

# Drone Programs and their Psychological Impact on Civilian Populations

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## Abstract

Over-the-Horizon counterterrorism has become a pivotal framework of contemporary military strategy, utilizing drone strikes and remote operations to target terrorist threats while minimizing troop deployments. However, the impact of this approach on civilian populations remains underexplored. This article investigates how drone operations affect civilian social and psychological well-being, and evaluates its implications on counterterrorism effectiveness. With a comparative analysis of the US, French, and Israeli context, the study demonstrates that persistent surveillance and precision strikes generate fear, trauma, and social fragmentation among civilians. This negatively affects local legitimacy by undermining intelligence cooperation and weakening strategic goals. To address this gap, the study investigates policy recommendations focused on mental-health risk assessments, revisited targeting protocols, and strengthened legal oversight. Incorporating human security consideration is not only ethically imperative, but also strategically necessary.

Keywords: terrorism, drones, civilians.

## 1. Introduction

“What happens now to US counterterrorism efforts?” This was the key question *The Washington Post* posed in September 2021, after US withdrawal from Afghanistan, arguing for the lack of accountability for civilian casualties in drone strikes.<sup>1</sup> Amid criticism of US withdrawal from Afghanistan, President Biden described the future of US counterterrorism as “over-the-horizon.”<sup>2</sup> The

Over-the-Horizon strategy (hereafter OTH), formalised during the Biden administration, has become central to contemporary counterterrorism strategies and has laid the foundation for the execution and deployment of US drone strikes, which were already popularised by the Bush and Obama administrations after 9/11. Its name is derived from long-distance radar technology, and it implies that security forces will be postured outside a conflict zone. Once intelligence reveals a plot, they will cross international borders, and execute an airstrike or raid,

<sup>1</sup> Sarah Kreps and Paul Lushenko, “What Happens Now to U.S. Counterterrorism Efforts in Afghanistan?” *Washington Post*, September 21, 2021.

<sup>2</sup> Joe Biden, “Remarks by President Biden on Afghanistan,” *The White House*, August 16, 2021.

thereby eliminating the threat.<sup>3</sup> While drone warfare represents the *central instrument* of the OTH strategy, the two are not synonymous. The latter denotes a broader strategic doctrine of remote counterterrorism that emerged from the operational logic of Obama's drone programmes, while the former refers to one of the specific tactical practices utilised in the strategy. The objective of drone programmes is to neutralise high-value threats and reduce operator risk. Countries such as Afghanistan, Yemen, and Pakistan constitute prime examples of how the US has extensively deployed drones to target terrorist organisations while reducing risks to its forces. Historically, scholars on the matter have argued that anti-American and anti-Western sentiments in the Middle East were mainly driven by the presence of US forces deployed in the region.<sup>4</sup> However, the transition from a Forward Presence strategy to the OTH strategy has not changed the situation, it simply has reduced the damage inflicted on US forces. Hence, the persistence of these sentiments in the Middle East ought to be explained by other factors. One of these is the psychological harm inflicted on civilian populations, which can disrupt communities, destabilise long-term security goals, and undermine counterterrorism effectiveness.<sup>5</sup>

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<sup>3</sup> R. Kim Cragin, "The Elusive Promise of Over-the-Horizon Counterterrorism," *Studies in Conflict & Terrorism*, published online June 27, 2024.

<sup>4</sup> Robert A. Pape, *Dying to Win: The Strategic Logic of Suicide Terrorism* (New York: Random House, 2005).

<sup>5</sup> Rebecca Mignot-Mahdavi, "Rethinking Direct Participation in Hostilities and Continuous Combat Function in Light of Targeting Members of Terrorist Groups," *International Review of the Red Cross* 105, no. 923 (August 2023): 1028–46.

This phenomenon is not only confined to US counterterrorism strategies. In a more current perspective, France and Israel utilise these practices as part of their counterterrorism strategy framework. On the one hand, France's light footprint counterterrorism approach is similar in spirit to the US OTH model, aiming to suppress jihadist movements without massive troop deployment. Prime examples of these operations are found in Mali, Niger, and Burkina Faso. On the other hand, Israel combines a foot-on-the-ground approach with remote counterterrorism targeting strategies, conducting precision strikes in Gaza, the West Bank, and Lebanon against militant groups. While these operations are effective from a military point of view, they expose the civilian population to psychological stress, fear, and trauma, creating a concealed, but substantial, humanitarian and security cost.

The article will seek to answer the following research question: how can drone strikes affect civilian psychological well-being in their target areas, and what are the implications for counterterrorism effectiveness?

This research focuses on three main pillars. Firstly, a comprehensive literature review on the rationale behind drone programmes and the psychological harm they cause to civilian populations. More specifically, the OTH strategy represents an effective evolution of US counterterrorism doctrine – minimising troop exposure and maintaining operational reach – but that, to ensure long-term stability, it must integrate human security considerations addressing civilian harm, trauma, and legal accountability. Secondly, a comparative analysis of the US,

Israeli, and French approaches by comparing case studies of US operations in Afghanistan, Yemen, and Pakistan; French strikes in Mali and Niger; and Israeli operations in Gaza, the West Bank, and Lebanon will be conducted. Lastly, policy implications and recommendations for the success of counterterrorism missions, focusing on the protection of civilians, suggesting strategic policy recommendations that address civilian trauma, integrating operational efficiency with civilian safeguarding will be provided. This research will adopt an explanatory approach, combining data analysis from official reports and case studies to evaluate both ethical and strategic implications of drone warfare.

## 2. Background Analysis

In this section, I will provide a comprehensive literature review on the psychologically harmful implications caused by drone strikes on civilian populations. Specifically, I will refer to two foundational frameworks: the OTH framework – to explain the rationale behind the development of drone programmes as strategic tools for countering terrorism – and the Human Security framework to shed light on the importance of civilian casualties, psychological harm, and legal implications.

### 1.1 The Over-the-Horizon Framework

The OTH counterterrorism framework represents the culmination of two decades of US military adaptation in response to the evolving geography of terrorism. Emerging from the Bush and Obama administrations' reliance on targeted drone operations, OTH aims to sustain counterterrorism capabilities without maintaining a

large-scale troop presence. Formalised under President Biden following the 2021 US withdrawal from Afghanistan, the OTH model combines remote surveillance, precision drone strikes, and special operations deployed from bases outside active conflict zones.<sup>6</sup> Its proponents argue that such an approach allows the US to project power efficiently, minimise military exposure, and prevent terrorist resurgence while maintaining a posture of strategic restraint.<sup>7</sup>

The conceptual foundation of OTH lies in the drone-based counterterrorism programmes developed under President Bush and Obama. Hence, the development of OTH can be grouped into different factors. With regard to its historical development, drones emerged as Washington's "weapon of choice" for their ability to deliver precision with minimal military risk.<sup>8</sup> These programmes are situated within a broader continuum of "discrete military operations" designed to manage security threats.<sup>9</sup> Yet, these operations also institutionalised a "permanent surveillance apparatus", foreshadowing the logic of remote deterrence central to the OTH model.<sup>10</sup> Together, these works trace how drone warfare evolved from an *ad hoc* counterterrorism tool into

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<sup>6</sup> Biden, "Remarks on Afghanistan."

<sup>7</sup> Robert A. Pape et al., "U.S. Restraint and the Sharp Decline of Suicide Attacks Around the World" (Chicago: University of Chicago, Project on Security and Threats, March 2, 2023).

<sup>8</sup> Daniel Byman, "Why Drones Work: The Case for Washington's Weapon of Choice," *Foreign Affairs* 92, no. 4 (2013): 32–43.

<sup>9</sup> Micah Zenko, *Between Threats and War: U.S. Discrete Military Operations in the Post-Cold War World* (Stanford: Stanford University Press, 2010).

<sup>10</sup> Michael J. Boyle, "The Costs and Consequences of Drone Warfare," *International Affairs* 89, no. 1 (2013): 1–29.

a strategic framework for countering threats beyond direct intervention.

With regard to OTH formalisation, President Biden marked a deliberate pivot toward strategic restraint and technological reliance. In his 2021 remarks, Biden declared that US counterterrorism strategy would henceforth be conducted “without boots on the ground”, but through intelligence, drones, and partnerships. The theoretical justification for OTH highlights how foreign military occupation is the strongest driver of suicide terrorism, justifying why OTH’s limited footprint is theoretically sound.<sup>11</sup> Hence, by limiting physical presence, the US reduces the strategic incentives for anti-American violence.

Regarding OTH empirical effectiveness, recent data empirically validate OTH’s restraint-oriented logic, suggesting that limited engagement can effectively suppress terrorism without large-scale intervention.<sup>12</sup> Quantitative and strategic analyses lend empirical support to the OTH model’s effectiveness in degrading militant networks. Drone strikes in Pakistan significantly reduced terrorist activity in targeted regions, supporting the argument that remote precision can produce tactical gains.<sup>13</sup> Hence, OTH is often interpreted as the logical evolution of these

successes, enabling deterrence through flexible, low-cost deployments.<sup>14</sup>

With regard to the limitations of this strategy, OTH cannot substitute long-term political engagement, as without stable local governance, eliminated leaders are rapidly replaced.<sup>15</sup> This highlights a recurring critique even among proponents: while OTH reduces immediate risk and cost, its sustainability depends on parallel diplomatic and development efforts that address the underlying drivers of instability.

The literature on drone operations thus frames the OTH strategy as an efficient and strategically restrained evolution of earlier drone programmes, as it enables the projection of power without occupation. However, its long-term success is influenced by non-military factors (such as political inclusion and adherence to humanitarian principles) that bridge effectiveness with sustainable security.

### *1.2 The Human Security Framework*

While the strategic logic of drone counterterrorism strategies appears well-founded, the literature increasingly highlights that their implementation must consider the unintended human security consequences that are inherently implied in remote warfare.

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<sup>11</sup> Pape, *Dying to Win*.

<sup>12</sup> Pape et al., “U.S. Restraint and the Sharp Decline of Suicide Attacks.”

<sup>13</sup> Patrick B. Johnston and Anoop K. Sarbahi, “The Impact of US Drone Strikes on Terrorism in Pakistan,” *International Studies Quarterly* 60, no. 2 (2016): 203–19.

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<sup>14</sup> Staniland, Paul. 2021. *Ordering Violence: Explaining Armed Group-State Relations from Conflict to Cooperation*. Ithaca: Cornell University Press.

<sup>15</sup> T. Hamming and C. Clarke, “Biden’s Over-the-Horizon Counter-Terrorism Strategy Is Far Below Standard,” *Foreign Policy*, January 5, 2022.

The Human Security framework sheds light on the protection of individuals beyond a national security-centered protection framework, acknowledging that drone-based strategies can unintentionally inflict psychological and social disruption, limiting their long-term success.<sup>16</sup> In this context, there are three striking consequences: civilian casualties, psychological and social harm, and legal responsibility implications. Traditional scholarship indicates that civilian casualties remain an underacknowledged outcome of drone operations. The Bureau of Investigative Journalism (2020) highlights continuous discrepancies between official reports and verified casualty counts, underlining how this gap can be attributed to opaque operational procedures and limited external oversight.<sup>17</sup> Additionally, remote technologies imply moral distance, increasing the consequences on misidentification.<sup>18</sup> These studies collectively highlight how drone operations, though tactically precise, must incorporate robust accountability standards to reduce collateral damage.

The psychological and social damage of drone operations is a fundamental theme in the literature. Drawing on field interviews, research has shown that continuous drone surveillance generates anxiety, trauma, and social fragmentation in affected communities. For example, residents in Pakistan live in persistent fear, often

avoiding daily activities, such as going to work or visiting relatives, and social interactions within the community.<sup>19</sup> Similar reports show widespread fear that constrains daily life, producing what scholars term a “climate of perpetual insecurity”. This cumulative effect is a persistent sense of vulnerability that shapes both individual behaviour and broader community dynamics, reinforcing the perception that life under drones is inherently unpredictable and unsafe. Such fear, though not always fatal, can erode local cooperation and foster anti-intervention sentiments. From a Human Security standpoint, these findings illustrate how drone practices may compromise the very security they aim to promote if psychological harm is not addressed.<sup>20</sup>

Legal scholarship emphasises the challenges of holding accountability in remote warfare. Civilians lose protection only when directly participating in hostilities (DPH) yet subsequent reinterpretations by scholars have expanded this concept. They critique this elasticity, noting that the “Continuous Combat Function” doctrine risks legitimising strikes on individuals loosely affiliated with armed groups.<sup>21,22</sup> Echoing these concerns, the United Nations General Assembly has stressed that

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<sup>16</sup> UNDP. 1994. *Human Development Report 1994: New Dimensions of Human Security*. New York: United Nations Development Programme.

<sup>17</sup> Micah Zenko, “Reforming U.S. Drone Strike Policies,” Council on Foreign Relations Special Report no. 65 (2013).

<sup>18</sup> Paul Scharre, *Army of None: Autonomous Weapons and the Future of War* (New York: W. W. Norton, 2018).

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<sup>19</sup> James Cavallaro, Stephan Sonnenberg, and Sarah Knuckey, *Living Under Drones: Death, Injury, and Trauma to Civilians from US Drone Practices in Pakistan* (Stanford: Stanford International Human Rights & Conflict Resolution Clinic, 2012).

<sup>20</sup> Brian Glyn Williams, “New Light on CIA ‘Double Tap’ Drone Strikes on Taliban ‘First Responders’ in Pakistan’s Tribal Areas,” *Perspectives on Terrorism* 7, no. 3 (2013): 79–83.

<sup>21</sup> Nils Melzer, *Interpretive Guidance on the Notion of Direct Participation in Hostilities under International Humanitarian Law* (Geneva: ICRC, 2009).

<sup>22</sup> Mignot-Mahdavi, “Rethinking Direct Participation in Hostilities.”

counterterrorism operations have the obligation to comply with humanitarian norms.<sup>23</sup> The Human Security lens thus underlines that for OTH to remain a sustainable strategy, it must bridge technological efficiency with clear lines of civilian protection, psychological well-being, and legal accountability. The incorporation of such considerations would firstly align drone practices with international norms, and secondly strengthen their legitimacy by reducing resentment within affected populations.

### 3. Discussion of Findings

The application of the OTH and Human Security frameworks is shown in several examples. This section examines how the US, France, and Israel have operationalised drone warfare and its implications for civilian populations. A comparative analysis of US drone operations in Afghanistan, Yemen, and Pakistan; French interventions in Mali, Niger, and Burkina Faso; and Israeli strikes in Gaza, the West Bank, and Lebanon highlights how remote warfare reshapes the relationship between military efficiency and civilian protection in different political and cultural contexts.

#### 1.1 US Drone Operations

After 2001, Afghanistan became the center of US counterterrorism strategy and modern drone warfare.

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<sup>23</sup> UN Human Rights Council, *Protection of Human Rights by Regional Organizations While Countering Terrorism: Civil Society Engagement, Sanctions and Military Cooperation*, report of the Special Rapporteur on the Promotion and Protection of Human Rights and Fundamental Freedoms while Countering Terrorism, Ben Saul (A/HRC/58/47; Geneva: United Nations, March 26, 2025).

Following the troop surge (2009-2011) and later withdrawal (post-2014), the US increasingly relied on drones to target Taliban and Al-Qaeda leaders while avoiding new troop deployments. This shift embodies the OTH logic: maintaining strategic pressure via surveillance and precision strikes without sustained occupation.<sup>24,25</sup> Despite its efficiency, drone operations in Afghanistan raised profound Human Security concerns. In 2021, UNAMA reported 389 of civilian casualties linked to Afghan Air Force air strikes.<sup>26</sup> The 2021 Kabul strike, in which a family was mistakenly targeted, uncovered the structural intelligence flaws in remote targeting.<sup>27</sup> Civilians in strike-prone areas reported persistent fear and displacement issues due to continuous aerial surveillance.<sup>28</sup> The legality of such operations remains debated under International Humanitarian Law.<sup>29</sup>

Yemen exemplifies the OTH doctrine applied to fragile environments. In 2017, the US conducted drone strikes targeting Al-Qaeda in the Arabian Peninsula (AQAP), with minimal troop presence and coordination through Gulf partners, such as the UAE.<sup>30</sup> The approach sought to

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<sup>24</sup> Pape et al., "U.S. Restraint and the Sharp Decline of Suicide Attacks."

<sup>25</sup> Byman, "Why Drones Work."

<sup>26</sup> UNAMA (United Nations Assistance Mission in Afghanistan). 2021. *Protection of Civilians in Armed Conflict: Midyear Update: 1 January to 30 June 2021*. Kabul: UNAMA.

<sup>27</sup> Krista Mahr, "The Man the U.S. Didn't Mean to Kill in Afghanistan," *Time*, September 28, 2021.

<sup>28</sup> Scharre, *Army of None*.

<sup>29</sup> Nils Melzer, *Targeted Killing in International Law* (Oxford: Oxford University Press, 2010).

<sup>30</sup> The Bureau of Investigative Journalism, "Yemen: Reported US covert actions 2017," *The Bureau of Investigative Journalism*, 2017.

“project power without presence,” confirming OTH’s operational appeal.<sup>31</sup> The heavy reliance on remote intelligence contributed to recurring targeting errors. According to the Bureau of Investigative Journalism, US strikes have estimated between 800 and 1,750 civilian casualties between 2002-2020 in Yemen, Afghanistan, Pakistan, and Somalia. Indeed, civilian protection mechanisms were minimal, and local accountability absent.<sup>32</sup> The constant drone presence in Yemen’s southern regions induced chronic fear and distrust toward both US and local authorities. Such remote campaigns undermine local legitimacy by dehumanising the affected populations.<sup>33</sup> Yemen illustrates how OTH’s technical precision cannot compensate for moral distance and local resentment.

Between 2004 and 2018, Pakistan’s Federally Administered Tribal Areas (FATA) became the first large-scale theatre for US drone strikes under the CIA’s covert programme. This period marks the conceptual birth of the OTH model: cross-border strikes conducted remotely from Afghanistan, bypassing direct occupation.<sup>34,35</sup> Estimates from the Bureau of Investigative Journalism suggest around 424 and 969 civilian deaths in Pakistan, with many resulting from “signature strikes” – attacks based on behavioural patterns rather than confirmed identity.<sup>36</sup> Legally, drone strikes in Pakistan

stretched international law norms on sovereignty and consent. Moreover, the deterioration of US-Pakistan intelligence cooperation after 2011 (post-Bin Laden raid) revealed the fragility of OTH when host-nation consent erodes.<sup>37</sup> Pakistan illustrates both the strategic utility and ethical vulnerability of drone warfare. Indeed, the strikes effectively dismantled militant networks, but generated widespread civilian trauma and anti-American sentiment, showing that while OTH minimises military risk, it exposes local populations to moral and legal risks.

### 1.2 French Drone Operations

Operation Serval (2013), and later Barkhane (2014-2023), saw France adopt drones for ISR (Intelligence, Surveillance, Reconnaissance) and precision strikes, notably after acquiring MQ-9 Reapers in 2019. Though not fully following the OTH model, it reflects a European variant – operations with reduced footprints and host-nation reliance. Reports by Human Rights Watch and the United Nations identified several incidents of civilian harm attributed to French strikes, notably the 2021 Bounti wedding bombing, in which France declared that its troops had targeted “members of a terrorist armed group” in full compliance with International Humanitarian Law.<sup>38,39</sup> However, the Barkhane forces gathered evidence *other than witnessed participation in*

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<sup>31</sup> Pape, *Dying to Win*.

<sup>32</sup> Bureau of Investigative Journalism, *Drone Warfare* (London: TBIJ, 2020).

<sup>33</sup> Scharre, *Army of None*.

<sup>34</sup> Byman, “Why Drones Work.”

<sup>35</sup> Pape, *Dying to Win*.

<sup>36</sup> Bureau of Investigative Journalism, *Drone Warfare*.

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<sup>37</sup> Whitney Kassel, “U.S.–Pakistan Ties: Shift the Focus, Not the Urgency,” *ForeignPolicy.com*, June 4, 2012.

<sup>38</sup> Human Rights Watch (HRW), *Mali/France: Investigate French Airstrike Killing 19* (New York: Human Rights Watch, 2021).

<sup>39</sup> United Nations, *Report of the United Nations Multidimensional Integrated Stabilization Mission in Mali* (New York: United Nations, 2022).

*hostilities* which, taken together, allowed them to identify the individuals as legitimate targets. Such events damaged local trust and fuelled anti-French narratives, leading to Mali's diplomatic break with Paris.<sup>40</sup> Mali demonstrates OTH's tactical efficiency, but highlights its dependence on host legitimacy, since civilian casualties often constitute collateral damage to drone targeting operations, implying that the succession of signature strikes, in a direct or indirect manner, always includes civilian physical or psychological harm.<sup>41</sup>

France's 2022 drone strike, killing nearly 40 fighters in Niger, exemplifies remote counterterrorism under fragile cooperation.<sup>42</sup> The withdrawal from Mali forced Paris to relocate assets to Niger – embodying OTH's regional flexibility.<sup>43</sup> Niger's 2023 coup exposed how quickly drone operations can lose legitimacy. Anti-French protests and local resentment underscore that tactical success does not equate to stability.<sup>44</sup>

### 1.3 Israeli Drone Operations

Israel's drone use in Gaza and the West Bank mirrors OTH's rationale – minimising soldier risk through high-tech precision. However, Israel operated within territories under effective control, blending remote war

with direct occupation. Human Rights Watch reports that Israeli drone strikes have caused high civilian casualties and large-scale displacement.<sup>45</sup> Research shows how constant aerial presence creates an “atmosphere of death,” with long-term trauma effects.<sup>46</sup> Legal debates revolve around proportionality and distinction under IHL. Amnesty International alleges violations due to indiscriminate targeting, while Israel maintains that precision systems meet self-defence criteria, often arguing within the realms of compliance with international law and *jus in bello*.<sup>47</sup>

Cross-border Israeli strikes against Hezbollah infrastructure in Lebanon, such as the June 2025 Beirut suburb attacks, show a regionalised OTH posture – remote precision with deterrent objectives.<sup>48</sup> UNIFIL warns that such strikes, though targeted, risk violating Lebanese sovereignty and provoking regional destabilisation.<sup>49</sup> Civilian displacement and infrastructure destruction underline the tension between strategic deterrence and human protection.<sup>50</sup>

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<sup>40</sup> International Crisis Group, *Reorienting Europe's Approach in the Sabel, Watch List 2024 for the EU*, January 30, 2024.

<sup>41</sup> Mignot-Mahdavi, “Rethinking Direct Participation in Hostilities.”

<sup>42</sup> Al Jazeera, “Forty Fighters ‘Neutralised’ in Drone Strikes in Niger,” *AlJazeera.com*, June 16, 2022.

<sup>43</sup> Reuters, “Airstrike Kills at Least 30 Near Market in Western Niger, Sources Say,” *Reuters*, September 26, 2025.

<sup>44</sup> International Crisis Group, *Niger: Containing the Fallout from the Coup*, Watch List 2023 – Autumn Update, October 4, 2023.

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<sup>45</sup> Human Rights Watch, “Israel and Palestine,” *World Report 2025*, January 2025.

<sup>46</sup> Nadera Shalhoub-Kevorkian, *Security Theology, Surveillance and the Politics of Fear* (Cambridge: Cambridge University Press, 2015).

<sup>47</sup> Amnesty International, “Israel/OPT: Israeli Air Strikes That Killed 44 Civilians Further Evidence of War Crimes — New Investigation,” May 2024.

<sup>48</sup> Laila Bassam and James Mackenzie, “Israel Conducts First Strike on Beirut's Southern Suburbs Since Truce,” *Reuters*, March 28, 2025.

<sup>49</sup> United Nations Interim Force in Lebanon (UNIFIL), “UN Peacekeeping Chief Underlines UNIFIL's Role in Preserving Stability and Implementation of Resolution 1701,” *UNIFIL News*, January 8, 2026.

<sup>50</sup> Human Rights Watch, *Lebanon: Indiscriminate Israeli Attacks on Civilians* (New York: Human Rights Watch, April 23, 2025).

By comparing these three case studies, one can distinguish similarities and differences. On the one hand, the US and Israeli operationalise OTH globally and locally respectively, emphasising precision. On the other, France's approach remains hybrid, constrained by partner-state instability and political legitimacy. All demonstrate that OTH excels tactically but struggles strategically when human security is ignored. Across all cases, civilian casualties, psychological trauma, and legal controversy recur.<sup>51,52</sup> Integrating Human Security principles, such as transparency, post-strike accountability, and mental health assessments, can improve sustainability and legitimacy.<sup>53</sup>

#### 4. Policy Recommendations

The recurring operational, legal, and humanitarian challenges across US, French, and Israeli drone practices point to a set of policy implications aimed at reconciling the strategic utility of OTH counterterrorism with obligations for human security and civilian protection.

By systematically mapping denselyThe US, French, and Israeli contexts explicitly demonstrate how remote strikes can create several psychological and social disruptions among civilian populations. Including mental health risk assessments into operational planning can mitigate these effects. For example, the UK Ministry of Defence has implemented these protocol assessments in Afghanistan and Iraq, requiring planners to account for

civilian exposure and potential psychological harm during operations.<sup>54</sup> populated areas and civilian infrastructure, military planning can incorporate and anticipate potential psychological and social consequences of drone strikes. Furthermore, post-strike coordination with NGOs and local health services can provide support to affected communities. Similarly, this has been trialled in humanitarian-military cooperation programmes in Northern Mali.<sup>55,56</sup> These measures aid in preserving the legitimacy of drone operations while reducing long-term destabilizing consequences on civilian populations.

Evidence from US operations in Yemen and Pakistan shows that strikes based on behavioural targeting often result in unintended deaths and community resentment.<sup>57</sup> A critical policy implication is to refine targeting protocols through stricter intelligence verification standards before the approval of strikes. The US has started to implement these models in its operations, where the Joint Targeting Cycle includes pre-strike risk assessment specifically designed to reduce civilian casualties.<sup>58,59</sup> In addition,

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<sup>54</sup> United Kingdom, *UK Approach to Protection of Civilians in Armed Conflict* (London: Foreign & Commonwealth Office, Department for International Development & Ministry of Defence, 27 August 2020).

<sup>55</sup> United Nations, *Report of the Security Council on the Situation in Mali*, S/2021/519 (New York: United Nations, 2021).

<sup>56</sup> United Nations Human Security Unit, *Support to Human Security in Northern Mali Through Building the Resilience of Youth and Women* (2016–2019).

<sup>57</sup> Bureau of Investigative Journalism, *Drone Warfare*.

<sup>58</sup> U.S. Government Accountability Office, *Civilian Harm: DOD Should Take Actions to Enhance Its Plan for Mitigation and Response Efforts*, GAO-24-106257 (Washington, DC: U.S. Government Accountability Office, March 14, 2024).

<sup>59</sup> U.S. Department of Defense, *Civilian Harm Mitigation and Response Action Plan* (Washington, DC: Department of Defense, August 25, 2022).

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<sup>51</sup> Mignot-Mahdavi, "Rethinking Direct Participation in Hostilities."

<sup>52</sup> Shalhoub-Kevorkian, *Security Theology, Surveillance and the Politics of Fear*.

<sup>53</sup> UNDP, *Human Development Report 1994*.

independent post-strike reviews can evaluate the accuracy of target identification and inform future planning. Integrating these procedures can help bridge the precision aims of drones with the protection of civilian populations, reducing the moral and operational costs.

Remote warfare and drone operations inherently raise questions of sovereignty and legal responsibility, complicating their legitimacy under international law.<sup>60,61</sup> Strengthening legal oversight allows for consistency with the principles of distinction, proportionality, and necessity in drone operations. Indeed, NATO operations in Libya (2011) included legal review mechanisms for air strikes, which encompassed independent assessments of civilian risks and proportionality.<sup>62</sup> The application of similar oversight to drone operations could include legal authorization requirements in cross-border strikes, and independent post-strike evaluations. This would not only reduce potential violations but also enhance credibility and legitimacy of counterterrorism operations from both domestic and international perspectives.

Together, these recommendations outline how counterterrorism operations can be made more effective and ethically sustainable through robust civilian protection integrations, target refining, community engagement, and revisited legal oversight. Implementing these measures

ensures operations compliance within both the strategic and human security realms.

## 5. Conclusion

This article investigated how drone strikes affect civilian psychological and social well-being and its long-term consequences of counterterrorism effectiveness. By comparing the OTH and the Human Security frameworks, the study highlighted a central controversy: drone operations affect tactical precision and reduced military risks, yet they encompass significant psychological, moral, and legal burdens on civilians. Through the US, French, and Israeli cases, drone strikes successfully disrupted terrorist networks but consistently generated fear, trauma, and distrust among local populations, undermining intelligence cooperation, fueling anti-Western sentiments, and weakening OTH strategic foundations.

The policy recommendations proposed here – including mental-health risk assessments, stricter targeting procedures, community-based initiatives, and stronger legal oversight – aim to mitigate these harms while improving operational legitimacy. Overall, the findings suggest that while OTH strategies can be tactically effective, they remain strategically fragile unless integrated with political and humanitarian measures that prioritise civilian well-being.

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<sup>60</sup> Melzer, *Targeted Killing in International Law*.

<sup>61</sup> Mignot-Mahdavi, “Rethinking Direct Participation in Hostilities.”

<sup>62</sup> Florence Gaub, *Six Strategic Lessons Learned from Libya: NATO’s Operation Unified Protector*, NDC Research Report, March 2012, Rome: NATO Defense College.

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