The Adaptation of Legal Regulation Regarding the Circulation of Weapons in Ukraine to the New Challenges Posed by the State of War

Hryhorii Dzhahupov[1], Yaroslav Kovalenko[2],

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Abstract. The onset of the full-scale invasion by the Russian Federation into Ukrainian territory and the imposition of martial law in Ukraine have necessitated the reconsideration of many issues, including the legal regulation of arms circulation within Ukraine, highlighting the relevance of this publication's topic. The study aims to comprehensively review the legal regulation of various weapons types from national and international legislative perspectives. The study employed methods such as content and document analysis of scientific works. The publication examines the "arms circulation" concept from doctrinal and regulatory-legal viewpoints. It characterises three primary documents regulating the use of firearms under martial law in Ukraine, concluding that the Ukrainian legislator has responded adequately to the new factual circumstances in the region. The paper also highlights cases of the occupier's use of weapons prohibited by international legal instruments, describing their types. The situation of arms trafficking across Ukraine's borders, including so-called "contraband" cases, is systematically reviewed. The article comprehensively addresses the thesis that the absence of a direct legal prohibition on the use of nuclear weapons does not imply that international law fails to regulate nuclear weapons. Additionally, the issue of cybersecurity is discussed. The work's scientific value lies in the fact that, for the first time, the legal regulation of a wide variety of weapons has been systematically studied. The work's practical value is identifying gaps that need to be addressed regarding the legal regulation of arms circulation in response to the challenges of martial law.

Keywords: Cybersecurity, full-scale invasion, Geneva Conventions, legal technique, smuggling.

INTRODUCTION

In general, the issue of the legal regulation of arms circulation under martial law is highly relevant. This pertains to various weapons, from firearms to nuclear and cyber weapons. We will illustrate the importance of this issue using the example of cybersecurity under martial law. In 2024, martial law and remote work conditions emphasise the significance of combating cyberattacks as a priority task in all areas of state activity. Particular attention should be given to cybersecurity, legal support, and strengthening security guarantees across all sectors. This will contribute to a better understanding of security aspects and enhance information resilience.

The relevance of this research is determined by several factors related to the current challenges and threats faced by the state in times of war. First, martial law requires

[1] Hryhorii Dzhahupov
PhD in Law, Professor, Deputy Dean of the Faculty 3 in Educational and Methodological Work, Kharkiv National University of Internal Affairs, Kharkiv, Ukraine, http://orcid.org/0000-0003-4443-9114
[2] Yaroslav Kovalenko
Lecturer of the Department of Administrative and Legal Disciplines of the Faculty №2, Donetsk State University of Internal Affairs, Kropyvnytskyi, Ukraine, https://orcid.org/0009-0006-1037-282X

effective legal regulation of arms circulation to ensure national security and public order. The issue of legal access to and use of weapons becomes critical in the context of defending state sovereignty and territorial integrity. Second, the current situation presents new challenges for Ukraine's legislative framework regulating arms circulation. The need for prompt response to changes in the military situation calls for a review of existing laws and the development of new legal acts that address the state's and its citizens' current needs regarding security. Third, adapting legal regulation to new conditions is an essential factor in preventing illegal arms circulation, which could lead to increased criminal activity, higher risks of terrorist acts, and destabilisation of the internal situation in the country. Thus, the relevance of the chosen research topic is indisputable.

The issue of strategic weapons was addressed by Damrosch (2019). Perlroth (2021) examines the cyber weapons market as the most secretive state-backed arms market and cyber weapons themselves as one of the most effective types of modern weapons. Aquilina et al. (2022) specialise in quantitative assessments of the "arms race" in the context of trade. Aquilina et al. (2022) researched from the perspective of "latent arbitrage." Greenspan's (1959) book on the modern law of land warfare is also noteworthy. Similarly, attention should be drawn to Gazzini's (2022) work on changes in the rules governing the use of force in international law. Hill (2024) devoted his work to maritime weapons, examining the history of naval control measures before World War I and critically describing the objectives of marine power and concepts of disarmament, peace zones, parity, inspection possibilities, and peaceful coexistence.

This scientific work aims to provide a comprehensive review of the current state of legal regulation of weapons in Ukraine, highlighting the shortcomings of such regulation, describing issues, and offering proposals for improving the existing legislation. The scope of interest of the study encompasses several critical aspects related to ensuring national security and public order in the context of armed conflict. The main areas of this research include an analysis of Ukraine's current legislation on arms circulation, particularly its relevance to the modern challenges and threats arising under martial law. This involves examining the legal framework regulating access to weapons, storage, transportation, and use and studying international experience regulating arms circulation under martial law or similar emergencies. Analysing successful practices from other countries will help understand which mechanisms can be adapted to Ukrainian realities and evaluate the effectiveness of the existing control mechanisms over arms circulation in Ukraine during martial law. This research is limited by its scope (legal regulation), subject matter (weapons), territory (Ukraine), and period (from the start of martial law to the present).

Many modern scientific works address the issue of weapons from sociological or political economy perspectives rather than legal ones. Thus, Ukraine's legal regulation of arms circulation has been scarcely studied. It is also important to note that the issues of legal regulation of arms circulation during martial law at the national level of Ukraine, including firearms, the prosecution of the occupying state for the use of weapons prohibited by international legal instruments, an accurate assessment of crimes related to arms smuggling, and the legal regulation of the use of nuclear and cyber weapons remain unresolved. Given the issues outlined above, the chosen research topic offers broad opportunities for scholarly investigation.

The research aims to comprehensively review the legal regulation of various weapons from national and international legislative perspectives. To achieve this goal, the following questions can be formulated: What is the current state of legal regulation of Ukrainians' firearms ownership? How is the use of nuclear weapons regulated at the international legal level? To evaluate the current legal regulation of the use of cyber weapons in Ukraine.

The following research hypotheses can be formulated: the state of legal regulation of Ukrainians' ownership of firearms is satisfactory; the use of nuclear weapons at the international legal level is thoroughly regulated; and the current legal regulation of cyber weapons is sufficient.

LITERATURE REVIEW

Overall, existing scientific research on the topic of this publication can be divided into four groups: 1) researchers focused on firearms regulation; 2) researchers examining the weapons market; 3) researchers addressing armaments issues; 4) other questions raised in the scientific literature.

Let's begin with the first group of existing studies on firearms circulation. The survey by Blocher and Charles (2020) is of scientific value and addresses extreme risks and the legal regulation of firearms. The researchers argue that Extreme Risk Protection Order laws, often referred to as "red flag" laws, allow firearms to be denied to individuals deemed by a judge to pose an immediate risk of harming themselves or others. Crifasi et al. (2019) are specialists in policies preventing the illegal acquisition of firearms, particularly their impact on the diversion of guns for criminal use, violence, and suicides. Johnson et al. (2021) reviewed the Firearm Act and the Second Amendment in legal and political regulation contexts.

Webster et al. (2020) authored a publication on evidence regarding the regulation of firearms design, sales, and mass shootings with fatal outcomes in the United States. Schell's (2020) publication focuses on changes in firearm mortality after the enactment of state laws regulating access to and use of firearms.

The banditry aspects of the weapons market were discussed in the conference proceedings of Liu et al. (2020). The researchers studied centralised and decentralised approaches to this issue, highlighting surprising trade-offs between intelligence and weapons exploitation. De Paiva and Garcia's (2021) work is also interesting, providing insights into the "open arms" program, its understanding, concepts, principles, and features. Brooks (2020) raised the question: has gun control ended?

The second group of studies relates to the weapons market. Marsh and Pinson (2021) explored the weapons market, providing a review of the illicit trafficking of small arms, light weapons, and ammunition, as well as conducting relevant research. They describe two implicit debates in the science of weapons availability, explaining the various forms of arms trade (including entirely illicit transfers and those involving government participation), the likely scale, and the supply and demand of illegal arms trafficking. Since weapons are durable goods and suitable for trade, once they are diverted to the illicit market, they create a pool of illegal firearms that can re-emerge until removed by government action.

Tan (2023) examined global arms trade dynamics, focusing on key trends in defence spending and significant characteristics of global arms build-up, such as a growing emphasis on technologically sophisticated weapon systems, naval power, and the proliferation of small arms and light weapons. Tan (2023) also analysed the reasons for arms build-ups, such as rapid technological development, economic growth, the pursuit of prestige, corruption, and ongoing interstate tensions. Tan (2023) evaluated international arms control, its main challenges, and prospects.

Mbugua's (2020) doctoral dissertation investigates the impact of international arms trade on African peace and security, using Somalia and Kenya as case studies. Mbugua (2020) comprehensively describes the factors shaping Somalia and Kenya's global arms trade market.

The third group of researchers focused on armaments in their works. Wolfsthal (2020) described the reasons for arms control, noting that one tool that has proven valuable in reducing the risks of nuclear use and setting rules for current nuclear competition has been agreed, legally binding, and verifiable arms control agreements.

Tuchman (2019) addressed alternatives to arms control. One of the critical challenges with nuclear arms control, Tuchman (2019) notes, is that it is almost incomprehensible to non-experts. In 1932, the League's efforts to control arms culminated in a significant disarmament conference of fifty-nine nations in Geneva. General security was recognised as a prerequisite for disarmament, and sanctions against aggressors were deemed necessary for security. Still, no nation was ready to trust the system until disarmament.

Booth's (2021) fundamental work addresses disarmament and arms control. Booth (2021) distinguishes between disarmament and arms control, noting that disarmament involves reducing military means to continue policy, while arms control entails mutual limitations on military means. The field of disarmament and arms control has been a site for compelling interactions between optimism and pessimism,

realism and utopianism, naivety and sophistication, as well as fascination and disappointment, which characterise thinking about peace and security in the nuclear age.

Sauer's (2020) work raised the question of why multilateral regulation of weapons systems' autonomy is challenging but necessary and feasible. The article explains that regulating weapons autonomy, which entails codifying a legally binding obligation to maintain meaningful human control over the use of force, is difficult within the UN Convention on Certain Conventional Weapons framework. Sauer (2020) argues this regulation is mandatory because the strategic and ethical risks outweigh the military advantages of complete weapons autonomy.

Finally, this paper reflects the fourth group of researchers who addressed other weapons-related issues. Hartley (2021) described NATO collaboration from economic and political perspectives, concluding that economic arguments are most acceptable for weapons standardisation. Thurner et al. (2019) explored the interdependence of networks and the evolution of the international arms trade market. Based on a political-economic model of weapons supply, Thurner et al. (2019) proposed a new, network-oriented explanation of global operations with primary conventional weapons. Catrina's (2021) fundamental work addresses arms transfers and dependency in this field, analysing various types of dependency and comparing the strengthening of military capabilities resulting from arms transfers and the dependency caused by such transfers.

Pinto and Santos (2019) conducted a comprehensive survey on demystifying weapons, noting that the world is experiencing an unprecedented technological transformation. It is evolving towards a state where ubiquitous "things" with internet support can generate and exchange large volumes of data sensitive to security and privacy.

Grillo (2021) focused on how America is arming gangs and cartels. Interestingly, the book's title features "money from guns." Murphy (2020) revealed the prospects for the political economy of the modern defence industry in the UK, discussing how the arms trade continues to receive generous state subsidies and less direct forms of financial and intellectual support in the UK. Murphy (2020) also explores how arms trade contributes to human rights violations in the Middle East, North Africa, South America, Indochina, and other conflict-intense regions.

Thus, the scientific literature has not yet addressed the issue of a comprehensive and systematic examination of the legal regulation of arms circulation during martial law. While many studies focus on topics such as arms control, nuclear weapons, firearms, arms trade, and the weapons market, they each address only one aspect of this topic.

In terms of our research, unresolved questions remain regarding the legal regulation of arms during martial law, specifically in Ukraine, as a general issue, as well as the legal regulation of firearms, the legal assessment of cases of prohibited weapon use by the occupier under international law, the actual state of arms smuggling in Ukraine, international legal regulation of nuclear weapons, and improving cybersecurity in Ukraine as specific issues.

RESEARCH METHODOLOGY

The rationale for conducting scientific research on the adaptation of legal regulation of arms circulation in Ukraine to the new challenges posed by martial law arises from the need to fill existing gaps in the doctrinal literature on this subject and its relevance. In our work, we addressed both national and international legal frameworks to comprehensively examine arms circulation in Ukraine during martial law from a legal perspective. Additionally, we reviewed theoretical sources (mainly articles and monographs) related to the topic of the publication. Throughout the study, we applied quantitative research methods such as content analysis of scholarly works and document analysis. This approach enabled us to achieve the objectives of the research.

For instance, the study utilised statistical data on the number of Ukrainians and their attitudes toward legalising firearms. The search for scientific sources was conducted using the Google Scholar scientometric database, focusing on keywords such as "arms market," "arms smuggling," "armament," "cyber weapons," and "legal regulation of weapons circulation." The time range covered publications from 2017 to 2022, primarily relying on English-language

sources. Sources from the aggressor states of the Russian Federation and the Republic of Belarus were not used.

The content analysis of scholarly works allowed us to identify and systematise scientific findings on the subject, highlighting unresolved aspects of the issue. Document analysis helped shed light on the current regulations governing arms circulation in Ukraine during martial law. Based on the analysis of the collected information, scientifically grounded conclusions were drawn regarding the state of legal regulation of arms circulation in Ukraine under martial law, as well as its effectiveness and adequacy in addressing new challenges.

RESULTS

The term "circulation" is used to describe the "use" or "application" of something. However, in the context of arms, "circulation" does not include their intended use, such as destroying a living target. The circulation of arms is defined as the process of production, subsequent transfer from a state producer or a producer with criminal ties to a lawful or unlawful consumer (citizens who have acquired weapons for collection, self-defence, etc., or who have acquired weapons illegally, criminals), as well as maintaining them in working condition, transferring ownership from one individual to others, and other related aspects, including destruction. The physical alteration of weapons (modification, manufacturing), their spatial transfer (transportation, carrying), social transfer (change of ownership), and temporary movement (storage) all have legal implications that influence the qualification of specific actions. Each of these factors represents a structural element of arms circulation.

In the legal framework, the understanding of weapons, their use, and circulation is governed by terms such as cold weapons, firearms, gas weapons, and pneumatic weapons. However, in legal and scientific-technical literature, additional categories such as projectile weapons, projectile-cold weapons, collective, group, individual, and personal weapons are also used.

Moreover, there are categories of weapons such as Flobert cartridge weapons, rockets, grenades, grenade launchers, slingshots, catapults, and means for firing rubber bullets or similar projectiles. The legal regulation of these types of weapons should be analogised to the regulation of pneumatic weapons.

With the onset of the full-scale war in Ukraine, three documents were introduced to facilitate the process of obtaining permits for firearms ownership by Ukrainian citizens. Specifically, on March 1, the Ministry of Internal Affairs issued an order allowing the state to issue combat firearms to civilians within 24 hours, provided they participate in territorial defence (Law of Ukraine On the peculiarities of issuing, 2022). Individuals must only submit a written application and proof of identity to obtain a permit. However, after the end of martial law, the weapons and ammunition must be returned to the police. This order from the Ministry of Internal Affairs partially reiterates provisions outlined in the law "On Ensuring Civilian Participation in the Defense of Ukraine," passed on March 3. According to this law, citizens are entitled to use any available weapons against Russian aggressors. They are exempt from liability for their use against the occupiers (Law of Ukraine On Ensuring, 2022). As of March 7, the Ministry of Internal Affairs approved the "Procedure for Civilian Acquisition of Firearms and Ammunition for Participation in the Repelling and Deterring Armed Aggression of the Russian Federation and Other States" (Law of Ukraine On the approval of the Procedure, 2022). This document significantly simplifies the procedures for obtaining permits for those wishing to possess firearms legally. To obtain a license, individuals must apply to the police with a request and proof of identity. Afterwards, a citizen of Ukraine must receive a permit allowing them to purchase a firearm, make the purchase, and submit the necessary documents. Carrying and storing firearms also require a permit. During martial law, the issuance of permits should not exceed two days. However, individuals can only possess firearms obtained this way for the duration of martial law. Once martial law is lifted, individuals have ten days to formalise or sell the gun. After this period, they have two options: obtain a full permit valid for three years or sell the firearm, as outlined by the Ministry of Internal Affairs (Law of Ukraine On the Approval of the Instructions, 1998). Notably, this order applies to pneumatic weapons, cold weapons, and deactivated firearms.

The change in the percentage of Ukrainians regarding the legalisation of firearms is shown in Figure 1.

Fig. 1. Percentage of Ukrainians Supporting the Legalization of Firearms
Source: Volynski Novyny (2022).

Next, we will highlight cases of the occupier's use of weapons banned by international legal acts. In Sumy region, the city of Okhtyrka was targeted with thermobaric munitions, also known as "vacuum bombs," one of which hit a warehouse containing oil. As early as 1976, the UN passed a resolution recognising this type of weapon as causing excessive human suffering and thus inhumane. The occupiers repeatedly shelled the city of Kharkiv with cluster bombs containing "petal" mines, which are prohibited under the Convention on Cluster Munitions. The enemy army used anti-personnel mines near residential buildings in Berdyansk, Zaporizhzhia region, despite their prohibition under the Convention on the Prohibition of Anti-Personnel Mines.

When the occupiers employ such weapons against civilians, they commit crimes against humanity and violate all four Geneva Conventions of 1949 (Ombudsman of Ukraine, 2022). The international investigative group Bellingcat confirmed that Russia did not refrain from using banned cluster munitions in civilian areas of Ukrainian cities. For example, on February 25, cluster munitions were used in Kharkiv and Okhtyrka through BM-27 "Uragan" and BM-30 "Smerch" multiple rocket launchers. These munitions contain submunitions that detach mid-flight, posing a severe risk to civilians and violating core principles of international humanitarian law.

The Russian armed forces also used phosphorus-containing munitions in 122-mm shells for BM-21 "Grad" systems when shelling the town of Popasna in the Luhansk region. Phosphorus causes severe burns upon contact with skin, and inhaling its fumes or ingesting it can lead to acute poisoning and a demoralising effect. Such munitions are prohibited under Protocol III of the UN Convention on Certain Conventional Weapons.

Since the full-scale invasion, Russia has continuously spread disinformation about Ukraine being a global black market for illegal arms trade. Ukraine's European partners are concerned about the potential risk of weapons leaking from Ukraine. Acknowledging this, Ukraine actively cooperates with law enforcement agencies from nearly all European countries, including Europol and international organisations responsible for controlling illicit arms trafficking. Ukrainian authorities are conducting joint meetings and are planning to establish a global information centre in Ukraine to monitor arms trafficking. Recently, at a meeting with foreign law enforcement, Ukraine

reaffirmed that no cases of military-grade arms trafficking from Ukraine have been reported within the EU.

There is no direct legal prohibition on nuclear weapons, but this does not mean that international law disregards the issue. While no specific convention addresses nuclear weapons, numerous legal instruments describe their effects and inevitable consequences. Moreover, existing treaties must be applied to cases involving atomic weapons. The argument that earlier conventions did not explicitly regulate nuclear weapons does not justify their use.

The Statute of the International Court of Justice requires adherence to customary international law, which includes principles outlined in non-binding resolutions and judicial precedents. Although international agreements do not explicitly ban nuclear weapons, the use of such weapons must be evaluated in the context of whether it violates the humanitarian principles established by these agreements.

The use of nuclear weapons is particularly challenging to justify since "indiscriminate suffering" cannot be considered necessary suffering. Some argue that nuclear weapons cannot be used without causing indiscriminate destruction. The long-term effects of nuclear radiation, not only on immediate victims but also on future generations, further exacerbate this issue.

Even the most minor nuclear charge cannot prevent the extensive destruction that occurs in military operations. Furthermore, the long-term radioactive contamination caused by nuclear attacks creates zones where proper medical care becomes impossible, leading to additional unnecessary suffering.

The second argument against nuclear weapons relates to the violation of humanitarian principles, grounded in the 1925 Geneva Protocol on Chemical Weapons. Although some theorists argue that nuclear weapons fall outside the Protocol's scope, its widespread acceptance as customary law obliges all states, including non-signatories, to comply with its principles.

Improving cybersecurity in Ukraine requires urgent changes, as demonstrated by a series of cyberattacks on critical infrastructure. Ukraine has become one of the leading cyber testing grounds. The current legal framework, including the Law of Ukraine "On Information Protection in Information and Telecommunication Systems," is outdated and ineffective. The absence of centralised management in responding to cyber incidents at the national level is also a significant issue.

Government agencies and companies must prioritise cybersecurity by implementing antivirus protection, firewalls, intrusion detection systems, and backups. Moreover, best management practices are essential, such as maintaining up-to-date work records and raising user awareness.

It is crucial to introduce international certification practices in forensic science, cybersecurity, IT audit, and IT governance. Dialogue between the government, IT professionals, and businesses on cybersecurity issues is essential. However, the success of these measures depends on understanding cybersecurity as a system, including knowledge of cyberattacks, malware types, and contemporary approaches to ensuring cybersecurity.

The transboundary nature of cyberspace and its dependence on complex information technologies create new opportunities and threats. These threats include cyberattacks on critical infrastructure, cybercrime, and cyberterrorism. The ongoing arms race in cyberspace reflects a new level of security dilemmas, elevating cyberspace to the arena of modern geopolitical conflicts.

Table 1 lists the prominent cyberattacks against Ukraine during martial law.

Table 1. Major Cyber Attacks During Martial Law

Cyber attack	Description
The disruption of the Viasat satellite internet service	This destroyed "tens of thousands" of satellite terminals, and it has been widely noted that this attack also affected European internet users and several wind power stations. Additionally, Ukrainian military personnel and several hundred civilian customers were also victims of this wave of attacks. Countering cyberattacks requires substantial efforts. According to specific data from MIT Technology Review, the attack by Russian hackers on the Viasat platform is the most significant known and most damaging breach during the war. This incident is one of the first live examples of how cyberattacks can be directed and specifically

	targeted to strengthen hostile armed forces on our territory, even at the cost of disrupting or destroying advanced technologies.
The deployment of the highly malicious software AcidRain	The AcidRain software deleted all data from Viasat modems and routers, leading to their disconnection. This destroyed thousands of terminals. The previous software used by Russian hackers targeted specific objectives and was highly detrimental to the system. However, AcidRain appears to be a more versatile weapon.
The dissemination of malicious emails with the subject line "No. 1275 dated April 7, 2022"	The disclosure of these letters allows fraudsters to gain complete control over your devices, including laptops and computers, posing a threat to the theft and compromise of computer data.

DISCUSSION

The research problem was to identify the current state of public relations governing the circulation of weapons in Ukraine and to search for optimal legal tools to ensure such relations' functioning effectively. The results indicate an upbeat assessment of the current regulation of firearm circulation under martial law in Ukraine. However, it is necessary to develop effective mechanisms that can limit and halt the aggressor's use of weapons on Ukrainian territory that are prohibited by international legal instruments. The assessment of the actual state of arms smuggling in Ukraine showed that martial law has not increased arms smuggling. Meanwhile, significant gaps exist in the international legal regulation of nuclear weapons, as international legal instruments do not explicitly prohibit their use. The current state of legal regulation regarding cyberweapons requires updating, modernisation, and development of more effective legal tools and mechanisms.

Among the results, there were both expected and unexpected findings. Expected findings include the confirmation of the aggressor state's use of weapons prohibited by international legal instruments and the negative assessment of the current regulatory framework for cyberweapons in Ukraine. Unexpected results include the timely response of the Ukrainian legislator to the legal regulation of firearms, the static state of arms smuggling indicators in Ukraine, and the absence of direct prohibitions on the use of nuclear weapons at the international legal level.

The results of the current state of arms smuggling in Ukraine do not align with the work of Dahari et al. (2019), which describes factors affecting small arms smuggling into Malaysia. Dahari et al.'s (2019) research showed that national and non-national factors influenced the increase in small arms smuggling into Malaysia.

Goldblat (2020) provided a critical review of arms control agreements, analysing bilateral and multilateral agreements reached after World War II, assessing the extent to which each agreement impacted the arms race, reduced the likelihood of war, or otherwise contributed to the overall goal of disarmament. Goldblat (2020) also examined current arms control negotiations. Roff (2019) discussed personnel issues in the arms race, noting the causes and influencing factors, and described this issue's current state and future prospects. Bundy et al. (2019) outlined the role and significance of presidential decision-making in arms control, focusing on Ronald Reagan's re-election and his Strategic Defense Initiative as a critical issue in nuclear weapons competition and arms control in the United States since 1972. It is important to note that Booth (2021) distinguishes between disarmament and arms control concepts. The results of Booth (2021), Bundy et al. (2019), Goldblat (2020), and Roff (2019) align with our findings, as this study also examined the current state of legal regulation in the field of armaments.

This publication reviewed statistical indicators that allow for an assessment of Ukrainian attitudes toward the legalisation of firearms. This approach is shared by Greenlee (2020), who authored a study on the historical justification for prohibiting dangerous individuals from owning guns. Greenlee (2020) analysed U.S. case law on this issue. The work of Blocher and Seigel (2021) focuses on a new analysis of public safety regulations concerning firearms. In this context, Blocher and Seigel

(2021) explored Heller's theory, whose results do not contradict the findings presented in this paper. McLean and Sorens (2019) investigated changes in the ideological policy of state firearm regulation in the United States. This approach does not conflict with our results, as the introduction of martial law has led to a shift in state policy regarding the legal regulation of the arms market.

Regarding cyberweapons, several vital scientific works should be highlighted. Reinhold and Reuter (2019) are experts in arms control in cyberspace. Based on theoretical considerations, Reinhold and Reuter (2019) presented essential treaties in the field, such as the Wassenaar Arrangement, OSCE, and UN recommendations. Zinkanell (2022) examined arms control in cyberspace from the perspective of the European approach to addressing digital threats. Tsagourias and Biggio (2022) described the regulation of cyberweapons, evaluating it positively. Thus, we can conclude that the results of our study contradict those of Tsagourias and Biggio (2022)—we cannot positively assess the current state of the legal regulation of cyberweapons in Ukraine.

The scientific value of this work lies in the fact that, for the first time, a systematic study of the legal regulation of a wide variety of weapon types was conducted. The practical value of the work can be formulated as highlighting the gaps that need to be addressed in the legal regulation of arms circulation in response to the challenges posed by martial law.

The reliability of the results was influenced by the fact that most of the sources used were from the last six years.

CONCLUSIONS

The following points regarding national legislation in the field under study should be highlighted. In response to the onset of large-scale war in Ukraine, three documents were introduced to simplify the process for Ukrainian citizens to obtain permits for firearm possession. This development can be positively characterised, and regarding the legal regulation of obtaining firearm possession permits, the situation does not raise any concerns.

Establishing appropriate legal responsibility for using prohibited weapons at the international legal level is crucial. Such instances have occurred repeatedly in the current Russia-Ukraine war. Examples of these situations include the following: Sumy Oblast, the city of Okhtyrka, became a target for thermobaric munitions; Kharkiv has been shelled with cluster bombs containing "petal" mines, which are also considered prohibited weapons; anti-personnel mines from the enemy army have been found near residential buildings in the city of Berdyansk, Zaporizhzhia Oblast, and their use is banned. According to an investigation by the International Journalist Group Bellingcat, Russia has been using prohibited cluster munitions in residential areas of Ukrainian cities where civilians live. The Russian Armed Forces have used phosphorus-containing ammunition in 122-mm shells for rocket artillery and howitzers for BM-21 "Grad" systems during attacks on the settlement of Popasna in Luhansk Oblast.

The regulation of nuclear weapons use at the international legal level also requires improvement, as there is currently no direct legal act that explicitly prohibits the use of atomic weapons. Such an act needs to be developed.

There are also shortcomings in the legal regulation of cyberweapon use nationally. The current legal framework is outdated and ineffective, such as the Law of Ukraine's "On Information Protection in Information and Telecommunication Systems" and regulatory documents on technical information protection. The lack of centralised management for responding to cyber incidents at the national level is also a severe issue.

Overall, further scientific research is required on issues such as the development of effective mechanisms for holding the occupying country accountable for the use of prohibited weapons at the legal level, the creation of an international legal act on the use of nuclear weapons, considering the shortcomings identified in this study, and the improvement of existing Ukrainian legislation concerning the use of cyberweapons.

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