OPEN ACCESS **Scientific** Letters

IV 1H-TOXRUN INTERNATIONAL CONGRESS 2025 | 08-09 MAY, 2025 Porto, Portugal

Poster 15

The upcoming problematic of 3D-printed firearms: analysis of European news reports

Maria Carrusca [1,*], Manuela Oliveira [1,2,3] and Luís Marques Fernandes [1,2,3]

[1] UCIBIO - Applied Molecular Biosciences Unit, Forensics and Biomedical Sciences Research Laboratory, University Institute of Health Sciences (1H-TOXRUN, IUCS-CESPU), 4585-116 Gandra, Portugal
[2] Associate Laboratory i4HB – Institute for Health and Bioeconomy, University Institute of Health Sciences – CESPU, 4585-116 Gandra, Portugal
[3] OSI – Homeland Security Observatory, 4585-116 Gandra, Portugal

* Correspondence: a39030@alunos.cespu.pt

Abstract

Background: Initially emerging in North America, 3D-printed firearms have become a growing security concern in Europe. The increasing availability of open-source blueprints, as well as accessibility to 3D printers and improved composite materials, have enabled individuals to manufacture firearms with minimal control or technical expertise. Their danger lies in the rapid and unregulated nature of production, complicating law enforcement and regulatory agencies' efforts to track and control their spread. The European Union acknowledged the issue in its Action Plan on Firearms Trafficking (2020–2025), emphasizing the need to monitor new technologies and the potential for their misuse by terrorist and criminal groups [1]. **Objective:** To identify European news agencies' reports on 3D-printed firearms attacks and apprehensions, elucidating the characteristics of suspects and 3D-printed. **Methods:** Data was collected from European news agencies and the report from the Third Constructive Dialogue on Firearms held by the United Nations Convention against Transnational Organized Crime [1]. The cases span from 2017 to 2025. A mixed-methods approach, combining quantitative and qualitative analyses, was employed. **Results:** In a total of 16 3D-printed firearms' apprehensions across 12 European countries (e.g., Germany [1], the Netherlands [1], Sweden [1,2], the United Kingdom [1,3], Finland [1,4] and Spain [1,5]) law enforcement agencies seized fully assembled 3D-printed firearms, 3D-printed accessories and parts, 3D-printers, firearm parts, fully functional firearms, converted firearms, ammunitions, blueprints for firearm models and an array of far-right extremist and Nazi memorabilia. Among the seized firearms, the most common type of firearm is the PKC (parts kit completion), a 3D-printed firearm made with a 3D-printed receiver (or frame) and multiple commercially available, factory-made parts for the pressure-bearing components [1-5]. **Conclusions:** The seized far-right items demonstrate an increased interest in this type of weapon by extremist groups [1], due to the ease of its access and production. To tackle this trend, European authorities have updated legislative frameworks, namely by the EU Firearms Directive, to address the risks of 3D-printed firearms. Also, operational measures, such as Europol/Cepol-led conferences, awareness campaigns, and coordinated cross-border law enforcement actions, have been implemented to improve detection, prevention, and response to their production and use.

Keywords: illicit firearms manufacturing; parts kit completion/conversions (PKC); untraceable firearms

Acknowledgments/Funding

This research received no external funding.

References

1. United Nations Office on Drugs and Crime. (2024). *Threats and concerns arising from 3D-printed weapons proliferation.* UNODC. Available from https://www.unodc.org/documents/organized-crime/constructive-dialogues/FA_2024/Threats_and_Concerns_Arising_from_3D-Printed_Weapons_Proliferation.pdf, accessed on 16-03-2025
2. Armament Research Services. (2017, May 2). *3D-printed firearms seized in Sweden*. Armament Research Services. https://armamentresearch.com/3d-printed-firearms-seized-in-sweden/
3. The Sun. (2023, December 6). *UK terror plots involving 3D-printed guns uncovered in police raids.* The Sun. Retrieved march 16, 2025 from https://www.thesun.co.uk/news/32614074/uk-terror-plots-3d-printed

4. The Guardian. (2023, October 31). *Finland neo-Nazis convicted of crimes with terrorist intent after 3D printer guns seized.* The Guardian. Retrieved March 15, 2025 from https://www.theguardian.com/world/2023/oct/31/finland-neo-nazis-convicted-crimes-with-terrorist-intent-3d-printer-guns
5. Europol. (2023, December 7*). Printing insecurity: Tackling the threat of 3D-printed guns in Europe.* Europol. https://www.europol.europa.eu/media-press/newsroom/news/printing-insecurity-tackling-threat-of-3d-printed-guns-in-europe