VIA MEDICA

ORIGINAL ARTICLE

Disaster and Emergency Medicine Journal
2023, Vol. 8, No. 4, 216–225
DOI: 10.5603/demj.97017

ISSN 2451–4691, e-ISSN 2543–5957

ASSESSING THE KNOWLEDGE OF FIREFIGHTERS FROM FIRE PROTECTION UNITS ON THE RISKS ASSOCIATED WITH FIREARMS AND AMMUNITION DURING RESCUE AND FIREFIGHTING OPERATIONS

Rafal Kasperczyk[1], Lukasz Dudzinski[2], Lukasz Czyzewski[3]

[1]State Fire Service, Dzierzoniow, Poland
[2]Emergency Medical Department, John Paul II University in Biala Podlaska, Poland
[3]Department of Geriatric Nursing, Medical University of Warsaw, Poland

ABSTRACT

INTRODUCTION: In recent years, there has been increasing interest in firearms in Poland, which may be related to the armed conflict in the territory of our eastern neighbors. Programs are being implemented to familiarise and promote sport shooting in society. The aim of this research was to obtain information on the knowledge of persons serving in Fire Protection Units (FPU) in safety in incidents with firearms and firearms ammunition, the risk of their use, their use or effects of such use.

MATERIAL AND METHODS: 228 people took part in an anonymous survey. The study was addressed to both: professional firefighters in State Fire Service (SFS) and Volunteer Fire Brigade (VFB). The research tool was a proprietary questionnaire composed of 10 questions. The questionnaire was made available to respondents online using Google Forms.

RESULTS: Professional firefighters more often indicated the correct answer, i.e. "Strategy for dealing with the casualty on the battlefield" (61% vs 64%, $p = 0.020$). In the question checking the knowledge of the possibility of sending firearms and ammunition, volunteer firefighters more often indicated the answer that it is absolutely forbidden (79% vs 58%, $p = 0.032$). In the question regarding the self-assessment of the ability to secure a potentially loaded firearm, it was shown that the assessed skill improved statistically significantly with age ($p = 0.030$).

CONCLUSIONS: Firefighters' knowledge of safety rules in incidents involving firearms is insufficient. Completion of a course in qualified first aid, professional development covering only Tactical Combat Casualty Care (TCCC) issues, and military service for firefighters are insufficient during activities where there is a risk of contact with firearms and ammunition. Firefighters do not use TCCC safety considerations against an armed casualty when the event is a fire incident. Firefighters presented a low level of knowledge of current legal regulations with regard to the possession, transport, and protection of firearms and ammunition.

KEYWORDS: firearm; rescue; fire brigade; tactics; shot

Disaster Emerg Med J 2023; 8(4): 216–225

CORRESPONDING AUTHOR:
Lukasz Czyzewski, Department of Geriatric Nursing, Medical University of Warsaw, Poland; e-mail: czyzewski_lukasz@wp.pl
Received: 18.08.2023 Accepted: 15.10.2023 Early publication date: 13.11.2023

INTRODUCTION

In recent years, there has been increasing interest in firearms in Poland, which may be related to the armed conflict in the territory of our eastern neighbors. Programs are being implemented to familiarise and promote sport shooting in society. On 1 July 2022, the nationwide project "Sports Shooting for Everyone" was launched, implemented as part of the competition of the Ministry of Sport and Tourism under the name "Supporting the Popularisation of Sports Shooting" [1].

In addition to this project, numerous similar local initiatives were organized. Shooting sports clubs and commercial shooting ranges have reported increased interest in sports shooting training. The society's fear of the armed conflict spilling over into Poland also resulted in an increased demand for the purchase of firearms and ammunition. Poland has also boosted its arms exports, which, together with the civilian demand for small arms, causes increased traffic in the area of transporting these products. The natural effect of the increased demand for firearms is not only the storage of ammunition by individual users of firearms but also increased orders from traders and wholesalers. In addition to the state armed services, there are many economic operators that provide property and people protection services. There are commercial and private vans on the roads, carrying weapons and ammunition in various amounts. In addition to the regular movement of firearms owners, the aforementioned armed conflict across the eastern border intensified projects related to the movement of weapons and ammunition by all means of transport [2, 3].

Table 1 presents Police data in the three-year period (2020–2022) concerning the issue of firearms permits and registered firearms units in Poland.

There are two rescue systems operating in Poland, the National Rescue and Firefighting System (NRFS) based on firefighters and the State Medical Rescue System, which perform an important role in ensuring the safety of Polish residents. The system consists of emergency medical teams (EMT) and hospital emergency departments (ED). The field teams are divided into ground teams (ambulance) and air teams (helicopters) at the Helicopter Emergency Medical Service (HEMS) bases [5–7].

NRFS consists of the State Fire Service (SFS) established by the Act of 1991 and other entities included in the NRFS, such as the Volunteer Fire Brigade (VFB), company fire brigade, and airport fire brigade, which complement each other. The catalog of tasks carried out by the firefighters is specified in the Fire Protection Act of 24 August 1991 and in the Regulation of the Minister of the Interior and Administration of 17 September 2021 on the detailed organization of the national rescue and firefighting system. The tasks of the firefighters incorporate two groups of threats, such as fighting fires and local threats. All NRFS entities are uniformed, where special (protective) clothing is referred to as a uniform, and firefighters' tasks have solely a rescue profile, which excludes the need to arm them. NRFS is a unified system, consistent across both urban

Table 1. List of firearms permits issued in Poland for the years 2020–2022 [4]

Purpose of issuing licence	2020			2021			2022		
	W	T	N	W	T	N	W	T	N
Personal security	124	32 184	36 689	81	31 419	35 841	154	30 877	35 441
Protection of people or property	0	9	10	0	9	10	1	10	10
Hunt	3 104	130 448	347 284	3 670	132 501	356 595	4 081	134 765	374 079
Sport	5 031	39 205	102 588	6 806	45 895	123 076	13 147	58 784	162 368
Historical	5	72	296	13	86	327	5	94	361
Collectible	6 941	30 256	92 942	9 233	39 529	132 982	19 862	59 240	176 836
Commemoriative	6	1 742	2 547	16	1 738	2 535	8	1 730	2 542
Training	113	826	5 337	113	940	6 844	141	1 082	8 425
Other	6	174	160	7	182	169	3	169	156
TOTAL	**15 330**	**234 916**	**587 853**	**19 939**	**252 299**	**658 379**	**37 402**	**286 751**	**760 218**

W — weapon licences in a given year; T — total number of gun permits; N — number of registered firearms

and rural environments, as well as various regions of the country. The homogeneous structure of the NRFS, despite the differences in training between professional firefighters and volunteer fire service members, is intrinsically linked to the reference of competence, and consequently, the responsibility for the conducted rescue operations [8–10].

In their rescue and firefighting operations, firefighters may come into contact with firearms. It may pose a risk to rescuers due to the possibility of inserting a cartridge into the cartridge chamber, or firearms may be in the hands of a victim in an incident. There are active hunting districts in numerous counties in Poland, namely 4771, with a total area of over 25.5 thousand hectares. There are sports, hunting, commercial, and private shooting ranges. Shooting ranges located in cities are often closed, i.e. built up. The number of counties and cities with county rights is 379, while the number of shooting ranges operating in Poland is 464 [11, 12].

TCCC involves tactical care for a casualty in combat conditions (an armed incident). Knowledge of the TCCC assumptions is essential when operating in such conditions. This is of particular importance during rescue operations [13–15].

Based on the TCCC, the Tactical Emergency Casualty Care (TECC) concept was developed, targeting non-military operations conducted by armed public service formations. However, it is not a universal concept, as it represents a partial conversion of TCCC to the realities of a tactical civil environment but does not address the needs of unarmed entities [16].

Purpose of the study

Obtaining information on the knowledge of persons serving in Fire Protection Units (FPU) in safety in incidents with firearms and firearms ammunition, the risk of their use (suicide attempt), their use (active shooter), effects of such use, or consequences of use in the practice of firefighters (treating the injured).

MATERIAL AND METHODS

228 people took part in an anonymous survey. The study was addressed to both SFS and VFB. The research tool was a proprietary questionnaire composed of 10 questions. The questionnaire was made available to respondents online using Google Forms. The research was carried out from 26 February 2022 to 10 April 2022. In February (1–10) 2022, a pilot study was performed in a randomly selected rescue and firefighting unit (RFU) in the Dolnośląskie Province to determine whether all questions were comprehensible. The survey consists of two parts: a metric (profile of each firefighter, age, length of service) and the practical part of the survey assessing the level of knowledge.

The obtained samples were subjected to statistical analysis. The data of the officers were fully anonymous, and participation in the survey was voluntary, of which the respondents were informed. The described cases are fully anonymous, the analysis complies with the principles of the Helsinki Declaration and did not require the consent of the bioethics committee.

The questions contained in the survey are intended to test the knowledge of general concepts and principles and to subjectively assess one's knowledge and skills. The survey was divided among firefighters of the SFS and VFB. The questions are followed by the correct answers along with the value of the choice of this answer by the respondents. In addition, the answer "I don't know" was introduced — as an indicator of firefighters' awareness of their deficits in a particular issue. The remaining responses are a set of answers placed in the survey as incorrect.

Characteristics of the research area

There are 32.8 thousand people serving in the SFS, including almost 7.7 thousand serving in the daily system (8 hours), and over 25,000 working in a shift mode. In addition, there are about 700 thousand scout members of the VFB, among whom 228 thousand are entitled to directly participate in rescue and firefighting operations [17, 18].

Research inclusion criteria

228 individuals voluntarily took their time to complete the online survey.

Incorrect and incomplete completion of the questionnaire was excluded from the research group — the electronic sheet was designed so as not to save any incorrect and incomplete questionnaires.

Statistical analysis

Qualitative variables (age, sex) were presented as quantity (n) and percentage values of the whole group (%), while proportions in groups were assessed with a Chi-squared test. Statistica 13 software (StatSoft Inc., Tulsa, OK, USA) was used in the

statistical analysis. $P < 0.05$ was adopted as the significance level.

Limitations

Our study had some limitations:

1. In terms of the questionnaire — small sample size;
2. The survey was not sent to a specific sample, it was generally available to everyone, and the population achieved in the study was related to the number of people willing to take part in the study. The population could be many times larger if the authors obtained consent and assistance in distributing the SFS General Headquarters to other voivodeships, which may be a concept for the future. Actually, the survey achieved only a local rate;
3. Absence of systemic training and tools to assess the level of knowledge in handling firearms, and the hazards associated with firearms and ammunition.

RESULTS

Two hundred twenty eight firefighters participated in the survey. Table 2 presents the results of the metrics and the results of the answers checking the knowledge of firearms, which is the main purpose of the paper.

The statistical analysis showed that the SFS firefighters significantly more often had higher education (Bachelor/Master) degrees than firefighters of the VFB (64% vs 23%; $P < 0.001$). In the question checking the knowledge of the TCCC definition, it was shown that SFS statistically significantly more often indicated the correct answer, i.e. "Strategy for dealing with the casualty on the battlefield" (61% vs 64%, $p = 0.020$). In the question checking the knowledge of the possibility of sending firearms and ammunition, VFB firemen statistically significantly more often indicated the answer that it is absolutely forbidden (79% vs 58%, $p = 0.032$). In the question regarding the self-assessment of the ability to secure a potentially loaded firearm, it was shown that the assessed skill improved statistically significantly with age ($p = 0.030$). The statistical analysis also showed that the type of service performed (VFB vs SFS) had an impact on the knowledge of procedures in terms of stopping hemorrhage ($p = 0.025$) and securing firearms ($p = 0.037$). In addition, a statistically significant effect of age on the knowledge of procedures related to the protection of armed victims in a traffic accident was demonstrated ($p = 0.025$).

DISCUSSION

Knowledge of the TCCC assumptions, and helping the injured on the battlefield is of essence. The main assumption is to continue the fight, responding with fire, which pertains not only to members of a militarized group, regardless of the formation (unit), but also to its wounded members. The activities of such a formation are aimed at the intended goal. It is a concept far different from that of the civil rescue. In the case of unarmed formations, which are appointed and thus trained to remove the effects of incidents, this concept cannot be implemented. Unarmed rescue formations may be unable to properly recognize threats and take action in the rescue doctrine characteristic of armed formations. Currently, rescue concepts are based on the TCCC assumptions, including the Committee for Tactical Emergency Casualty Care (C-TECC) concepts dedicated to civilian circumstances, where the recommendations for unarmed services operating in the "hot" zone, i.e. under fire, are correctly focused on avoiding exposure by seeking cover or escaping from fire [19, 20].

The results of our survey indicate that firefighters, as unarmed uniformed formations, do not have sufficient knowledge regarding the occurrence of situations when they get within the firing range of firearms. Especially in situations where the knowledge of the ballistic impact of a projectile on a person and indirectly on the environment, e.g. potential shields, is not an obligatory training program for these rescuers [21, 22].

Experiences on the modern battlefield have provided a lot of data related to survival, where self-assistance and first aid rendered by rescuers or witnesses of the incident significantly improve the survival rate if adequate recommendations are followed [23].

The term active shooter is used to describe an aggressor in the active phase of an attack with the use of firearms against people. Such an attack may take many forms, from entering a public facility to occupying a high position. Knowledge of the term "active shooter" seems to be important when firefighters find themselves in such a situation or are sent to potential actions by the leading service.

Table 2. General characteristics of respondents' knowledge

	Age			p	Service		p	Totals
	18–29	30–39	40 and more		WFB	SFS		
Education, n (%)								
Higher — engineering	16 (28)	29 (35)	16 (18)	0,001	8 (14)	53 (31)	< 0.001	61
Medium	36 (63)	31 (37)	36 (41)		40 (71)	63 (37)		103
Higher — master	5 (9)	23 (27)	33 (38)		5 (9)	56 (33)		61
Basic	0	1 (1)	2 (2)		3 (5)	0		3
Length of service, n (%)								
0–3	15 (26)	3 (4)	2 (2)	< 0.001	12 (21)	8 (5)	< 0.001	20
3–9	41 (72)	16 (19)	4 (5)		21 (38)	40 (23)		61
10–19	1 (2)	58 (69)	39 (45)		11 (20)	87 (51)		98
20–29	0	7 (8)	34 (39)		5 (9)	36 (21)		41
30 and more	0	0	8 (9)		7 (13)	1 (1)		8
Type of service, n (%)								
Volunteer Fire Brigade	24 (43)	18 (32)	14 (25)	0.001	–	–		56
State Fire Service	33 (19)	66 (38)	73 (43)		–	–		172
Q1: TCCC (tactical combat casualty care) what is this: n (%)								
Tactics of rescuing hostages from closed facilities	4 (7)	2 (2)	1 (1)	0.107	4 (7)	3 (2)	0.020	7
Strategy for dealing with the casualty on the battlefield	39 (68)	50 (60)	55 (63)		34 (61)	110 (64)		144
Strategy for dealing with CBRNE events	4 (7)	2 (2)	3 (4)		5 (9)	4 (2)		9
Don't know	10 (18)	30 (36)	28 (32)		13 (23)	55 (32)		68
Q2: Active shooter is: n (%)								
An armed soldier in firing position	12 (21)	10 (12)	21 (24)	0.314	12 (21)	31 (18)	0.653	43
A person firing a firearm at people	19 (33)	33 (39)	28 (32)		21 (38)	59 (34)		80
Any armed person potentially able to open fire	19 (33)	22 (26)	23 (26)		16 (29)	48 (28)		64
Don't know	7 (12)	19 (23)	15 (17)		7 (13)	34 (20)		41
Q3: You have been sent to a traffic accident. During your arrival, you recognise that the event is an active armed clash (ongoing firefight). You will proceed as follows: n (%)								
Determining the identity of the commander of military operations on the part of the Polish services, notifying him of your readiness to take action and submitting a radio report to the management duty officer.	29 (51)	33 (39)	25 (29)	0.068	25 (45)	62 (36)	0.417	87
Taking action to save the lives of people injured in the event after prior notification of deviation from the rules generally accepted as safe	6 (11)	9 (11)	21 (24)		10 (18)	26 (15)		36
Withdrawing from the scene of the incident and reporting the situation to the management duty officer	19 (33)	36 (43)	36 (41)		17 (30)	74 (43)		91
Don't know	3 (5)	6 (7)	5 (6)		4 (7)	10 (6)		14
Q4: Your team arrived at the scene in a rescue and firefighting vehicle. This vehicle is shot at with firearms. In such a situation, you should: n (%)								
Immediately turn around and drive away from the scene	14 (25)	13 (16)	28 (32)	0.131	12 (21)	43 (25)	0.688	55
Immediately leave the vehicle from the side opposite to the direction of fire and hide behind it, preferably behind the wheels of the vehicle or other architectural or natural objects	32 (56)	45 (54)	44 (51)		28 (50)	93 (54)		121

→

Table 2. cont. General characteristics of respondents' knowledge

	Age			p	Service		p	Totals
	18–29	30–39	40 and more		WFB	SFS		
Immediately leave the vehicle from the side opposite to the direction of fire and run in dispersal to the nearest construction objects	5 (9)	15 (18)	7(8)		8 (14)	19 (11)		25
Don't know	6 (11)	11 (13)	8 (9)		8 (14)	17 (10)		27
Q5: Fast and effective methods of haemorrhage control recommended in field conditions: n (%)								
Tactical tourniquet, occlusive and haemotactic dressings.	15 (26)	16 (19)	27 (31)	0.311	11 (20)	47 (27)	0.025	58
Tactical tourniquet, haemostatic dressings	6 (11)	11 (13)	13 (15)		12 (21)	18 (11)		30
Elevation of the limb, direct pressure on the wound and a pressure dressing	17 (30)	23 (27)	25 (29)		21 (38)	44 (26)		65
Tactical tourniquet, occlusive and haemotactic dressings	19 (33)	30 (36)	18 (21)		12 (21)	55 (32)		67
Don't know	0	4 (5)	4 (5)		0	8 (5)		8
Q6: Your team arrives at a traffic accident where two soldiers are injured. They are in the vehicle in a sitting position. On the AVPU scale, the consciousness is "P" in the first soldier and "U" in the other. There are no Police or Military Police on site. There are no other hazards. You should:								
Secure the scene, including disarm the injured, provide qualified first aid	40 (70)	49 (58)	43 (49)	0.025	36 (64)	96 (56)	0.332	132
Secure the scene, provide qualified first aid without disarming the soldiers	14 (25)	23 (27)	37 (43)		13 (23)	61 (36)		
Secure the scene but do not take any action until the arrival of the Police or Military Police	3 (5)	4 (5)	1 (1)		2 (4)	6 (4)		
Don't know	0	8 (10)	6 (7)		5 (9)	9 (5)		
Q7: Your team arrives at the fire of a military vehicle with soldiers inside. The victims are unconscious. There are no Police or Military Police on site. There are no other hazards. You should:								
Secure the scene, including disarming, evacuating and then providing assistance to the injured	30 (53)	43 (51)	37 (43)	0.649	31 (55)	79 (46)	0.333	110
Secure the scene, evacuate the soldiers without disarming them, and then provide assistance	22 (39)	29 (35)	41 (47)		18 (32)	74 (43)		92
Secure the scene but do not take any action until the arrival of the Police or Military Police	2 (4)	3 (4)	2 (2)		3 (5)	4 (2)		7
Don't know	3 (5)	9 (11)	7 (8)		4 (7)	15 (9)		19
Q8: In accordance with the law in Poland, sending firearms and ammunition using postal operator (e.g. courier) services is:								
Absolutely forbidden	40 (70)	54 (64)	49 (56)	0.072	44 (79)	99 (58)	0.032	143
Permitted if the postal operator provides such services	5 (9)	6 (7)	15 (17)		4 (7)	22 (13)		
Permitted, provided that the shipment cannot be unsealed by unauthorised persons	2 (4)	5 (6)	0		0	7 (4)		
Don't know	10 (18)	19 (23)	23 (26)		8 (14)	44 (26)		

→

Table 2. cont. General characteristics of respondents' knowledge

	Age			p	Service		p	Totals
	18–29	30–39	40 and more		WFB	SFS		
Q9: Can firefighters participating in rescue and firefighting operations secure dangerous materials and tools, including firearms and ammunition, e.g. by moving them to a firefighting vehicle or another place?:								
Firefighters may only secure facilities or areas	21 (37)	27 (32)	17 (20)	0.301	23 (41)	42 (24)	0.037	65
This is stipulated in §1 section 1 point 6 of the Regulation of the Council of Ministers on powers of the head of the rescue operation of 4 July 1992, Journal of Laws of 1992 No. 54, item 259	11 (19)	12 (14)	15 (17)		11 (20)	27 (16)		38
Don't know	18 (32)	33 (39)	41 (47)		18 (32)	74 (43)		92
This issue is not regulated by law	7 (12)	12 (14)	14 (16)		4 (7)	29 (17)		33
Q10: How do you assess your preparation for securing potentially loaded firearms, *i.e.* types of handguns and long guns?, n (%)								
Bad — I do not know the safety rules in using, securing and operating firearms.	16 (28)	30 (36)	18 (21)	0.030	13 (23)	51 (30)	0.348	64
Poor — I am aware of the basic safety rules but I do not know how to use firearms.	25 (44)	25 (30)	23 (26)		17 (30)	56 (33)		73
Good — I am aware of how to handle basic types of firearms	13 (23)	26 (31)	38 (44)		20 (36)	57 (33)		77
Very good — I am proficient in handling all types of firearms	3 (5)	3 (4)	8 (9)		6 (11)	8 (5)		14

Q1–Q10 — questions included in the survey

Securing the scene of the event (question 6) involves, among others, disarming the injured. This is essential as injury and loss of blood may lead to unconsciousness in the casualty. There is a real threat of using firearms, knives, or explosives against rescuers by the injured with impaired consciousness. Even if the injured are unconscious, it is necessary to disarm them because the actions of rescuers will be aimed at improving the condition of the victim, immediately after regaining consciousness, the armed victim will not have the ability to critically and realistically assess the situation. Figure 1 presents selected methods of securing firearms or signaling their unloading.

Two sections of Article 36 of the Act on Weapons and Ammunition are crucial: section 1. Shipment of weapons or ammunition via operators providing postal services is allowed, on condition that they provide such services. Section 2. Shipment of weapons or ammunition via entities other than those specified in section 1 is prohibited [24].

During the flare-up of the armed conflict in Ukraine, the traffic of weapons, including arms and ammunition, intensified. An additional aspect is a significant increase in the number of gun permits issued. According to the Police, in 2021, almost 20 thousand gun permits were issued, whereby the increase compared to previous years is 4 thousand permits. This entails that in houses and flats and in traffic, the number of people with guns and ammunition is growing. These data refer to persons legally possessing firearms and ammunition, where in total 760,218 units of firearms were registered in the hands of civilians, mainly professionally connected with the military, as well as athletes and hunters [5].

A separate group of legal owners of firearms is black powder (cartridge) shooters, where no registration or firearms permit is required for black powder firearms (i.e. historic firearms designed before 1885) and their modern replicas. According to estimates, the number of black powder weapons in private hands is 300–600 thousand units. Due to the fact that their possession does not require any registration, specifying the exact amount is impossible. In the case of people with black powder weapons, there is a risk that they also have black (smoke)

FIGURE 1. Professional and improvised methods of securing firearms; **A.** An example of securing the 7.62 mm AKMS rifle by locking the slide and the magazine well with a bicycle padlock; **B.** An example of securing the CZ P-09 pistol cal. 9 mm with a padlock dedicated to securing weapons as above; **C.** An example of a short safety indicator in the CZ P-09 pistol, cal. 9 mm, blocking the movement of the bolt and the insertion of the round into the chamber; **D.** An example of a safety indicator on a Ruger Security Six revolver cal. .357 mag. blocking the possibility of the firing pin hitting the cartridge primer (Source: authors' private archive)

powder, which, due to the lack of knowledge of regulations and safety rules by users, may be stored in inappropriate conditions [24].

According to the current legal status in Poland, a firearm may be lent (transferred for use) only to a person holding an adequate firearms permit. Article 28 of the Act on Weapons and Ammunition applies only to sport shooters and hunters. This means that the law does not provide for other possibilities of handing over firearms, especially to rescuers or services providing assistance to victims who are physically accompanied by firearms. The storage of firearms in Poland is governed by the provisions of the Regulation of the Minister of Internal Affairs of 26 August 2014 on the storage, carrying, and recording of weapons and ammunition (Journal of Laws of 2014, item 1224). This regulation requires the storage of firearms and ammunition in at least class S1 cabinets (common names are "armored cabinet" or "safe"). These two statutes constitute a serious dissonance between the law itself and the actual safety of rescuers in the context of disarming the victim, moving firearms, and securing them [25, 26].

While the data from the survey are declarative, it seems unlikely that such a percentage of firefighters would have knowledge and skills related to firearms. It should be noted that military training or service in an armed uniformed formation rarely gives the opportunity to acquire extensive knowledge in the subject area. Service in an armed formation usually limits the possibility of training in the use of one or two types of weapons in the option of the adopted standard of the formation. Differences in survey results between professional firefighters and VFB members may arise from differences in training. Only SFS units carry out intensive training for their

profession and continuous professional development, which is a systematic process described in official documentation containing: schedule, topics, and time devoted.

In question 10, 49.7% of VFB members said they were very well or well prepared to secure firearms. The authors of the article note in such declarations the risk of overestimating one's own capabilities. While the authors assess these respondents' answers subjectively, their assessment is based on practical instructor experience in the area of shooting.

CONCLUSIONS

Firefighters' knowledge of safety rules in incidents involving firearms is insufficient. Completion of a course in qualified first aid, professional development covering only TCCC issues, and military service for firefighters are insufficient during activities where there is a risk of contact with firearms and ammunition. Firefighters do not use TCCC safety considerations against an armed casualty when the event is a fire incident. Firefighters presented a low level of knowledge of current legal regulations with regard to the possession, transport, and protection of firearms and ammunition. Firefighters subjectively declare very good or good knowledge of securing loaded firearms, which may be related to military or civil shooting training.

Article information and declarations

Data availability statement

Original contributions presented in the study are included in the article — section 'Results'. The data that support the findings of this study are available from the corresponding author, Ł.Cz, upon reasonable request.

Ethics statement

The described cases are fully anonymous, the analysis complies with the principles of the Helsinki Declaration and did not require the consent of the bioethics committee.

Author contributions

Rafał Kasperczyk — A, B, D
Łukasz Dudziński — B, D, E
Łukasz Czyżewski — B, C, E, F
A — Work concept and design
B — Data collection and analysis
C — Responsibility for statistical analysis
D — Writing the article
E — Critical review
F — Final approval of the article.

Funding

None.

Acknowledgments

The authors would thank to the rescue and firefighting unit (RFU) in the Dolnośląskie Province.

Conflict of interest

The authors declare no conflicts of interest.

REFERENCES

1. Ministerstwo Sportu i Turystyki. Ministerstwo Sportu i Turystyki. Wystartował Program Upowszechniania Strzelectwa dla grupy wiekowej 18-26 lat. https://www.gov.pl/web/sport/wystartowal-program-upowszechniania-strzelectwa-dla-grupy-wiekowej-18-26-lat (4.07.2023).
2. Ministerstwo Spraw Zagranicznych. Eksport uzbrojenia i sprzętu wojskowego z Polski. Raport za rok 2021. https://www.gov.pl/web/dyplomacja/eksport-uzbrojenia-i-sprzetu- wojskowego-z-polski-raport-za-rok-2021 (14.07.2023).
3. Trade — European Commission. https://trade.ec.europa.eu/access-to-markets/pl/statistics (14.07.2023).
4. Statystyka Policji. Broń — pozwolenia. https://statystyka.policja.pl/st/wybrane-statystyki/bron/186394,bron-pozwolenia.html (14.07.2023).
5. Obwieszczenie Marszałka Sejmu Rzeczypospolitej Polskiej z dnia 22 lipca 2022 r. w sprawie ogłoszenia jednolitego tekstu ustawy o Państwowym Ratownictwie Medycznym (Dz.U. 2022 poz. 1720 ze zm.). https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20220001720 (14.07.2023).
6. Air medical rescue teams. www.gov.pl/web/zdrowie/lotnicze-zespoly-ratownictwa-medycznego (10.10.2023).
7. Ustawa z dn. 8 września 2006 r. o Państwowym Ratownictwie Medycznym. Dz.U.2006.191.1410. https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu20061911410 (14.07.2023).
8. Ustawa z dnia 24 sierpnia 1991 r. o Państwowej Straży Pożarnej (Dz.U. 1991 nr 88 poz. 400 ze zm.). https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU19910880400 (14.07.2023).
9. Ustawa z dnia 24 sierpnia 1991 r. o ochronie przeciwpożarowej (Dz.U. 1991 Nr 81 poz. 351 ze zm.). https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU19910810351 (14.07.2023).
10. Rozporządzenie Ministra Spraw Wewnętrznych i Administracji z dnia 17 września 2021 r. w sprawie szczegółowej organizacji krajowego systemu ratowniczo-gaśniczego (Dz.U. 2021 poz. 1737). https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20210001737 (14.07.2023).

11. Polski Związek Łowiecki — Koła i członkowie PZŁ oraz obwody łowieckie. https://old.pzlow.pl/palio/html.run?_Instance=www.pzlow.pl&_PageID=120&_RowID=323&_CheckSum=1653013652 (19.07.2023).
12. Mapa Strzelnic w Polsce. https://gdziestrzelac.eu/mapa-strzelnic (19.07.2023).
13. Brayford-Harris S, Mattock N, Barrett A, et al. Public order medicine: an operational sub-speciality within UK high threat medicine. JHTAM. 2023; 5(1): 17–26, doi: 10.33235/JHTAM.5.1.17-26.
14. Taktyczna pomoc poszkodowanym na polu walki. Wojskowe Centrum Kształcenia Podyplomowego. https://wckmed.wp.mil.pl/u/WYTYCZNE_TCCC_2021_12_15 (14.07.2023).
15. Combat LifeSaver Course. https://wckmed.wp.mil.pl/u/MATERIAŁY_DLA_KURSU_CLS (14.07.2023).
16. Tactical Emergency Casualty Care (TECC): Guidelines for the provision of prehospipal Trauma Care in high threat environmenes. Tactical Emergency Casualty Care (TECC): Guidelines for the provision of prehospipal Trauma Care in high threat environmenes. (10.10.2023).
17. Biuletyny Informacyjne PSP — roczne. Komenda Główna Państwowej Straży Pożarnej. https://www.gov.pl/web/kgpsp/biuletyny-informacyjne-psp-roczne (14.07.2023).
18. Marcysiak T. Ochotnicza Straż Pożarna w Polsce — czynniki determinujące wymianę pokoleń. Wieś i Rolnictwo. 2021; 2(191): 107–129, doi: 10.53098/wir022021/05.
19. First Responder Guide for Improving Survivability in Improvised Explosive Device and/or Active Shooter Incidents. Committee for Tactical Emergency Casualty Care (C-TECC). https://www.ctecc.org/images/content/First_Responder_Guidance_June_2015_FINAL_2.0 (15.07.2023).
20. Callaway D, Smith E, Shapiro G, et al. Evolution and application of TCCC guidelines to civilian high threat medicine. Journal of Special Operations Medicine. 2011; 11(2): 94–99.
21. Piecuch T. Rana postrzałowa. PZWL, Warszawa 2019: 1–141.
22. W zawodzie strażak. Komenda Główna Państwowej Straży Pożarnej. https://www.gov.pl/web/kgpsp/w-zawodzie-strazak (15.07.2023).
23. Miftadinow M, Gajowniczek K, Leszczyński P. Comparison of the effectiveness of CAT and SOFTT tourniquets — a pilot study. Critical Care Innovations. 2023; 6(2): 32–40.
24. Ustawa z dnia 21 maja 1999 r. o broni i amunicji (Dz. U. 1999 Nr 53 poz. 549). https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu19990530549 (15.07.2023).
25. Rozporządzenie Ministra Spraw Wewnętrznych z dnia 24 sierpnia 2012 r. w sprawie szczegółowego trybu i warunków przesyłania broni lub amunicji za pośrednictwem operatorów świadczących usługi pocztowe (Dz.U. 2012 poz. 1004). https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20120001004 (15.07.2023).
26. Rozporządzenie Ministra Spraw Wewnętrznych z dnia 26 sierpnia 2014 r. w sprawie przechowywania, noszenia oraz ewidencjonowania broni i amunicji (Dz.U. 2014 poz. 1224). https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20140001224 (15.07.2023).