70632468-050.01.04) and permission to apply the questionnaire at Konya Beyşehir-Huğlu Hunting Rifles Factory (Date:31.12.2019) were obtained.

Informed Consent: Written informed consent from the employees were obtained.

Peer-review

Externally and internally peer-reviewed.

Authorship Contributions

Concept: KB; Literature Search: KB, MK; Data Collection or Processing: KB, AD; Analysis or Interpretation: CÇ; Writing: KB.

Conflict of Interest

There is no conflict of interest between the authors.

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