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The Proliferation of 3-D Printed Firearms in Latin America: An Ecosystem Analysis

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Abstract

Background: The rising number of seizures of 3D-printed firearms (3DPF) in Latin America indicates a clear transition from isolated incidents to a decentralized and operational illicit production ecosystem. In Brazil, this evolution is evidenced by the proliferation of clandestine workshops, the consolidation of online distribution networks, and targeted law enforcement operations addressing both production and dissemination chains. Across the region, other countries exhibit convergent patterns of risk, indicating diffusion rather than isolated adoption [1]. The growing incorporation of 3DPF into criminal activities introduces substantial challenges for forensic identification, evidentiary standardization, and regulatory control, particularly considering the rapid pace of technological development and adaptation [2]. **Objective:** To characterize the 3DPF landscape in Latin America, focusing on Mexico, Chile, and Ecuador, while identifying Brazil as the main forensic and criminological hub. The study analyses production modes, seizure patterns, and links to organized crime. **Methods:** A qualitative content analysis was conducted using open-source data, including police reports, official press releases, regional security assessments, and peer-reviewed publications (2020–2026). Sources were screened to identify confirmed cases involving functional 3DPF, components, clandestine workshops, distribution networks, and links to organized crime. **Results and Discussion:** Brazil presents the most developed ecosystem, with widespread clandestine workshops, online commercialization, and large-scale operations. The 2026 “Shadowgun” operation dismantled a multi-state network and led to multiple arrests [1], including the leader of an extremist group linked to the Urutau platform. This hybrid 3DPF, produced in Brazil and tested in the United States, highlights the transnational dimension of this phenomenon [3]. Mexico, Chile, and Ecuador increasingly integrate 3DPF into narcotrafficking dynamics, reinforcing convergence with organized crime [4;5;6]. **Conclusions:** Latin America constitutes an uneven but interconnected 3DPF landscape. Brazil operates as the central hub, while other countries occupy different stages of adoption and control. Although Colombia and Argentina lack documented prominence, they present structural vulnerabilities and potential for future proliferation.

Keywords: 3D-printed firearms; Latin American crime; Emerging technologies

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