

The Fractured Horizon: Ethics, Economics, and Human Endurance in the Era of Modern Warfare

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Abstract

Modern warfare has undergone a structural transformation over the past three decades: interstate conflict has given way to protracted civil wars, urban sieges, drone campaigns, and algorithmically mediated targeting, while the human and fiscal ledger of these conflicts has grown in ways that classical strategic theory did not anticipate. This paper synthesises evidence across three interlocking domains — the ethics of contemporary armed conflict, the economics of war-making and reconstruction, and the psychological and social endurance of combatants and civilians — to argue that these domains cannot be analysed in isolation. Drawing on data from the Stockholm International Peace Research Institute, the Costs of War Project at Brown University, the United Nations High Commissioner for Refugees, and a substantial body of peer-reviewed epidemiological and philosophical literature, the paper documents that global military expenditure reached approximately US\$2.89 trillion in 2025, that post-9/11 conflicts alone produced an estimated 4.5–4.7 million deaths and cost the United States roughly US\$8 trillion, and that forced displacement now affects over 117 million people worldwide. It further shows that the moral architecture of just war theory — discrimination and proportionality — is being tested by autonomous weapons systems and the concentration of lethal explosive force in cities, while veterans and civilians alike bear a durable psychiatric burden whose prevalence estimates range widely across study populations. The paper concludes that ethical, economic, and psychological costs are mutually reinforcing rather than separable, and that policy frameworks addressing any one domain in isolation are structurally incomplete. Competing scholarly and advocacy perspectives on casualty attribution and military necessity are examined as a case study in how contested evidence itself becomes a battleground of modern conflict.

Keywords: *just war theory; military expenditure; post-traumatic stress disorder; forced displacement; autonomous weapons; conflict economics; moral injury; urban warfare*

1. Introduction

War has never been a purely military event; it has always been simultaneously a moral claim, an economic transaction, and a psychological ordeal. What has changed in the twenty-first century is the density and visibility of these three dimensions. Where twentieth-century industrial war concentrated its violence on battlefields and its financing on national treasuries, twenty-first-century conflict is increasingly urban, asymmetric, technologically mediated, and fiscally diffuse, financed as much through borrowing and private contracting as through direct taxation [1,3]. The result is what this paper

terms a “fractured horizon”: a landscape in which the traditional boundaries separating combatant from civilian, battlefield from home front, and victory from prolonged attritional stalemate have become increasingly difficult to discern.

Three literatures have historically addressed these phenomena in relative isolation. Just war theorists and international humanitarian lawyers debate the permissibility of specific tactics — targeted killing, siege warfare, autonomous targeting — largely on deontological or consequentialist grounds, with only intermittent reference to the economic incentives that sustain protracted conflict [26,27]. Economists of conflict, following the tradition established by Collier and colleagues at the World Bank, have modelled the relationship between economic underdevelopment, natural-resource dependence, and civil war recurrence, producing the influential concept of the “conflict trap” [34,36]. Meanwhile, clinical and epidemiological researchers have documented the psychiatric toll of combat exposure, displacement, and moral transgression on both veterans and civilian populations, developing constructs such as post-traumatic stress disorder (PTSD) and, more recently, moral injury [12,20]. Each literature has produced robust, citable findings, yet policy discourse and, to a lesser extent, academic discourse continue to treat these as separate domains: a defence budget line here, a humanitarian law violation there, a mental health statistic elsewhere.

This paper argues that such compartmentalisation is analytically costly. The economic logic of prolonged, technologically intensive war shapes the ethical choices available to belligerents — for instance, the substitution of expensive ground forces with comparatively cheap autonomous or remotely piloted systems is simultaneously a budgetary decision and an ethical one, since it redistributes risk from soldiers to civilians in ways that jus in bello proportionality reasoning was not originally designed to evaluate [23,25]. Conversely, the psychological and social costs of conflict — post-traumatic stress, moral injury, and mass displacement — impose long-tail fiscal liabilities that dwarf the initial combat expenditure, as the Costs of War Project has repeatedly demonstrated in its accounting of veteran healthcare and disability obligations extending decades beyond the cessation of hostilities [7,10]. Human endurance, in other words, is not merely a downstream consequence of war; it is itself a variable that feeds back into the economics and ethics of subsequent conflict, through veteran advocacy, disability entitlements, refugee resettlement politics, and the intergenerational transmission of trauma.

The remainder of this paper proceeds as follows. Section 2 outlines the interpretive literature-review methodology used to assemble the evidence base. Section 3 reviews the existing literature across the three domains in greater depth. Section 4 examines the ethics of modern warfare, focusing on just war theory’s classical categories and their strain under conditions of autonomous weaponry and urban siege warfare. Section 5 analyses the economics of modern warfare, including global military expenditure trends, the opportunity costs of defence spending, and the “conflict trap” literature on civil war and underdevelopment. Section 6 examines human endurance, synthesising epidemiological data on PTSD, the moral injury construct, and the demography of forced displacement. Section 7 presents a cross-cutting analysis of competing perspectives — including a case study of a contested statistical claim about civilian casualty ratios — to illustrate how evidentiary disputes themselves have become instruments of the ethical and economic contest over war’s legitimacy. Section 8 offers an integrated discussion, Section 9 notes the limitations of the review, and Section 10 concludes.

2. Methods: Literature Search Strategy

This paper adopts a narrative-synthesis literature-review methodology rather than a formal systematic review protocol, given the breadth of disciplines spanned (moral philosophy, defence economics, clinical psychiatry, and humanitarian policy) and the necessity of triangulating primary institutional data (from SIPRI, UNHCR, and the Costs of War Project) with peer-reviewed academic literature. Sources were identified through targeted searches of institutional databases and academic aggregators, prioritising (a) primary datasets and annual reports from recognised international monitoring bodies; (b) peer-reviewed systematic reviews and meta-analyses in clinical and epidemiological psychiatry, selected preferentially over single-site studies to maximise external validity; and (c) foundational and recent theoretical contributions in just war theory and the ethics of autonomous weapons. Where prevalence or cost estimates diverged across sources — as is common in war-related epidemiology, given differing case definitions, sampling frames, and reporting periods — this paper reports the range rather than a single point estimate, and explicitly discusses the sources of divergence in Section 7. This approach follows the convention, well established in conflict-economics scholarship, of treating estimate heterogeneity as substantive evidence about measurement conditions in conflict zones rather than as a defect to be resolved by selecting a single “correct” number [35].

3. Literature Review

3.1 The ethics literature

The dominant Western framework for evaluating the morality of armed conflict remains just war theory, whose lineage runs from Augustine and Aquinas through contemporary theorists such as Michael Walzer and Brian Orend [26,27]. The framework is conventionally divided into *jus ad bellum* (the justice of resorting to war), *jus in bello* (just conduct within war), and, in more recent formulations, *jus post bellum* (justice in war’s aftermath) [26]. *Jus in bello* is typically anchored by two principles: discrimination, which prohibits the deliberate targeting of non-combatants, and proportionality, which requires that anticipated collateral harm not be excessive relative to the military advantage sought [27,28]. A persistent debate within this literature concerns whether these criteria remain coherent under conditions of modern, technologically saturated warfare. Some scholars have argued that the criteria have become effectively unsatisfiable in contemporary conflict, given the high proportion of civilian casualties associated with urban combat, a position sometimes labelled “functional pacifism” [28]. Others maintain that the criteria retain analytical force provided that “foreseen but unintended” harm is properly distinguished from deliberate targeting, and that the empirical premises of the pacifist critique (particularly claims about civilian casualty ratios) require careful scrutiny rather than uncritical acceptance [28,42].

A newer strand of ethical literature addresses lethal autonomous weapons systems (LAWS). Santoni de Sio and van den Hoven’s influential account of “meaningful human control” attempts to specify the conditions under which a human operator can be said to retain moral and legal responsibility for an autonomous system’s lethal actions [23]. Critics have questioned whether meaningful human control is achievable at all once self-learning systems operate in genuinely unstructured environments, since the requisite tracking and time-response conditions for moral agency may not be technically realisable

[24,32]. A more recent line of argument holds that the pursuit of “casualty-free” warfare through autonomy risks normalising violence as a low-friction engineering problem, thereby eroding the very restraint that historically confined the scope of armed conflict [25].

3.2 The economics literature

The economics-of-conflict literature has two principal branches: macro-level accounting of military expenditure and war costs, and micro-to-meso-level modelling of the causes and consequences of civil conflict. SIPRI’s Military Expenditure Database provides the most authoritative time series on the former, documenting eleven consecutive years of global military spending growth through 2025 [1,3]. The Costs of War Project at Brown University’s Watson Institute has produced the most comprehensive accounting to date of the latter category with respect to the post-9/11 conflicts specifically, estimating cumulative U.S. budgetary obligations, human casualties, and displacement associated with the wars in Afghanistan, Iraq, Pakistan, Syria, and Yemen [6,7,9,10]. On civil war more narrowly, Collier and colleagues’ World Bank-sponsored research programme established the “conflict trap” thesis: that low income, slow or negative growth, and dependence on primary-commodity exports substantially elevate the risk of civil war onset and recurrence, and that civil war itself further depresses growth, thereby entrenching a self-reinforcing cycle of poverty and violence [34,36].

3.3 The human-endurance literature

The clinical and epidemiological literature on the psychological consequences of war is voluminous but heterogeneous. Meta-analyses of PTSD prevalence among combat veterans report point estimates ranging from roughly 1% to nearly 35%, a spread attributable to differences in deployment era, combat exposure intensity, screening instrument, and time since deployment [15]. Civilian and refugee populations in conflict zones show comparably wide but generally higher pooled prevalence estimates, with some systematic reviews reporting pooled rates approaching 30–43% among war-affected adults and considerably higher rates among refugees specifically [18]. Alongside PTSD, the construct of moral injury — first articulated in relation to Vietnam veterans and later formalised by Litz and colleagues — captures a distinct cluster of guilt-, shame-, and meaning-based responses to acts that violate a person’s deeply held moral beliefs, whether through perpetration, failure to prevent harm, or bearing witness to atrocity [20,22]. This construct is significant for the present paper because it establishes an empirical bridge between the ethics literature (concerned with what soldiers are permitted to do) and the psychiatric literature (concerned with the consequences of what they in fact do), a bridge that is often left implicit in policy discussions of either domain alone.

4. The Ethics of Modern Warfare

4.1 Just war theory under strain

Just war theory’s *jus in bello* criteria of discrimination and proportionality were developed under conditions in which combatants were, for the most part, physically identifiable and geographically separable from non-combatant populations [26]. Contemporary conflict increasingly violates both premises. Insurgent and non-state actors frequently forgo uniforms and disperse among civilian

populations, while state militaries increasingly conduct operations in dense urban terrain where military and civilian infrastructure are physically interwoven [43]. The International Committee of the Red Cross estimates that approximately fifty million people worldwide currently live under conditions of active urban warfare [38]. Under such conditions, the discrimination principle — which was designed to identify a class of persons who may not be deliberately targeted — becomes harder to operationalise even when belligerents act in good faith, since target identification itself becomes epistemically uncertain.

The proportionality principle faces an analogous strain. Proportionality reasoning requires weighing anticipated civilian harm against anticipated military advantage, a calculation that becomes acute when explosive weapons with wide-area effects — large aerial bombs, heavy artillery, multi-barrel rocket systems — are employed in populated areas. Multiple humanitarian monitoring organisations report that when such weapons are used in populated areas, on average roughly 90% of resulting casualties are civilians [37,38,39]. The UN Office for the Coordination of Humanitarian Affairs recorded approximately 238,000 civilian casualties from explosive weapons in populated areas between 2011 and 2021 alone [38], while Human Rights Watch documented more than 57,000 civilian casualties from this cause in 2024 alone across multiple active conflicts [39]. These figures have informed the 2022 Political Declaration on the use of explosive weapons in populated areas, through which a majority of UN member states committed to restricting the use of wide-area-effect munitions in cities [37].

4.2 Autonomous weapons and the erosion of moral agency

The introduction of artificial intelligence into targeting decisions represents perhaps the most consequential ethical development in contemporary warfare. Proponents of autonomous weapons systems argue that algorithmic targeting can, in principle, reduce both soldier casualties and violations of international humanitarian law by removing fatigue, panic, and revenge-motivated error from split-second lethal decisions [25]. Critics respond that this argument conflates technical precision with moral legitimacy, and that the central ethical problem is not accuracy but agency: a “responsibility gap” emerges when no identifiable human can be said to have exercised the judgment that international law requires for a lethal decision to be attributable and, therefore, accountable [23,29]. Santoni de Sio and van den Hoven’s concept of “meaningful human control” attempts to preserve human moral agency within increasingly automated targeting chains by specifying tracking conditions (the system’s behaviour must trace to the reasons and intentions of a responsible human) and tracing conditions (there must be at least one human in the design and deployment chain who understands the system’s capabilities and constraints) [23]. Subsequent commentary has questioned whether these conditions can be satisfied once systems incorporate machine-learning components whose decision boundaries are not fully interpretable even to their designers, raising the possibility that “meaningful human control” functions more as a legitimating legal fiction than as a substantive ethical safeguard [24,32,33]. A 2025 analysis goes further, arguing that the pursuit of casualty-minimising autonomous warfare risks reframing lethal violence as a frictionless engineering optimisation problem, thereby eroding the prudential restraint — the reluctance to escalate, the political cost of visible casualties — that has historically served as an informal check on the scope and duration of armed conflict [25].

4.3 Contested proportionality: the urban-casualty debate

A particularly instructive illustration of how ethical claims about modern warfare have become entangled with contested empirical evidence concerns the frequently cited statistic that civilians constitute approximately 90% of casualties in urban warfare. This figure, popularised by organisations such as Action on Armed Violence (AOAV) and cited in United Nations advocacy materials, applies specifically to casualties resulting from the use of explosive weapons in populated areas [37,38]. It has, however, been contested when applied more broadly to overall casualty ratios in specific conflicts; critics note that once “unknown” casualty classifications are properly accounted for, combatant-to-civilian ratios in some conflicts may be closer to parity than the frequently cited figure implies, and that advocacy for wide-area weapons bans should not conflate a category-specific statistic (explosive weapons in populated areas) with a claim about war casualties in general [40]. AOAV itself has pushed back against attempts to characterise low civilian-casualty ratios as evidence of exceptionally precise military conduct, arguing that even a lower combined estimate remains ethically significant and that definitional slippage in how casualty statistics are presented can be exploited by belligerents seeking to minimise scrutiny of their conduct [41]. This dispute is examined at greater length in Section 7 as a case study in how the very production of casualty statistics has become a contested terrain of the ethical debate over urban warfare’s permissibility.

5. The Economics of Modern Warfare

5.1 The scale and trajectory of global military expenditure

Global military expenditure reached an estimated US\$2,887 billion in 2025, marking the eleventh consecutive year of real-terms growth and representing a 41% increase over the preceding decade [1]. This growth pushed the global “military burden” — military spending as a share of world GDP — to 2.5%, its highest level since 2009 [1,3]. Notably, the pace of increase slowed markedly in 2025 (2.9% growth, compared with 9.7% in 2024), a deceleration attributable primarily to a policy-driven reduction in United States military aid spending even as European and Asian expenditure continued to accelerate: European military spending rose by 14% and Asia-Oceania spending by 8.1% in 2025 alone [1,2].

Figure 1. World Military Expenditure, 2016-2025

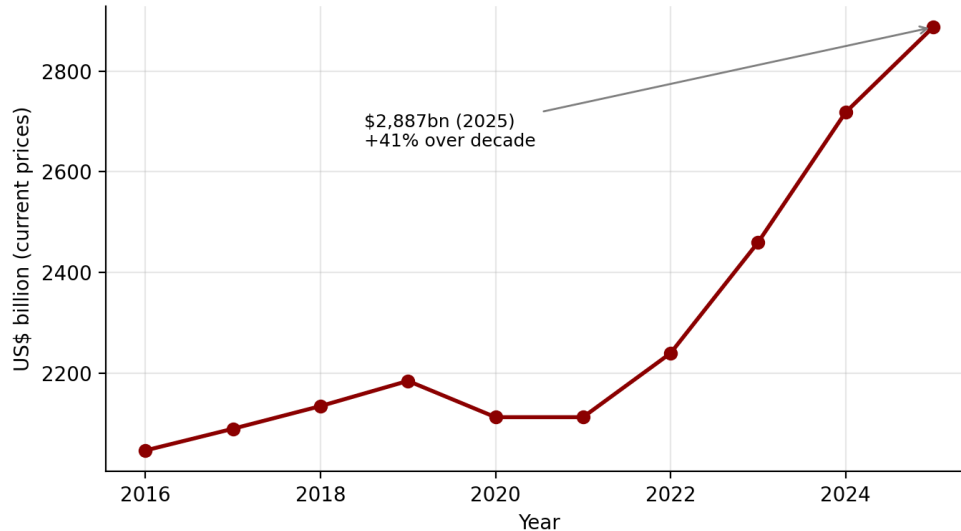


Figure 1. World military expenditure rose steadily over 2016–2025, culminating in an estimated US\$2,887 billion in 2025 — a 41% real-terms increase over the decade [1].

Table 1 below summarises the distribution of this expenditure across the largest state spenders and world regions, illustrating the marked concentration of military spending among a small number of states.

Country / Region	2025 expenditure (US\$ bn)	Share of world total	Real change vs. 2024
United States	954	33%	–7.5%
China	336	12%	growth continued
Russia	190	6.6%	growth continued
Top 15 spenders (combined)	2,304	80%	—
Europe (region)	864	—	+14%
Asia & Oceania (region)	681	—	+8.1%
Middle East (region)	218	—	~unchanged
Africa (region)	58.2	—	+8.5%
World total	2,887	100%	+2.9%

Table 1. Estimated military expenditure of selected states and regions, 2025. Source: adapted from SIPRI [1,3].

The concentration of spending is notable: the three largest spenders — the United States, China, and Russia — together accounted for 51% of the global total, while the fifteen largest spenders accounted for 80% [3]. This concentration matters for the ethics-economics linkage identified in Section 1, because

it means that a small number of state decisions about defence procurement — including decisions about whether to invest in autonomous and remotely piloted systems — disproportionately shape the technological character of warfare worldwide.

5.2 The opportunity cost of military spending

A central finding of the Costs of War Project's economic research concerns the comparative employment intensity of military versus civilian public expenditure. The project's analysis indicates that military spending generates an average of approximately five jobs per US\$1 million invested, compared with approximately thirteen jobs in education, nine in healthcare, and seven to eight in infrastructure or clean energy for the same expenditure [9]. This differential implies a substantial opportunity cost: redirecting even a modest share of global military expenditure toward these alternative sectors would, according to this modelling, generate more domestic employment than the equivalent defence expenditure, independent of any consideration of the security benefits of military spending itself.

Sector	Estimated jobs created per US\$1 million
Military / defence	~5
Infrastructure / clean energy	~7–8
Healthcare	~9
Education	~13

Table 2. Estimated employment generated per US\$1 million of public expenditure, by sector. Source: adapted from Costs of War Project findings [9].

A related finding concerns the privatisation of defence expenditure: between 2020 and 2024, private firms received an estimated US\$2.4 trillion in contracts from the U.S. Department of Defense, representing approximately 54% of the department's discretionary spending over that period [9]. This concentration of public defence expenditure within a comparatively small set of private contractors has itself become a subject of economic and ethical scrutiny, insofar as it creates durable institutional constituencies with a direct financial interest in sustained or expanded military procurement.

5.3 The cumulative cost of post-9/11 conflict

The Costs of War Project's longitudinal accounting of the post-9/11 wars provides the most detailed case study available of how initial military expenditure compounds into vastly larger long-term fiscal and human obligations. Successive iterations of the project's estimates have shown a marked upward revision over time, reflecting both the prolongation of conflict and improved methods for capturing indirect costs. Early estimates in 2011 placed the cost of the wars in Afghanistan, Iraq, and Pakistan at approximately US\$3.2–4 trillion and 225,000 lives [6]. By 2019, cumulative budgetary obligations were estimated at US\$6.4 trillion, with 770,000–801,000 direct deaths [7]. By the twentieth anniversary of the September 11 attacks in 2021, the estimate had risen to approximately US\$8 trillion and over 900,000 deaths, with US\$2.2 trillion of that total already earmarked for future veteran care [6]. The

project's most recent human-cost accounting estimates that at least 940,000 people were killed by direct violence in Iraq, Afghanistan, Syria, Yemen, and Pakistan between 2001 and 2023, of whom more than 432,000 were civilians, while an estimated 3.6–3.8 million people died indirectly as a consequence of the destruction of health systems, infrastructure, and local economies — bringing the cumulative total to an estimated 4.5–4.7 million deaths [10,11]. These figures illustrate a broader methodological point of considerable importance to conflict economics: direct combat deaths, however large, typically represent only a fraction of a war's total mortality burden, with indirect mortality — disease, malnutrition, and collapsed health infrastructure — accounting for the majority of excess deaths in protracted conflicts [10].

Beyond the human toll, the post-9/11 wars produced substantial displacement: the Costs of War Project estimates that 38 million people have been displaced across Afghanistan, Pakistan, Iraq, Syria, Libya, Yemen, and other affected states as a direct or indirect consequence of these conflicts [9]. The environmental dimension of this accounting is also notable: the U.S. Department of Defense is identified as the world's single largest institutional consumer of petroleum and, correspondingly, one of the largest institutional greenhouse gas emitters, exceeding the emissions of entire mid-sized economies [10].

5.4 Civil war, the “conflict trap,” and development in reverse

Where the post-9/11 wars illustrate the fiscal and human costs of large-scale interstate and counterinsurgency conflict, the “conflict trap” literature addresses a structurally different but economically related phenomenon: the self-reinforcing relationship between underdevelopment and civil war. Collier and colleagues' influential World Bank research programme found that civil wars have historically lasted an average of approximately seven years and have been associated with a reduction of roughly 2.2 percentage points in annual economic growth relative to pre-war trajectories, a cumulative effect sufficiently large to increase the post-war population living in poverty by approximately 30% [34]. Subsequent research applying synthetic-control methods to specific conflicts has found that five years of civil war can reduce per-capita GDP by between 7% and 22%, with an average of approximately twenty-two people becoming refugees for every single conflict-related death — a ratio that underscores how displacement, rather than direct casualties, constitutes the dominant demographic signature of civil conflict [35]. Collier's broader “conflict trap” thesis holds that low per-capita income, slow or negative economic growth, and dependence on primary-commodity exports each independently elevate the risk of civil war onset, while civil war itself further degrades the economic conditions that would otherwise reduce future conflict risk — producing a self-perpetuating cycle that helps explain the geographic concentration of protracted conflict among the world's poorest states [34,36].

6. Human Endurance: Psychological and Social Dimensions

6.1 Post-traumatic stress disorder among combatants

The psychiatric literature on combat-related PTSD is characterised by substantial variance in prevalence estimates, a pattern that itself carries analytical significance. An influential 2014 meta-analysis of

United Kingdom and United States military populations estimated PTSD prevalence at approximately 12% among combat-exposed personnel, compared with approximately 5% among personnel without direct combat exposure [12]. Large observational cohort studies have produced comparable figures: a study of over 18,000 U.S. Army soldiers returning from Iraq and Afghanistan found a self-reported PTSD prevalence of approximately 15% [13], while a study of over 13,000 veterans of the same conflicts found an overall prevalence of 15.8% [14]. A broader meta-analysis spanning thirty-two studies found prevalence estimates ranging from 1.09% to 34.84%, reflecting substantial heterogeneity across deployment cohorts, screening instruments, and time elapsed since combat exposure [15]. Historical conflicts show comparable or higher rates: a systematic review of veterans and former combatants of the 1980–1988 Iran–Iraq War found a cumulative PTSD incidence of 27.8% [16]. More recent research on complex PTSD — a related but distinct diagnostic construct incorporating disturbances in self-organisation alongside classic PTSD symptomatology — has found prevalence estimates among serving military and veteran populations ranging as widely as 5% to over 80% depending on population and instrument, with the majority of included studies finding complex PTSD to be more prevalent than standard PTSD within the same samples [17]. Baseline exposure data further contextualise these findings: surveys of the Canadian Armed Forces indicate that over 85% of active service members have been exposed to at least one potentially traumatic event, with as many as one in eight veterans receiving a PTSD diagnosis at the point of transition to civilian life [19].

6.2 Civilian and refugee populations

Civilian populations in conflict zones bear a psychiatric burden that, while less frequently the subject of policy discussion than veteran mental health, is comparably or more severe in aggregate terms. A recent systematic review and meta-analysis of conflict-affected populations in sub-Saharan Africa found a pooled PTSD prevalence of 43%, with prevalence highest among refugees specifically (79%), followed by internally displaced persons (48%) and residents of conflict-affected but non-displaced communities (34%) [18]. This review situates its findings within a broader landmark synthesis of 181 surveys spanning more than 81,000 refugees and conflict-exposed civilians across forty countries, which reported an unadjusted weighted PTSD prevalence of 30.6% [18]. World Health Organization-supported modelling cited in the same review estimates that 22.1% of adults in active conflict settings live with a diagnosable mental disorder at any given time, encompassing depression, anxiety, PTSD, bipolar disorder, and schizophrenia, and a related global epidemiological model estimates that between 316 and 354 million adult war survivors worldwide are living with PTSD, major depression, or both [18]. Female sex, cumulative trauma exposure, displacement itself, and comorbid depressive symptoms were consistently identified as correlates of elevated PTSD risk across the reviewed studies [18].

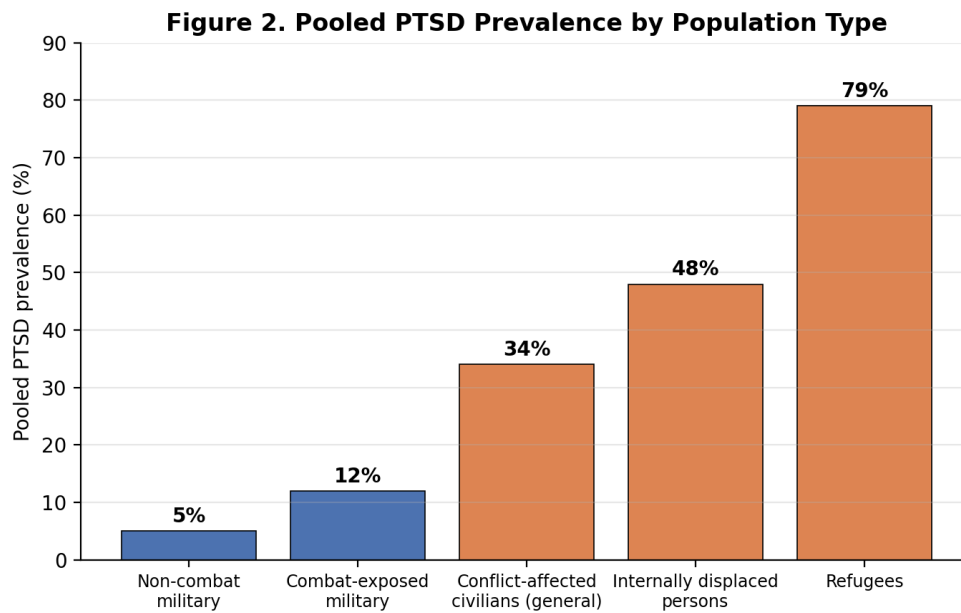


Figure 2. Pooled PTSD prevalence rises sharply from non-combat military personnel through combat-exposed personnel, general conflict-affected civilians, internally displaced persons, and refugees [12,18].

Population	Pooled / point PTSD prevalence	Source
Non-combat military personnel	~5%	[12]
Combat-exposed military personnel	~12%	[12]
U.S. Army soldiers post-deployment (n≈18,000)	~15%	[13]
OEF/OIF-era veterans (n≈13,000)	~15.8%	[14]
Military personnel/veterans (32-study meta-analysis)	1.09%–34.84%	[15]
Iran–Iraq War veterans/combatants	27.8%	[16]
Conflict-affected civilians, general (Sub-Saharan Africa)	34%	[18]
Internally displaced persons	48%	[18]
Refugees	79%	[18]

Population	Pooled / point PTSD prevalence	Source
Global cross-national civilian/refugee synthesis (40 countries)	30.6%	[18]

Table 3. Pooled PTSD prevalence estimates by population type, selected meta-analyses.

6.3 Moral injury: a distinct construct

Alongside PTSD, the construct of moral injury has emerged as a critical addition to the clinical understanding of war's psychological toll. First articulated by Shay in relation to Vietnam veterans and later formalised into a conceptual model by Litz and colleagues in 2009, moral injury describes the lasting psychological, social, and sometimes spiritual disruption that follows from perpetrating, failing to prevent, witnessing, or otherwise being implicated in acts that transgress a person's deeply held moral beliefs [20,21]. Unlike PTSD, whose diagnostic criteria centre on fear-based responses to life-threatening events, moral injury is characterised primarily by guilt, shame, loss of trust, and a disrupted sense of self as a fundamentally good person [21,22]. Empirical work testing the Litz model has found that "transgressive acts" — such as taking a life under circumstances the individual comes to regard as morally ambiguous — predict guilt, which in turn predicts both demoralisation and suicidality, with active roles in killing showing stronger associations with adverse outcomes than passive roles such as failing to intervene [20]. Because moral injury is not confined to combatants — the construct has since been extended to healthcare workers and first responders exposed to comparable ethical dilemmas — it offers a conceptual bridge between the individual psychology of the battlefield and the broader ethical debates addressed in Section 4, since actions that autonomous-weapons critics characterise as producing a "responsibility gap" at the institutional level may simultaneously produce a personally experienced moral injury at the level of the operator who authorises or supervises lethal autonomous systems [21,23].

6.4 The demography of forced displacement

Displacement constitutes perhaps the most visible and enduring form of human endurance associated with modern conflict. According to UNHCR's Global Trends reporting, 117.8 million people were forcibly displaced worldwide by the end of 2025 as a result of persecution, conflict, violence, or human rights violations [29,30]. This population is composed of an estimated 41.6 million refugees, 9 million asylum-seekers, and 68.7 million internally displaced persons, alongside approximately 4.5 million stateless individuals [30]. Children constitute a disproportionate share of this population, accounting for approximately 40% of all forcibly displaced people despite representing only 29% of the global population [32]. Displacement is heavily concentrated among a small number of crises: more than one-third of all forcibly displaced people globally originate from just four countries — Sudan, Syria, Afghanistan, and Ukraine — while low- and middle-income countries host approximately 73% of the world's refugees, a distribution that runs contrary to popular perceptions in higher-income regions regarding the geographic distribution of displacement burden [32,33].

The trajectory of displacement over the past decade has been persistently upward, with UNHCR reporting thirteen consecutive years of year-on-year increase prior to a modest decline recorded in mid-2025 attributable to large-scale returns to Afghanistan, the Democratic Republic of the Congo, Sudan, and Syria [33]. This decline, however, should not be read as straightforwardly positive: UNHCR itself cautions that returns do not automatically constitute durable or sustainable solutions, particularly where reintegration occurs amid continuing insecurity, degraded infrastructure, and limited access to basic services [33]. Compounding this concern, UNHCR's own operational capacity has simultaneously contracted: the agency's 2025 expenditure fell by approximately 22% relative to 2024, with available funding covering only an estimated 37% of assessed global humanitarian need, down from 48% the previous year — a funding shortfall the agency has stated leaves at least 11.6 million forcibly displaced people newly at risk [31].

7. Cross-Cutting Analysis: Competing Perspectives on Modern Warfare

7.1 Three interpretive frameworks

The evidence reviewed above can be, and has been, interpreted through at least three broad theoretical lenses, each of which yields a different normative conclusion about the trajectory of modern warfare.

A realist perspective, rooted in the state-centric tradition of international relations, treats rising military expenditure and the proliferation of autonomous weapons as a rational, if regrettable, response to a persistently anarchic international system in which states must provide for their own security absent a reliable higher authority. From this vantage point, the eleven-year rise in global military spending documented by SIPRI reflects not moral failure but structural necessity, particularly for states directly bordering active conflict zones [1,3]. Realist analysis tends to treat civilian casualty statistics and displacement figures as tragic but largely exogenous costs of an international system whose fundamental logic cannot be altered by unilateral restraint.

A liberal-institutionalist and humanitarian-law perspective, by contrast, treats the very same data as evidence of institutional and normative failure that international law and multilateral cooperation could, in principle, correct. This perspective underlies the 2022 Political Declaration on explosive weapons in populated areas and the broader humanitarian architecture built around the Geneva Conventions [37,43]. Adherents of this view emphasise that the concentration of military expenditure among a small number of states (Table 1) represents a tractable point of leverage for arms-control diplomacy, and that the “meaningful human control” framework for autonomous weapons represents a viable, if imperfect, regulatory compromise between outright prohibition and unregulated deployment [23].

A critical/cosmopolitan perspective, informed by the conflict-economics and moral-injury literatures reviewed above, questions whether either of the preceding frameworks adequately accounts for the diffuse, long-tail human costs of war — displacement, psychiatric morbidity, and the intergenerational transmission of both — that persist long after active combat operations cease and that are disproportionately borne by populations with the least influence over the decisions that produced them [9,18]. This perspective is most directly supported by the Costs of War Project's explicit framing of its research mission around the proposition that the human and economic costs of war are dramatically

underrepresented in the political and budgetary discourse that authorises military action in the first place [9,10].

7.2 Case study: the contested civilian-casualty ratio

The dispute over the “90% civilian casualty” statistic, introduced in Section 4.3, offers a useful microcosm of how these three frameworks generate divergent readings of identical underlying phenomena. Humanitarian organisations such as AOAV and multilateral bodies such as OCHA employ the 90% figure — which refers specifically to casualties resulting from the use of explosive weapons in populated areas — as evidence supporting restrictions on wide-area-effect munitions in cities [37,38]. Critics operating from a more realist or military-effectiveness standpoint have challenged the generalisability of this figure, arguing that when applied to overall conflict casualties (rather than the narrower category of explosive-weapon-in-populated-area incidents specifically), and once ambiguous or unclassified casualties are properly accounted for, actual combatant-to-civilian ratios in specific conflicts may be closer to parity, a discrepancy advocates for restrictive weapons policy have been accused of eliding [40]. AOAV has in turn disputed this critique, arguing that even a lower, more conservative estimate remains morally and legally significant, and that attempts to characterise a given military’s operational conduct as historically unprecedented in its precision should be treated with considerable scepticism given the methodological difficulty of establishing such comparative claims with confidence [41]. This dispute illustrates a broader point relevant to all three domains examined in this paper: in an information environment where casualty data collection is itself contested, incomplete, and frequently conducted under active hostilities, the production and interpretation of statistics has become an extension of the conflict itself rather than a neutral post hoc accounting exercise. This has direct implications for the ethics literature reviewed in Section 4, since proportionality reasoning is only as reliable as the casualty data on which it is based, and it has implications for the economics and endurance literatures as well, since underestimated indirect mortality (Section 5.3) and underestimated psychiatric morbidity (Section 6) each carry the same structural risk of downward bias in politically and operationally sensitive contexts.

7.3 A feminist and social-reproduction perspective

A further perspective, less prominent in mainstream security studies but increasingly influential in the conflict-economics literature, emphasises the gendered distribution of war’s costs. The sub-Saharan African PTSD meta-analysis reviewed in Section 6.2 found that female sex was consistently associated with roughly double the odds of PTSD relative to male sex among conflict-affected civilian populations [18], a finding consistent with a broader literature documenting the disproportionate burden borne by women and children in displacement, given their overrepresentation among both refugee and internally displaced populations and their typically greater exposure to caregiving responsibilities amid collapsed social infrastructure [32]. This perspective complicates both the realist and liberal-institutionalist frameworks discussed above, since it directs attention away from state-level military calculus and multilateral treaty architecture toward the household- and community-level mechanisms through which war’s costs are actually absorbed, mechanisms that neither defence budgets nor casualty statistics fully capture.

8. Discussion: Toward an Integrated Framework

The evidence reviewed in this paper supports three integrative conclusions. First, the ethical permissibility of specific tactics cannot be assessed independently of their economic drivers. The substitution of expensive manned platforms with comparatively cheap autonomous and remotely piloted systems (Section 4.2) is at once a rational response to the sustained upward trajectory of global military expenditure (Section 5.1) and a development that plausibly erodes the very restraint mechanisms — political cost, soldier casualties, public scrutiny — that *jus in bello* reasoning implicitly assumed would constrain the scale and duration of conflict [25]. A purely ethical analysis of autonomous weapons that ignores the budgetary incentives favouring their adoption, or a purely economic analysis of defence procurement that ignores its downstream effects on target discrimination and proportionality, will each produce an incomplete account.

Second, the human-endurance literature reveals that the true cost of war is realised on a time horizon that vastly exceeds the duration of active combat, and that this extended horizon is itself a major, frequently underestimated, economic liability. The Costs of War Project's finding that US\$2.2 trillion of the estimated US\$8 trillion cost of the post-9/11 wars had already been earmarked for future veteran care as of 2021 [6] demonstrates that psychiatric and physical morbidity — the very phenomena documented in Section 6 — constitute a direct line item in the economic accounting reviewed in Section 5, rather than an externality to be treated separately. The same logic applies with even greater force to civilian populations, whose indirect mortality from collapsed health systems and infrastructure (Section 5.3) and whose elevated psychiatric morbidity (Section 6.2) are rarely reflected in the belligerent-side budgetary calculus that determines whether and how a conflict is prosecuted.

Third, the contest over evidence itself — illustrated by the civilian-casualty ratio dispute in Section 7.2 — suggests that any integrated framework for evaluating modern warfare must build in explicit tolerance for measurement uncertainty rather than treating single point estimates as authoritative. This is not a counsel of relativism; the range of credible estimates across the sources reviewed in this paper (for instance, PTSD prevalence ranging from roughly 5% to over 40% depending on population, or war-cost estimates that have been revised upward by a factor of two over successive Costs of War Project reports) is itself informative about the conditions under which conflict-related data is collected, and policy frameworks that require false precision from inherently uncertain data risk both underestimating humanitarian need and providing cover for belligerents whose conduct might otherwise attract greater scrutiny.

9. Limitations

This review is subject to several limitations common to narrative syntheses of heterogeneous literatures. First, the reliance on institutional data sources (SIPRI, UNHCR, the Costs of War Project) that are themselves the subject of methodological critique — as illustrated directly in Section 7.2 — means that some of the quantitative claims synthesised here are contested within the specialist literature, even where they represent the most authoritative publicly available estimates. Second, the psychiatric literature reviewed in Section 6 spans studies employing markedly different diagnostic instruments, sampling frames, and time horizons, limiting the comparability of prevalence estimates across studies

even within the same population category; this heterogeneity is reported rather than resolved, consistent with the methodological stance articulated in Section 2. Third, this paper's engagement with just war theory and autonomous-weapons ethics necessarily represents a selective rather than exhaustive treatment of an extensive philosophical literature, and alternative traditions — including pacifist, realist, and non-Western frameworks for evaluating the ethics of war — receive comparatively less sustained attention than the dominant Western just war tradition. Finally, because armed conflict is an active and rapidly evolving phenomenon, some figures reported here (particularly displacement totals and military expenditure data) are provisional estimates subject to revision as more complete reporting becomes available.

10. Conclusion

Modern warfare has produced a fractured horizon in which ethical permissibility, economic rationality, and human endurance are simultaneously under unprecedented strain and increasingly visible to global publics through real-time reporting and institutional monitoring. Global military expenditure has reached historic highs, exceeding US\$2.89 trillion in 2025 [1]; the cumulative cost of the post-9/11 conflicts alone approaches US\$8 trillion in fiscal terms and 4.5–4.7 million lives in human terms [6,10]; forced displacement now affects nearly 118 million people worldwide [29]; and psychiatric morbidity among both combatants and civilians, while variably estimated, is consistently substantial across virtually every population studied [15,18]. These figures are not merely parallel facts about a common subject matter; they are causally and structurally entangled. The economic incentive to substitute capital-intensive autonomous systems for costly manned platforms bears directly on the ethical calculus of proportionality and discrimination; the psychiatric and social costs borne by both veterans and civilians constitute a deferred but ultimately unavoidable component of war's total economic ledger; and the persistent contest over the reliability of casualty and displacement data is itself an extension of the ethical and political stakes that data purports merely to describe. A genuinely integrated understanding of modern warfare — one adequate to inform policy, humanitarian response, and the ongoing philosophical debate over the legitimacy of specific means of warfare — requires holding these three domains in the same analytic frame rather than treating them as the separate provinces of the strategist, the economist, and the clinician.

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